



The Linguistic Society of Korea

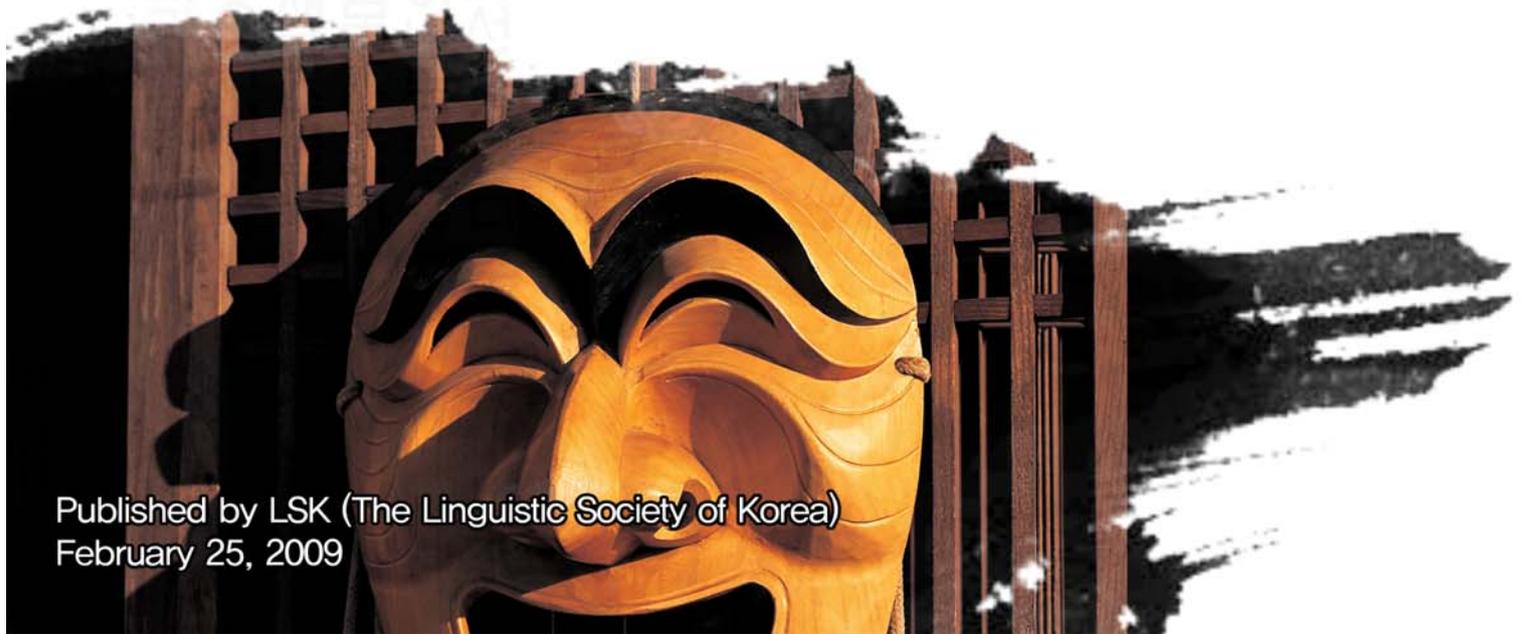


# Current Issues in Unity and Diversity of Languages

Collection of the papers selected from the CIL 18,  
Held at Korea University in Seoul,

on July 21~26, 2008

Vertical Korean text on the left side of the cover, including the title and event details.



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February 25, 2009

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# Brain Activity during Production of Synonym vs. Antonym: a Functional MRI Study

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## Abstract

Word retrieval is selecting a word from the mental lexicon, given a lexical concept to be expressed. The uses of functional magnetic resonance imaging (fMRI) to measure activity-related changes in the brain have provided various possibilities to resolve the question about word retrieval. In this study, we examined the neural correlates involved in processing synonym and antonym. The commonly activated areas across all conditions were middle frontal gyrus (BA9) and inferior occipital gyrus (BA18). Additional examination of cortical activation in middle frontal gyrus between synonym and antonym showed that processing synonym, even though the activated brain areas of synonym were found in the neighborhood of that of antonym, yielded slightly but exclusively different activations distinguished from processing antonym. The results may present an interesting and refreshingly new viewpoint in the question of word retrieval from mental lexicon.

**Keywords:** word retrieval, synonym, antonym, fMRI.

## 1. Introduction

It is commonly presumed that semantic relations between words – antonymy, synonymy, hyponymy and so on – are reflected in the organization of word storage in the brain (Katz, 1972; Kempson, 1977; Pustejovsky, 1995), but neural mechanisms of such organization, or of word storage in general, still remain to be elucidated. The question we address here is what is the neural substrates involved in processing the two different semantic relations, synonymy and antonymy. The reason we concentrated on these two specific relations is that synonymy is the most important semantic relation based on the fact that judging similarities is a prerequisite for representing meanings in

the mental lexicon and antonymy is the semantic relation which is parallel to synonymy (Miller & Fellbaum, 1991).

The definition of synonymy and antonymy used in our study should be explained first. Miller and Fellbaum (1991) provided a good definition of synonyms: “two expressions are synonymous if the substitution of one for the other never changes the truth value of a sentence in which the substitution is made.” A weakened version of this definition was also widely accepted: if two expressions are synonymous in a context, even though one substitutes the other, it does not change the truth value of the context. As for antonymy, a lexical circumstance bound with oppositeness is generally accepted (Murphy and Andrew, 1993). In fact, there are several kinds of antonym with different internal sense structures such as polar antonyms, equipollent antonyms, overlapping antonyms (Cruse, 1986). However, we will not go into details about the subtypes of antonyms because those distinctions will not be relevant to the issues discussed in our experiment. Some may argue that the all kinds of antonyms were mingled in our study. The aim of this experiment, however, is not about examining the neural substrates of various subdivisions of antonym but of the general process of retrieving antonymy regardless of its subtypes.

It has been suggested that both synonyms and antonyms can be generated based on different features as well as similar features. What matters is that the different features play a major role in antonyms whereas they function as a minor role in synonyms. Previous studies have examined the nature of synonymy and antonymy supporting the feature composition of semantic relations. For instance, Kadesh and his colleagues (1976) discovered that when subjects listened dichotically to pairs of words such as synonyms, antonyms, coordinates, and super-subordinates, all four conditions of semantic relations facilitated more accurate identification, as compared with unrelated control pairs and this effect was weakest in antonyms among four relations. In an attempt to explain the lowest level of facilitation in antonyms, the authors suggested that opposite features which were inherent in antonymy canceled out some of the benefits deriving from commonalities in semantic relations: subjects drew more attention to the opposing features rather than commonalities for the words and this oppositeness inhibited the recognition of dichotically presented words.

Hampton and Taylor (1985) also supported the feature composition of antonyms. In same-different categorization task, relatedness between words facilitated both same and different judgments equally in antonyms whereas facilitation effect was shown only in the same responses with nonantonyms. In discussing results, they supposed a word with two dimensions, substantiveness and evaluativeness. According to this, if one word

is antonym of the other word, they must have opposite features in both dimensions. For example, the antonym of brave is cowardly because semantic features of cowardly reverse both the substantive dimension of cautiousness and the positive evaluation of brave. Prudent cannot be an antonym of brave because only the features in substantive dimension are reversed while those in evaluation dimension stay same in positive evaluation. This finding suggested that the oppositeness of features in substantive and evaluative dimension matters most in identifying antonyms.

Previous neuroimaging studies have not been proliferated in the direct comparison of retrieving synonyms and antonyms. Synonymy and antonymy have been used, in most neuroimaging studies, as stimuli in various tasks: a generation or recognition in semantic memory (Nyberg et al., 2003, Martin et al., 2003, Roskies et al., 2001), bilingual functional-imaging study for word generation (Klein, et al., 1995), the effect of overt verbal fluency on the prefrontal cortex (Phelps, et al., 1997), and abstract and concrete word retrieval (Noppeney and Price, 2004). To the best of our knowledge, it is very hard to find a study in which generating or retrieving synonymy and antonymy is a main issue of study aims. Therefore, the aim of our study was to explore the neural correlates of processing synonymy and antonymy. We expected the different involvement of cognitive process for generating synonyms and antonyms would result in the distinguished neural substrates in human brain.

## **2. General Methods**

### *2.1. Subjects*

Twelve subjects (7 females, mean age 23, age range 21-30) participated in the experiment. All were right-handed, with Korean as their native language and no history of neurological disorders. Each gave informed consent to participate in the study was paid for his or her participation.

### *2.2. Materials and Procedure*

Synonym and antonym conditions consisted of various word sets: Synonym (SYN) [(i) English loanwords (ENG), i.e. a word directly taken into Korean from English with no translation (ii) sino-Korean (CHI), (iii) honorific words (HON)] and Antonym (ANT). Control task was reading nonwords (NW). Each set contained fifty

words and they were matched item by item across each of five lists on a range of psycholinguistic variables such as frequency (not in NW), length, and syllable number. For a control task, nonword condition (NW) was used to remove the effect of visual processing and reading with 50 nonwords.

Subjects underwent five runs of generation task. Each run consisted of an initial 30s baseline epoch of fixation on a central cross, followed by five 30s periods of activation epoch of SYN (ENG, CHI, HON), ANT, NW, alternating with five periods of fixation. Within the activation epoch, word stimulus was displayed at a rate of 3s, total 10 words in one epoch. As our task was intended to be a block-design study, the order of five activation epochs within a run was randomized. There were no repetitions of the same stimuli. Subjects were instructed to retrieve a word according to the displayed condition-indicator of ENG, CHI, HON, ANT, and NW. The indicator was presented beneath the first stimulus word of every activation epoch. In NW condition, subjects simply read displayed words. Immediately after completing the functional imaging portion of this study, subjects performed the same task as what they had done inside of the MRI scanner. They were told to write down exactly the same responses as they gave in scanner.

Visual stimuli were rear projected to a screen visible to subjects in the scanner using an LCD projector. A mirror was mounted to the head coil to allow subjects to view the screen.

### *2.3. fMRI imaging parameters*

A 1.5 T whole-body scanner (Avanto, Siemens, Erlangen, Germany) with echo planar imaging capability was used for image acquisition. The standard RF coil provided with the scanner was used. Based on a scout image of the midline sagittal plane, 28 slices were positioned parallel to the AC-PC line. T2\*-weighted functional images were acquired at the same slice locations using an interleaved EPI gradient echo sequence (TR: 3 sec; TE: 40 msec; flip angle: 90; field of view: 220mm; matrix size: 64 x 64; slice thickness: 5 mm separation). We acquired 192 sagittal T1-weighted slices for each subject (TR: 600; TE: 7.8ms; flip angle: 90degree; field of view: 220mm; matrix size: 256X256; slice thickness: 0.9mm separation).

### *2.4. Data analysis*

The data were analyzed with statistical parametric mapping (using SPM5

software from the Wellcome Department of Imaging Neuroscience, London; <http://www.fil.ion.ucl.ac.uk/spm>) implemented in Matlab (Mathworks Inc. Sherborn, MA). Scans from each subject were realigned using the fourth as a reference (the first three scans were removed to allow for the magnetization to reach dynamic equilibrium), spatially normalized. (Friston et al., 1995) into standard space (Talairach and Tournoux, 1988), resampled to 4 X 4 X 4 mm<sup>3</sup> voxels and spatially smoothed with a Gaussian kernel of 8mm FWHM.

Overall patterns of activations were obtained by a fixed-effect analysis on data pooled over all subjects. Statistical inferences on task and condition differences were then performed with a random effect model to render the results of the inference generalizable to the population. Condition-specific effects for each subject were estimated according to the general linear model (Friston et al., 1995) and passed to a second-level analysis as contrasts. This involved creating contrast images of [each condition (SYN, ANT, NW) > baseline] for each subject and a second level ANOVA, which modeled these effects of interest. Inferences were made at the second level to emulate a random effects analysis and enable inferences at the population level (Friston et al., 1999). At the second level, we tested for (i) SYN > NW and (ii) ANT>NW to examine if there were any activation areas specific to each condition. To reveal common effects at the voxel level across independent conditions and data sets, we performed conjunction analysis which was assessed as significant at a conjoint  $\alpha$  level of  $p < 0.05$ . This means that both contrasts were individually significant at thresholds with a joint probability of a Type I being less than 0.05.

### 3. Results

#### 3.1. Behavioral results

Behavioral results showed that subjects performed the task successfully above the 90% accuracy. The mean scores (% correct) and standard deviation are shown in Table 1.

Table 1. Mean accuracy of each task and its standard deviation(SD)

Condition	Accuracy	
	% Correct	SD
ENG	97.9	0.6
CHI	90.2	0.9
HON	90.5	1.4
ANT	96.4	0.8

## 3.2. *Imaging results*

### 3.2.1 *The Comparison of Synonym and Antonym*

Three steps of data analysis were performed in this study. In the first step, SYN and ANT conditions were compared with baseline condition (watching fixation). Table 2 showed the Talairach coordinates of the regions where showed significant activations for SYN and ANT. They were also displayed with functional activation images rendered on a canonical brain in Fig 1. These activations were yielded by the overall baseline contrast ( $P < 0.001$ , corrected). SYN and ANT commonly activated the middle occipital gyrus and the middle frontal gyrus in the left hemisphere. Some other spatial extent of activations in each condition was obtained in the right fusiform gyrus (BA20), and superior parietal lobe (BA7) in SYN whereas precuneus and inferior parietal lobe (BA7) was observed in ANT when they were compared with baseline condition.

In the second step, to identify areas participated in the process of retrieving synonym and antonym, direct comparison of SYN>NW and ANT>NW was executed. Each condition revealed several significant increases in regional activity and signal changes compared with NW task ( $p < 0.001$ , uncorrected). Coordinates of significant activation were shown in Table 2. Rendered brain image of the activations and plots of the % signal change of the local maxima were depicted in Fig.2. Every condition displayed greater signal increase than NW ( $t(18)= 6.84$ ,  $p=.02$  for SYN and  $t(18)=15.04$ ,  $p=.005$  for ANT).

In the third step, we defined an ROI (region of interest) in the areas where the two conditions exhibited significant signal increase in comparison to NW and scrutinized the distinct distribution of activated areas between each condition in Fig.3. Here, the compared conditions were color-coded in red and green indicating areas that were activated in SYN>NW and ANT>NW each. Within the left middle frontal gyrus, more anterior and lateral part was recruited in processing ANT (green area) compared to SYN condition (red area).

Table 2. Regions of significant activation for SYN and ANT.

	Side	Cortical area	BA	Talairach coordinate			Z-score	Cluster size
				x	y	z		
<i>Comparison with watching fixation</i>								
SYN	L	Middle occipital gyrus	19	-40	-74	0	5.15	269
	L	Middle frontal gyrus	9	-51	17	32	4.91	318
	L	Middle temporal gyrus	21	-53	-31	-14	4.89	285
	R	Fusiform gyrus	20	40	-40	-15	4.87	244
	L	Superior parietal lobule	7	-28	-63	55	4.4	129
ANT	L	Middle occipital gyrus	19	-40	-74	0	4.44	96
	L	Middle frontal gyrus	9	-40	13	29	3.7	70
	L	Middle temporal gyrus		-60	-46	-10	3.58	67
	L	Precuneus	7	-28	-60	40	3.53	15
	L	Inferior parietal lobule	40	-44	-37	42	3.37	13
<i>Comparison with NW</i>								
SYN	L	Middle frontal gyrus	46	-40	17	25	4.29	45
	L	Superior parietal lobule	7	-28	-64	44	3.77	14
ANT	L	Middle Frontal Gyrus	46	-51	25	25	4	10

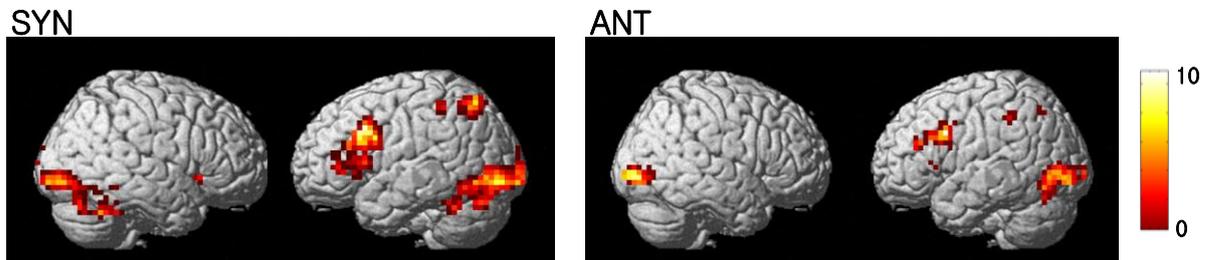


Figure 1. Cortical areas where the MR signal was significantly higher ( $p < .001$ , uncorrected) when SYN and ANT were compared with baseline task were displayed on a three-dimensional brain model template provided in SPM5.

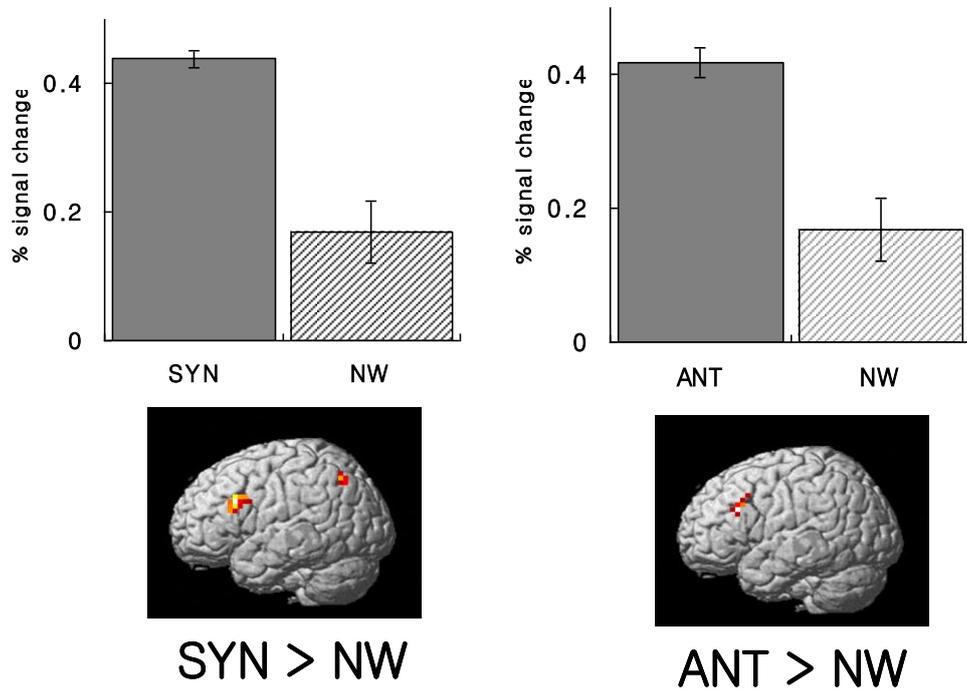


Figure 2. Top: Plot of the signal change at the local maxima of the activated areas – left middle frontal gyrus for SYN>NW (x,y,z: -40, 16, 28) and for ANT>NW (x,y,z: -52,24,28). Bottom: activations elicited by each condition when they were compared with NW conditions.

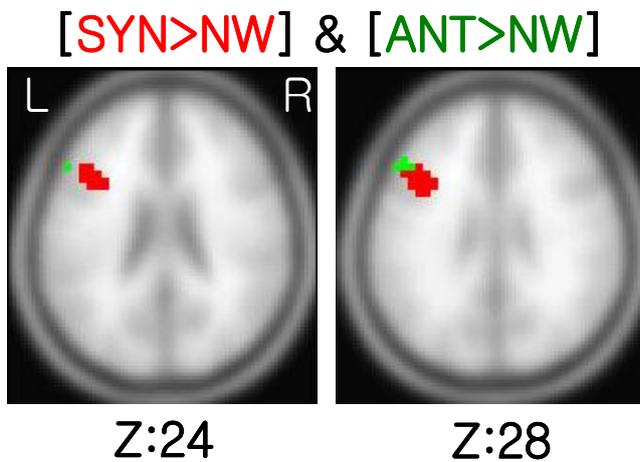


Figure 3. Within the commonly activated areas of left middle frontal gyrus from [SYN, ANT >NW], more activated regions to one specific contrast was color coded with red (synonyms) and green (antonyms). (p<.05, uncorrected)

#### **4. Discussion**

The current study intended to examine the neural systems involved in processing synonym and antonym. In brief, we demonstrated that generating synonyms and antonyms commonly activated left middle frontal gyrus, yet the exact locations of brain activity differed slightly for the two kinds of semantic word retrieval. We suggest that the common activations in the left middle frontal gyrus are involved in the mental processes of word search and selection that are shared in the SYN and ANT conditions, whereas the small and distinct activation unique to ANT condition underlies the additional component of antonym generation, namely, reversing the semantic meaning in one dimension.

The pattern of activation observed in the comparison between experimental conditions and baseline condition suggests that lexical searches are not likely to be subsumed in a single enclosed location and that several types of coding must be coordinated to perform the task. Nevertheless, nearly similar location in all of the conditions, making it likely that these areas have some computational process in common, was found in the left middle frontal gyrus. The left frontal lobe constructs strategies in accessing and searching in the storage of information, which is likely subserved by more posterior parts of the brain (Badre and Wagner, 2002). The prefrontal cortex is crucial in a number of cognitive tasks, most notably those involving executive functions and cognitive control (Lezak et al., 2004, Miller, 2000). In the previous language tasks, especially verbal fluency task selectively activated extensive regions of the prefrontal cortex, including the middle frontal gyrus (BA 6 and 9) for the process of semantic search and selection (Fiez et al, 1996; Gold and Buckner, 2002; Abrahams et al., 2003). Indefrey and Levelt reviewed imaging data that prove prefrontal gyri is specifically involved in process of word generation (Indefrey and Levelt, 2004). In our study, we provided evidence that ‘a general process of word generation’ operates across different semantic relation of synonym and antonym and is mediated by left middle frontal gyrus.

The detailed explanation of ‘the general process of word generation’ can be found in the theory of word production by Levelt and his colleagues (Levelt, 1989, 1992; Levelt et al., 1999). According to the theory, describing the processes underlying the transformation of a thought into speech, at least three types of word information are assumed to be represented: concepts, representing a word’s meaning, lemmas, representing a word’s syntactic properties, and word forms, incorporating a word’s morpho-phonological characteristics. In the current study, word generation process,

regardless of the type of semantic relation such as SYN or ANT, is mostly engaged in the early stages of Levelt's model: when paying attention to the semantic relation of the experimental condition, subjects were required to understand the concept of stimulus word, search the relevant knowledge from mental lexicon and select the most suitable target word. We suggest that the activation in the left middle frontal gyrus in our study was involved in the process of these executive functions.

The truly remarkable result in our study was that the two distinct but adjacent activations were evidently shown in the left middle frontal gyrus in generating synonyms and antonyms. In other words, even though the left middle frontal gyrus is commonly involved with word generation process in both conditions, partially specified regions were observed for each condition. The interpretation of this result can be found in the theoretical issue about the conceptual basis of synonym and antonym in lexical semantics. On the question regarding possible differences among different types of semantic relations such as synonyms and antonyms, there has been a good explanation in terms of feature composition (Fillenbaum & Rapoport, 1971). Synonyms are lexical items whose senses are similar in respect of 'central' semantic features. This does not always mean that every sense consisting of synonyms share almost identical features. They sometimes differ, but even so those features can be described as 'minor' or 'peripheral' ones (Cruse, 1986). The fact that synonyms have largely overlapping meanings can explain why two words sharing synonymous relation are easily confused with one another in recognition memory experiments and (Anisfeld, 1970; Buschke & Ronch, 1972; Goldfarb, Wirtz, & Anisfeld, 1973). In case of antonyms, as well as synonyms, they are likewise composed of similar features to one another conceptually. However, they have a critically different feature in one dimension and this opposing feature provides the core for constructing the semantic relation of antonym between two words (Kadesh et al., 1976). For example, compare the words, *big* and *small*. They, in fact, share almost identical meanings. The only, but not negligible value that brings differentiation between the two words is size dimension. Another example can be found in the relation of *fast* and *slow*. They are both features of motion but differ only in reference to plus-speed and minus-speed. *open/close* and *social/antisocial* are also good examples; the former is action verb indicating similar behavior with difference only in the direction they describe and the latter is used for describing the same dimension of personality but with opposite value (Murphy and Andrew, 1993).

In summary, both synonyms and antonyms can be generated based on different features as well as similar features, but it differs that the different features play major role in antonyms whereas minor role in synonyms. After all, the common activations in

the left middle frontal gyrus obtained from both SYN and ANT conditions are related to the mental processes of searching for and selecting the semantically related components to the stimulus word in the mental lexicon as mentioned earlier whereas the small, distinct activation was caused by the differential and critical process that reverses or opposes the semantic meaning in one dimension.

In conclusion, the present study suggests that generating synonyms and antonyms activates the left middle frontal gyrus which is involved in the common process of search and selection of a word in mental lexicon. However, adjacent but distinguished areas were independently activated between synonyms and antonyms within this area. This is well in line with the view that the organization of antonym and synonym consists of mostly similar components except for a few ones that are assigned as a major role for antonyms and minor role for synonyms. Therefore, processing the commonness between synonym and antonyms may be the main causes of frontal lobe activation whereas some features specific to antonyms may produce the small but different activation. Our results may appear difficult to explain other semantic relation of word sense such as homonymy and polysemy. Considered it to be great ability for human parser to deal with the ambiguity of natural language, the cognitive architecture of processing homonymy or polysemy should not go unheeded. Since our current experiments worked with the specific relation of synonyms and antonym, we hope that further research will extend the findings for elucidating neural mechanisms of semantic relations in general.

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# **Boundedness of Nouns and the Usage of English Articles**

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## **Abstract**

Using the framework of Cognitive Grammar by Langacker (1987, 1991a, 1991b, 2000), this paper deals with the flexible property of the boundary which is supposed to surround the periphery of English nouns. In particular, such boundedness property of English nouns in the right choice of an appropriate article is the primary concern of this study. In order to facilitate it, this paper proposes a new cognitive notion: Boundedness Filter (BF). BF, we suggest, is related with determining which type of boundaries and its corresponding article a given noun can be assigned in human being's brain. In the latter part of this paper, BF model is even applied to explaining the internal structure of English embedded clauses.

**Keywords:** Cognitive Grammar, Inactivated Boundary, Activated Boundary, Boundedness Filter, Embedded Clause

## **1. Introduction**

In the field of English as a Second Language (ESL) or English as a Foreign Language (EFL), it has been a hot issue among scholars whether grammar is a matter of (natural) acquisition or that of conscious learning. The problem is that things can be totally different between the two situations. The comprehensible input which Krashen (1985: 2) argued for could be possible under ESL situation where natural contexts and authentic materials are easily available: under the ESL situation, learners of English can have a lot of opportunities in which their grammatical errors could be naturally corrected by native speakers around them. But under EFL situation as in Korea, many English teachers feel that a certain amount of grammar education is needed in that the

kind of natural environment of ESL is actually hard to be realized. They think that a proper knowledge of English grammar by conscious learning may be helpful in shortening the learning time of each stage as well as increasing the moving speed to the next stage of learners' interlanguage (Felix, 1981; Ellis, 1989). That is one of the reasons why the form-focused instruction is gaining popularity again in recent English education in Korea. This paper, with those situations in mind, will account for the usage of English articles in special relation to the boundedness of English nouns because Korean learners of English normally feel it is among the most difficult areas of English grammar. This account will, we expect, provide a good solution to English grammar education in Korea, where a simple memorization of grammatical rules and patterns is more highly emphasized with no deep concern about the principles underlying them. Let us first consider the examples in (1).

- (1) a. This is *a school* which was founded by a former politician.
- b. This is *the school* which was founded by a former politician.
- c. My daughter is now at *school* studying English.

Many of the English grammar books published in Korea explain that nouns followed by modifying phrases or clauses must be preceded by the English definite article *the*. But in (1a) we see that the explanation crashes: though it is modified by a relative clause, the expression *a school* is used. What is interesting here is that the use of the definite article as in (1b) is also possible in many cases. For example, if the speaker gives information to the hearer in advance, the use of the indefinite article will sound more natural. The confusion of the English learners about the usage of the English articles becomes even worse where a noun which is normally classified as countable is used without any article, i.e. when it is used with the zero article as in (1c). Many of the English teachers in Korea faced with these seemingly disordered phenomena seem to have no choice but to ask their students to just memorize the expressions. They sometimes suggest a simple and narrowly adaptable rule: 'the English zero article is required when the noun is used for its original purpose.' Then, how can the use of the zero article in examples in (2) be explained?

- (2) a. He read the paragraph *word* by *word*.  
b. They marched along the street *shoulder* to *shoulder*.

The explanation given above for the zero article in (1c), the original purpose of the noun itself, is hard to apply to the examples (2a-b). On such deadlock occasions, many teachers tend to avoid their lack of explanatory power by saying that “They are idiomatic or fixed expressions, a reflection of culture onto language, so just memorize them.” We do not have any intention of criticizing or denying the method of memorizing idiomatic expressions in themselves. What we want to claim is that if proper rules or principles about the usage of the English articles can be captured and applied in EFL situations, the speed of learning in each stage level will greatly increase.

The purpose of this paper is, under the framework of Cognitive Grammar (CG) (Langacker 1987, 1991a, 1991b, 2000), first to analyze the meaning mechanism of the three types of the English articles, and secondly to show how they work with the concept ‘boundedness’ of English nouns. Our choice of CG as the theoretical basis of this paper relies on the fact that it will best visualize the cognition process occurring in our brain with such concepts as conceptualization, cognitive domain, symbol, image, schematic figure, semantic extension, etc. Another thing we would like to demonstrate at the end of this paper is that the boundedness of nouns related to the usage of the English articles could be extended beyond nominal expressions to the explanation of the internal meaning structure of English non-finite embedded clauses.

## **2. Boundedness and the English Indefinite Article**

Langacker (1991b: 63-74) defines a noun as having following properties.

- (3) a. A noun designates a region in some domain.  
b. A count noun designates a region that is bounded within the scope of predication in its primary domain.  
c. A mass noun designates a region that is not specifically bounded within the scope of predication in its primary domain.

Of our special interest is (3c), especially the phrase *not specifically*. He classified nouns not by the existence or non-existence of boundaries but by the characteristics or features of the boundaries. In (3a), he defines a noun as designating a region in some domain. It seems reasonable that a region which occupies a particular area in space should entail a boundary. How could a region exist without its defining boundary?

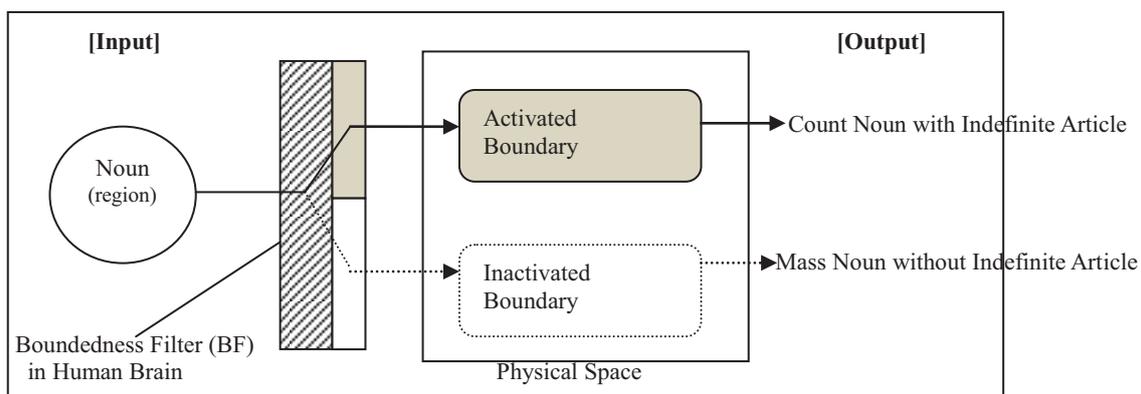
The difference between the two types of nouns in (3b-c) seems to be a question of whether the outward boundary of each noun is clearly visible or not. In (3b), the boundary is clearly visible, while it is not in (3c). This requires us to differentiate the two kinds of boundaries more precisely, and so we propose *Activated Boundary* for such a count noun as in (3b) and *Inactivated Boundary* for such a mass noun as in (3c).

Let's look at the following examples.

- (4) a. *Beer* can cause a beer belly.
- b. I will have *a beer*.
- (5) a. This house is made of *stone*.
- b. He threw *a stone* at me.

Examples in (4-5) show that the same noun is used both as a count and a mass noun. In (4a) and (5a), the boundaries for *beer* and *stone* are not visible since they have disappeared into the inner characteristics of the nouns, and thus the Inactivated Boundary is involved. In (4b) and (5b), on the other hand, the boundary is clearly visible outwardly, and so in this case the Activated Boundary is put into play. The indefinite article *a* is used here as a kind of marker for the Activated Boundary, visualizing the inner characteristic of a noun out to the physical world or space. What can be inferred from this observation is that English nouns are not granted the attribute of countness or massness intrinsically. They are given that property extrinsically depending on the given situation of speech acts. <Figure 1> illustrates the explanation thus far, where a new notion *Boundedness Filter (BF)* is introduced.

<Fig. 1> BF Model for the English Indefinite Article



Take (4b) for example. Let's assume somebody is asked what he is going to drink. The speaker *I* thinks in his mind of 'an entity of yellowish, frothy, and alcoholic liquor (the circle in <Figure 1>)' from his encyclopedic knowledge (Langacker 1987: 154-166). The emerging entity now goes through BF and is decoded about the activatedness of its boundary. The speaker wants a bottled or canned beer, not the liquid itself, that is to say, he through his BF wants the noun *beer* to be given Activated Boundary in physical space by the use of the indefinite article *a*. In (4a), on the other hand, the speaker, concerned only with the inner characteristic of the entity *beer* regardless of its outer shape, makes a possible boundary on the noun *beer* consciously inactivated to have the property of massness through his BF.

(5a-b) can be understood in the same way. The noun *stone* in (5a) has Inactivated Boundary while the noun *stone* in (5b) has Activated Boundary. Of course, all this process takes place through the BF which we claim to exist in the interlocutor's brain. To sum up, English nouns which are characterized by occupying a region can be allotted one of the two types of flexible boundaries only after going through human being's BF in the first place. It does not have its inherently fixed boundary from the beginning. Let us consider examples in (6) from Langacker (1991b: 73) to check our Activated or Inactivated Boundary applies.

- (6) a. After I ran over the cat with our car, there was *cat* all over the drive way.  
 b. I don't like *shelf* – I'd rather eat *table*.

In (6a), the cat which is scattered all over the drive way is no longer a thing cat but a material which has lost its boundedness as a common noun in physical space. In other words, the speaker through his BF renders the boundary of *cat* inactivated. In a personified dialogue situation between two termites of (6b), it's impossible for the termites to see the physical outside boundary of a shelf or a table which is much bigger than themselves. In addition, *shelf* and *table* recognized by them as food are considered to have lost their outer boundary through BF to be given the invisible Inactivated Boundary.

### 3. Psychological Boundedness and the English Definite Article

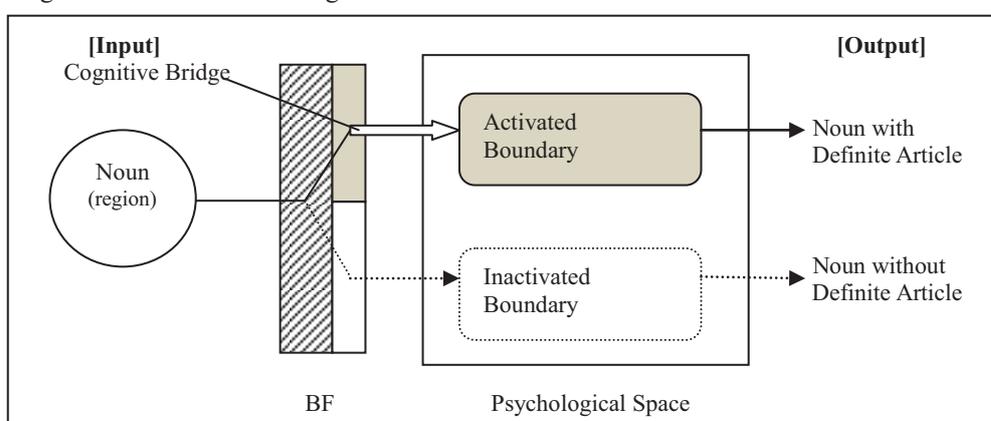
Lee (2007), with the introduction of a new notion of the 'Cognitive Bridge,' explained the predication of the English definite article *the* as follows:

- (7) The 'Cognitive Bridge' is constructed by the speaker and then is built on the hearer's cognition. Its first role is to be used as a cognitive setting in which *the* can be naturally used.

One important thing to point out about his article is that he failed to take into consideration the fact that *the* can be used not only for a count noun but also for a mass noun. But what he provided in (7) is a decisive clue that can be used to overcome the weakness of his paper. It is the concept Cognitive Bridge and especially its role as a cognitive setting. What is a cognitive setting and how can this be applied to BF Model of this paper? If we reconsider the flexible nominal boundary discussed in Section 2, we can see without great difficulty its cognitive setting is physical space. In the cognitive setting of physical space, only the boundary of a count noun can be activated while that of a mass noun cannot. Then how can the English definite article be used with a mass noun? It is because the two cases are happening in two different cognitive settings: the cognitive setting for the English definite article is not physical space but psychological space. The boundary in psychological space plays a role different from the boundary in physical space. As Lee implies in (7), it works on the cognitive setting shared between

the speaker and the hearer, i.e. the Cognitive Bridge, Therefore the role of the boundary in psychological space is to point out which entity is referred to by the two persons involved – regardless of whether it is a count noun or a mass noun. Although a mass noun cannot be activated with its boundary in physical space, it can be an entity for co-reference which is realized with the English definite article in psychological space. The basic schema of BF Model for the English indefinite article presented in <Figure 1> can also apply to the English definite article. See <Figure 2> below.

<Fig. 2> BF Model for the English Definite Article



Let us think about a certain noun (the circle in <Figure 2>). Whether it is a count noun or a mass noun, it is after all an entity which can occupy a region in psychological space. Now the noun goes through BF and has its boundary determined by being checked whether it can cross the Cognitive Bridge or not. If it can cross the Cognitive Bridge, the noun will be given the definite article, while if it cannot, the noun will not be given the definite article. Now we come to a very important finding here. BF, in determining what kind of boundary a given noun should have, can work sometimes with physical boundary and sometimes with psychological boundary. Depending on speech contexts, it can operate with various types of cognitive domains simultaneously.

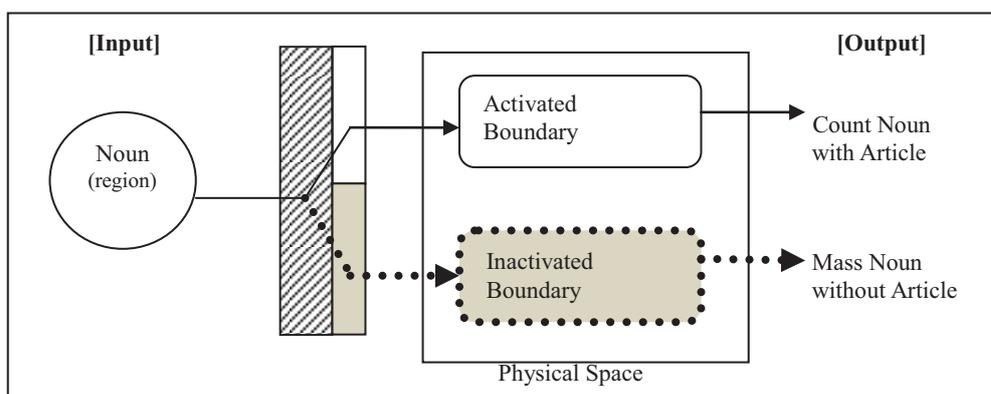
#### 4. BF and the English Zero Article

Below are the typical examples of the English zero article.

- (8) a. I usually go to *school* at 8 a.m.  
 b. We went there by *bus*.

Mere memorization of the usage of the zero article, as mentioned in Section 1, is never an active and productive process of learning. We now know, through Section 2, a noun is an entity occupying a region with a flexible boundary. Then why is it that the nouns *school* and *bus* in (8) are used without any article, even though they could be things with outward boundaries in physical space? We claim that it can be explained with <Figure 3> the BF Model for the English zero article.

<Fig. 3> BF Model for the English Zero Article



The boundary of singular nouns such as *school* and *bus* (the circle in <Figure 3>) in (8) is normally activated through BF and assigned one of two articles, indefinite or definite. But the fact that they are not given any articles indicates that they have gone through BF to be allotted Inactivated Boundary (see the heavy dotted line in <Figure 3>). What is the output on the right side? They come to take on the characteristics of a mass noun. The *school* in (8a) is not a school as a physical thing; neither is the *bus* in (8b). Their possible outer boundaries have become submerged into their inner features in order to just profile their abstract functional aspects: *school* for studying and *bus* for transportation. Therefore, we can understand the English zero article as the marker for the contextually intended Inactivated Boundary to highlight the inner characteristic or feature of a noun.

Now we can propose a solution to the question raised in the examples (1a-c). In the case of (1a), the input *school* is filtered through BF to be given Activated Boundary

but fails to cross the Cognitive Bridge, and so the output is *a school*. For (1b), the input *school* goes through BF to be given Activated Boundary and at the same time it successfully crosses the Cognitive Bridge, and so the output is *the school*. In the case of the zero article in (1c), it is the result of the speaker's deliberate inactivation of the noun's boundary for the purpose of profiling functional aspect of *school* for studying.

How can, then, the zero article in the example of (2a-b) be accounted for? Actually, we can feel the outer boundary in the two nouns *word* and *shoulder*. So it is not logical in this case to present the same reason as that used in the explanation of the nouns with the zero article in (8a-b). The thing that we should pay attention to is the use of the prepositions *by* and *to*. We believe they are playing the role of physically Activated Boundaries. So if we use the indefinite article as in *\*a word by a word* or *\*a shoulder to a shoulder*, we are faced with the problem of double boundaries. To avoid this result of unnecessary redundancy we do not use the indefinite article. But this should be differentiated from the cases in (8a-b), in which the boundary of a noun is deliberately inactivated.

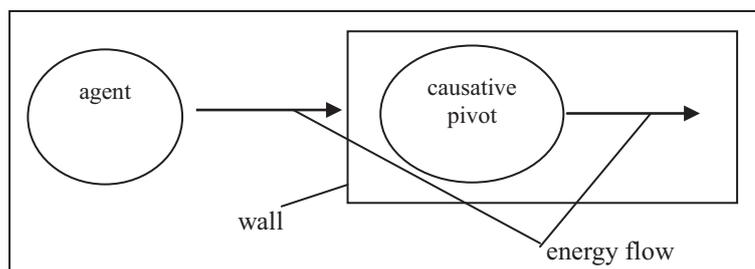
## 5. BF Model applied to English Non-finite Embedded Clauses

Kim (2006) claims that the three types of case markings (*-yi/-ka*, *-ul/-lul*, *-eykey*) of the causative pivot in Korean causative constructions reflect the difference of the causation energy from the agent or subject. He explains that the relative degree of the energy gets bigger from (9a) to (9c).

- (9) a. Sally-ka      ai-tul-iy      bakkeyse      nol-keyha-yess-ta.  
                  -NOM   child-PL-NOM   outside      play-CAUS-PAST-
- b. Sally-ka      ai-tul-eykey      bakkeyse      nol-keyha-yess-ta.  
    -DAT
- c. Sally-ka      ai-tul-lul      bakkeyse      nol-keyha-yess-ta.  
    -ACC

‘Sally made the children play outside.’

<Fig. 4> Energy Flow and Agentivity of the Causative Pivot

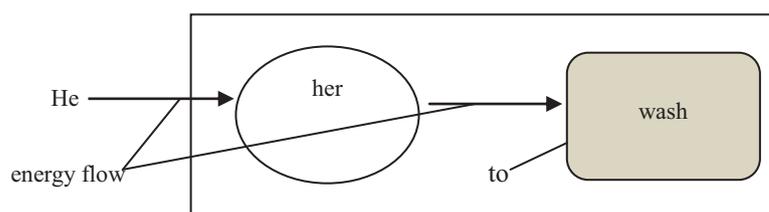


<Fig. 4> is a reorganized version of Kim (2006: 34-35)'s figures for the explanation of (9a-c). It shows the flow of energy from the agent to the causative pivot or secondary agent in the embedded clause. What especially concerns us in <Figure 4> is the existence of a wall surrounding the embedded clause. We would like to explain the difference among infinitives of the following examples in (10a-c) by applying the wall to English non-finite embedded clauses

- (10) a. He wanted → [her *to wash* the dishes].  
 b. He made → [her *wash* the dishes].  
 c. He saw → [her *wash* the dishes].

The arrow (→) in (10) indicates the influence the agent *He* has on the wall of the embedded clause. The existence of energy from the agent is evidenced by the accusative case of the embedded subject. Getting a hint from Kim (2006), we would like to explain our concern here, i.e. the meaning difference between *to*-infinitive in (10a) and bare-infinitive in (10b-c), which corresponds to the meaning difference of Korean causative constructions resulting from various case markings in (9a-c). We claim that this difference can be explained by the two types of boundaries we have proposed in this paper: Activated and Inactivated Boundary. Let us look at <Figure 5>, in which the wall in <Figure 4> is magnified.

<Fig. 5> Internal Structure of English Non-finite Embedded Clauses



The outer boundary surrounding *wash* in <Fig. 5> is indicative of *to* in (10a). This line looks very similar to the Activated Boundary of BF Model, especially the one used to show a count noun. As the indefinite article of a count noun is the evidence of the outward and individuated boundary of itself in physical space, so the *to* in <Figure 5> implies an individuated boundary of the verb *wash*. On account of this barrier-like *to* and its relative individuality, the energy from the agent *He* cannot fully reach the *wash*. In (10b), on the other hand, the non-existence/disappearance of the barrier-like *to* motivated by the causative verb *made* implies the possibility of much more energy flow from the primary agent to the embedded predicate *wash*. What does ‘the disappearance of the ‘*to*’ mean here? The disappearing *to* corresponds to the Inactivated Boundary of the zero article profiling the property of a mass noun, thereby increasing the agent’s power of looking over the two items – the secondary agent and the embedded predicate – at the same time. The perceptive verb *saw* in (10c) could be understood in the same manner. The agent *He* does not look at *her* and *wash* separately but it looks over the overlapped two images of *her* and *wash*, due to the disappearance of the barrier-like *to*. This is very much like the inactivation of a boundary in a mass noun.

## 6. Conclusion

Human beings have a tendency to group together within a boundary according as their particular needs require: culture, politics, ideology, social class, etc. The boundary which is supposed to be essential in this grouping process, however, does not seem to be permanent; it can fade away for the time being, but after a while can reinforce itself again.

With Langacker (1987, 1991a, 1991b, 2000)’s Cognitive Grammar (CG) being the theoretical basis, we have started from the supposition that such flexible property of the boundary may be reflected on human being’s language use. In particular, the boundedness of English nouns in relation to the right choice of a proper article has been the main concern of this paper. In order to facilitate this, we have proposed a new cognitive notion: Boundedness Filter (BF). BF, as a cognitive device in human being’s brain, decides whether a given noun is assigned the Activated Boundary or the

Inactivated Boundary. Depending on where the human being's cognition takes place – the physical or psychological space – the noun which has just gone through BF is appropriately given one of the three English articles. Our BF model could even be applied to explaining the internal structure of English embedded clauses of the causative and perceptive constructions in that the count/mass noun distinction could match well with the meaning difference between *to*-infinitives and bare infinitives. Finally, we expect our research to be meaningful in an ESL or EFL situation. This type of cognitive analysis will be of help to better understand the fundamental meaning mechanism of complex grammatical phenomena. And it will hopefully reduce the time needed at each stage of language learning.

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# **Cognitive perspectives of language switching: Factors of bilingualism and development**

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## **Abstract**

This study explores the use of inhibitory control during bilingual speech production. In particular, it investigates whether or not age of acquisition and proficiency of the second language affect whether or not bilinguals will rely on inhibitory control while speaking. English language learners of Spanish participated in a picture naming task in which they switched back and forth between their languages. The results suggest that proficiency, and not L2 age of acquisition, is a decisive factor which may determine whether inhibitory control or language-specific selection mechanisms underpin bilingual speech production. This supports a notion in which L2 proficiency leads to a shift away from inhibitory control. Theoretical implications and directions for future research are discussed.

**Keywords:** bilingualism, speech production, language selection, inhibitory control.

## **1. Introduction**

How is it that upon being presented with a picture of a couch, an English monolingual knows to say ‘sofa’ or ‘couch’ when both are perfectly acceptable labels for the object? This puzzling question regarding the competition between words in the mental lexicon is of central interest to cognitive psychologists and psycholinguists. These types of studies have traditionally focused on monolinguals; however, the last decade has shown interest in speech production and lexical processing within bilingualism. For monolinguals, it is rare that one concept can refer to two or more words (e.g., couch-sofa). Indeed, most concepts only have one word to describe them. However, when considering the bilingual case, most concepts will have two words

mapped on to them (i.e., due to translation equivalents). This, then, is a difficulty with which bilinguals are constantly faced: they must resolve competition that exists between the two possible candidates *and* select the correct language for production. Because bilinguals are able to accurately speak in only one language and switch back and forth between both languages automatically, there must be cognitive mechanisms that help the bilingual mind restrict the lexicalization procedure to only one language.

In this paper, I explore issues of language control among bilinguals. Specifically, I investigate whether or not certain factors of bilingualism (second language (L2) age of acquisition, and L2 proficiency) affect the underlying cognitive mechanisms of bilingual speech production. Green's (1986, 1998) Inhibitory Control Model (ICM) holds that the activation level of the non-relevant language is reduced at the lexical level by mechanisms of suppression. Recently, it has been suggested that these underlying mechanisms may be modulated by age of acquisition and/or proficiency in the L2 (Costa 2005, Costa & Santesteban 2004).

In the sections to follow, I first discuss the ICM and studies that have supported its claims. Next, I introduce the present study and the results of the experimental procedures. Finally, I discuss the theoretical implications of these results on models of bilingual speech production.

## **2. Inhibitory Control Model**

It may not be surprising that researchers have posited that while producing speech in one language, the non-target language is suppressed or inhibited in order to allow production of the former. Green (1986, 1998) has been the biggest advocate of inhibitory processes in lexical selection. In 1986, Green proposed the ICM, a framework that explained how bilinguals control both of their languages as to prevent massive lexical intrusions from the language-not-in-use. The basic assumption of this model is that when a bilingual wants to speak in one language only, it becomes selected and any further production of the nonrelevant language is inhibited. Figure 1 is an illustration of how the ICM explains bilingual speech production of a simple picture. In this example, an English-Spanish bilingual is told to name a picture of a chair in English. Upon seeing the picture, the semantic system sends activation to many lexical nodes of English and Spanish (the target, its translation equivalent and a cohort of related words). At the lexical level, each word contains a language tag and those belonging to Spanish become inhibited. The bilingual is now able to select the word "chair" based on its activation

level and language tag.

Green (1986) hypothesizes that words in both languages must contain particular language tags or certain labels that the speaker's IC system makes use of to ensure that the relevant output is in the target language. The use of language tags is a critical part of Green's model and also has been adopted by other researchers such as Costa, Miozzo, and Caramazza (1999).

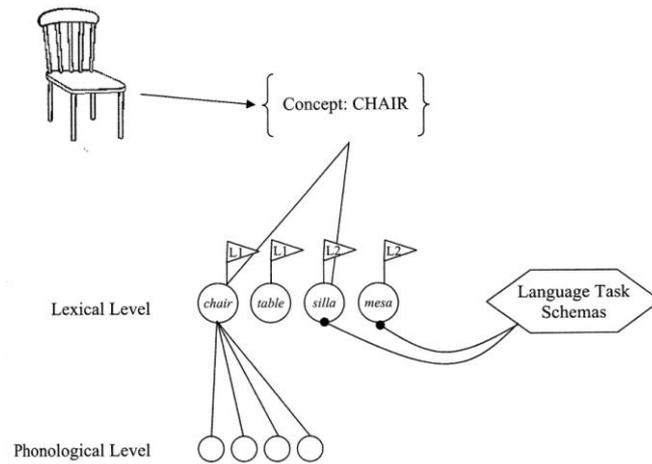


Figure 1. The Inhibitory Control Model (Green, 1986, 1998) (adapted from Finkbeiner, Gollan, & Caramazza, 2006).

The language switching paradigm has shown that bilinguals have more difficulty switching into their L1 than into their L2. This empirical finding has been said to support the ICM because more inhibition must be applied to a larger system (L1) when speaking in the L2 and therefore when a bilingual wants to switch back to the L1, it will require more time to reactivate that larger system from being suppressed than it would the L2 system. Such predictions have been supported in numeral naming tasks (Meuter 1994, Meuter & Allport 1999, Finkbeiner, Almeida, Janssen, & Caramazza 2006) and in picture naming tasks (Costa & Santesteban 2004). It must be noted, however, that although these findings have been reported in laboratory settings, mixed results in nature speech situations have been found (Grosjean 1988, 1997, Grosjean & Miller 1994, Li 1996, 1998).

In their seminal article, Meuter and Allport (1999) conducted a battery of switching experiments on "reasonably proficient" bilinguals who were presented with lists of numerals (1-9). The order of the numerals and length of the lists were randomized. Each list consisted of 5-14 numerals which were placed in either a blue or

yellow rectangle indicating that the participant was to name the numeral in his/her L1 or L2, respectively. Within each list of numerals, Meuter and Allport randomly included anywhere from 0-4 switches which could be either L1 or L2 switch trials. Their results suggest many things: 1) that switch trials are slower than nonswitch trials; 2) that nonswitch trials have faster RTs in L1; 3) that L2 switch trials have faster RTs than their L1 counterparts (which suggests that a switch to L1 is more difficult); and 4) that the RTs increase with each successive switch.

Meuter and Allport's study has provided the most influential support for the IC Model and its hypotheses have also been reported in Meuter (1994) and replicated in Costa and Santesteban (2004). The latter is one of the most important studies to date that puts both the two above theoretical frameworks within the same context. These researchers questioned if highly proficient bilinguals would act differently than low proficient bilinguals in terms of which cognitive mechanisms they would call upon during speech production. They hypothesized that IC would not be observed in lexical selection for highly proficient bilinguals but would be for those with lower proficiency in the L2. As in Meuter and Allport (1999), Costa and Santesteban operationalized IC by asymmetrical switching costs associated with L1-L2 and L2-L1 language switches.

To test the extent of the ICM in bilinguals of various proficiency levels, Costa and Santesteban conducted a series of five experiments similar to the design used in Meuter and Allport (1999). The results of their experiments suggested that inhibitory control is sensitive to L2 proficiency level and can be summed up as follows:

- (1).....Language switching costs are present in all types of bilingual speakers tested.
- (2).....Asymmetrical switching costs are present for L2 learners (those with lower proficiency levels) but not for highly proficient bilinguals.
- (3).....The switching performance of a highly proficient bilingual is independent of the difference in proficiency levels between the two languages involved in the task.
- (4).....In a language switching task, highly proficient bilinguals are slower in their dominant than in their non-dominant language both for switch and nonswitch trials.

Costa and Santesteban's (2004) study sheds new light on how psycholinguistics view bilingual speech production. Their study has posited that the control mechanisms that are called upon when bilinguals speak is relative to their L2 proficiency level. When bilinguals are less proficient in their L2, they will need to rely on inhibitory mechanisms for them to select the right word in the correct language. However, with gains in proficiency, bilinguals begin to make use of language-specific selection

mechanisms. Costa and Santesteban left open the possibility that this shift, however, could be affected by L2 age of acquisition.

### **3. Present Study**

The present study addresses the issue of whether proficiency or L2 age of acquisition is responsible for the lack of inhibitory control among highly proficient bilinguals reported in previous studies. It is hypothesized that how bilinguals select the target language of production and control intrusions from the irrelevant language will depend on their proficiency level. In accordance with Costa and Santesteban (2004), low proficient bilinguals will exhibit evidence of inhibitory control and highly proficient bilinguals will be able to rely upon language-specific selection mechanisms. Moreover, regardless of proficiency level, I predict that age of acquisition will modulate these mechanisms.

#### *3.1. Participants and experimental groups*

The subjects who participated in both experiments included 53 English native speakers who were learning Spanish as their second language. All participants were currently enrolled in at least one course conducted in the L2. These participants were recruited from a large university in the United States and ranged in age from 18-44.

Two separate statistical procedures were conducted in the present study. For the analysis of proficiency, the median proficiency score (110) determined two experimental groups of bilinguals: a high proficiency group (N=29) and a low proficiency group (N=24). For the analysis of L2 age of acquisition, the median age reported in the language history questionnaire (12) determined two experimental groups of bilinguals: early (N=28) and late (N=25).

#### *3.2. Estimating L2 age of acquisition*

A language history questionnaire was administered to gather information regarding the participants' experience with their second language. On this questionnaire, all participants listed the age at which they began learning their second language. The ranges of age of acquisition for all participants varied between < 1 and 40.

### *3.3. Measuring proficiency*

A proficiency measure was conducted to estimate L2 proficiency level based on spontaneously and rapidly generating as many words as possible related to a given semantic category in the less dominant language. A total of ten categories (e.g., animals, fruits, clothing, etc.) were taken from Gollan, Montoya, and Werner (2002) and were individually verbalized to each participant. Upon hearing the category, each participant was given 60 seconds to produce as many items within that category as s/he could. These responses were taped, transcribed, and checked for accuracy by the researcher. A total proficiency score was calculated by adding all responses from each of the ten semantic categories described above. Each word was only counted once and therefore, words that may have been repeated during the proficiency measure were not included in the participant's proficiency score. Essentially, this score represents the total number of words produced in the L2 for all ten semantic categories during a total of ten minutes.

### *3.4. Stimuli*

In accordance with Costa and Santesteban (2004), the present experiment includes ten black and white line drawings from the Snodgrass and Vanderwart (1980) picture list. The materials used for all participants were the same. As in Costa and Santesteban, all ten pictures used in the present experiment were presented individually on a computer screen and were classified as either a nonswitch trial or a switch trial. A nonswitch trial is defined as one in which the previous trial is named in the same language and a switch trial is one in which the previous trial is named in a different language.

### *3.5. Design*

A range of 5-14 pictures were randomly placed in 100 lists which contained anywhere from 0-4 switch trials. The total number of trials in the experiment was 950 (665 nonswitch trials (70%) and 285 switch trials (30%)). All of the pictures were individually presented in a colored box as a language cue: blue if the target was to be produced in English or yellow if the target was to be produced in Spanish. There was equal production of L1 and L2 (475 responses in L1 and 475 responses in L2 were elicited). Each of the pictures was presented 95 times during the experiment. For lists with 5-10 pictures in length, no pictures were duplicated. However, for lists of 11-14

pictures, the repeated pictures were placed at least three trials apart from their first presentation.

All ten pictures used in the current experiment can be found in the illustrated example of a list of 10 pictures in Figure 2. Note that due to space and color restrictions, the letters “E” and “S” appear in the trials only to represent that the pictures are to be named in English and Spanish, respectively. In the actual experiment, these language cues were in the form of a color cue as mentioned above. In Figure 2, picture (1) demonstrates to the participant that the first trial (2) will need to be named in English trial. Trials (4) and (8) represent switch trials and trial (12) demonstrates that the list has ended. Thus, this example includes a list of ten pictures with two language switches (one L1 and one L2).

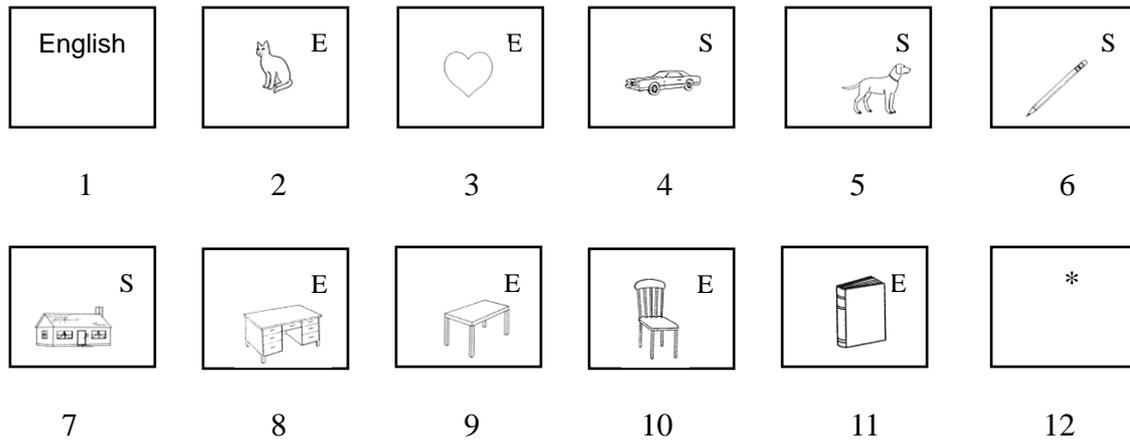


Figure 2. Experimental list example.

### 3.6. Procedure

There were six practice lists of pictures followed by 100 identically-structured experimental lists. Each list first presented either the word “English” inside a blue box or “Spanish” inside a yellow box for 2000 ms in the center of the computer screen to establish a common fixation point for all pictures. This allowed participants to be able to focus on the position and only name pictures throughout the experiment without having to look in other places of the screen for the target. The words “English” and “Spanish” also served to reinforce the association between color and language of production (i.e., blue represented English and yellow indicated Spanish). In any given

list, the first picture was presented in the same box as the fixation box. This picture remained on the screen for 2000 ms or until the participant responded. The next picture (either a switch or nonswitch trial) was shown and the cycle was repeated until the end of the list, at which time an asterisk (\*) was presented for 1000 ms to show that the list had finished and that another one would begin in 1000 ms.

### 3.7. Data analyses

Only correct responses were included in the reaction time analyses; correct and incorrect responses were both included in the accuracy analyses. Accuracy was coded by the researcher as either correct (if the participant correctly named the target) or incorrect (if the participant incorrectly named the target or if there was a technical malfunction). Two ANOVAs were conducted to investigate the effects of L2 age of acquisition and L2 proficiency on inhibitory control.

## 4. Effects of L2 Age of Acquisition

Mean scores across the four contexts were computed for each participant. An ANOVA was conducted using participant means as random factors with age of acquisition (early or late) as the between-group factor and response language (L1 or L2) and trial type (nonswitch or switch) as within-group factors.

The descriptive statistics for reaction time, accuracy, and the switching costs associated for L1 and L2 switches for the two groups tested appear in Table 1.

Table 1

*Error Rate (in %) and Reaction Time (RT) and Switching costs (in ms) for Early and Late Age of Acquisition*

	<u>Early Age of Acquisition</u>				<u>Late Age of Acquisition</u>			
	<u>L1</u>		<u>L2</u>		<u>L1</u>		<u>L2</u>	
	RT	Acc	RT	Acc	RT	Acc	RT	Acc
Switch	1013	94.4	931	96.8	957	94.1	887	96.4
Nonswitch	935	96.3	877	98.0	882	96.4	832	97.8
Switching cost	78		54		75		55	

#### 4.1. Response latencies

At first glance, the data shown in Table 1 demonstrate similar switching costs associated for those with early and late age of acquisition. In fact, the ANOVA revealed a main effect for response language,  $F(1, 52) = 39.62$ ,  $MSE = 230507.76$ ,  $p < .0001$ . This suggests that it took more time for participants to name pictures in the L1 than in the L2 (947 ms and 881 ms, respectively). In this analysis, as in the previous ones, picture naming was faster in the L2 (in accordance with previous findings). There was also a main effect reported for trial type,  $F(1, 52) = 88.37$ ,  $MSE = 232257.03$ ,  $p < .0001$ . This indicates that participants were slower at naming pictures in switch trials (947 ms) than in nonswitch trials (881 ms).

There was one interaction from these analyses that is essential to discuss. As expected, there was a significant interaction for response language and trial type,  $F(1, 52) = 6.20$ ,  $MSE = 6181.59$ ,  $p < .05$ . This interaction is important because it indicates that the magnitude of the switching costs is different for L1 and L2 switches. It is very important to note that this interaction, however, was not dependent upon whether the participants were exposed to their less dominant language early or late in life. Thus, unlike the results from the proficiency analyses, the three-way interaction for response language, trial type, and age of acquisition was not significant,  $F(1, 52) = .09$ ,  $MSE = 89.32$ ,  $p = .77$ . In other words, bilinguals, regardless of the age at which they began learning their L2, suffer similar asymmetrical switching costs and thus utilize IC to help them select the target word for production.

#### 4.2. Error analyses

In the analysis of accuracy, there were two main effects. First, there was a reported main effect for response language,  $F(1, 52) = 25.68$ ,  $MSE = .019$ ,  $p < .0001$ . This suggests that participants were more accurate naming pictures in a particular language. Mean error percents showed that naming in L1 (95.3%) was less accurate than in L2 (97.2%). Second, there was an observed main effect for trial type,  $F(1, 52) = 39.99$ ,  $MSE = .015$ ,  $p < .0001$ . This finding indicates that participants were more accurate in nonswitch trials (97.1%) than in switch trials (95.4%). The ANOVA revealed no significant interactions.

### 5. Effects of L2 Proficiency

Mean scores across the four contexts were computed for each participant. An ANOVA was conducted using participant means as random factors with proficiency (low or high) as the between-group factor and response language (English or Spanish) and trial type (nonswitch or switch) as within-group factors.

The descriptive statistics for reaction time, accuracy, and switching costs associated for switching between languages for the two proficiency groups tested appear in Table 2.

Table 2

*Error Rate (in %) and Reaction Time (RT) and Switching costs (in ms) for Low and High Proficiency*

	<u>Low Proficiency</u>				<u>High Proficiency</u>			
	<u>L1</u>		<u>L2</u>		<u>L1</u>		<u>L2</u>	
	RT	Acc	RT	Acc	RT	Acc	RT	Acc
Switch	1006	93.9	917	96.9	974	94.7	908	96.3
Nonswitch	913	96.6	867	98.3	913	96.1	849	97.5
Switching cost	93		50		61		59	

### 5.1. Response latencies

Table 2 shows that the magnitude of the switching costs for both languages is similar for the high proficiency group (L1: 61 ms; L2: 59 ms) but the opposite is observed for those with lower proficiency (L1: 93 ms; L2: 50 ms). In other words, low proficient bilinguals need more time to switch into their more dominant language.

The ANOVA revealed a main effect for response language,  $F(1, 52) = 39.62$ ,  $MSE = 230507.76$ ,  $p < .0001$ . This suggests that naming pictures in one particular language was slower than the other (L1: 947 ms; L2: 881 ms). In this analysis, as in the previous ones reported in this dissertation, picture naming was faster in the L2 (in accordance with previous findings). There was also a main effect reported for trial type,  $F(1, 52) = 88.37$ ,  $MSE = 232257.03$ ,  $p < .0001$ . This indicates that participants were slower at naming pictures on switch trials (947 ms) than on nonswitch trials (881 ms).

Logically, there were two interactions that are important to the response latencies analyses. First of all, there was a significant interaction for response language and trial

type,  $F(1, 52) = 6.20$ ,  $MSE = 6181.59$ ,  $p = .016$ . This interaction is important because it suggests that the magnitude of the switching costs is different for L1 and L2 switches.

A very important three-way interaction emerged from the speech production of low and high proficiency groups for response language, trial type, and proficiency,  $F(1, 52) = 5.29$ ,  $MSE = 5271.24$ ,  $p = .025$ . Unlike the analyses for bilingual type that suggested that the overall data were similar for all bilinguals, this three-way interaction indicates that not only are there asymmetrical switching costs for L1 and L2 switch trials, but that the magnitude of the switching costs are dependent upon the participants' L2 proficiency. As shown in Table 2, the difference between L1 and L2 switch trials was 43 ms for those with low proficiency and was only 2 ms for those with high proficiency. Figure 3 illustrates that participants with low proficiency take more of a "hit" when switching to their more dominant language than those with high proficiency.

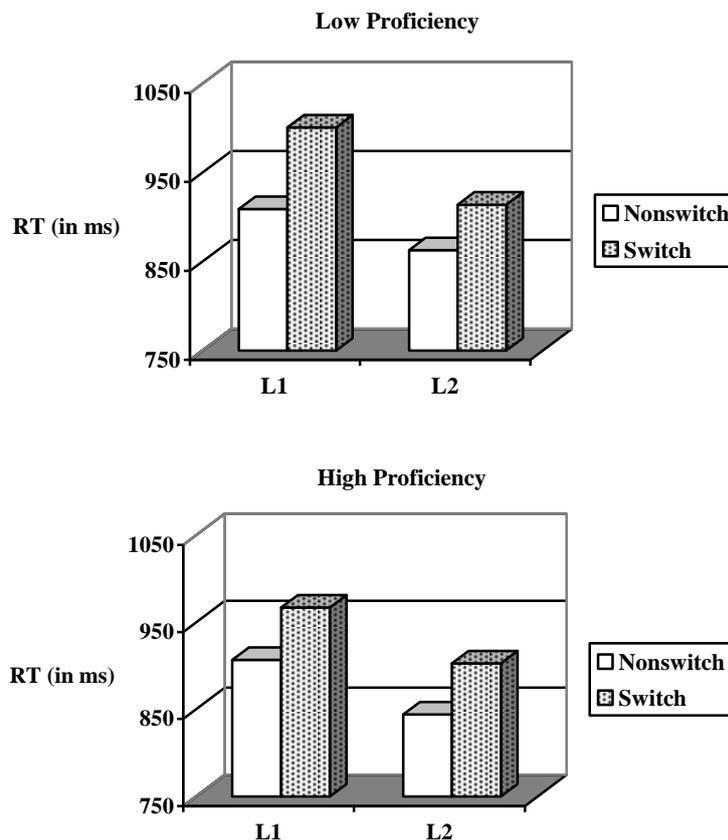


Figure 3. Differences in switching costs by proficiency.

## 5.2. Error analyses

In the analysis of accuracy, there were two main effects. First, there was a reported main effect for response language,  $F(1, 52) = 25.68$ ,  $MSE = .019$ ,  $p < .0001$ . This suggests that participants were more accurate naming pictures in a particular language. Mean error percents showed that overall picture naming in L1 (95.3%) was less accurate than in L2 (97.2%). Second, there was an observed main effect for trial type,  $F(1, 52) = 39.99$ ,  $MSE = .015$ ,  $p < .0001$ . This finding indicates that participants were most accurate in nonswitch trials. Indeed, mean error percents showed that naming pictures at nonswitch trials (97.1%) led to fewer errors than at switch trials (95.4%)

## 6. Discussion

The statistical analyses conducted revealed several interesting results. Recall that Costa and Santesteban (2004) have suggested that during development in a second language, bilinguals move away from using IC in their speech production. They attributed this to either L2 proficiency or the age at which the L2 was acquired. The present study investigated whether or not these two factors affected the reliance on inhibitory control in the speech production of bilinguals. The L2 age of acquisition analyses revealed no significant effects on inhibitory control. This is to say that overall, participants with early and late ages of acquisition performed similarly. The proficiency analyses in the present study, however, painted a very different picture. Indeed, bilinguals with low proficiency in their less dominant language need to inhibit one language for production of the other. However, as also revealed in Costa and Santesteban (2004), the high proficiency group in the current study did not show evidence supporting the claims put forth by the IC Model. Overall, the analyses that explored the effects of L2 proficiency on inhibitory control have supported Costa and Santesteban's claim that with increases in proficiency in the L2, there is a shift away from inhibitory control to reliance on language-specific selection mechanisms.

The results of the present study align well with Schwieter and Sunderman's (submitted) Selection by Proficiency (SbP) Model. As can be seen in Figure 4, this model of bilingual speech production entertains the notion that inhibitory control is modulated by L2 proficiency. According to these researchers, in this model, bilinguals move along a proficiency continuum in a bi-directional manner. Figure 4 illustrates that with second language use and practice—which in turn leads to increased proficiency—bilinguals acquire the ability to achieve language selectivity and therefore, can rely on language-specific selection mechanisms at the conceptual level. Until they can achieve

this, they will be forced to rely on inhibitory control to suppress any non-target language words that may be activated at the lexical level.

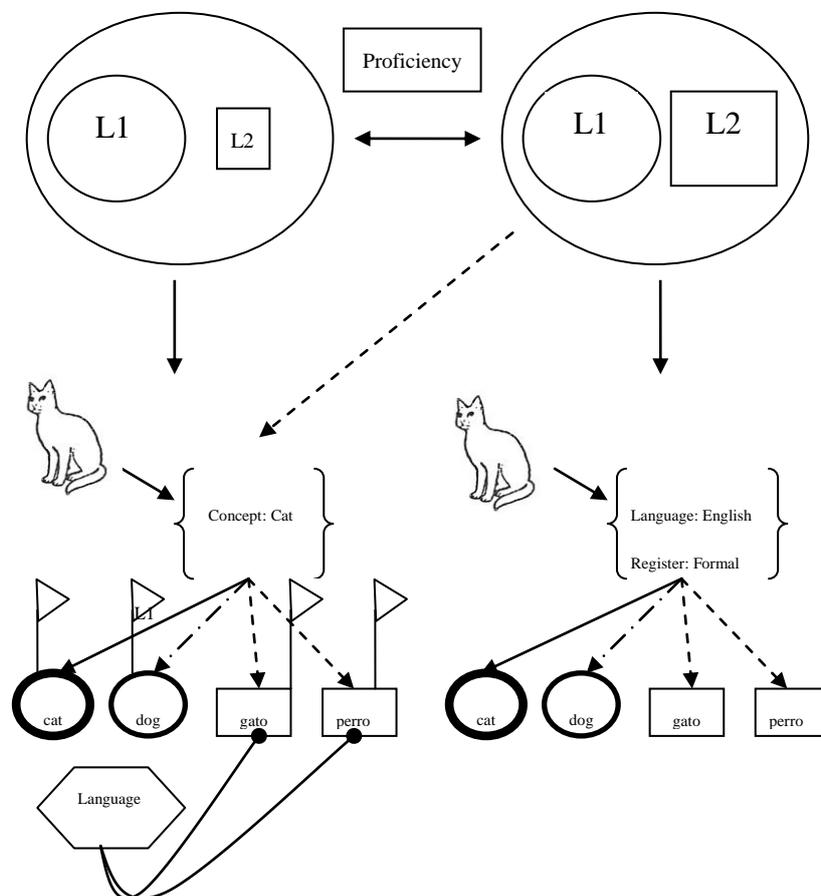


Figure 4. The Selection by Proficiency Model (Schwieter & Sunderman, 2008; submitted)

Schwieter and Sunderman's (submitted) SbP Model is a visualization of lexicalization in bilingual speech production for a less proficient and more proficient bilingual. The model suggests that when a less proficient bilingual is asked to name a picture of cat in his second language, several lexical candidates in both languages receive activation. The words in the non-target language become suppressed so that it is easy for the bilingual to decide which word in the target language matches the target concept. The SbP Model argues that this procedure is very distinct for a highly proficient bilingual. The latter has acquired a skill that allows him/her to specify the target language from the beginning stages of speech production. When a highly proficient English-Spanish bilingual is asked to name a picture of a cat in Spanish, several lexical candidates in both languages receive activation from a preverbal message

which contains vital higher linguistic information about speech production including but not limited to: 1) the target language; 2) the linguistic register; and 3) the concept to be lexicalized. These cues work together to ensure that the target lexical item has a higher activation level than its competitors. Under this assumption, there is no need for inhibitory control.

## **7. Conclusion**

The present study examined the extent of inhibitory control during bilingual speech production. In particular, it explored the effects that certain factors of bilingualism (L2 age of acquisition and proficiency) have on determining whether or not these control mechanisms will be relied on (versus reliance on language-specific selection mechanisms). The statistical procedures revealed no effect for age of acquisition. This suggests that learning a second language early or late in life does not appear to impact the control mechanisms that are required to restrict the lexicalization procedure to one language during bilingual speech production. This was not the same, however, when analyses were conducted to explore the effects of proficiency. The results of these analyses revealed striking patterns which were in accordance with Costa and Santesteban's (2004) hypothesis: it was suggested that reliance on inhibitory control is essentially a continuum on which bilinguals move from processes involving inhibitory control to rely on language-specific selection mechanisms. Essentially, then, this suggests that with increases in L2 proficiency, bilinguals may acquire a skill that allows them to establish the language of production and resolve competition at the conceptual level. Until this skill has been acquired, (i.e., at low proficiencies) the language of production is established at the lexical level where competition between languages is also resolved.

The results of the present study articulate the marked differences in the cognitive mechanisms that underpin bilingual speech production as explained by the SbP Model. Future studies need to address what particular elements of proficiency (i.e., lexical robustness, ability to conceptualize in the L2, etc.) lead to the reliance on language-specific selection mechanisms and avoid having to suppress the irrelevant language. Future studies also need to address the possibility that is demonstrated in the SbP Model: highly proficient bilinguals may revert back to inhibitory control. If this is the case, what contexts or factors dictate such a regression?

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# On the Temporality of Human Language

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## Abstract

The present study attempts to argue for another unique trait of human language and cognition, that is temporality, in addition to those generally alleged ones such as recursion, infinity, discreteness, and dislocation. The operation of Merge developed in Chomsky's (2000,2004) Minimalist Program for of all biological systems including the Faculty of Language and cognition in general can be further captured in terms of the temporality. The Merge employed in the mental world including human language and cognition is different from the merge in the physical world in that the former is a temporal one while the latter is a spatial one. What holds linguistic constructs as well as other cognitive constructs together are relations temporally sequenced as seen in the visual persistence in motion picture perception. The study also finds that for a given linguistic expression the logical thinking order may be reversed to the temporality of the utterances.

**Keywords:** Temporality, Physical Merge, Mental Merge, Spatial Relation, Temporal Relation .

## 1. Introduction

Recursion, infinity, dislocation, discreteness, and morphological inflection are the unique properties of human language. Of all the properties, recursion has been theoretically and empirically claimed or proven to be the most essential one in human language, distinguishing the cognitive difference between humans and other animals (Fitch & Hauser, 2004). However, in addition to this recursive property, there is another essential property of human language that has been overlooked. i.e. temporality of human cognition and language. In Chomsky (2000, 2004, 2006), Merge was claimed to be a property shared among biological systems and the “last straw” in the course of evolution from non-language to language as the result of mutation. The present study



atoms and the electrons are all physical entities, but the relations of gravity and magnetism are not entities on their own but a relation between two entities on two spaces at the same point of time. At a cross road, a passing train at 5:30 cannot form a clashing relation with a passing car at 5:31. Relations in physical world are epi-phenomenon and only real in the sense that the two objects involved are available in two different spaces but at the same point of time.

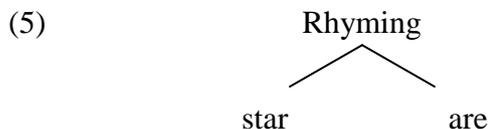
### 3. Mental Merge

Now, let us see what merge is like in the mental world. We may first recall the familiar cognitive activity of rhyming as we feel between *star* and *are* in “twinkle, twinkle, little star; how I wonder what you are”. When we line them up in a time axis, we may have the representation in (4), where  $T_x$  stands for different point of time:

(4) twinkle twinkle little *star* how I wonder what you *are*

$T_1$  ..... $T_2$ ..... $T_3$ .....  $T_4$ ... $T_5$ ....  $T_6$ --  $T_7$ .....  $T_8$ --- $T_9$ .... $T_{10}$ ...

Given the acoustic (neurological) property of words in human language, in this representation there are ten acoustic events, each having an onset time and an ending point, temporally allocated along the time axis. The mental consciousness of rhyming takes place between the vowel in the acoustic event of *star* and the vowel of the acoustic event of *are*, and the consciousness is one of a temporal (rather than spatial) relation between two sequenced physical events, for which we cannot find anything as real as anything on this time axis. Suppose we are to develop a merging rule for the rhyming between *star* and *are*, it may look like the following:



In (5), the occurrence of *star* temporally proceeds the occurrence of *are*. The neurological event for *start* was already completed at the onset time of the acoustic (neurological) event of *are*. The consciousness of rhyming is about the vowel identify of [ā], and it takes place up to the point when *are* is perceived. This mental merge as shown in rhyming is substantially different from the physical merge in (2), the former being temporal (or diachronic) whereas the latter spatial (or synchronic). But they both hold a relation: temporal relation for tem-

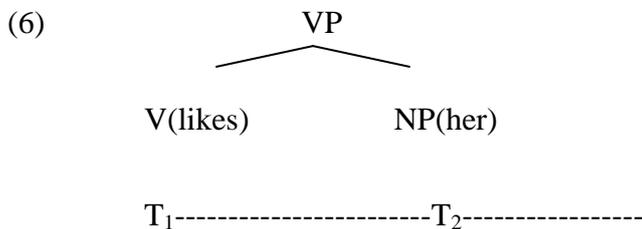
poral merge; spatial relation for spatial merge. The rhyming described above is reminiscent of our senses of motion in visual persistence.

Motion is not real by itself, but only real at the time when we conceptualize the relations among two visual images in a sequence of 26 real static pictures per a second. Motion is just a relation holding between two temporal adjacent visual images in a temporal sequence.

In summary, mental merge is like physical merge in that in both cases the two elements involved in one instance of merge contain a relation between the merged elements but unlike physical merge in that it combines two temporally discrete physical entities or events (or entities in action) whereas physical merge combines two spatially discrete objects.

#### 4. Syntactic Merge

As a formal representation, the syntactic merge Chomsky proposed for human language is no different from the general merge in (1). What a syntactic merge does is the merging of two lexical items instead of two physical objects.

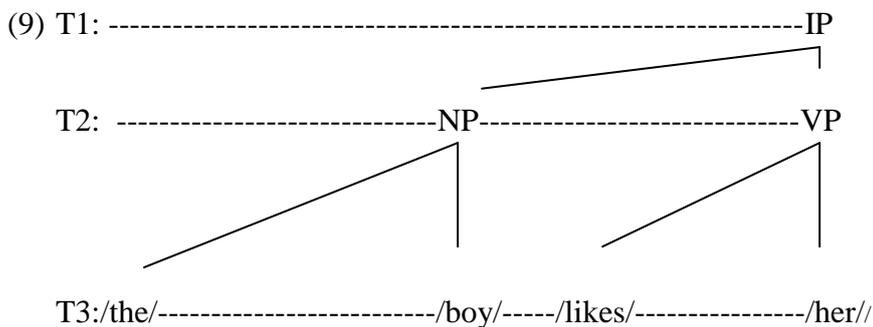


The elements involved in this syntactic merge are two sets of features: *likes* represents the set of features including *likes*; V; Singular, Present-Tense; two-place Predicate; lexical meaning....}; *her* represents the set of features including *her*; accusative Case; N; argument, lexical meaning...}. At the physical (acoustic and neurological) level, we perceive two acoustic events: /laiks/ during the time span from its onset to its end, and *her* during the time span from its onset to its end, including the acoustic marker for singularity and present-tense, the morphological verb category on the verb /laiks/ and the acoustic shape for accusative case, the pronominal category on the pronoun *her*. These acoustic or neurological events are physical by nature, just like the two physical entities in (1) and the two vowel sounds in (2). The rest including what the label VP stands for and the lexical meanings are all artifacts perceived by the Faculty of Language. They are nothing but relations: the relation between *likes* and *her*, which is

expressed as argument-grid in linguistic terms just like the electro-magnetism relation between H and O is expressed at the level of molecule as the HO in physics, and the perception of vowel identity between *star* and *are* as rhyming in phonetics. Thus, language is a kind of feeling, and meaning is the feeling of a relation between two neurological events. Then the question is where and when we encounter the VP in (6)? There are two logical possibilities: one is to align two time axes as shown in (7), and the other is to allocate everything along just one time axis as shown in (8):

- (7) T1: -----VP  
 T2: likes-----her
- (8) likes -----her-----VP

(7) might mean that one neural population is working along time axis T2 processing the sounds of likes and her in sequence and another neural population is working along time axis T2 until it conceptualizes a VP as the result of the merging of *likes* and *her* at T1. This is the familiar parallel processing. Thus, there will be as many time axes and corresponding working neural populations as the number of merging as exemplified in (9):



As a possible neural realization of this formal representation, we expect that there are three neural populations working at three different time axes. When *boy* is uttered after *the* at T3, an NP is formed at T2, and when *her* is uttered after *likes* at T3, VP is formed at T2 following NP, and at the same time at T3, the sentence (IP) is formed.

When (9) is arranged on just one time axis, we have (10):

- (10) [[[The boy] NP [likes her ] VP ] IP
- | | | | | | |
- T<sub>1</sub>-----T<sub>2</sub>-----T<sub>3</sub>-----T<sub>4</sub>-----T<sub>5</sub>-----6-----T<sub>7</sub>

Notice that there is a time interval for the syntactic constructs NP, VP and IP, and these syntactic constructs do play an indispensable role in processing the sentence, and must be attributable to the working mechanism of the human brain.

This process is very much like the visual persistence of the motion perceived in a sequence of static pictures:

(11)            motion1   motion2   motion3   motion4



Again, we see the NP in (9) is the merging result containing two temporal acoustic events and a relation holding between them just as motion1 is the result of the temporal merging of Pic1 and Pic2 with a relation holding between them. NP, VP, motions are not real by themselves.

The relation holding an atom and an electron is called electron-magnetism in physics, the relation holding the sun and the earth together is called gravity, and the relation holding *the* and *boy* to maintain an NP structure is called Spec-head relation in English, the relation holding *likes* and *her* together and that holding NP and VP is called theta-grid.

There are generally two types of relations in language: substantive relation and formal relation, and they are not real by themselves and temporal and binary by nature, i.e. a relation holding between two physical events on one time axis. The temporal relations in (10) belong to the first category. The agreement features of [Singular, 3<sup>rd</sup> Person] on *John* and those on *likes* in (11) is an example of the category of formal relations in language:

(12)    John<sub>[Singular, 3rd Peron]</sub> likes<sub>[Singular, 3rd Person]</sub> her.  
           T<sub>1</sub>-----T<sub>2</sub>-----T<sub>3</sub>----

The perception of the agreement features on *John* temporally precedes the perception of those on *likes*. Like we feel a motion between Pic 1 to Pic 2 in visual perception, and we feel the rhyming between two vowels, and we feel a semantic relation between *likes* and *her*, we feel an agreement relation between *John* and *likes*.

What about lexical meaning? Generally speaking, there are two different approaches to meanings. One is the externalistic approach represented in Fregean Semantics, which defines the meaning of a word in terms of a public reference to the object external to the human mind/brain. The other is the internalistic approach represented in Chomsky, which claims meaning is inside the head of an individual. But as for how meaning is individualized and internalized in one's head has not been scrutinized in Chomsky.

For a possible answer to this question, we refer to Edelman's (1999:20-27,46) theory of vision. In Edelman (1999), the object in vision is set of features or

predicates, which means we identify an object by evaluating the set of its attributes or predicates, following what Watanabe called the Theorem of Ugly Duckling. We may assume that there are no arguments (nouns) free from predicates (verbs and adjectives), and there are no predicates free from arguments. The relations holding between arguments and predicates together are temporal and binary as in other cognitive domains such as the visual perception of picture motions and rhyming, and can be formally expressed in terms of “mutual inclusion” as suggested in Ning (2002-a, 2002-b) as stated in the following:

- (13)  $\alpha$  and  $\beta$  can merge iff  $\alpha$  is a member of set  $\beta$  and  $\beta$  is a member of set  $\alpha$ .

The intuitive idea of this formula is that (a) an argument lexical item like *dog* is a set of properties that can be expressed in predicate verbs or adjectives such as *run*, *bite*, *hairy*, *black*, etc. , and *run* is a property shared by a set of minimal expressions such as *dog*, *tiger*, *John*, etc.. Given that *dog* is a member of the set RUN {*dog*, *tiger*, *John*,.....} and *run* is a member of the set DOG {*run*, *bite*, *hairy*, *black*,...}, there is a mutual inclusion relation holding between them, and they can merge together. This simply means that *dog* is not a word until *run*, *bite*, *hairy*, *black* are available as its correlates and *run* is not a word until *dog*, *tiger*, *John* are available to associate with it. Lexical items do not exist in isolation but in certain relation with others. Relations are not as real as its correlates and are perceivable like the motion between two static pictures presented along the same time axis and the rhyming between two acoustic events along the same time course.

The meanings (substantial and grammatical) in language are diachronic relations. In doing so, we not only capture the difference between biological systems and non-biological systems but also suggest a clue for the evolution from other biological systems to human cognition including human language: the emergence of human language may be a “great leap” from the non-symbolic physical events. The temporal merge between two symbolic physical events marks the beginning of the human language as the result of mutation in an individual. Certainly, we know little about how a temporal merge is realized in physiological, neurological terms, even less about how it is attributed to genetics.

## 5. Anti-temporality: the ordering of thinking and linguistic utterance

Linguistic expressions are uttered in a temporal sequence but thinking seems to suggest otherwise. Let us consider the processing of the following sentence.

(12) Does the young middle school master live in Boston area.

T1-----T2-----

If the sentence is in the modality of production, at the level of phonetic representation, the sequential ordering is that the word *does* with the grammatical feature of Singular/Third Person occurs at T1, but the word *master* with grammatical features of Singular/Third Person at T2, maybe one minute later than T1.

However, the logical thinking order is that the consciousness of the grammatical feature on the word *master* should be available ahead of that on *does*, given the decision making in using *does* rather than *do* depends on the previous presence of *master*, which means the speaker must know the Singularity/Third Person of *master* before he decided to use *does*. Then this mental order of thinking or the mental establishment of the agreement relation shows a temporal sequence reversed to (12), as shown in (13):

(13) the young middle school master ..does .....

T1-----T2-----

When we put the temporal sequence of the physical events in (12) and temporal sequence of the mental events in (13), we will witness a mysterious event:

(12) Does the young middle school master live in Boston area.

T1-----T2-----

(13) the young middle school master does .....

T1-----T2-----

This would suggest that we cannot synchronize the physical events and the mental events together. It seems that we do not speak while thinking nor think while speaking. The only alternative possibility is that we think before speaking.

If this is the case, we should naturally expect before the utterance of (12), (13) takes place as shown below:

(14) [*the young middle school mater does*] [does the young middle school master live in Boston area.]

Then the question is what are those in italic inside the bracket are? Certainly, they are not the words in the second bracket. Maybe they are pure concepts, i.e. concepts without phonetic forms. But the concepts about the formal agreement

between the subject *school master* and the verb *does* can not be shaped before their physical realization takes place. More examples showing this mystery are given below:

(15) In *his* works on the biological foundation of language, *Lenneberg* proposes...

T1- T2-----T3-----

The physical presentation order is *his* appears before *Lenneberg*, but the mental thinking order, if any, should be that *Lenneberg* appears before *his* since we can not decide to use *his* rather than *her* before *Lenneberg* is processed in our mind.

Consider the following Russian case of grammatical agreement:

(16) *nasha*                      *luojina* (Russian)  
       Our                         motherland  
       (singular, feminine) (singular, famine)

Again, the formal features of singularity and famine on the adjective physically appears before those on the head noun, but the mental order should be just the opposite. The concept of motherland in Russian must appear before the adjective. What is presented below is an example showing the semantic selection between a classifier and the noun it is associated with.

(17) *yi pi ma* (Chinese)  
       One CL horse

In this NP in Mandarin Chinese, the classifier *pi* physically appears before the head noun *ma* (horse), but the choice of the classifier *pi* should be made upon a previously available noun like *ma* (horse) rather than *niu* (ox), *laohu* (tiger), which require different classifiers.

All the examples show cited above indicate that the thinking order may be the reversed temporal sequencing of their corresponding utterances. Suppose we account for this mystery in terms of the familiar parallel processing, that is to say, for a given linguistic expression, thinking takes place in one neuro-population along one time axis while uttering takes place in another neuro-population along another time axis in a parallel fashion. This leads to an even tougher problem rather any solutions: Does bare thinking make any sense? How linguistic thinking is possible without linguistic expressions? Does bare linguistic expression make sense? How linguistic expressions are possible void of meaning?

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# Logical systems and natural logical intuitions

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## Abstract

The present paper is part of a large research programme investigating the nature and properties of the predicate logic inherent in natural language. The general hypothesis is that natural speakers start off with a basic-natural logic, based on natural cognitive functions, including the basic-natural way of dealing with plural objects. As culture spreads, functional pressure leads to greater generalization and mathematical correctness, yielding ever more refined systems until the apogee of standard modern predicate logic. Four systems of predicate calculus are considered: Basic-Natural Predicate Calculus (BNPC), Aristotelian-Abelardian Predicate Calculus (AAPC), Aristotelian-Boethian Predicate Calculus (ABPC), also known as the classic Square of Opposition, and Standard Modern Predicate Calculus (SMPC). (ABPC is logically faulty owing to its Undue Existential Import (UEI), but that fault is repaired by the addition of a presuppositional component to the logic.) All four systems are checked against seven natural logical intuitions. It appears that BNPC scores best (five out of seven), followed by ABPC (three out of seven). AAPC and SMPC finish ex aequo with two out of seven.

## 1. The programme

This tentative and exploratory paper is about a topic that has not been broached in the literature so far: the empirical adequacy of a logical system of predicate calculus. By this is meant the question of how well a logical system corresponds with natural speakers' intuitions about logical relations between and truth conditions for (propositions in) sentences. This is the methodological rationale of the research programme:

- Progress in science is contingent upon taking the data seriously.
- In the cognitive sciences, the data is experiential intuitions. In the semantics of natural language, data consists of logico-semantic experiential intuitions.
- It has been known for the last one hundred years, but one may also say for the last two thousand years, that accepted logical systems violate natural intuitions.
- This fact has not been taken seriously by logicians, whose perspective has always been metaphysical and/or mathematical, and not cognitively empirical.
- Pragmatics has served as palliative therapy.
- To understand the semantics of natural language it is necessary to investigate the possibility of reconstructing NATURAL HUMAN LOGIC.

## 2. What is logic? What is natural logic?

Logic is the formal study of consistency within a text (where "consistency" is taken in the sense of possible simultaneous truth). Therefore, logic is essential in the study of semantics: when we convey information, tell a story, issue an order or ask a question, we need to be consistent. Logic is *formal* by definition—that is, any logic is a calculus which, when followed, guarantees consistency. For most forms of consistency, however, no calculus is available. Thus, we know that (1a) is inconsistent with (1b), but there is no logical calculus that proves it:<sup>1</sup>

- (1) a. John speaks French.
- b. John died two years ago.

By contrast, (2a) is also inconsistent with (2b), but now we have a logic to prove it, as predicate logic tells us that (2b) entails the existence of at least one speaker of French, while (2a) blocks any such entailment:

- (2) a. Nobody speaks French.
- b. Some speakers of French live in London.

For natural intuition, the following two are also inconsistent:

- (3) a. Nobody speaks French.
- b. All speakers of French live in London.

But in standard modern predicate calculus (SMPC) (3a) and (3b) are taken to be consistent, because, in this logic, (3b) counts as true when there are no speakers of French.

The general hypothesis is that natural speakers start off with a basic-natural logic, based on natural cognitive functions, including the basic-natural way of dealing with plural objects. As culture spreads, stricter thinking, resulting from functional pressure, leads to better generalization and greater mathematical correctness, yielding ever more refined systems until the apogee of standard modern predicate logic. Individuals and societies are thus taken to be able to 'bootstrap' themselves up to higher levels of intellectual achievement.<sup>2</sup>

The Gricean maxims are meant to prevent this and similar clashes between intuitions and "official" logic, but their explanatory power turns out to be insufficient. Consider, for example, the following two sentences:

- (4)a. John could't go forward or backward.
- b. John could't go forward and backward.

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<sup>1</sup> One might think of a formal machinery computing entailments from lexical meanings—an implementation of the programme of "meaning postulates" as proposed in Carnap (1956). But no such machinery has as yet been made available. Even then, however, as argued in Seuren (in press, section 2.3.1), there still is the question of the overarching general logic to which the machinery of meaning postulates is subservient.

<sup>2</sup> See Seuren 2006, in press Chapter 3. Similar processes have been observed for numeracy, reading and geometrical competence (Dehaene 1997, Dehaene 2005; Dehaene et al. 2006; Pica et al. 2004).

Sentence (4a) is immediately understood as ‘John couldn’t go forward *and* he couldn’t go backward’. Yet (4b), with *and* instead of *or*, is not immediately understood as ‘John couldn’t go forward *or* he couldn’t go backward’: one needs a considerable amount of sophisticated thinking to convince oneself that (4b) is equivalent with ‘John couldn’t go forward *or* he couldn’t go backward’. This is remarkable, because, on the assumption that natural logic equals standard logic, standard propositional logic predicts that the same processing procedure should hold for the two, both being instances of De Morgan’s laws of conversion between conjunction and disjunction. The Gricean maxims, however, have no bearing at all on such cases.

Given the (now more and more acknowledged) inability of the Gricean maxims to bridge the gap between standard logic and natural intuitions, we try a different approach: we say that natural language has its own logic, which differs from standard logic. To see how this can work, we must first see what defines a logic.

### 3. What defines a logic?

Aristotle (384–322 BCE) discovered that a formal theory of textual consistency crucially depends on a handful of words, called OPERATORS or CONSTANTS. For him—as for us—these words are ALL, SOME, NOT, AND, OR, IF (also MAY, MUST, and a few more, but we leave these out of account here). Logical formulae thus consist of operators and variables, the latter ranging over propositions (propositional logic) or over predicates (predicate logic). In any logic, the operators are defined as regards the conditions under which they produce truth (their satisfaction conditions). Standard logic uses satisfaction conditions that mirror standard set-theoretic operations.

The empirical question now is: how are the operators (or rather, the words that correspond to them) defined in natural language—assuming that individual languages do not differ in this respect? If we can define the natural-language logical operators in an empirically valid way, and if these definitions form a sound system of logic, we have the natural logic of language and cognition, which is likely to differ in important ways from standard logic. Logic thus becomes a matter of lexical semantics.

### 4 Four predicate logics

Predicate logic is the theory of (universal and existential) quantification. Given the three quantifiers ALL, SOME and NO, and the negation NOT, either over the whole sentence/proposition (external negation) or over the predicate (internal negation), we distinguish the following twelve basic sentence types (without vacuous repetitions of negations; the variables “F” and “G” stand for predicates):

<b>A</b>	ALL F is G	<b>¬A</b>	NOT [ALL F is G]
<b>I</b>	SOME F is G	<b>¬I</b>	NOT [SOME F is G]
<b>N</b>	NO F is G	<b>¬N</b>	NOT [NO F is G]
<b>A*</b>	ALL F is NOT-G	<b>¬A*</b>	NOT [ALL F is NOT-G]
<b>I*</b>	SOME F is NOT-G	<b>¬I*</b>	NOT [SOME F is NOT-G]
<b>N*</b>	NO F is NOT-G	<b>¬N*</b>	NOT [NO F is not-G]

In those logics where NOT-SOME = NO, the number is reduced to the following eight:

<b>A</b>	ALL F is G	$\neg$ <b>A</b>	NOT [ALL F is G]
<b>I</b>	SOME F is G	$\neg$ <b>I</b>	NO (= NOT-SOME) F is G
<b>A*</b>	ALL F is not-G	$\neg$ <b>A*</b>	NOT [ALL F is NOT-G]
<b>I*</b>	SOME F is NOT-G	$\neg$ <b>I*</b>	NO (= NOT-SOME) F is NOT-G

This ‘language’ will do for the present purpose. But what do the words ALL, SOME, NO and NOT mean? Simplifyingly, we take NOT to be the standard truth-value toggle in all four logics considered. As regards ALL, SOME and NO, they are defined in SMPC as follows (“[[P]]” stands for the *extension* of the predicate P; “<a,b>” stands for the ordered pair ‘a followed by b’):

(5) **Standard Modern Predicate Calculus SMPC:**

$$[[\text{ALL}]] = \{ \langle [[F]], [[G]] \rangle \mid [[F]] \subseteq [[G]] \}$$

(the extension of the predicate ALL consists of the set of all pairs [[F]] and [[G]] such that [[F]] is included in or equals [[G]])

$$[[\text{SOME}]] = \{ \langle [[F]], [[G]] \rangle \mid [[F]] \cap [[G]] \neq \emptyset \}$$

(the extension of the predicate SOME consists of the set of all pairs [[F]] and [[G]] such that the intersection of [[F]] and [[G]] is nonnull)

$$[[\text{NO}]] = \{ \langle [[F]], [[G]] \rangle \mid [[F]] \cap [[G]] = \emptyset \}$$

(the extension of the predicate NO consists of the set of all pairs [[F]] and [[G]] such that the intersection of [[F]] and [[G]] is null)

(One notes that, under these definitions, NO F is G is simply the negation of SOME F is G.)

The relation with standard set theory is obvious. SOME simply requires nonnullness of the intersection of [[F]] and [[G]], whereas ALL requires inclusion (in the standard sense) of [[F]] in [[G]]. For the rest, truth is determined by the laws and theorems of standard set theory. Thus, in SMPC, ALL F is G is trivially true when [[F]] is null ([[F]] =  $\emptyset$ ), because in standard set theory the null set ( $\emptyset$ ) is a subset of any set. And SOME F is G is trivially true when both [[F]] and [[G]] are nonnull and [[F]]  $\supseteq$  [[G]]  $\neq \emptyset$ , because when these conditions are met, their intersection is nonnull.

It is well-known, however, that natural intuition does not support such truth judgements. For example, ALL F is G is false for natural intuition when there are no Fs and SOME F is G is likewise considered false when either [[F]]  $\subseteq$  [[G]] (so that ALL F is G is true), but true when [[G]]  $\subset$  [[F]]. Aristotle, followed by Abelard (1079–1142), respected the former intuition but not the latter. Their logic, AAPC, is a perfectly sound alternative to SMPC, from which it differs only in that, in the absence of any Fs, ALL F is G is considered false in the former but true in the latter. In AAPC, ALL is characterised by the following definition, while SOME and NO are as in (5):

(6) **Aristotelian-Abelardian predicate calculus (AAPC):**

$$[[\text{ALL}]] = \{ \langle [[F]], [[G]] \rangle \mid [[F]] \neq \emptyset \text{ and } [[F]] \subseteq [[G]] \}$$

(the extension of the predicate ALL consists of the set of all pairs [[F]] and [[G]] such that [[F]] is nonnull and [[F]] is included in or equals [[G]])

$$[[\text{SOME}]] = \{ \langle [[F]], [[G]] \rangle \mid [[F]] \cap [[G]] \neq \emptyset \}$$

(the extension of the predicate SOME consists of the set of all pairs  $[[F]]$  and  $[[G]]$  such that the intersection of  $[[F]]$  and  $[[G]]$  is nonnull)

$$[[\text{NO}]] = \{ \langle [[F]], [[G]] \rangle \mid [[F]] \cap [[G]] = \emptyset \}$$

(the extension of the predicate NO consists of the set of all pairs  $[[F]]$  and  $[[G]]$  such that the intersection of  $[[F]]$  and  $[[G]]$  is null)

(Again, NO F is G is simply the negation of SOME F is G.)

This formulation differs from (5) only in that there is the extra requirement for the truth of **A** (ALL F is G) that  $[[F]]$  be nonnull. The logic resulting from (6) we call Aristotelian-Abelardian predicate calculus or AAPC.

But this fails to do justice to the other intuition that **I** (SOME F is G) is considered false when either  $[[F]] \subset [[G]]$  or  $[[F]] = [[G]]$ , but true when  $[[G]] \subset [[F]]$  ( $[[G]]$  being nonnull). Our intuition tells us that SOME is to be read as ‘some but not all’. To account for both intuitions, we define ALL, SOME and NO as follows:

(7) **Basic-Natural Predicate Calculus (BNPC):**

$$[[\text{ALL}]] = \{ \langle [[F]], [[G]] \rangle \mid [[F]] \neq \emptyset \text{ and } [[F]] \subset [[G]] \}$$

(the extension of the predicate ALL consists of the set of all pairs  $[[F]]$  and  $[[G]]$  such that  $[[F]]$  is nonnull and  $[[F]]$  is included in or equals  $[[G]]$ )

$$[[\text{SOME}]] = \{ \langle [[F]], [[G]] \rangle \mid [[F]] \cap [[G]] \neq \emptyset \text{ and } [[F]] \cap [[G]] \subset [[F]] \}$$

(the extension of the predicate SOME consists of the set of all pairs  $[[F]]$  and  $[[G]]$  such that the intersection of  $[[F]]$  and  $[[G]]$  is nonnull and is properly included in  $[[F]]$ )

$$[[\text{NO}]] = \{ \langle [[F]], [[G]] \rangle \mid [[F]] \cap [[G]] = \emptyset \}$$

(the extension of the predicate NO consists of the set of all pairs  $[[F]]$  and  $[[G]]$  such that the intersection of  $[[F]]$  and  $[[G]]$  is null)(Now, NO F is G is not the negation of SOME F is G because NO F is G and SOME F is G are both false in cases where ALL F is G is true.)

This formulation differs from (6) only in that ALL requires *proper* inclusion of  $[[F]]$  in  $[[G]]$  and that **I** (SOME F is G) requires for truth not only that the intersection of  $[[F]]$  and  $[[G]]$  be nonnull but also that this intersection be properly included in  $[[F]]$ . The logic resulting from (7) we call Basic-Natural Predicate Calculus or BNPC.<sup>3</sup>

There is a fourth predicate logic, the famous SQUARE OF OPPOSITION, often falsely attributed to Aristotle (whose system of predicate logic is AAPC as been defined above). The SQUARE is the product of Aristotle’s commentators Apuleius (±125–180), Ammonius (±440–520) and Boethius (±480–524), who meant to streamline Aristotle’s original system AAPC, thereby unwittingly introducing the logical error of *undue existential import* (UEI). In the Square, the definitions of ALL, SOME and NO are as in (6), but the commentators added the theorem of the so-called Conversions, which holds

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<sup>3</sup> BNPC is essentially the same as the predicate logic developed by the Edinburgh philosopher Sir William Hamilton (1788–1856), if one forgets about Hamilton’s insistence on ‘quantification of the predicate’, which is not discussed in the present paper (see Seuren, in press, section 3.4.2).

in SMPC but not in AAPC and even less in BNPC. The Conversions are defined as follows:

$$(8) \quad \mathbf{A} \equiv \neg \mathbf{I}^* \quad \text{and} \quad \mathbf{I} \equiv \neg \mathbf{A}^*$$

That is, ALL and SOME are interchangeable provided an external and an internal negation are added. In current terminology it is said that ALL and SOME are *duals* in the systems concerned.

The Conversions do not follow from the semantic definitions of the quantifiers given in (6) but were added as independent elements, which is why they have led to the logical error of UEI: a sound logic is defined exclusively by the semantics of its operators (constants); any further additions may make a logic unsound. In the case of the Square, the logical defect of UEI is not too serious, as it can be eliminated by the addition of a *presuppositional component* to the logic, which then contains the Square as a proper subpart (see Seuren 1988; Seuren, in press Chapter 10).

Apart from the Square, which suffers from the logical defect of UEI, the other three systems are logically sound. The soundness of SMPC cannot be at issue. AAPC is as sound as SMPC.<sup>4</sup> BNPC as defined in (7) suffers from UEI only when situations where  $\llbracket \mathbf{F} \rrbracket = \emptyset$  are left out of account (as they should be in a fully natural logic). But when situations where  $\llbracket \mathbf{F} \rrbracket = \emptyset$  are taken into account, BNPC is again sound (see Seuren, in press, Chapter 3). BNPC suffers from the functional but nonlogical disadvantage that **I**-type sentences are like **A**-type and **N**-type sentences in that their truth cannot be established until the whole universe of objects **U** has been checked—a limitation that is crippling when **U** is infinite. In the case of **A**-type and **N**-type sentences, at least their falsity is established when a counterexample is found, but **I**-type sentences are in principle unascertainable in an infinite **U**. This disadvantage, however, is not of a logical but only of a practical nature.

## 5 Intuitions tested

These four systems are now set off against the following seven natural logical intuitions (“ $\vdash$ ” or “entails”, here: “is felt to entail”; likewise for “ $\equiv$ ” or “is equivalent”, here: “is felt to be equivalent”):

- |   |   |
|---|---|
| 1. SOME F is G $\vdash$ NOT [ALL F is G]                        | $\mathbf{I} \vdash \neg \mathbf{A}$                     |
| 2. SOME F is G $\equiv$ SOME F is NOT-G                         | $\mathbf{I} \equiv \mathbf{I}^*$                        |
| 3. SOME F is G $\equiv$ SOME G is F                             | $\mathbf{I} \equiv \mathbf{I}!$                         |
| 4. ALL F is G $\vdash$ SOME G is F                              | $\mathbf{A} \vdash \mathbf{I}!$                         |
| 5. ALL F is G $\vdash$ SOME G is NOT-F                          | $\mathbf{A} \vdash \mathbf{I}!^*$                       |
| 6. NO F IS NOT-G $\equiv$ ALL F IS G                            | $\mathbf{N}^* \equiv \mathbf{A}$                        |
| 7. NOT-ALL F is G $\equiv$ SOME F is G $\equiv$ SOME F IS NOT-G | $\neg \mathbf{A} \equiv \mathbf{I} \equiv \mathbf{I}^*$ |

The combination of 3 and 4 amounts to the *positive subaltern entailment* from ALL F is G to SOME F is G, found in AAPC and the ABPC (the Square) but not in BNPC or

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<sup>4</sup> The soundness of, in particular, AAPC may give standard logicians pause to think (see Seuren, in press, Chapter 3).

SMPC. (The positive subaltern entailment schema is not fully or basically natural but is defensible on further reflection.) The four systems score as follows:

BNPC	1, 2, 4, 5, (6) <sup>5</sup>
AAPC	3, 4,
ABPC	3, 4, 6
SMPC	3, 6

BNPC scores best: it misses out only on the intuitions 3 and 7. AAPC and the ABPC successfully account for the intuitions 3 and 4. In both systems SOME is symmetrical (SOME F is G  $\equiv$  SOME G is F) and ALL F is G  $\vdash$  SOME G is F, because when  $\llbracket F \rrbracket \subseteq \llbracket G \rrbracket$  and  $\llbracket F \rrbracket \neq \emptyset$ ,  $\llbracket F \rrbracket \cap \llbracket G \rrbracket \neq \emptyset$ . ABPC has the extra advantage of accounting for intuition 6, since in that system NO F IS NOT-G and ALL F IS G are equivalent in virtue of the Conversions. Standard modern predicate calculus (SMPC) accounts for the intuitions 3 (SOME is symmetrical) and 6 (NO F IS NOT-G  $\equiv$  ALL F IS G in virtue of the Conversions).

None of the systems is able to account for intuition 7. ABPC and SMPC come closest in that there NOT [ALL F is G]  $\equiv$  SOME F is NOT-G, but SOME F is G and SOME F is NOT-G are not equivalent in these systems. In BNPC, when NOT [ALL F is G] is true, then either SOME F is G (=SOME F is NOT-G) or NO F is G is true, but the latter possibility is so counterintuitive as to be semantically abhorrent. In AAPC, SOME F is NOT-G  $\vdash$  NOT [ALL F is G] but not vice versa, because when  $\llbracket F \rrbracket = \emptyset$ , NOT [ALL F is G] is true but SOME F is NOT-G is false.

The explanation proposed falls back on topic-comment structure (information structure). We formalise topic-comment structure as an underlying cleft structure where *all* has comment status. It is assumed that the default analysis of a sentence like *Ben didn't eat all of his meal*, is 'what Ben ate of his meal was not all', entailing presuppositionally that Ben ate some of his meal and thus excluding the case that he ate nothing. Thus read, the sentence PRESUPPOSES that Ben ate some of his meal and ASSERTS that he did not eat all of it. Similarly for (9a), which, if analysed as (9b), excludes the case that there are no green flags:

- (9)a. Not all flags are green.
- b. 'the flags that are green are not all (flags)'

Thus, to the extent that NOT-ALL denies the comment ALL, the intuitive equivalence of SOME F is (NOT-)G with NOT-ALL F is G is explained by topic-comment structure.

It seems that we have to conclude that the totality of natural logical intuitions held by logically naive humans does not fit into a single logical system. In order to account for all the intuitions, a distinction will have to be made between a *basic-natural* and a *strict-natural* system of predicate logic.

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<sup>5</sup> The equivalence expressed in Intuition 6 follows from BNPC only when situations where  $\llbracket F \rrbracket = \emptyset$  are left out of account, as they are by those who operate with BNPC as 'their' predicate logic.

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# Is there a linear ordering of the semantic representation at the syntax-semantics interface?

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## Abstract

The mental representation of an utterance emerges piecemeal and dependent on the flow of incoming information. This urges the conceptualizer to arrange the message according to the linear order requested by the syntactic formulator. This would argue for a language specific form of the message. Most evidence, however, stem from analyses that tested the processing for a single processing level and separately from what happened on the corresponding input- and output levels.

Speakers of Chinese, German and Polish produced Yes/No-questions, which are coded differently in the three languages. Using a two choice Go-NoGo Paradigm with LRP measures, we tested the chronological correspondence of conceptualization and the syntactic coding processes. The results are at variance with the first-in-first-out model.

**Keywords:** Semantic representation, Linguistic relativity, German, Polish, Chinese, Utterance production.

## Theoretical background

Utterance production and comprehension run fast and almost without any trouble. This is highly remarkable, given the considerable bulk of phonetic, morphological, syntactic features to be processed within milliseconds. The widely accepted explanation claims a model with multiple subsystems working in parallel and on-line; cf. Levelt (1989), Dietrich (1999), Levelt et al. (1999), Guhe (2007), Kamide, Altmann & Haywood (2003). The system is assumed to have a hierarchical architecture with the information circulating basically bottom up while comprehending and top down while producing an utterance. As soon as a suitable bite of information is treated by a subsystem it is handed over to the next one for further processing. The size and the content of an acceptable bite are determined by the receiving system's input constraints. For a highly simplified model of the entire mechanisms, see fig. 1.

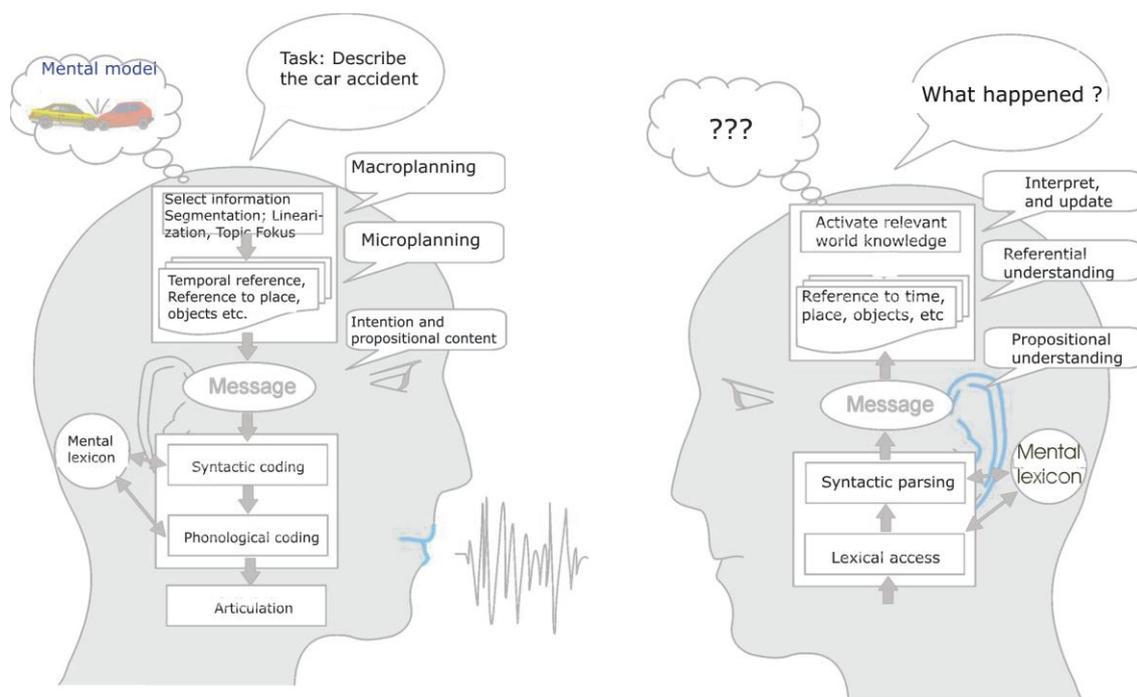


Fig. 1: Systems and subsystems of language production and comprehension

What does this tell about the interaction of language and cognition? For most of us, it may not come as a big surprise that the child's laborious struggling with language acquisition drills his/her conceptualizer in serving its thoughts to the computational system in palatable bites, at least as far as the content of the message is concerned.

Does this, however, also apply to the form of the message? How far down the production line does the conceptualizer peer forward? How much syntactic information does it prearrange and, by this, ease the formulator's task? And, given, that this is a justifiable question, how can it be investigated?

Languages differ widely in word order, as we all know, and yes/no- questions lend themselves as a suitable area for testing the readiness of the conceptualizer in serving the computational system. In Chinese, for instance, a yes/no-question is typically expressed by the Q-particle *ma* or an A-non A lexical item. Its position is sentence final, after the very end of the syntactic form of the rest of the sentence; cf. Gasde (2004: 299 and 302):

- (1) Ni kan dianying bu-kan?  
you watch movie not-watch
- (2) 'Will you watch the movie?'  
Ni ba shu nazou-le ma?  
you BA book take away-ASP QP  
'Have you taken away the book?'

German is different in this point. The yes/no-question is expressed by putting the finite verb into the sentence initial position and, hence, opposed to the word order of Chinese. This raises the question whether and how the conceptualizer may attune to word order differences. Does it anticipate the word order of the sentence to be coded syntactically? If so, can we predict that – in German – the illocutionary force of an utterance is conceptualized ahead of the propositional content while in Chinese it is planned only after delivery of the proposition?

(3) Ist das rechte Auto rot? (*Is the car on the right red?*)

How can we find out? Utterance production is a cognitive activity and cognitive processing takes time. The dynamics of utterance production, in particular, bears strong resemblance to a standard assembly belt procedure. The utterance emerges piecemeal. As soon as the conceptualizer has produced a fragment that possesses enough information for being coded syntactically, the computational system starts working. Lexical material is activated and the syntactic structure is fabricated on-line according the lexical features and the syntactical constraints of the respective language.

### Hypotheses

If humans are equipped with a cooperative preverbal system we should expect that, as a result of language acquisition, it will have adapted to the syntactic peculiarity of the speaker's language.

**H1:** The Chinese conceptualizer will, accordingly, anticipate the dynamics of the computational system and provide the syntactic coding first with the propositional content and only after this with the illocutionary information “yes/no-question”. The German speaker, on the other hand, will have set up a conceptualizer that delivers the concept “yes/no-question” first followed by the rest of the message, i.e. the propositional content (see figures 2 and 3, respectively).

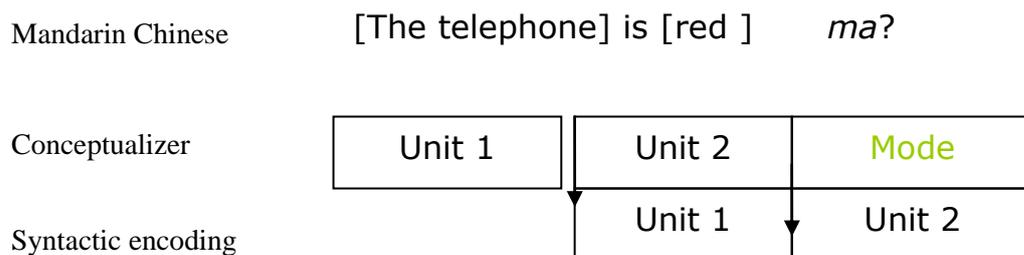


Fig. 2: Semantic-syntactic interface of the Mandarin Chinese production system.

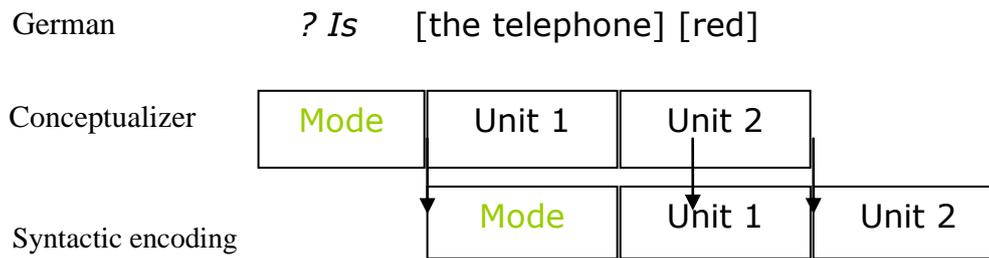


Fig. 3: Semantic-syntactic interface of the German production system

**H0:** If, however, we are genetically provided with a more rigid cognitive system it might not be so flexible as to adapt to the word order constraints of the input language as a result of language acquisition. It may have developed a universal standard pattern for the yes/no message and leave the whole bunch of ordering to the syntactic component. How can we find out about what is the case? How can the conceptual system's processing be observed on-line?

### Experiment 1

We used the LRP Go/NoGo paradigm (with a two choice match-mismatch decision task. For the experimental setups for GO-trials and NoGo-trials, see fig. 4 and 5, respectively. For a brief sketch of the LRP-method, see Rugg & Coles (1997: 97-100); amore thorough presentation is Sommer, Ulrich & Leuthold (1996).

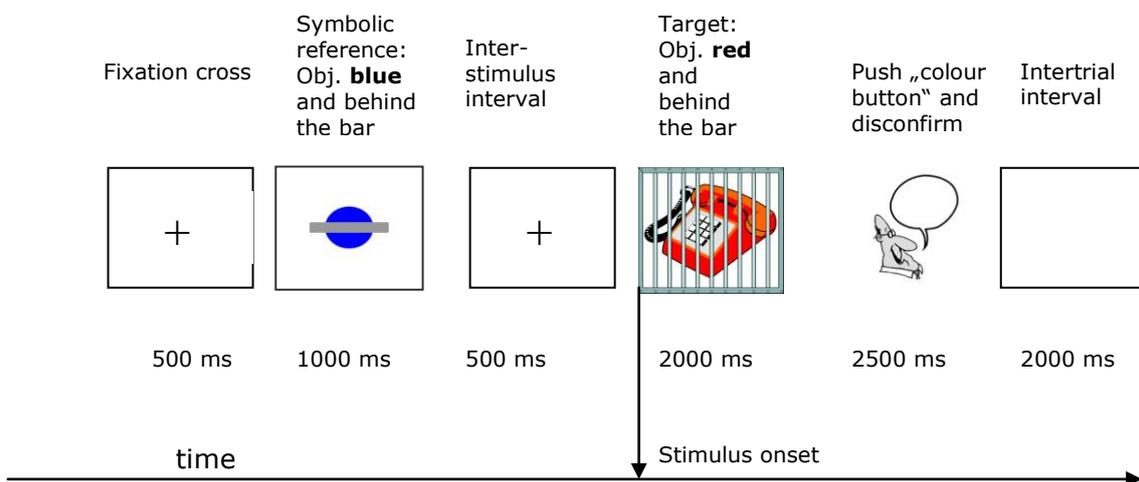


Fig. 4: Experimental set up for Go-Trials. The correct response to this target picture was (1) press the “colour button” and (2) say: *The telephone is red.*

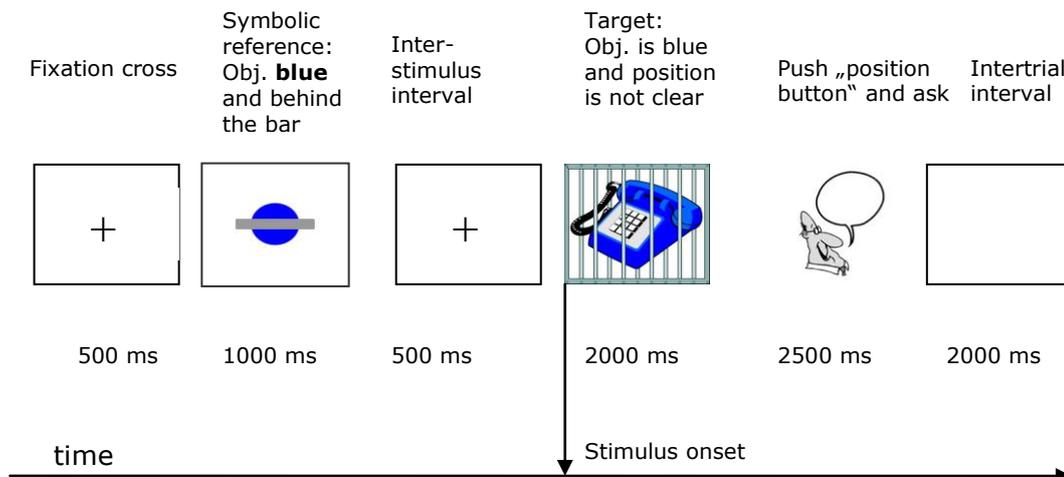


Fig. 5: The experimental set up for NoGo-trials (position). The correct response to this target picture was (1) withhold the button press upon the position button and (2) ask: *Is the telephone behind?*

The experimental procedure comprised four steps. First, a so called reference configuration of a coloured dot in front or behind a silvery rectangular bar appears on the computer screen. By the instruction, the subject knows that this reference picture announces the colour of a target object appearing after it and its position (Step 2). The subject shall then compare the features of the reference picture with those of the target and if they match confirm the correspondence or disconfirm if they don't match. In this case, there are two possibilities. If the colour does not match the subject is to disagree by pushing a button (step 3) and by telling the correct colour (step 4). Example: *Das Telefon ist rot. [The telephone is red]*. If it is the position of the target that does not match that of the reference symbol the subject is to press an alternative button and to tell the rectified position like, for instance, *Das Telefon ist vorne. [The telephone is up front]*. These are the so-called Go-trials. In some trials, the colour or the position of the target, but not both, cannot be identified by means of the picture alone. In this case, the subject is asked to withhold the prepared button press and to ask for the unavailable information on the basis of the reference item: *Ist das Telefon blau? [Is the telephone blue?]* or *Ist das Telefon hinten? [Is the telephone in the back?]*.

The subject has, accordingly, to decide on two choices, left or right button for the content of the proposition (colour or position) and "Push" (GO) or "don't push" (NoGo) the button for the illocution ("disconfirm" or "ask"). In our procedure, the content was coupled with the choice of the button and the illocution with the Go/Nogo response. Three kinds of data were recorded for each trial, the Go- or Nogo LRP, respectively, the reaction time (target Onset – button press), and the spoken utterance.

What did we expect? Given the incremental making of the message, we would predict a button press on all Go-trials, preceded by a GO-LRP.

In the Nogo-trials, we would predict no button press and a Nogo-LRP before the Q-final utterances (i.e. in Chinese) but no Nogo-LRP before the Q-initial utterances in German.

## Results

What did we expect? What we predicted was a Go-LRP in all Go-trials preceding and indicating the immediately following button press with the left or right hand, respectively, corresponding to the propositional content “colour” and “position”. In case of unclear target pictures, German speakers were predicted to conceptualize the sentence mode first followed by the conceptualization of the propositional content. The decisions of whether to press or not to press the button would precede the choice of the correct hand. In NoGo-trials, then, no hand had to be prepared and no button press had to be withheld. No NoGo-LRP was expected to show up.

Speakers of Q-final languages like Chinese, on the other hand, would – theoretically – need to look out for the colour and the position of the target first, decide on the correct hand and prepare the button press. In trials with unclear target pictures the movement would have been withheld and a broken-off-LRP (NoGo-LRP) should be visible.

What did we find? The Chinese results (N = 23, 480 trials each, 23 – 36 years old, mean age = 26, 11 female; all subjects were paid for the participation in the exp.) show a distinct NoGo-curve. It starts at a mean of 364 ms and peaks (1.7  $\Phi$ v) at 540 ms. This is what we had expected, given the Q-final marking of y/n-questions in Chinese, see fig. 6.

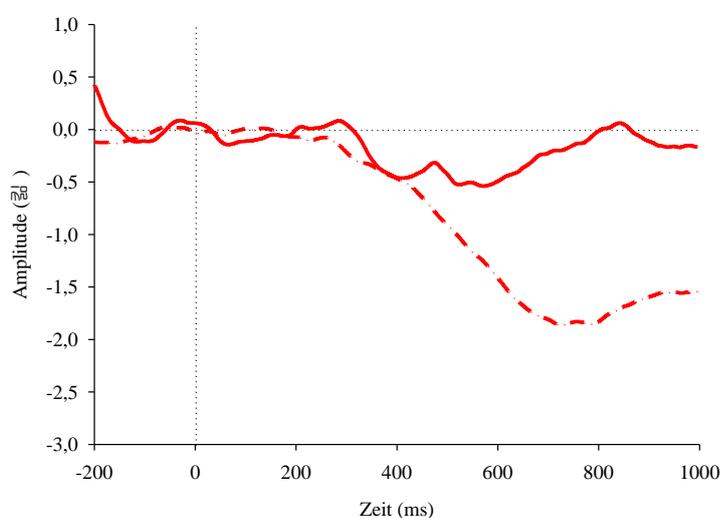


Fig. 6: Chinese: Go-LRP (dotted line) results from disconfirmation trials and NoGo-LRP (solid line) results from “ask”-trials.

For German, we expected GO-potentials, of course, but no significant Nogo-curve. As a consequence of the utterance-initial planning of the Q-component there is no need for preparing a hand for button press since no button has to be pressed. 18 German speakers (19-29 years old, mean age = 26, 12 female) participated in the experiment. The data analysis, however, yields a clear cut Nogo-pattern for German as well; see fig. 7.

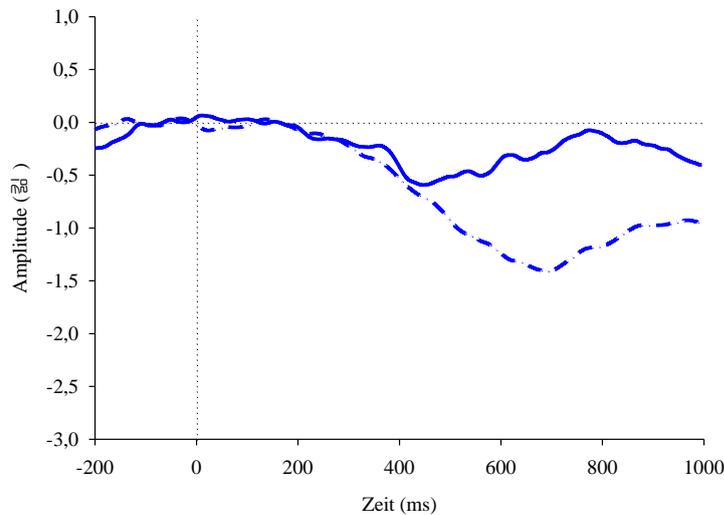


Fig. 7: German: Go-LRP (dotted line) results from the disconfirmation trials and NoGo-LRP (solid line) results from “ask”-trials.

## Discussion of experiment 1

Chinese is a Q-final language in which the propositional content of the message is planned first and the sentence mode only at the end. The NoGo-response is consistent with our prediction. This is different for Q-initial languages like German. The sentence mode is assumed to be planned first and, therefore, no hand has to be prepared and no NoGo-LRP should have developed. The results contradict this prediction without any doubt. The data show NoGo-LRPs in both languages, Chinese and German, irrespective of the syntactic position of the yes/no-question marker.

A straight interpretation of this finding would say that the conceptualizer does not care about syntax. It simply follows a universal pattern of message planning: propositional content first and sentence mode last.

There is, yet, another explanation for the uniform results. Let us suppose that the people prepare the hand movement very fast. Then, they perceive the lack of colour/position information in the experimental target pictures. As soon as the lack of information is realized the hand movement is withheld and the question is conceptualized only now; language processing comes to pass only after the early and prelinguistic cognitive activities. This scenario would also produce NoGo-LRPs in all experimental trials but not due to the typological features of languages but caused by “higher” problem solving procedures. We tested this assumption in a subsequent experiment without the verbal component.

## Experiment 2

The experimental setting of experiment 2 was the same as in experiment 1. The task, however, was different. Subjects were asked to only press a predetermined button

with one hand in case of colour mismatch and to press another button with the other hand in case of mismatch of the position of the target object. If either the colour or the position of the target object were not clear to them they were instructed not to press any button at all. If the NoGo-LRP originates in the early motor- and perception part of the entire procedure it should occur in the non-verbal condition as well. Fig. 8 shows the experimental setup of the experimental trials.

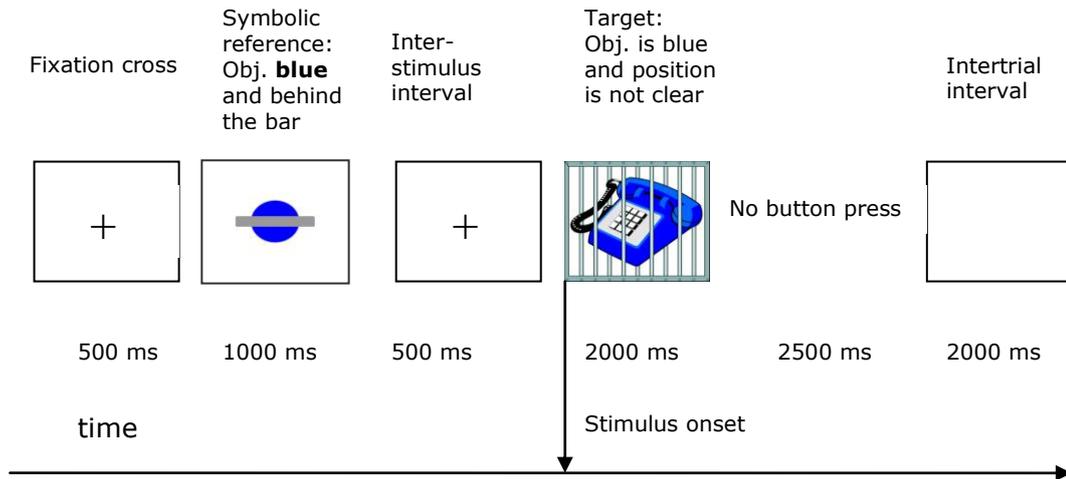


Fig. 8: The experimental setup for the experimental trials (here: position) in experiment 2, i.e. without speaking.

## Results

Assume that the NoGo-potentials had been produced in reaction to the fast early preparation of hand movement followed by the perception of missing information. Then we would expect both Go- and NoGo-reactions in this non-linguistic experiment as well. Fig. 10 shows the results (N=22 Germans, 480 trials each).

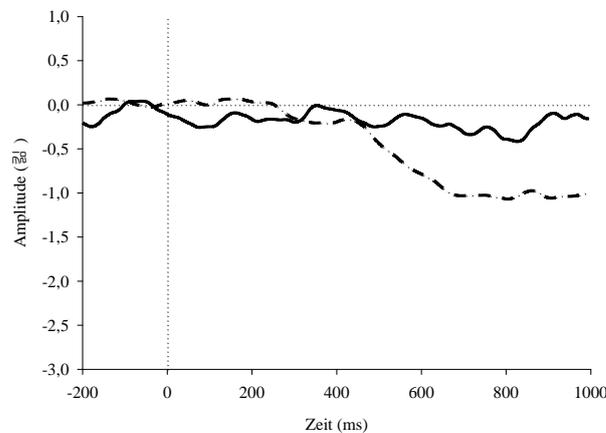


Fig. 10: Mismatch-condition (dotted line) and experimental trials (strong line).

The reaction to the mismatch condition evoked a clear Go-LRP while the reaction in the unclear condition did not cause a NoGo-LRP. This tells us that the NoGo-reaction is specifically related to the speaking condition and cannot originate from the nonverbal part of the task.

### Discussion of experiment 1 (cont.)

The next question now is what could have evoked the Nogo-LRP in the Germans' reactions in the "question"-condition in experiment 1? In German, the yes/no-question is expressed by placing the finite verb in the sentence initial position. Typologically, this is, however, not the basic word order of German. German is an SOV language. The placement of the finite verb in the surface of the utterance could, thus, result from merely syntactic operations which are performed during the syntactic coding. The conceptualizer, on its side, may only be adjusted to the base generated structure and, therefore, put the Q-concept at the end of the message just like the Chinese speakers.

### Experiment 3

In order to examine this possibility, we had to run the experiment with subjects whose language has definitely Q-initial order for yes/no-questions. Polish is such a language. The yes/no-question is syntactically expressed by putting the question particle *czy* in front of the sentence. The rest of the sentence is left unchanged in main clause SVO order. 19 Polish speakers (between 19 and 27 years old, mean 23 years, 10 female) participated in the experiment. The setup of the experiment was the same as in experiment 1. Again and unexpectedly, the Polish experiments yielded a clear significant NoGo-result, too, as shown in fig. 11.

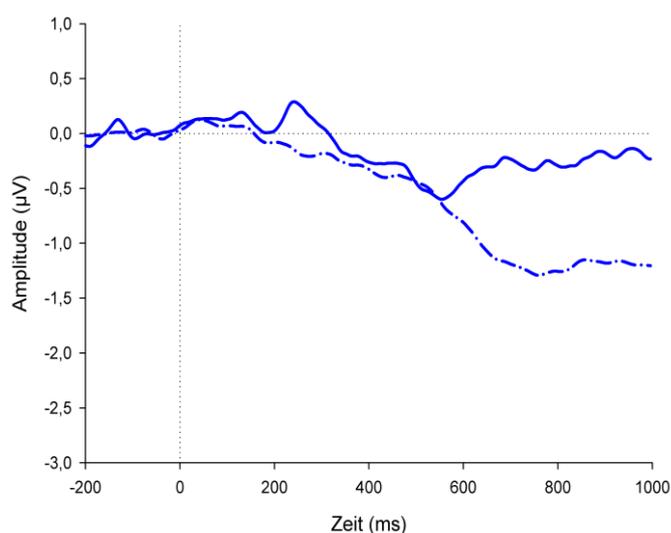


Fig. 11: Polish: Go-LRP (dotted line) results from the disconfirmation trials and NoGo-LRP (solid line) results from "ask"-trials.

## General discussion

The aim of the study was to tackle the question of language universals from a psycholinguistic point of view. The focus was on the format of the semantic representation of the utterance. The experiment was designed to operationalize the question as to whether the form of the semantic representation of a given sentence differs in different languages or not. From a psycholinguistic perspective, there are plausible reasons for both hypotheses. The background of the theoretical reasoning is the widely accepted assumption that the language processor produces and comprehends utterances online. This is achieved by a sophisticated division of labour among a set of subsystems working in parallel. The two subsystems under consideration here are the conceptualizer and the syntactic part of the formulator. The conceptualizer plans the content of the utterance; its output is the semantic representation, the so called message. The message contains the information that triggers the access to the appropriate lexical material including the syntactic information that is required by the syntactic subsystem for building the structure of the sentence. Here, at the interface of the two subsystems is where the question arises whether the conceptualizer looks forward to language specific properties of word order or not. If it does one would expect a language specific order of the message, i.e. of the semantic representation, as well. In the opposite case, i.e. if the conceptualizer does not look ahead to any word order constraints of a given language, this could be taken as evidence in favour of a universal property of languages. The two possibilities were tested against each other in two experiments and a control experiment. Speakers of three languages that feature distinct syntactic constructions for yes/no-questions were observed online while producing messages of yes/no-questions. All together, the results do not show any significant differences in the time course of the conceptualizer's work. Chinese, German and Polish speakers produce the semantic representations of yes/no-questions in the same uniform way in spite of clear distinctions of word order at the syntactic level. The results of the control experiment proved the validity of the experimental operationalization. The findings originate in the verbal part of the complex experimental task. Still, the general conclusion is questionable. Without doubt, the results are consistent with the universality hypothesis but the alternative position is not falsified. There is no positive evidence. There is however some more independent evidence in favour of the universality-assumption.

The results of the control experiment testify that the observed NoGo-responses originate in the activation of the linguistic procedures and not in preceding non-linguistic processing like, for instance, early sensory-motor activities.

From the nature of the experimental task we can conclude that the experimental procedure was valid. In planning the content of a verbal disconfirmation and questioning, the colour or the position of an object in comparison to a given reference object are definitely semantic procedures.

The post hoc-evaluation of the S-LRP latencies yields one more revealing result. If the onset latency of the NoGo LRP is defined as the point of time where the amplitude reaches 60% of the maximum value there is a significant main effect of the factor language ( $F(2,55) = 5,82, p < .01$ ). The multiple t-test shows that the NoGo-LRP of the Polish speakers develops significantly later than that of the Chinese speakers ( $t(36) = 8,18, p < .01$ ) and also later than that of the German speakers ( $t(37) = 11,84, p < .01$ ). There is plausible explanation of this language specific difference. In Polish,

the Q-particle *czy* is placed before the first lexical item of the propositional content. Consequently the syntactic coding has to know the exact beginning of the propositional part of the message. In order to guarantee a secure access to this information the system provides an interim back up of the entire propositional information and that is neither required in German nor in Chinese.

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# Dual Aspectual Meanings of the Verb *chac-ta* ‘look for/find’ in Korean: A Window to Event and Mind

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## Abstract

Verb aspectuality plays a crucial role in the analysis of sentence-meaning as it constitutes a framework of Event Structure and affects a human cognitive structure. In case of the Korean verb *chac-ta*, however, the realization of aspectuality becomes ambiguous. In this study, we classify *chac-ta* ‘seek/find’ as an accomplishment verb encompassing sub-event of a *process* and a *result state* in the framework of *Generative Lexicon Theory* (Pustejovsky 1995). In this line of analysis, *chac-ta* shows an *underspecified headedness* feature, by which whether the subevent of *chac-ta* is *headed* or *headless* depends on the instantiation vs. duration adverbs and aspectual auxiliaries. Additionally we examined the *intensionality* and *extensionality* of *chac-ta* and defined new *lexical conceptual paradigm* (lcp) of its complement as a *dotted object* in the *formal* quale of *chac-ta*, shown as {existence·location, location, \*existence}. This study is significant in that we applied a new concept to *chac-ta* while sticking to the *Generative Lexicon Theory*, which provides a subevent analysis. But, it also leaves a burden on us of generalizing the phenomenon *intralinguistically* and *crosslinguistically*.

**Keywords:** Generative Lexicon Theory, Aspect, Event Structure, Underspecified Headedness.

## 1. Introduction

The lexical ambiguity has many variations in its types and has been studied for a long time, since it can elicit various interpretations of a single event especially when a verb (or verbal phrase) is ambiguous, in which the verb has a central role in an event description. In a way, it is also an important issue in a lexicon study whether we should consider a word which has various meanings as a *polysemy* or not. In this study, we explored a Korean verb *chac-ta*, which shows an ambiguity in its aspectual meanings, by crosslinguistic study, and suggested a cognitive mechanism to explain its related event structure.

### 1.1. Ambiguity of *chac-ta*

In Korean, *chac-ta* has two different meanings: *look for (try to find)* and *find*. See the following example (1).

- (1) a. *Ilh-eperi -ess-ten sinpal-ul pangkum chac -ass -ta.*  
 Lose-completely-PAST-REL shoes-ACC just find -PAST-DEC  
 “(I) just found the missing shoes.”
- b. *Chelwu-nun Younghee-lul chac -ko iss -ess -ta.*  
 C-Top Y-ACC look for -PROG-PAST-DEC  
 “Chulsoo was looking for Younghee.”

In (1a), the utterer implicates that he has found the shoes by saying *chac-ass-ta*.<sup>1</sup> In contrast, just by listening *chac-ko iss-ess-ta*, we can easily know that *Chulsoo* has not found *Younghee* yet in (1b). In both cases, the verbal phrase has the same verb *chac-ta*, but one event has terminated with a *result state* and the other hasn't. In a word, *chac-ta* has two ambiguities in Korean: *ambiguity in meanings* (find/look for) and *ambiguity in aspects* (result state/progress). One easy way to deal with this problem may be to consider *chac-ta* as a *homonymy*, in which two different words have the same form accidentally. In this view, the meanings of *chac-ta* seem to be determined by its suffixes.

By scrutinizing example (2), however, we need something more than this simple solution.

- (2) a. *Mia-nun ecey ku-lul chac-ass -ta.*  
 M-Top yesterday him-ACC find-PAST-DEC  
*Kuliko, kutul-un manna -ass -ta.*  
 And, they-NOM meet-PAST-DEC  
 “Mia found him yesterday. And, they met.”
- b. *Mia-nun ecey ku-lul chac -ass -ta.*  
 M-Top yesterday him-ACC look for-PAST-DEC  
*Kulena, ku-nun keki eps -ess -ta.*  
 But, he-NOM there is not-PAST-DEC  
 “Mia looked for him yesterday. But, he wasn't there.”

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<sup>1</sup> In this example, *chac-ass-ta* is ambiguous in nature, but this ambiguity is clearly resolved by the adverb *pangkum* (just).

As you can see in (2a) and (2b), **chac-ta** has different meanings in those two examples though it is combined with the same past suffix *-ass*. In this case, **chac-ta** is still ambiguous after combined with the suffix *-ass* and this ambiguity is resolved when we encounter the following clause. Thus, it seems that **chac-ta** is *not* simply a *homonymy*.

Let's consider it in the context of two different kinds of negation in example (3).

- (3) a. *Swumi-nun ecey halwu congil kangaci-lul chac-ci mos ha -ess -ta.*  
 S-Top yesterday all day long dog-ACC find-not possible do-PAST-DEC  
 "Yesterday, Sumi couldn't find her dog all day long."  
 b. *Swumi-nun ecey halwu congil kangaci-lul chac-ci anh -ass -ta.*  
 S-Top yesterday all day long dog-ACC look for-not-PAST-DEC  
 "Yesterday, Sumi didn't look for her dog all day long."

While the negative *-anh-* influences the whole complex event of **chac-ta** in (3b), the negative ability modality *-mos ha-* in (3a) governs only the subevent *find* of **chac-ta**. As a result, they show different meanings. Likewise, **chac-ta** shows a complex behavior in Korean. Then, how about other languages? Let's talk about it in section 1.2.

### 1.2. Crosslinguistic considerations

It is very useful to conduct a crosslinguistic study when analyzing the meaning of **chac-ta** in Korean. In many languages, **chac-ta** is classified into two different verbs: *find* and *look for*. Observe example (4).

- (4) a. *Chac-u-la. Kulemyeyn, chac-ul kes-iyo. (Korean)*  
 b. *Cherchez, et vous trouverez. (French)*  
 c. *Seek and you will find. (English)*  
 d. *Sagashinasai. Sousureba mituskaru. (Japanese)*

**Chac-ta** is classified as two words in French: '*chercher*' trying to find (*atelic*) and '*trouver*' a result of finding (*telic*). In English, just like in French, '*look for/seek*' and '*find*' are dissociated. The former indicates a *process* or an *activity*, whereas the latter indicates a *result state* or an *achievement*. All things considered, **chac-ta** in Korean is very special. But, from the event structure of **chac-ta**, '*trying to find*' and '*result state*' are deeply related and we assume **chac-ta** is a *polysemy* that is realized differently in various contexts.

### 1.3. Scope of this study

In order to confirm our assumption and explain the behavior of *chac-ta*, we applied the *Generative Lexicon Theory* to *chac-ta* (Pustejovsky 1995). Pustejovsky cited Weinreich (1964) to explain a lexical ambiguity, and raised issues of *contrastive ambiguity* and *complementary polysemies*. According to his theory, *chac-ta* in Korean can be analyzed to have a feature of *complementary polysemy*. To validate this explanation, we showed the various aspect analyses of *chac-ta* in Korean at first. But, *chac-ta* couldn't be fully represented in a simple accomplishment event and thus we also suggested a *headedness* event paradigm for *chac-ta*.

We have showed that the Korean verb *chac-ta* is a special accomplishment verb with *underspecified headedness* of a complex event. Also, it has intensional and extensional features at the same time. In the meantime, we could suspect a new possibility of explaining *intensionality* as weak *veridicality* from the event structure of *chac-ta*.

## 2. Aspectuality study of *chac-ta*

### 2.1. Aspectual classes of verbs

The aspectual meaning of verbs is mainly determined by a lexical meaning (Kenny 1963, Vendler 1967). According to Vendler (1967), verbs are classified into four classes by its temporal stages such as a state change, a process, and a natural telic point: *state*, *activity*, *accomplishment*, and *achievement* (See the table 1). In contrast, Verkuyl (1972, 1989) and Dowty (1972, 1979) argued that the aspectual meaning of verbs can't be simply determined by their lexical meanings. And, Parsons (1989) incorporated an event within an argument structure, but with no subevent analyses. Smith (1991) suggested a *semelfactive* event.

Table 1 The properties of the four classes by Vendler (Kearns 2000)

	Change	Duration	Telicity
State	-	+	-
Achievement	+	-	+
Activity/Process	+	+	-
Accomplishment	+	+	+

The classification of the Korean verb shows a more complicated feature. It's mainly because the aspect of a main verb is heavily correlated with auxiliary verbs. Please refer to Nam (1978), Lee (2001), and Cho (2007) for more details. Likewise, verbal aspect plays a crucial role in the analysis of sentence-meaning, and we first verified various aspectual features of *chac-ta* and differentiated their interpretations according to its aspectual classes.

## 2.2. Aspectual class of *chac-ta* in Korean

As we have seen in (1), the aspectual difference of *chac-ta* mainly results from its suffixes. From this fact, we analyzed co-existence constraints of suffixes. First of all, *chac-ta* can't be a *stative* verb because (1b) is allowed in Korean. Generally, *statives* are ill-formed with the progressive *-ko iss-*. Secondly, *chac-ta* has a *result state* in (1a), and thus can't be an *activity*, which is a simple process. If *chac-ta* is neither a *stative* nor an *activity*, it may be classified as an *achievement* because *chac-ta* has an instant feature when something is found. This assumption is, however, not valid because an *achievement* verb is anomalous with progressive as shown in (5).

(5) \*Jones was recognizing the woman when she sneezed. (from Kearns)

Then, is *chac-ta* an *accomplishment* verb? But, an *accomplishment* verb usually has a long duration before it reaches a culminating point of the event. Consider a typical *accomplishment* verb, *build*, which takes a long time until finished. This contradiction may be easily resolved if we define two different cases of *chac-ta* in (6).

- (6) a. *chac-ta*<sub>1</sub>: seek, look for (*activity*)  
b. *chac-ta*<sub>2</sub>: find (*achievement*)

We call this approach a *Sense Enumeration Lexicon* (SEL). This may be partially right, but a view that *chac-ta* is a *homonymy*, which claims that it has two different senses, is not a good approach, in that word senses are not atoms but overlap and make reference to other senses of word - *the Permeability of Word Senses* (Pustejovsky 1995).

For these reasons, we assume that *chac-ta* is a *polysemy* and tentatively classify *chac-ta* as an *accomplishment* verb. On this basis, we will explore its lexical structure and show the exact feature of it. Vendler's aspectual classification can be re-classified as *simple event* and *complex event* (Lee 1990, Nam 2004, Kim 2004). In this classification,

*chac-ta* is a *complex event* which has two different subevents. More specifically, *chac-ta* is distinguished from other *accomplishment* verbs in terms of its event structure.

### 2.3. Event structure of *chac-ta*

By analyzing the senses of *chac-ta*, we have seen that the aspectual meanings of *chac-ta* are relying on its subevents structure. The next goal will be an integration of two aspectual meanings into a single accomplishment event. To achieve this goal, we introduce the *Generative Lexicon Theory* (Pustejovsky 1995). In this framework, we can divide a complex event into a few subevents and show the phenomenon of lexical meaning explicitly within an event structure. Let's first consider a typical accomplishment verb *build*, which encompasses a building *process* and a created *state* simultaneously. In example (7) below, we can see the characteristics of *build* as an *accomplishment* verb, including a well-known *imperfective paradox* in (7d).

- (7) a. Mary built a house in a year. (*accomplishment*)  
 b. \*Mary worked in an hour. (*activity*)  
 c. John is running. (Therefore, John has run.)  
 d. John is building a house. (\*Therefore, John has built a house.)

All the features given in (7) are well suited for *chac-ta* except for the *imperfective paradox*. Consider the following (8).

- (8) a. *Mia-nun Sue-lul chac -ko iss -ta.*  
 M-Top S-ACC look for-PROG-DEC  
 "Mia is looking for Sue."  
 b. *Mia-nun Sue-lul chac -ass -ta.*  
 M-Top S-ACC seek/find-PAST-DEC  
 (i) "Mia found Sue." *a* doesn't entail *b*. (*imperfective paradox*)  
 (ii) "Mia looked for Sue." *a* entails *b*. (*no imperfective paradox*)

*Chac-ass-ta* in (8b) has different meanings according to two distinct readings. When we focus on the result state (*result state reading*), the *imperfective paradox* will occur as in *build*. However, there is no *imperfective paradox* if we focus on the process itself (*process reading*). We assume that this difference comes from the different *event structure* of two verbs, *build* and *chac-ta*.

- (9) a. *build* [e<sub>σ</sub> e<sub>1</sub>\* <∞ e<sub>2</sub>]  
 b. *chac-ta* [e<sub>σ</sub> e<sub>1</sub> <∞ e<sub>2</sub>]

Thus, we suggest, though both verbs have two subevents *process* and *state* in their *event structures* with temporal order as shown in (9), *chac-ta* has no *head* of the event which is shown in *build*. This *underspecified headedness* provides two distinct readings. The underlying mechanism of headedness is given by *composition*.<sup>2</sup> In the following section, we will discuss it in detail.

#### 2.4. Lexical Structure of *chac-ta*

In *Generative Lexicon Theory*, a word has four substructures: *Argument Structure*, *Event Structure*, *Qualia Structure*, and *Lexical Inheritance Structure*.<sup>3</sup> For example, *chac-ta* has one *true argument* of target. A *qualia structure* is modes of explanation and imposes a relational power between lexical items. Specifically, the *qualia structure* has four items such as *constitutive*, *formal*, *telic*, and *agentive*, which will explain the internal relations of the lexicon. Actually, the *imperfective paradox* of *build* is well explained in terms of the *qualia structure*. That is, a *build-act* is applied to the material constituents of a future house without saying that there already exists a house, in an atelic way.

Note that the *qualia structure* provides us a structural model to apply semantic transformational rules to modify the meaning of a lexical item or phrases. This is a theoretical ground of the *composition*. Consider example (10).

- (10) a. Mary *baked* a potato.  
 b. Mary *baked* a cake.

Depending on the object, *bake* in (10) has different senses: *change of state reading* (a) and *creation reading* (b). After *composition* of the arguments and verbs, they change the *event structure*, and this is exactly what happens in sentences including *chac-ta*. As *bake* goes through change of meaning from *state change* to *creation*, *chac-ta* also experiences the creative mechanism of *composition* when it combines with aspectual markers such as *-ko iss-* and *-ass-* or adverbs.

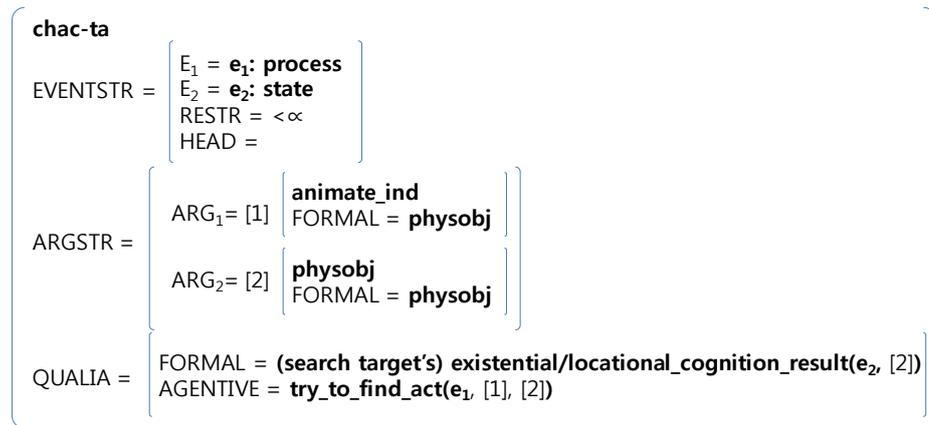
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<sup>2</sup> The *composition* process is not equal to the *co-composition* suggested by Pustejovsky (1995) in that it is just a combination process of two arguments.

<sup>3</sup> Refer to Pustejovsky (1995) for details.

However, a prior interpretation process is needed to determine the exact meaning because *chac-ta* has no *event head* initially. This is also done during *composition* process. If the *result state* is ignored and the subevents remain *unheaded*, *chac-ta* has *process reading* (look for, activity). In contrast, if the process is headed, *chac-ta* has *result state reading* (find, accomplishment). All these results are shown in the lexical structure of *chac-ta* in Figure 1.

Figure 1 Lexical structure of *chac-ta*



There are two subevents in *event structure* of *chac-ta* and two *true arguments* in *argument structure*. In *qualia structure*, the *agentive* role is *act of trying to find* and the *formal* role is the *search target's existential and locational cognition result*, which is not always guaranteed because the searching process may not be successful. Now we'll see the benefits of this analysis with some examples in (11).

- (11) a. *na-nun Seoul haying yelcha-lul chac -ko iss -ta.*  
 I-Top Seoul for train-ACC look for-PROG-DEC  
 "I am looking for a train for Seoul."  
 b. *na-nun Seoul haying yelcha-lul chac -ass -ta.*  
 I-Top Seoul for train-ACC seek/find-PAST-DEC  
 "I found/looked for a train for Seoul."  
 c. *na-nun Seoul haying yelcha-lul chac -nun -ta.*  
 I-Top Seoul for train-ACC look for-PRES-DEC  
 "I look for a train for Seoul."  
 d. *na-nun machimnay Seoul haying yelcha-lul chac-ass -ta.*  
 I-Top at last Seoul for train-ACC find-PAST-DEC  
 "At last I found for a train for Seoul."

- e. *na-nun Seoul haying yelcha-lul chac-a -nay-ess -ta.*  
 I-Top Seoul for train-ACC find out -PRES -DEC  
 “I found out a train for Seoul.”
- f. *na-nun Seoul haying yelcha-lul chac-a -po-ass -ta.*  
 I-Top Seoul for train-ACC look for try-PAST-DEC  
 “I tried to look for a train for Seoul.”

All sentences in (11) have the same verb *chac-ta*, which comes to have fixed meanings after *composition* process. First, a combination with suffixes is shown in (11a-c). Combined with *-ko iss-* or *-nun-*,<sup>4</sup> the event head of *chac-ta* is not given, that is, *headless*, and thus it has the *process reading of activity*. In contrast, in case of *-ass-*, the event head is posited on the *process* event and *chac-ta* has the *result state reading of accomplishment*. But, (11b) and (11c) are still ambiguous and underheaded even after *composition* is applied. It’s mainly because the suffixes *-ass-* and *-nun-* must be interpreted in contexts where there are no adverbs or adjuncts to combine with. (11d) shows a *composition* with adverbs to avoid this ambiguity. The adverb *machimnay* (at last) helps to place the event head of *chac-ta* on *process* event and this makes *chac-ta* an *accomplishment* verb in this case.

The examples in (11e) and (11f) show *composition* with auxiliaries *-nay-ta* and *-po-ta*. In the same way, the sense of *chac-ta* is determined by the *composition* process with the auxiliaries. To summarize, the sense of *chac-ta* relies on its *event structure*, especially the *headedness*. *Chac-ta* has two subevents with no headedness and the headedness is determined by *composition* process in the GL framework. However, for some ambiguous suffixes, relevant contexts are needed to determine the sense of *chac-ta*. The lexical structure of *chac-ta* supports this whole process. And it gives a rational way of explaining the aspectually dual verb *chac-ta*.

### 3. The *intensionality* issue of *chac-ta*

The verb *chac-ta* can have two kinds of objects: *existence* and *location* of the target. Also, there is a sequential order between two objects, that is, we usually look for the existence of something and then find the exact location of it. This is the reason we

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<sup>4</sup> *chac-nun-ta* usually indicates the progressive, but it can indicate a perfective or completion when used in play scripts. Thus we suggest it is also ambiguous.

placed the *existence* prior to the *location* of the search target in the *formal* role of **chac-ta**.

However, at this point, **chac-ta** shows an interesting feature in its *intensionality* and *extensionality* issue. Consider the following examples of (12) first.

- (12) a. *Sue-nun cip han chay-lul ci -ess -ta.*  
 S-Top house one CL-ACC build-PAST-DEC  
 “Sue built a house.”
- b. *Sue-nun kapang-ul chac-ass -ta.*  
 S-Top bag-ACC find-PAST-DEC  
 “Sue found her bag.”
- c. *Sue-nun unicorn-ul chac-ass -ta.*  
 S-Top unicorn-ACC find-PAST-DEC  
 “Sue found a unicorn.”

The sentences (12a) and (12b) have objects that exist in the real world, in which **chac-ta** in (12b) has the *find* reading. It involves the existential presupposition of the object. However, there is no existential presupposition of *unicorn* in (12c) and it is a non-true sentence because a unicorn only exists in a possible imaginary world. In this sense, **chac-ta** and **cis-ta**, though they are classified as the same *accomplishment* verbs, are different in that **chac-ta** has an *intensionality* and an *extensionality* in a single verb at the same time.

### 3.1. Diagnostics of intensionality

To clarify it, we did a diagnostics of *intensional* verb shown in (13), which is introduced by Moltmann (1997).

- (13) a. lack of an existence entailment for the object.  
 b. failure of substitutivity of coreferential terms.  
 c. difference in the acceptability of personal vs. Impersonal pronouns.  
 d. conditions for the use of the phrase *the same person/thing*, where *thing* is felicitous only in intensional contexts (e.g. *Sam is looking for the same thing/\*person as Sue, namely a new assistant.*).

According to (13a), as you can see in (12c), **chac-ta** seems to be *intensional* because

*find* doesn't entail the existence of the object (*unicorn*). On the contrary, *kapang* in (12b) does exist and this fails to satisfy the condition (13a). In case of the condition (13b), we can't substitute the object *mapepsa* as a coreferential term *kukes* in (14a). This is why the subsequent sentence in (14a) is not well-formed grammatically. But, it's possible for the object *chinkwu* in (14b), which is contradictory to the condition (13b).

- (14) a. *na-nun mapepsa<sub>i</sub>-lul chac -ko iss -ta. ?\*kulena, kukes<sub>i</sub>-i swum-ess-ta.*  
 I-Top wizard-ACC look for-PROG-DEC but it-NOM hide-PAST-DEC  
 "I am looking for a wizard. ?\*But, it hid"
- b. *na-nun chinkwu<sub>i</sub>-lul chac -ko iss -ta. kulena, kui<sub>i</sub>-ka swum-ess-ta.*  
 I-Top friend-ACC look for-PROG-DEC but he-NOM hide-PAST-DEC  
 "I am looking for a friend. But, he hid."

The difference between (14a) and (14b) is that the speaker presupposes the existence of friend and looks for his location in (14b), while the speaker in (14a) looks for the existence of the wizard. Lastly, we have rather grammatical-oriented conditions of (13c) and (13d).

- (15) a. *Mary-nun mwues-inka-lul, cuk pise-lul chac -ko iss -ta.*  
 M-Top something-ACC i.e. secretary look for-PROG-DEC  
 "Mary is looking for something, i.e. a secretary."
- b. *?\*Mary-nun nwukwu-inka-lul, cuk pise-lul chac -ko iss -ta.*  
 M-Top some person-ACC i.e. secretary-ACC look for-PROG-DEC  
 "?\*Mary is looking for some person, i.e. a secretary."
- c. *Sue-nun Mia-ka chac-nun ttokkathun kes, cuk say pise-lul chac-ko iss-ta.*  
 S-Top M-NOM look for-REL same thing i.e. new secretary-ACC look for-PROG-DEC  
 "Sue is looking for the same thing as Mia, i.e. a new secretary."
- d. *?\*Sue-nun Mia-ka chac-nun ttokkathun saram, cuk say pise-lul chac-ko iss-ta.*  
 S-Top M-NOM look for-REL same person i.e. new secretary-ACC look for-PROG-DEC  
 "?\* Sue is looking for the same person as Mia, i.e. a new secretary."

The sentences in (15) show a typical characteristic of *intensional* verb. From all these results, we see that *chac-ta* has both *intensional* and *extensional* features. Then, what's the relationship between *intension* and *extension* in *chac-ta*?

### 3.2. Relationship between intension and extension

Let's start with the examples in (16).

- (16) a. *Kim-un (maum-ey tunun) sinpal-ul chac-a heymay-ko iss-ta.*  
K-Top satisfactory shoes-ACC look for-wander-PROG-DEC  
“Kim is wandering to look for (satisfactory) shoes.”
- b. *Kim-un sinpal-ul chac-a kipp-ess-ta.*  
K-Top shoes-ACC find-glad-PAST-DEC  
“Kim was glad to find his shoes.”

In both (16a) and (16b), we have the same object *sinpal*. But, whereas the shoes in (16a) are not specific, that is, all preferable alternatives are allowed, the shoes that *Kim* found in (16b) are very specific. In other words, we have an *intensional verb reading* in (16a), unlike the *extensional verb reading* in (16b). This is a typical example that shows alternation between *intension* and *extension* depending on its *reading*. In this view, Hallman (2000) regards the *de re* or specific reading of an indefinite object nominal of *look for* as outside the scope of the intensional verb, as in (17b).

- (17) a. Mia is looking for [a man that visited her recently].  
b. [a man that visited her recently] Mia is looking for *t*.

There have been several discussions about *intensional* verbs, since Montague (1974) analyzed *seek* as ‘*try to find*’ (Moltman 1997, Larson 2000, Zuber 2000, Hallman 2004). Here, we believe that we can explain the relationship between *intensionality* and *extensionality* by analyzing the lexical structure of *chac-ta*.

- (18) a. *na-nun paykma tan wangcanyim-ul chac -ko iss -ta.*  
I-Top white-horse-ridden prince-ACC look for-PROG-DEC  
“I am looking for a white-horse-ridden prince.”
- b. *na-nun ecey san ppalkan phen-ul chac -ko iss -ta.*  
I-Top yesterday buy read pencil-ACC look for-PROG-DEC  
“I am looking for a red pencil I bought yesterday.”

Since the object of *chac-ta* in (18a) doesn't exist in the real world, the speaker wants to know the existence of the prince when s/he speaks. In contrast, the speaker in (18b)

already knows the red pencil and wants to know where it is now, i.e. the focus of this question is the location of the red pencil. In deep sense, the two sentences entail a certain question: *exist?* or *where (whereabout)?*

Generally we premise an existence of a search target and seek it. Thus, *chac-ta* is *intensional* when we don't know the existence yet (*de dicto*; of the said). However, we have an *extension* of *chac-ta* with the temporal-spatial specificity (*de re*; of the thing), once the *uncertainty* of existence is resolved (Pelletier 1993, 1994). The *uncertainty* with alternative possibilities is the essence of *intensionality* and we assimilate it to non-veridicality that Montague (1974) discussed and Zwarts (1995) developed in connection with *strong and weak negative polarity*. We tentatively claim that *intensionality* is weakly equivalent to *non-veridicality*, which is for *weak negative polarity*.

### 3.3. Lexical Conceptual Paradigm of *chac-ta*

The duality of *chac-ta* is clearly understood by studying *mood* in French. In French, while the *indicative* describes objective facts, the *subjunctive* is a subjective expression indicating motion or state in mind. The *subjunctive* always appears in a subordinate clause and is dependent on the verbal meaning in the main clause. In general, the verbal meaning in the main clause is fixed and the selection of *mood* in subordinate clause follows it. However, *chercher* in French uniquely takes either the *indicative* or the *subjunctive* in relative clauses when the search target is modified by the relative. Consider:

- (19) a. Le metteur en scene *cherche* un home qui **a** une cicatrice sur la joue gauche.  
(the *indicative*)  
b. Le metteur en scene *cherche* un home qui **ait** une cicatrice sur la joue gauche.  
(the *subjunctive*)  
(a,b) “The director is looking for a man with a scar on his left cheek.”

While (19a) premises the existence of the man, (19b) doesn't presuppose his existence and looks for his existence at first. That is, the main concern in (19a) is his location, in contrast to both the existence and the location in (19b). In this sense, we can possibly represent the complements of *chac-ta* as in (20).

- (20)  $\alpha\_lcp = \{ \text{existence} \cdot \text{location}, \text{location}, * \text{existence} \}$

If we assume that the complement of *chac-ta*, ARG<sub>2</sub>, is  $\alpha$ , the *lexical conceptual paradigm* (lcp) of complement will be represented as a *dotted type* of existence and location. We take a *dotted type*, ‘existence·location’, among complement\_lcps because there is no assumption of complements when *chac-ta* is used as an *intensional* verb. On the other hand, when *chac-ta* is used as an *extensional* verb, we take only ‘location’ as complement\_lcp. But, we can’t take only ‘existence’ as complement\_lcp, since we come to know the location inevitably due to its selective feature, even though we don’t attend.

This study is more significant in that we apply the concept of *intensionality* and *extensionality* and suggest a new paradigm of complements, as well as analyze an aspectual meaning and lexical structure of *chac-ta*.

#### 4. Discussion and Conclusion

In this study, we explored *chac-ta* in Korean, especially for an aspectual nature of it. We claimed that *chac-ta* is a *complementary polysemy*, which is unique in Korean in contrast to French, English, and Japanese. When looking into the *event structure* of *chac-ta*, there are two subevents: process of ‘trying to find’ and result state of ‘find’ simultaneously. But, *chac-ta* is often ambiguous in various contexts because the event head is *underspecified* in its lexical structure. This ambiguity is resolved by *event headedness* in the framework of the *Generative Lexicon Theory* when it is composed with other arguments such as *suffixes*, *auxiliaries* or *adverbs*.

Therefore, we can say that *chac-ta* is a single *accomplishment* verb, which has two subevents. For the *process only reading*, we assume that *chac-ta* has *headless* feature and the *result state* is not realized. Therefore, it seems to be an *activity* verb. By contrast, for the *result state reading*, *chac-ta* seems to be a normal *accomplishment* verb, which has an event head on the *process*. In a way, when *chac-ta* is combined with tense markers ‘-ass-’ and ‘-nun-’, the *headedness* is mainly dependent on the context.

In many languages, unlike in Korean, *chac-ta* is realized as two distinct verbs according to the aspectual meaning. For example, French has two different verbs, *chercher* (process) and *trouver* (result state), and each verb has a different aspect. In Chinese, similar to Korean, *tsuo* ‘look for’ means *find* (result state) when it is combined with a resultative auxiliary *dao*, forming an accomplishment event, of which the past is marked with *le*. The past marking with *le* without *dao*, *tsuo le* just means the past of the process *look for*.

What is notable is that *chac-ta* has *intensional* and *extensional* feature at the same

time. By analyzing its lexical structure, we found that *chac-ta* has two kinds of objects: *existence* and *location* of the target. According to the object, *chac-ta* can be *intensional* or *extensional* verb. Also, we suggested a *lexical conceptual paradigm* of complement for *chac-ta* and assumed that *intensionality* is weakly equivalent to *non-veridicality*.

Although this study is not generalized *interlingually* or even *intralingually* in Korean yet, when considering the universality and diversity of languages, we can develop and further this paradigm of analysis for a similar phenomenon.

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# Cognitive basis of semantic changes

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## Abstract

In this paper we explore the cognitive basis of new meanings development in English in the process of semantic change. The paper investigates how individual sense alterations that arise from deviations in the words use in a novel context are developing into a new meaning of a lexeme. We concentrate on the analysis of the conceptual structure of a word as the major factor imposing constraints on deviation and meaning variation. The conceptual structure of a polysemantic word may be represented as a macroframe consisting of several frames which are interconnected and form a kind of radial structure.

**Keywords:** conceptual structure, frame, pragmatic inference, semantics, new meaning.

## 1. Introduction

The paper focuses on the interrelation of language use with linguistic structure and underlying conceptual structure. We proceed from the assumption that new meaning development involves both cognitive and functional issues. In fact when any new meaning is formed we deal with three types of deviation: semantic ("sign - referent" relation), pragmatic ("sign - user" relation) and cognitive (relations between conceptual structures of original and new meanings). The first step in the development of a new meaning is the deviation in "sign - user" relation. The new meaning of a word appears as a result of instantaneous deviation in individual use in the new linguistic environment. The speaker invites the hearer to infer the new nuances of meaning. The hearer makes a cognitive effort to infer the new shades of meaning, which the word develops due to the unusual use. The individual pragmatic inference in the course of time becomes salient in the speaking community, it is shared and adapted by more than one speaker and becomes conventionalised (generalised) invited inference with strengthened pragmatic impact (Traugott and Dasher, 2002). And at a later stage generalized pragmatic inference is semanticised into a new coded meaning of a word.

In other words we try to analyse how novel individual pragmatic inferences, which present a kind of implicature, are developing into a new meaning of lexeme. The conceptual structure of a lexeme is represented by radial hierarchical structure consisting of several interconnected frames. We concentrate on the metonymical and metaphorical relations between the frames.

## 2. Analogy and relevance

Analogy is the principle in the transfer of information, which keeps the communication going through the continuity of reference (cf Zelinsky – Wibbelt,

2000:34; Beaugrande and Dressler, 1981:80; Boyd, 1993:505). By explaining the transfer of information in terms of the speaker's reasoning schemes we follow the scientific method of investigation as defined by Peirce's theory of signs (1934). In interpreting signs, speakers interrelate knowledge and language in a rule-governed and at the same time creative process. This process is intersubjective in that listeners decode the sign in the opposite direction from that which speakers take when encoding the sign. This intersubjective relationship supports Peirce's claim of the continuity of reference in the infinite interpretation of sense during the evolution of the word. Thereby the ubiquity of reasoning consists in intersubjectivising existing knowledge by striving for new interpretations (Zelinsky-Wibbelt, 2000). In interpreting signs speakers evaluate the signs extension iconically in a model. In accordance with Johnson-Laird's (1983) theory of mental models we think that speakers achieve their semantic representations in the following way. Proceeding from existing knowledge, the speakers build their propositional representations from what has been explicitly uttered. Based on the experience situation, speakers build analogous representations from which they can infer implicit information (Johnson-Laird, 1983:126f). What is essential for the cognition of analogy is hierarchy, which is based on hyponymy and meronymy. Hyponymy corresponds to the Is-A relationship in knowledge representation systems, which encodes the set inclusion between sub- and superclass. Meronymy corresponds to the Has-A relationship in knowledge representation systems which encodes the relations between wholes and parts (cf. Cruse, 1986:124). Following Zelinsky-Wibbelt (2003) we consider that within the hierarchy of humans knowledge hyponymy and meronymy establish an interface at the basic level of categorization. Within their hierarchical knowledge representation humans are also most capable of recognizing analogies at the basic level of categorization (not at subordinate or at superordinate levels).

How is adequate balance between processing existing knowledge and new information is achieved? The answer is the principle of relevance. Relevance theory postulates the general communicative ability by which listeners recognise the relevant information in a relevant context. The speakers strive at achieving maximal cognitive-pragmatic effect with minimal cognitive effort. (cf. Sperber&Wilson, 1995; Gutt 1991; Goatley, 1994; Zelinsky-Wibbelt, 2003)

In accessing new information humans create mental models by proceeding from existing knowledge. We follow the original schema theories as introduced by Barlett (1932) & Piaget (1972) as they are still valid in cognitive psychology. In accordance with Piaget and following Zelinsky-Wibbert (2003) we assume the individuals' active information processing, who integrate new information into their existing assimilating schemata, as long as there is no conflict between existing knowledge and newly encountered information. As soon as conflict arises the individual evaluates, whether the respective schema is accommodated in the new information. (cf Beaugrande, 1997:335f) This structural accommodation enables the emergence of new figurative concepts. (cf Zelinsky-Wibbert, 2003:28)

### 3. Pragmatic inference vs. cognitive inference

It is common knowledge that inference is a conclusion drawn from one or more assumptions. Abductive reasoning was introduced by Ch. Peirce as an empirically focused procedure for the construction of classes and categories from observed data. Abductive inference leads to testable hypotheses about the way things are. Data are correlated on the basis of their similarity or by analogy with some known system, usually with an eye to the apparent function or relevance with the emerging general description (Cruse, 2002).

We try to develop the widely recognized hypothesis about the pragmatics as the chief driving force in the processes of new meaning development. As pointed out by Bartsch 'semantic change is possible because the specific linguistic norm including semantic norms are hypothetical norms, subordinate to the highest norms of communication (the pragmatic aspect of change)' (Bartsch, 1998:393).

Being concerned with both cognitive and functional issues of a lexeme we draw on several strands of research including 1) cognitive studies of the structuring of semantic domain; 2) pragmatics, especially the pragmatics of the conventionalising of implicatures (we will call them invited inferences) that arise in language use (Geis, Zwicky, Grice, Brown & Levinson, Levinson 1995, 2000; Clark 1996); 3) discourse analysis conceived as the interaction of grammar and use (Hopper and Thompson, 1980).

The term *invited inference* is borrowed from Geis & Zwicky (1971) but we, following El. Traugott, understand invited inferences broader and do not restrict them to generalized implicatures. The speaker/writer evokes implicatures and invites the addressee to infer them. We prefer this term over 'context-induced inferences' (Heine, Claudi, Hunnemeyer, 1991). Since the latter term suggests a focus on induced inferences as interpreters and appears to downplay the active role of speaker/writer who is actually choreographing the communicative act (cf. Traugott and Dasher, 2002:16).

In thinking about meaning change and especially about invited inferences arising out of and being exploited in the flow of speech it is useful to build on Levinson (1995) and following Traugott and Dasher (2002) we distinguish three levels of meaning relevant to a lexeme:

- (i) CODED MEANINGS (SEMANTICS). This is a convention of a language at a given time.
- (ii) UTTERANCE-TOKEN MEANINGS. These are invited inferences (IINs) that have not been crystallized into commonly used implicatures. They arise in context 'on the fly'. They may be based in encyclopaedic knowledge, or on the situation at hand, in which case they are knowledge- or situation-specific.
- (iii) UTTERANCE-TYPE MEANINGS. These are generalized invited inferences (GIINs) which are crystallized invited inferences associated with certain lexemes or constructions that are specific to a linguistic community (Traugott and Dasher, 2002).

One of the tasks of pragmatics is to analyse the way the features of a wide pragmatic context are encoded on the level of system (cf. Levinson, 1983). In other words, pragmatics should study interconnection and interrelations between invited inferences, generalized invited inferences on the one hand and coded meaning on the other.

For the purpose of our analysis we suggest to introduce two types of inference: *pragmatic* inference and *semantic* one. We realise that there exist only one logical mechanism of inferencing but it can be implemented at two levels: pragmatic and semantic. Pragmatic inferencing can be viewed as the application of the general inferential mechanisms of the logic to a particular context for a specific goal. Semantic inference is the type of inference that is involved in the process of inheritance of information from the original coded meaning of a word into a new coded meaning of a word. It goes without saying that we can speak about the parallels between pragmatic/rhetoric inference and inference at the level of semantic structure.

These parallels can perhaps best be illustrated by examining the structure of *enthymemic inference* in rhetoric of Aristotle; that is, the conditions which license ellipsis in persuasive discourse. Inference is put to use for persuasive discourse, and that which is persuasive is evaluated only in reference to some specific individual (cf. Pustejovsky, 2001:236).

The semantic inference will be described in more detail in the next section during the analysis of the development of new meaning of some English adjectives.

#### **4. Cognitive-pragmatic basis of new meaning development in English adjectives**

In this section we will try to analyse the process of conventionalisation of pragmatic inferences and their semantisation into a new meaning of a lexeme. We will also try to analyse the changes in the conceptual structure of English adjectives as a major factor imposing constraints in the meaning and deviation.

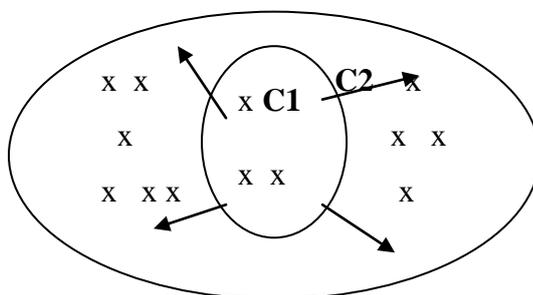
In the process of communication the speaker as if invites the hearer to perform the operation of inferencing of new nuances of meaning that arise as a result of novel use of traditional word in new non-typical context. The overall process of conventionalisation of pragmatic inference and their later semantisation as new coded meanings of a lexeme has been investigated thoroughly by E. Traugott (1999:96). She introduces a model of the mechanism by which innovations may arise in the individual and later be propagated or spread through the community.

Most studies of semantic change focus on the relationship between the original and the new coded meaning. The aim of such semantic analysis is to define the type of semantic change (narrowing, widening, metaphor, metonymy, pejoration, ameliation, enantiosemy). The studies of the role of pragmatic inferencing in semantic change are deficient.

The meaning M1 of a lexeme L is linked to a conceptual structure C1 of the original meaning. Meaning M1 represents any meaning that gives rise to invited inferencing. Speaker/writer exploits individual invited inferences innovatively in associative stream of speech (UTTERANCE-TOKEN meaning). For individual invited inference to be semanticised as a new coded meaning the innovation must be spread through the community. If speaker/writer innovates and addressee/receiver replicates this innovation they do so in the role of sp/ws, i.e. as language producers, not as language perceivers (Traugott and Dasher, 2002:38). In the course of time the traditional invited inference becomes conventionalised as GIINs (generalized invited inferences). Later GIINs are semanticised as a new coded meaning M2 with a new conceptual structure C2 of a lexeme L.

Let's consider the development of the new coded meaning of the word 'aggressive'. How did 'aggressive' turned into a good thing? Job advertisements show employers desperate to find 'aggressive' approaches and practise 'aggressive' strategies. In 1908, unhappy with Freud's emphasis on sex, his disciple Alfred Adler developed the idea of Aggressionstrieb, the 'aggression drive'. He meant self-assertion and desire to achieve. It was in Canada that their precise modern usage first surfaced, as a synonym for 'enterprising' or 'energetic'. In 1930, an advertisement in a Vancouver newspaper asked for an 'aggressive clothing salesman'. In 1956, a similar ad in Winnipeg suggested that 'only aggressive men need apply' (Morrish, 1999). It took 40 years for the new pragmatic inference to be conventionalised and generalised to be recorded in the dictionary as a new coded meaning with its own conceptual structure.

At this stage of our analysis we would like to concentrate on closer interconnection between *pragmatic* and *cognitive* inferencing. We will try to analyse the mechanism of the cognitive inferencing taking place between the conceptual structure of the original meaning and the new one (M1(C1) → M2(C2)). From the point of view of cognitive structure we can speak about ad hoc concepts, which can appear via narrowing or widening. The mechanisms of metaphorical and metonymical transforms has been explored profoundly for the past few years but the mechanisms of conceptual narrowing and widening have not been given proper attention. Let me start with the analysis of the process of conceptual widening (generalization). Schematically it can be represented in the following way.



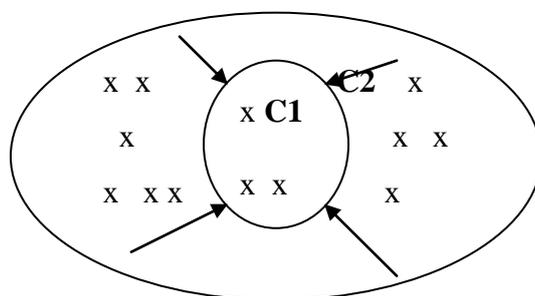
The extensional of the meaning is widened. i.e. the word comes to denote greater number of referential qualities while the intentional is becoming poorer cf. in logics – the wider the scope of notion, the poorer is the content.

Let's take the above mentioned word 'aggressive'. The original meaning of 'aggressive' - 'disposed to attack others', from the noun 'aggression' – a military term first found in the seventeenth century and meaning 'an unprovoked attack'. Both come from the Medieval Latin verb *aggressare*, meaning 'to launch such an action'.

If we compare the original meaning with the new one 'enterprising, energetic' we cannot fail to see that the conceptual feature *military* has disappeared. The process of generalization has taken place.

The extensional of the M1 has been widened. At the same time the positive component has been added to the original meaning. The process of enantiosemey has taken place (the change of the emotive charge into the opposite).

The opposite process of conceptual narrowing can be represented by the following scheme:



The extensional of the concept becomes narrower and the word comes to denote fewer number of references, the intentional is enriched.

This process can be illustrated by the development of new meaning of a word “adult” which presents a euphemism for ‘pornographic’ or ‘salacious’. The major exception to this rule is ‘adult education’ which has never been remotely sexy. The first deviation (individual invited inference) suggesting salacious character of the word ‘adult’ was recorded in 1958 in the classifieds of *the New Musical Express*. Unusual ‘adult photo sets’ appeared a ‘free exciting offer’. For a while the word was used with inverted commas whenever the sexual implication was intended. Now they are going and if you open any dictionary of modern English you will find ‘full-grown’ as first definition of the word ‘adult’ and ‘pornographic’ as its second. So the original meaning of ‘adult’ dates back to the seventeenth century. It was formed from the Latin word *adolescere* meaning ‘to grow’. Originally ‘adult’ referred to ‘physical maturity’. Only in the twentieth century it came to imply ‘mature attitudes’ or ‘grown-up subject matter’. What happened as a result of semantisation of the invited inference connected with the word ‘adult’ is a new coded meaning with narrower extensional. As it is known from logics the narrower is the scope of concept the richer is the content of it. So the conceptual structure of new coded meaning C2 has been enriched by the component ‘salacious’ and the negative emotive charge. In this case the narrowing of concept is accompanied by the process of pejoration. As it is known the main characteristics of euphemism is the concept of vagueness and it is achieved by the use of hyperonym instead of hyponym. The main formula of euphemistic concept is: general-for-specific. A more general term ‘adult’ is used to name one of the qualities, which is normally associated with the activities of adult people. In fact we can speak here about inference based on metonymy.

So whenever a new euphemistic meaning is developed we deal with the process of narrowing of concept accompanied by the process of pejoration. The paradox of euphemisms consists in the fact that when a new form catches up with a negative content denoted by the word under taboo, the euphemism loses its vagueness and becomes a direct name of unpleasant thing. Then a new linguistic form is needed to cover or soften the negative essence of the thing meant. A new conceptual narrowing is taking place. Similar narrowing of concept took place in the development of new meaning of the word ‘cheesy’, which is defined in American dictionaries as ‘shoddy’, ‘insubstantial’ and ‘cheap’. In early and mid-nineteenth-century Britain ‘the cheese’

meant 'the very best' or 'the right thing'. It comes for the Urdu or Persian *chiz*, meaning 'thing'. Hence, 'the real *chiz*' and then 'the real cheese'. From this, too, comes 'The Big Cheese' and 'The Cheese', a 100-year-old expression that lives on (Morrish, 2002). But as early as 1896 the first negative use of the word 'cheesy' - a vague term of depreciation - was recorded in the USA. That is the time when the first negative pragmatic inference took place. It took a century for the individual invited inference to become generalized invited inference. In 1951 W.H.Auden used the word 'cheesy' in its new meaning in his well-known poem. But the actual semantisation of this pragmatic inference took place in the 1980s when the word became a buzz word on the US campuses where the fragrant comestible had long been associated with all manner of bodily functions and by-products (Morrish, 2001:33). In the 21<sup>st</sup> century this negative concept of 'cheese' has been extended to the term of abuse. So the process of narrowing has been accompanied by the process of enantiosemy.

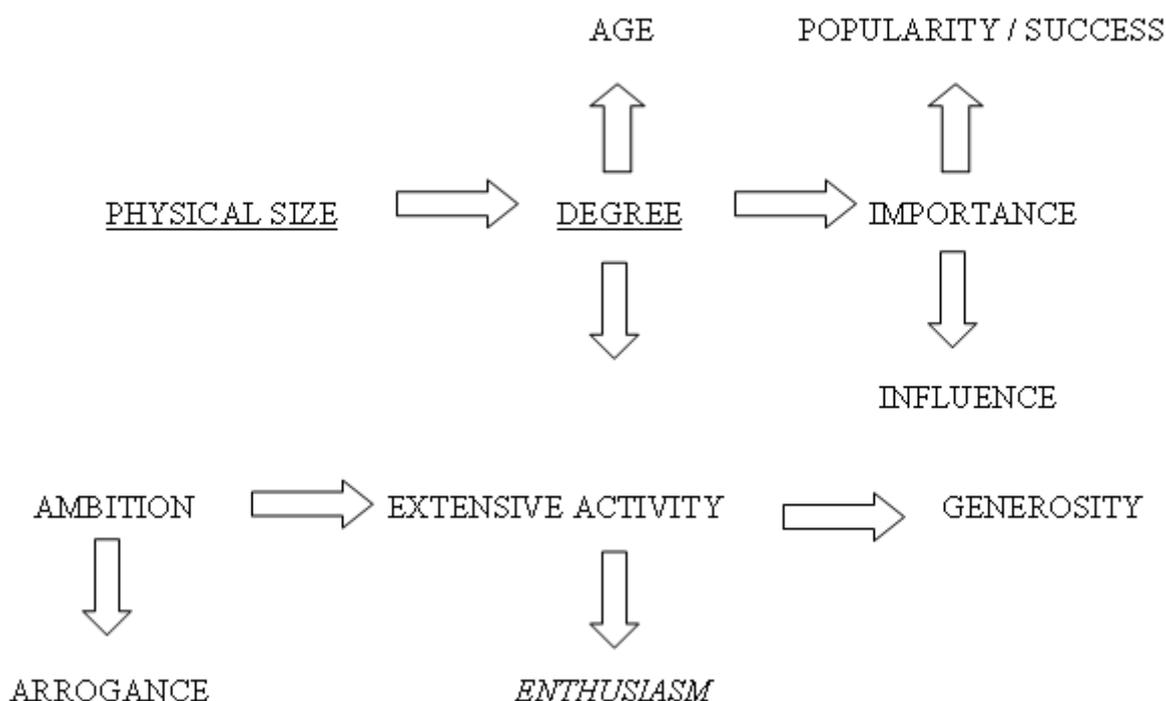
## **5. The analysis of changes in the conceptual structure of adjective big.**

Linguistic items map on to a number of concepts in the cognitive network. This network is built up by conceptual domains, which represent any kind of complex cognitive structure. Two types of domains are distinguished in cognitive linguistics. Content domains involve meaning proper, while schematic domains provide the conceptual representations for specific configurative frames. Both these domains mirror our perception of the world and both are conceptual in nature. In addition to these domains, there is an operating system consisting of different modes of construal which are imposed on the domains. They are not domains, but ways of structuring domains. They reflect basic cognitive abilities subsumed under five headings: specificity, background, perspective, scope and prominence. A linguistic expression typically invokes multiple domains, which characterize various aspects of the profiled entity or relation. Semantic contrast is due to the actual domains invoked in a particular expression and to the ranking of prominence among the domains (Langacker 1987: 57, e.g. *roe and caviar, come and go, half empty and half full, explode and explosion, tree and eucalyptus*). In the generative approach to lexical semantics, the domains are accounted for by levels of representation. Lexical inheritance is concerned with word meanings in relation to other word meanings in taxonomic hierarchies, and qualias specify various types of background knowledge associated with word meanings, such as purpose, function and mode of creation.

Adjectives are content words and as such the content domain is in the foreground. But adjectives are also configured according to the schematic domain. The property of gradability belongs in the schematic domain. It forms the conceptual basis for suitable modes of construal to become operative on the content part of lexical elements. Boundedness is a high-level schematic domain mode, which is abstract in the sense that it configures a wide range of different content domains, but at the same time it is highly concrete in that it is associated with basic experience of countability, aspectuality and gradability. Aspects based on content domains of various kinds have received attention in the linguistic literature (Warren 1992, Taylor 1996). But the configurational aspects have been put at a disadvantage in semantic theorizing in general and in the light of lexical interpretability, flexibility, indeterminacy and change in particular.

The conceptual structure of a polysemantic word may be represented as a macroframe consisting of several frames which are interconnected and form a kind of radial structure. Let's examine the conceptual structure of "Big" represented in Figure 1.

### Radial conceptual structure of adjective "Big"<sup>1</sup>



**Figure 1**

The prototypical meaning of *big* is of "considerable size or extent".

When we come across the phrases: *big cuts in staff*, or *big hazel eyes* the frame of size is evoked in the speaker's mind.

Closely related DEGREE frame of *big* which can also be regarded as prototypical.

(1) There could soon be a *big* increase in unemployment.

Another extension from the prototypical meaning of *big* may be the IMPORTANCE frame.

(2) He is a *big* noise in the organization.

The frames of SIZE, DEGREE and IMPORTANCE are connected by metaphorical projection (something of a considerable size or degree is important).

The IMPORTANCE frame has been extended to the frame of INFLUENCE. The conceptual domain of SIZE is directly mapped onto the conceptual domain of IMPORTANCE. The IMPORTANCE frame is also extended by the way of metonymical projection to the POPULARITY/SUCCESS frame.

(3) A lot of *big* names showed up at the gallery opening.

<sup>1</sup> Some elements of the scheme are borrowed from MIKOŁAJSKI (MIKOŁAJSKI 2007: 36)

For the past few years a number of new meanings have been added to the existing ones which correlate with new frames in the conceptual structure of *big*. In the 1970s a new meaning appeared “to be enthusiastic about smth, be a great fan or admirer of”.

(4) That company is *big* on research.

(5) I am very *big* on Goldwater (Nelson Rockefeller has been saying). We have been good friends over the years with a few unfortunate hiatuses. (National Review. 5/23/75 p. 544) cp.

(6) She said, I have just been at Macy’s. I have been going to Macy’s every day for the last two weeks. I am very *big* on Macy’s (New Yorker 5/16/77 p. 86 (1968)).

This new meaning is embedded into the frame of ENTHUSIASM which is closely connected with the frame of GENEROSITY (normally accompanied by frame of IRONY):

(7) I’m inclined to take pity on you. That’s *big* of you!

(8) A whole 5 pound! That was very *big* of her, I must say!

The two new frames represent a subordinate level of hierarchical structure of the macroframe of adjective *big*. The frames of EXTENSIVE ACTIVITY, AMBITION and ARROGANCE belong to the same subordinate level in the structure of the adjective. They are closely interconnected by way of metaphorical and metonymical projection and they overlap.

The frame of ARROGANCE is a relatively new emergent structure.

(9) George is such a show-off. He likes acting *big* sometime.

When a word is used in a discourse a particular frame of its conceptual structure is activated.

## 6. Conclusion

In the present paper we tried to explore the conceptual basis of semantic changes in present day English. We build on the interplay between creativity and conventionality in the process of new meaning creation. We tried to show that the new meaning of a word originates from the creative non-typical novel use of a traditional word in a non-typical linguistic environment. Three types of deviation have been analysed: pragmatic, semantic and cognitive. For the pragmatic invited inference to become semanticised as a new coded meaning it has to go through the process of conventionalisation, which normally lasts from twenty to one hundred years.

It was essential for the purposes of our analysis to distinguish between two types of linguistic inferences: pragmatic and cognitive. The former has to do with a context of a situation; the latter – with the changes in the conceptual structures of the original and new coded meanings. We tried to shed some light on the process of concept-narrowing and concept extension underlying the mechanisms of semantic changes. So the paper illustrates how inference actually becomes new reference as a result of intricate interplay between creativity and conventionality. Inference is always creative, reference is always conventional. We have tried to show that the conceptual structure of a polysemantic word is the major factor imposing constraints on deviation and meaning variation. The conceptual structure of a polysemantic word may be represented as a macroframe consisting of several frames which form a kind of radial structure. The

frames are interconnected with each other by way of metonymical and metaphorical projection as well as by extension through conceptual widening and narrowing.

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# Cognitive basis of semantic changes

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## Abstract

In this paper we explore the cognitive basis of new meanings development in English in the process of semantic change. The paper investigates how individual sense alterations that arise from deviations in the words use in a novel context are developing into a new meaning of a lexeme. We concentrate on the analysis of the conceptual structure of a word as the major factor imposing constraints on deviation and meaning variation. The conceptual structure of a polysemantic word may be represented as a macroframe consisting of several frames which are interconnected and form a kind of radial structure.

**Keywords:** conceptual structure, frame, pragmatic inference, semantics, new meaning.

## 1. Introduction

The paper focuses on the interrelation of language use with linguistic structure and underlying conceptual structure. We proceed from the assumption that new meaning development involves both cognitive and functional issues. In fact when any new meaning is formed we deal with three types of deviation: semantic ("sign - referent" relation), pragmatic ("sign - user" relation) and cognitive (relations between conceptual structures of original and new meanings). The first step in the development of a new meaning is the deviation in "sign - user" relation. The new meaning of a word appears as a result of instantaneous deviation in individual use in the new linguistic environment. The speaker invites the hearer to infer the new nuances of meaning. The hearer makes a cognitive effort to infer the new shades of meaning, which the word develops due to the unusual use. The individual pragmatic inference in the course of time becomes salient in the speaking community, it is shared and adapted by more than one speaker and becomes conventionalised (generalised) invited inference with strengthened pragmatic impact (Traugott and Dasher, 2002). And at a later stage generalized pragmatic inference is semanticised into a new coded meaning of a word.

In other words we try to analyse how novel individual pragmatic inferences, which present a kind of implicature, are developing into a new meaning of lexeme. The conceptual structure of a lexeme is represented by radial hierarchical structure consisting of several interconnected frames. We concentrate on the metonymical and metaphorical relations between the frames.

## 2. Analogy and relevance

Analogy is the principle in the transfer of information, which keeps the communication going through the continuity of reference (cf Zelinsky – Wibbelt,

2000:34; Beaugrande and Dressler, 1981:80; Boyd, 1993:505). By explaining the transfer of information in terms of the speaker's reasoning schemes we follow the scientific method of investigation as defined by Peirce's theory of signs (1934). In interpreting signs, speakers interrelate knowledge and language in a rule-governed and at the same time creative process. This process is intersubjective in that listeners decode the sign in the opposite direction from that which speakers take when encoding the sign. This intersubjective relationship supports Peirce's claim of the continuity of reference in the infinite interpretation of sense during the evolution of the word. Thereby the ubiquity of reasoning consists in intersubjectivising existing knowledge by striving for new interpretations (Zelinsky-Wibbelt, 2000). In interpreting signs speakers evaluate the signs extension iconically in a model. In accordance with Johnson-Laird's (1983) theory of mental models we think that speakers achieve their semantic representations in the following way. Proceeding from existing knowledge, the speakers build their propositional representations from what has been explicitly uttered. Based on the experience situation, speakers build analogous representations from which they can infer implicit information (Johnson-Laird, 1983:126f). What is essential for the cognition of analogy is hierarchy, which is based on hyponymy and meronymy. Hyponymy corresponds to the Is-A relationship in knowledge representation systems, which encodes the set inclusion between sub- and superclass. Meronymy corresponds to the Has-A relationship in knowledge representation systems which encodes the relations between wholes and parts (cf. Cruse, 1986:124). Following Zelinsky-Wibbelt (2003) we consider that within the hierarchy of humans knowledge hyponymy and meronymy establish an interface at the basic level of categorization. Within their hierarchical knowledge representation humans are also most capable of recognizing analogies at the basic level of categorization (not at subordinate or at superordinate levels).

How is adequate balance between processing existing knowledge and new information is achieved? The answer is the principle of relevance. Relevance theory postulates the general communicative ability by which listeners recognise the relevant information in a relevant context. The speakers strive at achieving maximal cognitive-pragmatic effect with minimal cognitive effort. (cf. Sperber&Wilson, 1995; Gutt 1991; Goatley, 1994; Zelinsky-Wibbelt, 2003)

In accessing new information humans create mental models by proceeding from existing knowledge. We follow the original schema theories as introduced by Barlett (1932) & Piaget (1972) as they are still valid in cognitive psychology. In accordance with Piaget and following Zelinsky-Wibbert (2003) we assume the individuals' active information processing, who integrate new information into their existing assimilating schemata, as long as there is no conflict between existing knowledge and newly encountered information. As soon as conflict arises the individual evaluates, whether the respective schema is accommodated in the new information. (cf Beaugrande, 1997:335f) This structural accommodation enables the emergence of new figurative concepts. (cf Zelinsky-Wibbert, 2003:28)

### 3. Pragmatic inference vs. cognitive inference

It is common knowledge that inference is a conclusion drawn from one or more assumptions. Abductive reasoning was introduced by Ch. Peirce as an empirically focused procedure for the construction of classes and categories from observed data. Abductive inference leads to testable hypotheses about the way things are. Data are correlated on the basis of their similarity or by analogy with some known system, usually with an eye to the apparent function or relevance with the emerging general description (Cruse, 2002).

We try to develop the widely recognized hypothesis about the pragmatics as the chief driving force in the processes of new meaning development. As pointed out by Bartsch 'semantic change is possible because the specific linguistic norm including semantic norms are hypothetical norms, subordinate to the highest norms of communication (the pragmatic aspect of change)' (Bartsch, 1998:393).

Being concerned with both cognitive and functional issues of a lexeme we draw on several strands of research including 1) cognitive studies of the structuring of semantic domain; 2) pragmatics, especially the pragmatics of the conventionalising of implicatures (we will call them invited inferences) that arise in language use (Geis, Zwicky, Grice, Brown & Levinson, Levinson 1995, 2000; Clark 1996); 3) discourse analysis conceived as the interaction of grammar and use (Hopper and Thompson, 1980).

The term *invited inference* is borrowed from Geis & Zwicky (1971) but we, following El. Traugott, understand invited inferences broader and do not restrict them to generalized implicatures. The speaker/writer evokes implicatures and invites the addressee to infer them. We prefer this term over 'context-induced inferences' (Heine, Claudi, Hunnemeyer, 1991). Since the latter term suggests a focus on induced inferences as interpreters and appears to downplay the active role of speaker/writer who is actually choreographing the communicative act (cf. Traugott and Dasher, 2002:16).

In thinking about meaning change and especially about invited inferences arising out of and being exploited in the flow of speech it is useful to build on Levinson (1995) and following Traugott and Dasher (2002) we distinguish three levels of meaning relevant to a lexeme:

- (i) CODED MEANINGS (SEMANTICS). This is a convention of a language at a given time.
- (ii) UTTERANCE-TOKEN MEANINGS. These are invited inferences (IINs) that have not been crystallized into commonly used implicatures. They arise in context 'on the fly'. They may be based in encyclopaedic knowledge, or on the situation at hand, in which case they are knowledge- or situation-specific.
- (iii) UTTERANCE-TYPE MEANINGS. These are generalized invited inferences (GIINs) which are crystallized invited inferences associated with certain lexemes or constructions that are specific to a linguistic community (Traugott and Dasher, 2002).

One of the tasks of pragmatics is to analyse the way the features of a wide pragmatic context are encoded on the level of system (cf. Levinson, 1983). In other words, pragmatics should study interconnection and interrelations between invited inferences, generalized invited inferences on the one hand and coded meaning on the other.

For the purpose of our analysis we suggest to introduce two types of inference: *pragmatic* inference and *semantic* one. We realise that there exist only one logical mechanism of inferencing but it can be implemented at two levels: pragmatic and semantic. Pragmatic inferencing can be viewed as the application of the general inferential mechanisms of the logic to a particular context for a specific goal. Semantic inference is the type of inference that is involved in the process of inheritance of information from the original coded meaning of a word into a new coded meaning of a word. It goes without saying that we can speak about the parallels between pragmatic/rhetoric inference and inference at the level of semantic structure.

These parallels can perhaps best be illustrated by examining the structure of *enthymemic inference* in rhetoric of Aristotle; that is, the conditions which license ellipsis in persuasive discourse. Inference is put to use for persuasive discourse, and that which is persuasive is evaluated only in reference to some specific individual (cf. Pustejovsky, 2001:236).

The semantic inference will be described in more detail in the next section during the analysis of the development of new meaning of some English adjectives.

#### **4. Cognitive-pragmatic basis of new meaning development in English adjectives**

In this section we will try to analyse the process of conventionalisation of pragmatic inferences and their semantisation into a new meaning of a lexeme. We will also try to analyse the changes in the conceptual structure of English adjectives as a major factor imposing constraints in the meaning and deviation.

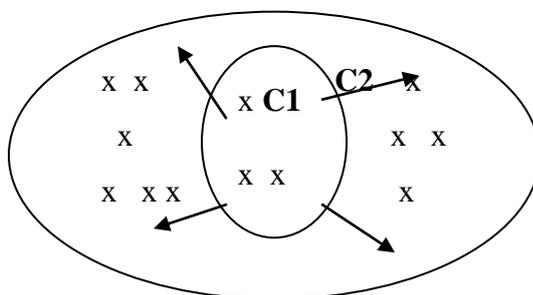
In the process of communication the speaker as if invites the hearer to perform the operation of inferencing of new nuances of meaning that arise as a result of novel use of traditional word in new non-typical context. The overall process of conventionalisation of pragmatic inference and their later semantisation as new coded meanings of a lexeme has been investigated thoroughly by E. Traugott (1999:96). She introduces a model of the mechanism by which innovations may arise in the individual and later be propagated or spread through the community.

Most studies of semantic change focus on the relationship between the original and the new coded meaning. The aim of such semantic analysis is to define the type of semantic change (narrowing, widening, metaphor, metonymy, pejoration, ameliation, enantiosemy). The studies of the role of pragmatic inferencing in semantic change are deficient.

The meaning M1 of a lexeme L is linked to a conceptual structure C1 of the original meaning. Meaning M1 represents any meaning that gives rise to invited inferencing. Speaker/writer exploits individual invited inferences innovatively in associative stream of speech (UTTERANCE-TOKEN meaning). For individual invited inference to be semanticised as a new coded meaning the innovation must be spread through the community. If speaker/writer innovates and addressee/receiver replicates this innovation they do so in the role of sp/ws, i.e. as language producers, not as language perceivers (Traugott and Dasher, 2002:38). In the course of time the traditional invited inference becomes conventionalised as GIINs (generalized invited inferences). Later GIINs are semanticised as a new coded meaning M2 with a new conceptual structure C2 of a lexeme L.

Let's consider the development of the new coded meaning of the word 'aggressive'. How did 'aggressive' turned into a good thing? Job advertisements show employers desperate to find 'aggressive' approaches and practise 'aggressive' strategies. In 1908, unhappy with Freud's emphasis on sex, his disciple Alfred Adler developed the idea of Aggressionstrieb, the 'aggression drive'. He meant self-assertion and desire to achieve. It was in Canada that their precise modern usage first surfaced, as a synonym for 'enterprising' or 'energetic'. In 1930, an advertisement in a Vancouver newspaper asked for an 'aggressive clothing salesman'. In 1956, a similar ad in Winnipeg suggested that 'only aggressive men need apply' (Morrish, 1999). It took 40 years for the new pragmatic inference to be conventionalised and generalised to be recorded in the dictionary as a new coded meaning with its own conceptual structure.

At this stage of our analysis we would like to concentrate on closer interconnection between *pragmatic* and *cognitive* inferencing. We will try to analyse the mechanism of the cognitive inferencing taking place between the conceptual structure of the original meaning and the new one (M1(C1) → M2(C2)). From the point of view of cognitive structure we can speak about ad hoc concepts, which can appear via narrowing or widening. The mechanisms of metaphorical and metonymical transforms has been explored profoundly for the past few years but the mechanisms of conceptual narrowing and widening have not been given proper attention. Let me start with the analysis of the process of conceptual widening (generalization). Schematically it can be represented in the following way.



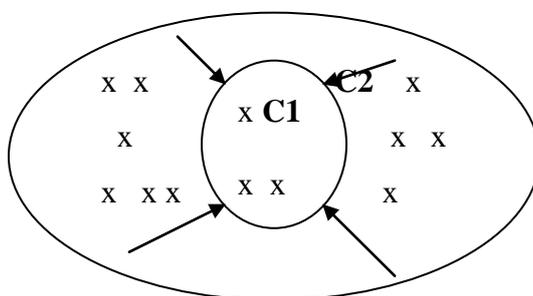
The extensional of the meaning is widened. i.e. the word comes to denote greater number of referential qualities while the intentional is becoming poorer cf. in logics – the wider the scope of notion, the poorer is the content.

Let's take the above mentioned word 'aggressive'. The original meaning of 'aggressive' - 'disposed to attack others', from the noun 'aggression' – a military term first found in the seventeenth century and meaning 'an unprovoked attack'. Both come from the Medieval Latin verb *aggressare*, meaning 'to launch such an action'.

If we compare the original meaning with the new one 'enterprising, energetic' we cannot fail to see that the conceptual feature *military* has disappeared. The process of generalization has taken place.

The extensional of the M1 has been widened. At the same time the positive component has been added to the original meaning. The process of enantiosemia has taken place (the change of the emotive charge into the opposite).

The opposite process of conceptual narrowing can be represented by the following scheme:



The extensional of the concept becomes narrower and the word comes to denote fewer number of references, the intentional is enriched.

This process can be illustrated by the development of new meaning of a word “adult” which presents a euphemism for ‘pornographic’ or ‘salacious’. The major exception to this rule is ‘adult education’ which has never been remotely sexy. The first deviation (individual invited inference) suggesting salacious character of the word ‘adult’ was recorded in 1958 in the classifieds of *the New Musical Express*. Unusual ‘adult photo sets’ appeared a ‘free exciting offer’. For a while the word was used with inverted commas whenever the sexual implication was intended. Now they are going and if you open any dictionary of modern English you will find ‘full-grown’ as first definition of the word ‘adult’ and ‘pornographic’ as its second. So the original meaning of ‘adult’ dates back to the seventeenth century. It was formed from the Latin word *adolescere* meaning ‘to grow’. Originally ‘adult’ referred to ‘physical maturity’. Only in the twentieth century it came to imply ‘mature attitudes’ or ‘grown-up subject matter’. What happened as a result of semantisation of the invited inference connected with the word ‘adult’ is a new coded meaning with narrower extensional. As it is known from logics the narrower is the scope of concept the richer is the content of it. So the conceptual structure of new coded meaning C2 has been enriched by the component ‘salacious’ and the negative emotive charge. In this case the narrowing of concept is accompanied by the process of pejoration. As it is known the main characteristics of euphemism is the concept of vagueness and it is achieved by the use of hyperonym instead of hyponym. The main formula of euphemistic concept is: general-for-specific. A more general term ‘adult’ is used to name one of the qualities, which is normally associated with the activities of adult people. In fact we can speak here about inference based on metonymy.

So whenever a new euphemistic meaning is developed we deal with the process of narrowing of concept accompanied by the process of pejoration. The paradox of euphemisms consists in the fact that when a new form catches up with a negative content denoted by the word under taboo, the euphemism loses its vagueness and becomes a direct name of unpleasant thing. Then a new linguistic form is needed to cover or soften the negative essence of the thing meant. A new conceptual narrowing is taking place. Similar narrowing of concept took place in the development of new meaning of the word ‘cheesy’, which is defined in American dictionaries as ‘shoddy’, ‘insubstantial’ and ‘cheap’. In early and mid-nineteenth-century Britain ‘the cheese’

meant 'the very best' or 'the right thing'. It comes for the Urdu or Persian *chiz*, meaning 'thing'. Hence, 'the real *chiz*' and then 'the real cheese'. From this, too, comes 'The Big Cheese' and 'The Cheese', a 100-year-old expression that lives on (Morrish, 2002). But as early as 1896 the first negative use of the word 'cheesy' - a vague term of depreciation - was recorded in the USA. That is the time when the first negative pragmatic inference took place. It took a century for the individual invited inference to become generalized invited inference. In 1951 W.H.Auden used the word 'cheesy' in its new meaning in his well-known poem. But the actual semantisation of this pragmatic inference took place in the 1980s when the word became a buzz word on the US campuses where the fragrant comestible had long been associated with all manner of bodily functions and by-products (Morrish, 2001:33). In the 21<sup>st</sup> century this negative concept of 'cheese' has been extended to the term of abuse. So the process of narrowing has been accompanied by the process of enantiosemy.

## **5. The analysis of changes in the conceptual structure of adjective big.**

Linguistic items map on to a number of concepts in the cognitive network. This network is built up by conceptual domains, which represent any kind of complex cognitive structure. Two types of domains are distinguished in cognitive linguistics. Content domains involve meaning proper, while schematic domains provide the conceptual representations for specific configurative frames. Both these domains mirror our perception of the world and both are conceptual in nature. In addition to these domains, there is an operating system consisting of different modes of construal which are imposed on the domains. They are not domains, but ways of structuring domains. They reflect basic cognitive abilities subsumed under five headings: specificity, background, perspective, scope and prominence. A linguistic expression typically invokes multiple domains, which characterize various aspects of the profiled entity or relation. Semantic contrast is due to the actual domains invoked in a particular expression and to the ranking of prominence among the domains (Langacker 1987: 57, e.g. *roe and caviar, come and go, half empty and half full, explode and explosion, tree and eucalyptus*). In the generative approach to lexical semantics, the domains are accounted for by levels of representation. Lexical inheritance is concerned with word meanings in relation to other word meanings in taxonomic hierarchies, and qualias specify various types of background knowledge associated with word meanings, such as purpose, function and mode of creation.

Adjectives are content words and as such the content domain is in the foreground. But adjectives are also configured according to the schematic domain. The property of gradability belongs in the schematic domain. It forms the conceptual basis for suitable modes of construal to become operative on the content part of lexical elements. Boundedness is a high-level schematic domain mode, which is abstract in the sense that it configures a wide range of different content domains, but at the same time it is highly concrete in that it is associated with basic experience of countability, aspectuality and gradability. Aspects based on content domains of various kinds have received attention in the linguistic literature (Warren 1992, Taylor 1996). But the configurational aspects have been put at a disadvantage in semantic theorizing in general and in the light of lexical interpretability, flexibility, indeterminacy and change in particular.

The conceptual structure of a polysemantic word may be represented as a macroframe consisting of several frames which are interconnected and form a kind of radial structure. Let's examine the conceptual structure of "Big" represented in Figure 1.

### Radial conceptual structure of adjective "Big"<sup>1</sup>

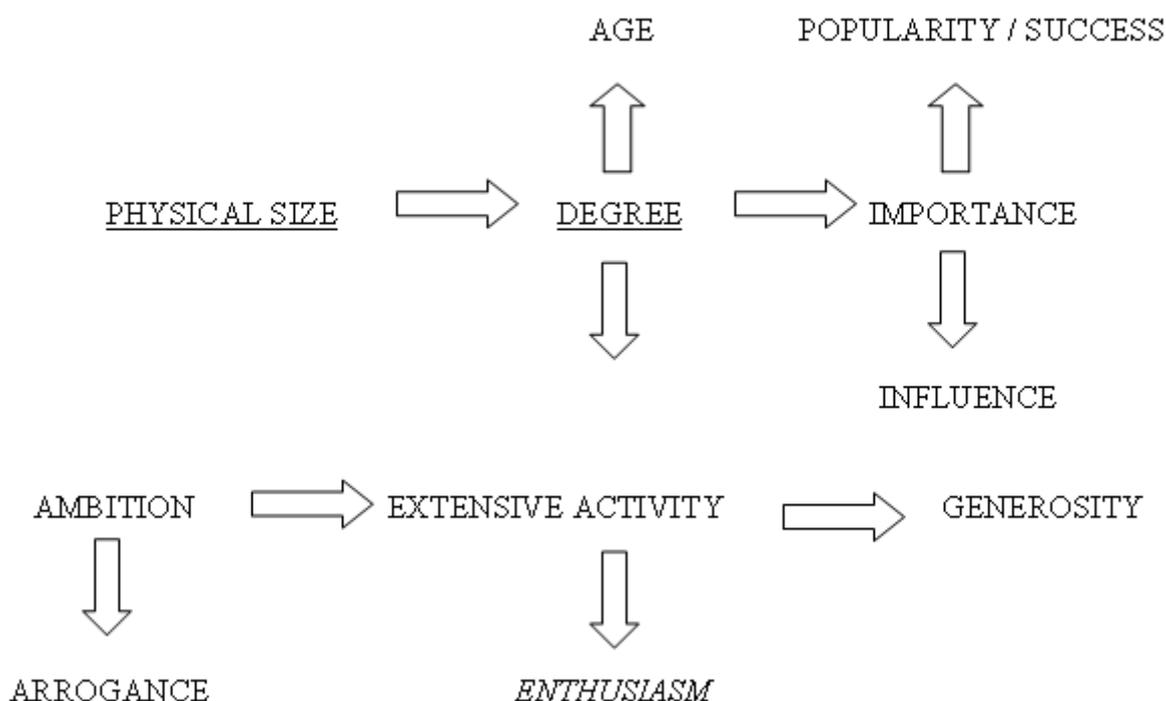


Figure 1

The prototypical meaning of *big* is of "considerable size or extent".

When we come across the phrases: *big cuts in staff*, or *big hazel eyes* the frame of size is evoked in the speaker's mind.

Closely related DEGREE frame of *big* which can also be regarded as prototypical.

(1) There could soon be a *big* increase in unemployment.

Another extension from the prototypical meaning of *big* may be the IMPORTANCE frame.

(2) He is a *big* noise in the organization.

The frames of SIZE, DEGREE and IMPORTANCE are connected by metaphorical projection (something of a considerable size or degree is important).

The IMPORTANCE frame has been extended to the frame of INFLUENCE. The conceptual domain of SIZE is directly mapped onto the conceptual domain of IMPORTANCE. The IMPORTANCE frame is also extended by the way of metonymical projection to the POPULARITY/SUCCESS frame.

(3) A lot of *big* names showed up at the gallery opening.

<sup>1</sup> Some elements of the scheme are borrowed from MIKOŁAJSKI (MIKOŁAJSKI 2007: 36)

For the past few years a number of new meanings have been added to the existing ones which correlate with new frames in the conceptual structure of *big*. In the 1970s a new meaning appeared “to be enthusiastic about smth, be a great fan or admirer of”.

(4) That company is *big* on research.

(5) I am very *big* on Goldwater (Nelson Rockefeller has been saying). We have been good friends over the years with a few unfortunate hiatuses. (National Review. 5/23/75 p. 544) cp.

(6) She said, I have just been at Macy’s. I have been going to Macy’s every day for the last two weeks. I am very *big* on Macy’s (New Yorker 5/16/77 p. 86 (1968)).

This new meaning is embedded into the frame of ENTHUSIASM which is closely connected with the frame of GENEROSITY (normally accompanied by frame of IRONY):

(7) I’m inclined to take pity on you. That’s *big* of you!

(8) A whole 5 pound! That was very *big* of her, I must say!

The two new frames represent a subordinate level of hierarchical structure of the macroframe of adjective *big*. The frames of EXTENSIVE ACTIVITY, AMBITION and ARROGANCE belong to the same subordinate level in the structure of the adjective. They are closely interconnected by way of metaphorical and metonymical projection and they overlap.

The frame of ARROGANCE is a relatively new emergent structure.

(9) George is such a show-off. He likes acting *big* sometime.

When a word is used in a discourse a particular frame of its conceptual structure is activated.

## 6. Conclusion

In the present paper we tried to explore the conceptual basis of semantic changes in present day English. We build on the interplay between creativity and conventionality in the process of new meaning creation. We tried to show that the new meaning of a word originates from the creative non-typical novel use of a traditional word in a non-typical linguistic environment. Three types of deviation have been analysed: pragmatic, semantic and cognitive. For the pragmatic invited inference to become semanticised as a new coded meaning it has to go through the process of conventionalisation, which normally lasts from twenty to one hundred years.

It was essential for the purposes of our analysis to distinguish between two types of linguistic inferences: pragmatic and cognitive. The former has to do with a context of a situation; the latter – with the changes in the conceptual structures of the original and new coded meanings. We tried to shed some light on the process of concept-narrowing and concept extension underlying the mechanisms of semantic changes. So the paper illustrates how inference actually becomes new reference as a result of intricate interplay between creativity and conventionality. Inference is always creative, reference is always conventional. We have tried to show that the conceptual structure of a polysemantic word is the major factor imposing constraints on deviation and meaning variation. The conceptual structure of a polysemantic word may be represented as a macroframe consisting of several frames which form a kind of radial structure. The

frames are interconnected with each other by way of metonymical and metaphorical projection as well as by extension through conceptual widening and narrowing.

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# What the Avoidance of a Highly Grammaticalized Morpheme

## In SLA Tells Us: The Case of L2 Chinese

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### Abstract

*Ba* that marks disposal relationship is a highly grammaticalized morpheme in Chinese. This article analyzes how Korean learners of Chinese language avoiding using one kind of *ba* -construction that marks displacement, with a view to understand how non-native speakers comprehend *ba* and *ba*-construction in their cognitive system, and how L1 and target language knowledge react in interlanguage construction. 25 intermediate-level Korean speakers are tested in the written task. The results show that L2 learners draw heavily from their L1 to found a paring counterpart of *ba*-construction, which causes grammatical errors and information asymmetry, bringing out the “missing” meaning of this grammaticalized morpheme.

**Keywords:** Chinese *ba*-construction; avoidance; grammaticalized morpheme; disposal relationship; cognitive system

### ***Ba*-construction and its performance in L2 Chinese**

In Mandarin Chinese, *ba*-construction is generally one of the most difficult constructions for L2 Chinese learners because of its complexity. Early studies of Chinese SLA show that, learners not only find it difficult to understand the abstract meaning of *ba*, but also have unsatisfied performance on using it correctly and properly. (Yu 2000; Wang 2003, 2004; Lu 2003; Huang & Yang 2004; Li & Deng 2005; Cheng 2006) In many case, Learners rather applied the strategy of avoiding *Ba*-construction rather than making mistakes. (Yu 2000; Li & Wang 2001; Luo 1999, 2000; Liu 2003)

*Ba* is highly grammaticalized in the process of historical development, whose origin with the meaning of “to take” and “to hold” can be traced back as early as the 5th to 3rd centuries B.C. (Bennett 1981; S. Yang 1995 etc.). In modern Chinese, there is an argument which is generally accepted that *ba* is an overt accusative case marker with the function of subjective disposition by exploring the semantic features and the syntactic analysis all subtypes of *ba*-construction. The form of *Ba*-construction basically involves five parts, which can simply express as “NP<sub>1</sub>+ *ba* + NP<sub>2</sub>+ Verb. + XP”. That is, the sentence begins with a subject (NP<sub>1</sub>), which can be omitted in the case when the subject is already mentioned in the previous sentence. *Ba* is used after

NP<sub>1</sub>, followed directly by an object (NP<sub>2</sub>). A verb with XP before or after is used at the end of the sentence. This XP can be an adjective (1b) or aspect markers (1c) or complements that refer to the result of an action (1a, 1d).

- (1) a. Wo **ba** shu fang zai-zhuozi-shang.  
 I **ba** book put table on  
 “I put the book on the table.”  
 b. Ta **ba** fangzi mai le.  
 He **ba** house sell Asp-perfective  
 “He sold the house.”  
 c. Mama **ba** yifu xi ganjing le.  
 Mother **ba** clothes wash clean Asp-perfective  
 “Mother washed clean the clothes.”  
 d. Wo **ba** Renminbi huan cheng Meiyuan.  
 I **ba** RMB change into USD.  
 “I change RMB into USD”

Some subtypes of *ba*-constructions (2a, 3a) have non-*ba* counterparts (2b, 3b), sharing all the other parts except for the word *ba*. There is little difference between two constructions that they can be exchanged in most of the cases. But as to some specific subtypes, i.e. displacement *ba*-construction (4a), there are no non-*ba* counterparts (4b) that exist, which means that *ba* is forced to use in the construction.

- (2) a. Ta **ba** nage fangzi mai le.  
 He **ba** that house sell Asp-perfective  
 “He sold that house.”  
 b. Ta mai le nage fangzi.  
 He sell Asp-perfective that house.  
 “He sold that house.”  
 (3) a. Mama **ba** yifu xi ganjing le.  
 Mother **ba** clothes wash clean Asp-perfective  
 “Mother washed clean the clothes.”  
 b. Mama xi ganjing yifu le.  
 Mother wash clean clothes Asp-perfective  
 “Mother washed clean the clothes.”  
 (4) a. Ta **ba** shu fang zai-zhuozi-shang.  
 He **ba** book put table on.  
 “He puts the book on the table.”  
 b. Ta fang shu zai-zhuozi-shang.  
 He put book table on.  
 “He puts the book on the table.”

Chinese *ba*-construction is very unique when compared with some other languages, i.e. English and Korean. There are no *ba* equivalent morphemes in most

languages with the exception of Vietnamese, as shown in (5).

- (5) a. I put the book on the table. (English)  
b. Wo *ba* shu fang zai-zhuozi-shang. (Chinese)  
I *ba* book put table on  
c. Ney-ka cheyk-ul cheyk-sang wi-ey tu-ot-ta. (Korean)  
I-Nom book-Object table on put-Past tense

Crosslinguistics factors, therefore, should be taken into consideration when answering questions concerning the variations and avoidance of *ba*-construction in Chinese SLA.

### Research Questions

The use of *ba* is forced to use in the structures referring to displacement. It is the typical and highly used subtype of *ba*-construction. It has the form in “NP<sub>1</sub> + *ba* + NP<sub>2</sub> + V. *zai* / *dao* + NP<sub>3</sub> + locative”, in which “*zai*+ NP<sub>3</sub>” or “*dao*+ NP<sub>3</sub>” both indicates the ending locations of the movement, as shown in (6a).

- (6) a. Ta ba shu fang zai-zhuozi-shang.  
He BA book put table on .  
“He puts the book on the table.”

There are three constructions applied in the same manner NP<sub>1</sub>, NP<sub>2</sub> and NP<sub>3</sub> with minor variation in meaning according to the context.

We would like to explore the cognitive system of *ba*-construction of L2 Chinese learners through examining the following questions:

- (i.) Why and how do learners avoid *ba*?
- (ii.) What does the avoidance of *ba* tells us?
- (iii.) Is the explanation “a subjective disposition marker” strong enough?

### Method

#### *Material and Procedure*

Cross-sectional data was collected from L2 Chinese learners through a sentence completion task. The task included 8 target items in four categories, representing four contexts (see Appendix). Four contexts were as follows:

- (i) To introduce the room. The context does not contain subjective disposition meaning and requires sentences with locations as the subject, i.e. existence sentence “N<sub>3</sub> + locative + you/V.zhe + N<sub>2</sub>” (7a).

(7) a. Zhuozi-shang you / fang zhe yi-ben shu.  
Table on there is put Asp-imperfective a book  
“There is a book on the table.”

(ii) To clean up the room (*I*). The context contains subjective disposition meaning and requires sentences with agents as the subject, in which the agents are emphasized, i.e. *ba*-sentence (7b).

(7) b. Ta *ba* shu fang zai-zhuozi-shang.  
He *ba* book put table on .  
“He puts the book on the table.”

(iii) To locate objects. The context does not contain subjective disposition meaning and requires sentences with objects as the subject, i.e. markedless passive sentence “N<sub>2</sub> + V.zai/dao + N<sub>3</sub> + locative” (7c) and also existence sentence “N<sub>2</sub> + zai + N<sub>3</sub> + locative” (7d).

(7) c. Shu fang zai-zhuozi-shang.  
Book put table on  
“The book is put on the table.”

(7) d. Shu zai-zhuozi-shang.  
Book table on  
“The book is on the table.”

(iv) To clean up the room (*II*). The context contains subjective disposition meaning and requires sentences with agents as the subject, in which the agents are not emphasized, i.e. *ba*-construction (7b).

The four categories were similar to some extent because they shared the same subjects and objects. We would like to see how participants chose different sentence patterns to fit into different contexts and in which context they might use other patterns rather than *ba*-construction.

The task was pilot-tested with 10 native speakers, and whose responses were 90% target. The data was collected at Sun Yat-sen University during regular class session, and it took around 20 minutes to complete. Responses were coded according to taking approximately the sentence pattern the participants used. Spelling errors and other irrelevant errors were ignored.

## Participants

The twenty-five participants are Korean students ranged from 18 to 25 years old. The students were in the same intermediate level Chinese class at the time of data collection. The participants were taught the *ba*-construction in their previous studies.

## Results

All participants finished the task. The data was divided into three groups according to the sentence pattern, including (i) sentences with objects as the subject (7c, 7d); (ii) sentences with locations as the subject (7a); (iii) sentences with agents as the subject. Group (iii) includes *ba*-sentences (7b) and error non-*ba* sentences that participants produced, such as “N<sub>1</sub> + V. + N<sub>2</sub> zai/dao + N<sub>3</sub> + locative”(8).

- (8). Ta fang shu zai-zhuozi-shang.  
 He put book table on .  
 “He puts the book on the table.”

Data was put in the form of a matrix, which better showed the central tendency of sentence distribution for 8 target items (see Table1).

**Table 1** Matrix of sentence distribution

no disposition	A (objects as the subject)	B (locations as the subject)
dispositoin	C (agents as the subject)	D (ba-sentence)

Results indicate that the central tendency of sentence distribution state what the tendency is (see Table 2). In Context (i), students were required to produce two sentences for a paragraph in order to introduce a room. 70% of them chose sentences that do not contain subjective disposition meaning, with location as the subject (*Shuzhuo pang you yige zuqiu. There is a football near to the desk.*), which were accorded with the context. 30% chose sentences with objects as the subject (*Zuqiu fang zai shuzhuo pang. The football is put near the desk.*) 1% used *ba*-constructions. Few students chose sentences with agents as the subject.

**Table 2** Distribution of sentences in four contexts

To introduce the room		To clean up the room I		To locate the objects		To clean up the room II	
29	70	18	2	77	15	82	1
1	1	76	80	2	8	16	17

Context (ii) concerned cleaning up the room, in which agents were emphasized since different actions were finished by different family members according to the paragraph. 76% of the students chose *ba*-constructions as the context required. There was no obvious avoidance of using *ba*-construction. On the other hand, 11% chose sentences with objects as the subject (*Zuqiu fang zai zhuozi pang. The football is put*

near the desk.), and 2% used sentences with locations as the subject (*Shuzhuo pang you yige zuqiu. There is a football near to the desk.*) In Context (iii), students located the objects in a room. The participants mainly chose sentences with objects as the subject (*Zuqiu fang zai zhuozi pang. The football is put near the desk.*), which matched the context. 14% of the participants chose sentences with locations as subject (*Shuzhuo pang you yige zuqiu. There is a football near to the desk.*). 2% chose *ba*-constructions. Notice in Context (iv), which concern cleaning up the room by one person, agent was not emphasized though the other parts were quite similar with those that were in Context (ii). 72% of the students chose sentences with objects as the subject (*Zuqiu fang zai zhuozi pang. The football is put near the desk.*), which was not what the context required. The paragraph did not sound as a coherent result. Only 16% chose the correct form: *ba*-construction. In this context, avoidance of using *ba* was obvious, which is the main issue this article examines. Moreover, there was a remarkable tendency that students selected markedless passive sentences instead of *ba*-constructions.

## Discussion

### *Syntax factor*

The avoidance of *ba*-construction is the result of some syntax factors. In context (i), (ii) and (iii), students chose proper sentence patterns with high accuracy, which means that they had strong context awareness, knowing whether or not to use certain sentences in some specific contexts. In other words, the reason of avoidance of *ba*-construction was not because they lacked of context awareness.

Context (ii) and (iv) both contain implication of subjective disposition meaning. Sentences with agents as the subject such as *ba*-constructions fitted in these contexts. But there was no obvious avoidance of *ba*-constructions in context 2, while in context 4 it was largely avoided. Two contexts were significantly similar to one another with the exception of the number of the subjects, which was the only syntax factor that caused avoidance. *Ba*-constructions were avoided and substituted by markedless passive sentences in the context that agent was not emphasized.

### Cognitive impact from L1

Meanwhile, the avoidance was also a result of negative transfer from L1. *Ba* is unique in Chinese, compared with Korean and other languages. In Chinese, the use of *ba* is when compulsory used to expressing displacement, as is shown in (9a). The subject (or agent) can sometimes be ellipsed when it has already been mentioned in previous context (9b). While there is no grammar marker in Korean that can be equated to *ba*, referring to displacement, as is shown in (9c). On the other hand, a markedless passive sentence that indicates location in Chinese (10a) has a one-to-one correlation

with a passive sentence in Korean (10b).

- (9) a. Wo *ba* shu fang zai-zhuozi-shang. (Chinese)  
I *ba* book put table on  
“I put the book on the table.”
- (9)b. Wo kai men, ranhou *ba* shu fang zai-zhuozi-shang.  
I open door then *ba* book put table on  
“I opened the door, and then put the book on the table.”
- (9) c. Ney-ka cheyk-ul cheyk-sang wi-ey tu-oss-ta. (Korean)  
I-Nom book-Object table on put-PST-DC  
“I put the book on the table.”
- (10) a. Shu fang zai-zhuozi-shang. (Chinese)  
Book put table on  
“The book is put on the table.”
- (10) b. Cheyk-en cheyk-sang wi-ey tu-oss-ta. (Korean)  
book-Nom table on put-PST-DC  
“The book is put on the table.”

In the syntax level, “*Wo ba shu fang zai-zhuozi-shang. (I put the book on the table)*” is simply the markedless passive sentence “*Shu fang zai-zhuozi-shang. (The book is put on the table)*” with “Subject + *ba*” as its beginning, using *ba* to indicating different context meanings: dynamic displacement or static reference of location. As for Korean, “*Ney-ka cheyk-ul cheyk-sang wi-ey tu-oss-ta. (I put the book on the table)*” is not only the subject *Ney-ka* combining with “*Cheyk-en cheyk-sang wi-ey tu-oss-ta*” (*The book is put on the table*), but also the change of the marker of *Cheyk* (*book*) from objective marker *-ul* into discourse marker *-en*. In a word, the key syntax function of separating dynamic displacement and static reference of location is *ba* in Chinese, while it is a case marker in Korean. The difference between non-subject *ba*-construction and markedless passive sentence is not only using *ba* or not, but also the context meaning of “subjective disposition” which is a hint that *ba* contains.

On the surface, Korean non-subject displacement sentence “*Cheyk-ul cheyk-sang wi-ey tu-oss-ta. ((Subject) put the book on the table)*” is very similar to Chinese markedless passive sentence “*Shu fang zai-zhuozi-shang. (The book is put on the table)*”. Indeed these two sentences are very much different with their context meanings. Non-subject *ba*-construction “*Ba shu fang zai-zhuozi-shang. ((Subject) put the book on the table)*” is actually the counterpart of the Korean non-subject displacement sentence. Influenced by similarities on the surface, Korean learners mis-equated non-subject *ba*-construction with Korean passive sentence. As a result, the learners thought that Chinese markedless passive sentence is equated to non-subject *ba*-construction. Therefore when agent (or subject) was not emphasized, non-*ba*-constructions were largely avoided and were substituted by markedless passive sentences, because of the negative transfer of L1.

## Conclusions

The avoidance of *ba*-construction was the result of both syntax factors and negative transfer from L1. When agent (or subject) was emphasized, there was no obvious avoidance of *ba*-constructions. When agent (or subject) was not emphasized, *ba* was largely avoided and substituted by markedless passive sentences. This study not only explores how the syntax hint of *ba* affects L2 learners' conception of *ba*-construction, but also illustrates how L1 negatively transfer to the L2 production. Moreover, this phenomenon in SLA also aided in analyzing the deeper contextual meaning of this highly grammaticalized *ba*. Finally, *ba* is not only a subjective disposition marker, but also an accusative case marker that emphasizes the agent.

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## Appendix

Context (ii): to clean up the room I

Ali kuai chuyuan le, mama、didi、jiejie、dou zai bang ta shoushi fangjian ne:  
(*Ali is leaving hospital soon. Now his mother, brother and sister are helping him to clean up his room.*)

didi zhidao Ali zui xihuan ti zuqiu, \_\_\_\_\_ (zuqiu; shuzhuo; pangbian).  
(*Ali's brother knows Ali like playing football most, \_\_\_\_\_(football; desk; beside)*)

Jiejie gei Ali mai le yiben hen youyisi de gushishu, \_\_\_\_\_(gushishu shuzhuo shang).  
(*Ali's sister brought an interesting story book for Ali, \_\_\_\_\_(story book; desk; on)*)

# A Game-Theoretic Interpretation of the Ontological Homology\* between Language and Consciousness

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## Abstract

Adopting the insights of the work in Game Theory (cf. Dixit and Skeath (2004)), the present paper submits a thesis that the correspondence relations assumed in the Tripartite Parallel Architecture (cf. work by Ray Jackendoff) are “Equilibria among Grammatical Processing Gadgets” in the grammars of individual languages. The significant corollary of the thesis is that we may do away with the set of what are called the correspondence rules.

**Keywords:** consciousness, syntax-semantics interface, auditory-articulatory interface, semantics-pragmatics interface.

## 1. Theoretical Framework

### 1.1. *Notion of gadgets*

By the wording “ontological homology,” the paper intends to convey that we witness a horde of structural parallelisms among the two processes and/or entities: language and consciousness. Our minds are a hierarchy of sets of processing gadgets (cf. Minsky’s concept of the “society of mind”), which are constituted of essentially identifiable and finite structures of brain cells and organs of sensation. Thus, consciousness is a mental process that is brought about by some activation of specifiable portions of a hierarchical nature. Language is a system or a hierarchy of gadgets that defines the set of grammatical outputs. Crucially the outputs of the system of the mind are felicitous outputs from the system. And the felicitous output is identified and evaluated by game-theoretic pay-off relationships. The theoretical model of the mind internalizes hierarchically organized computational gadgets that give more than one mental strategy. The outputs of the system are states of equilibria among the computational strategies. The processes of consciousness and language are

games among these gadgets.

The flexibility of the size of the strategy in some sense motivates the flexibility of the size of domain where the strategies are executed. I would like to cite two examples of mismatch in correspondence (i) from syntax-semantics interface, (ii) from auditory-articulatory interface in phonology and (iii) semantics-pragmatics interface..

The major assumptions of the present paper are as follows:

(1) Gadgets and the Equilibria

- a. The three grammatical components, phonological, syntactic and conceptual components, are organized by hierarchies of gadgets, which process specified outputs (strategies).
- b. The equilibria among grammatical processing gadgets (henceforth, GPG) are formally definable points at which several relevant GPGs acquires payoffs that are strategically the most highest.

We witness a horde of structural parallelisms among the two processes and/or entities: language and consciousness. Our minds are a hierarchy of sets of processing gadgets, which are constituted of essentially identifiable and finite structures of brain cells and organs of sensation.

Thus, consciousness is a mental process that is brought about by some activation of specifiable portions of a hierarchical nature. Consciousness of freedom is also defined in terms of the range of behaviors of mental gadgets that are specifiable and finite. Thus, freedom is restricted in nature, and in the same vein, freedom evolves if the number of mental processing gadgets increases or if the constitution of the hierarchy is somehow changed.

Language is a system or a hierarchy of gadgets that defines the set of grammatically optimal outputs. Crucially the outputs of the system of the mind are felicitous outputs from the system. And the felicitous output is identified and evaluated by game-theoretic pay-off relationships. The theoretical model of the mind internalizes hierarchically organized computational gadgets that give more than one mental strategy. The outputs of the system are states of equilibria among the computational strategies. The processes of consciousness and language are games among these gadgets.

Dixit and Skeath (2004:28) observe that the key term of Game Theory *strategy* covers every size of complete plans of action:

- (2) The term *strategy* covers all the situations, meaning a complete plan of action when necessary and meaning a single move if that is all that is needed in the particular game being studied.

The flexibility of the size of the strategy in some sense motivates the flexibility of the size of domain where the strategies are executed.

In the following three sections, I would like to cite examples of correspondence between linguistic modules to motivate our game-theoretic architecture of the linguistic theory.

## 2. Syntax-Semantics Interface

One of the phenomena of mismatch between the two grammatical components we take up is the variations of *when* clauses as exemplified in Canonical *When* Clauses (henceforth, CWC) and Narrative *When* Clauses (henceforth, NWC):

### (3) Canonical *When* Clauses and Narrative *When* Clauses

- a. I read the book when I was ill in hospital. (Canonical)
- b. John was doing the dishes when in came the dog. (Narrative)

The NWC can occur in isolation, while the CWC cannot:

### (4) Occurrence in Isolation

- a. #I read the book. When I was ill in hospital.
- b. Jane was doing the dishes. When in came the dog.

We assume that the sequentiality of NWCs is an iconic idiosyncrasy of the English conjunction *when*. Crucially, at the discourse level, change of the order of simple-past and past-progressive sentences does not incur any drastic change in the description of the situation and the course of events (ter Meulen (2000:152)).

Crucially, at the discourse level, change of the order of simple-past and past-progressive sentences does not incur any drastic change in the description of the situation and the course of events (ter Meulen (2000:152)):

### (5) Short discourses with simple past and past progressive

- a. Jane was patrolling the neighborhood. She noticed a car parked in an alley.
- b. Jane noticed a car parked in an alley. She was patrolling the neighborhood.

The present paper assumes two assumptions on conceptual structures and temporal elements to account for the combined effect of the aspectuality types (i.e., simple past and past progressive) crucially defines the construal of the development of the events depicted in the discourses (P stands for points in time and R stands for region in time. cf. Jackendoff (1987:398-399)):

### (6) Alignment of Temporal Elements in Five Event Types

- a. Point Event: *The light flashed.* [P]

- b. Achievement: *Bill arrived*. [R P]
- c. Inceptive Event: *Bill left*. [P R]
- d. Processes: *Bill ran around*. [R]
- e. Progressive Forms: *Bill was running around*. [R P R]

We interpret the stipulations on the alignment of temporal elements in (6) to be strategies given by GPGs that generate conceptual structures. We assume that the narrative discourse crucially includes the type of linked clauses with what are called Ground-Figure advancement, which we formalize as a GPG that is placed higher in the hierarchy of GPGs in the grammar of English as instantiated in (7). The idea of (7) comes from Talmy’s work:

(7) Grammatical Processing Gadget (Narrative)

$R \rightarrow R P R$ , where the P stands for the endpoint of the relevant event

The GPGs for progressive and point events interact with the GPG to yield the matrix in (8), where the lower ranked GPGs give “0” or “1” while the higher ranked GPG of narrative gives “0” or “2”:

(8) Payoff Matrix for (3b and 4b)

	Grammatical Processing Gadget (Narrative)				
Grammatical Processing Gadget (Progressive Form)		ON	OFF		Grammatical Processing Gadget (Point Event)
	ON	1, 1, 2 	1, 1, 0	ON	
	OFF	0, 0, 0	0, 0, 0	OFF	

The optimal strategic combination is signaled by “” in the matrixes. Note that the same payoff matrix holds as for (3b) and (4b).

Firstly, some specific GPGs generate conceptual structures that are linked to temporal elements, as exemplified in (6). Only for the explanatory brevity I will omit reference to the contents of the formal representation of the conceptual structures. The names of the relevant GPGs are placed on the right-hand side of the structures with paired parentheses and brackets:

It is crucial to note that in the case of (3a) the GPG (Narrative) is Off because the subordinate clause *I was ill in the hospital* does not have an endpoint to anchor on the temporal element in the tier that the GPG (Narrative) generates.

### 3. Auditory-Acoustic Interface

#### 3.1. Coarticulation

Let us now turn to a thought experiment, i.e., a case of coarticulation: *key* /ki:/ and *caw* /kɔ:/. At the systematic phonemic level, we observe one and the same segment /k/ word-initially. A careful observation of our pronunciation will give you an idea about the subtle but clear differences between the two instances of /k/ (Kühnert and Nolan (1999:7)), transcribed as follows:

(9) *key* [k̟i:] *caw* [k̠<sup>w</sup>ɔ:]

The /k/ in *key* is advanced, while that in *caw* is rounded and retracted. A caveat follows (Kühnert and Nolan (1999:7-8)):

(10) It is essential to the concept of coarticulation that at some level there be invariant, discrete units underlying the variable continuous activity of speech production. If this were not the case, and, for instance, the mentally stored representation giving rise to a production of the word ‘caw’ were a fully detailed articulatory plan, then when that word was spoken (in isolation at least) there would be no question of a process of articulation – the word would simply correspond to a set of instructions for the time-varying activity of the articulators, and sub-word segments would not exist in any sense, and could therefore not undergo ‘coarticulation’.

Kühner and Nolan’s (1999) discussion cited in (10) presupposes the notion of *underspecification* of predictable attributes at the level of underlying representation, as formalized by Archangeli (1984). Thus, the attribute “advanced” for the /k/ in *key* and the properties of roundedness and retractedness of the /k/ in *caw* are predictable.

Let us further develop our discussion of coarticulation toward a theoretically adequate explanation. Farnetani (1990:94ff) distinguishes between two main lines of thought in our explanation of coarticulation: “translation theories” and “intrinsic timing theories.” The first category adopts “the idea that coarticulation is a modification of the ‘units’ of canonical segments.” In the second, “there is no dichotomy between plan and execution and coarticulation is not an alteration of canonical forms but just the way the segments are serially ordered in speech.” Farnetani (1990:96) emphasizes what is, in our terminology, the strategic interplay of the phonological processing gadgets (henceforth, PPG):

- (11) ... the significance of the effects of articulatory constraints on the coarticulatory movements, i.e. on the complex interplay between influencing and influenced sounds, and on the relationship between *coarticulation and articulatory antagonism* [italics—YT].

In the wording “coarticulation and articulatory antagonism,” we notice a game-theoretic relationship among players in strategic environments.

Thus the present paper submits a thesis to the effect that the activity of articulating a linguistic sound is a “game” among PPGs. Thus we accept the following assumptions:

(12) Assumptions on Phonological Processing Gadgets

- a. Linguistic articulations of sounds emerge out of the interactions of articulatory strategies of PPGs distributed on a parallel fashion.
- b. PPGs are composed of smaller agents that cannot plan articulatory strategies.
- c. Articulatory strategies of a PPG are selected and applied so as to reach equilibria with those of other PPGs.

Let us return now to our examination of the cases in (9): *key* [ḳi:] and *caw* [ḳ<sup>w</sup>ɔ:]. We observe that four PPGs operate in the realization of [ḳ<sup>w</sup>]:

(13) PPGs in [ḳ<sup>w</sup>]

- a. PPG for velic closure
- b. PPG for lip rounding
- c. PPG for retracting the tongue root
- d. PPG for spreading of attributes

Only for typographical convenience, I will adopt a functional notation PPG (G) to refer to “PPG for G”: Thus, (13b) is written as PPG (lip rounding).

Going back to our reference to conceptual foundations for the new paradigm of linguistic theory in (1), the three concepts will now be projected into more concrete forms:

(14) Basic Concepts of PDP, SOC and NE in Concrete Terms

- a. The phonetic form of [ḳ<sup>w</sup>] emerges out of the interactions of PPG (velic closure), PPG (lip rounding), PPG (tongue root retraction), and PPG (syllable onset).
- b. The four PPGs in (8) are hierarchically organized so as to produce [ḳ<sup>w</sup>].
- c. The strategies of PPGs are executed with respect to those of other PPGs.

The “payoff” for the execution of strategies by the three PPGs, i.e., PPG (velic closure), PPG (lip rounding), PPG (tongue root retraction), is evaluated by PPG

(syllable onset) to which they are linked.

Let us assume that the payoff for PPGs is the anchoring on the temporal elements, and transcribe it by [1]; if they are not anchored, transcribe the situation by [Ø]. If any marked strategy is applied, transcribe this by [-1]. We assume that the spreading of feature values is an application of unmarked strategies, transcribed as [1]. The symbols ON and OFF describe whether or not the PPG is anchored on the temporal elements. PPG (a, b) will stand for the linkage of PPG (a) with PPG (b). Thus, the crucial game-theoretic payoff matrices for [k̥<sup>w</sup>ɔ:] and \*[k̥<sub>ɣ</sub>ɔ:] are shown below (Henceforth, vc stands for velic closure, lr for lip rounding, and trr for tongue root retraction. Note that the pay-off of spreading is described as the element of the 3rd dimension):

(15) Payoff Matrices for [k̥<sup>w</sup>ɔ:]

a. Sub-matrix for PPG (lr)

	PPG (syllable nucleus, lr) ON	PPG (syllable nucleus, lr) OFF
PPG (syllable onset, lr) ON	(-1, 1, 1) ¶	(-1, -1, -1)
PPG (syllable onset, lr) OFF	(Ø, 1, -1)	(Ø, -1, Ø)

b. Sub-matrix for PPG (trr)

	PPG (syllable nucleus, trr) ON	PPG (syllable nucleus, trr) OFF
PPG (syllable onset, trr) ON	(-1, 1, 1) ¶	(-1, -1, -1)
PPG (syllable onset, trr) OFF	(Ø, 1, -1)	(Ø, -1, Ø)

(16) Payoff Matrices for \*[k̥<sub>ɣ</sub>ɔ:] (PPG (adv) stands for PPG (advanced))

a. Sub-matrix for PPG (adv)

	PPG (syllable nucleus, adv) ON	PPG (syllable nucleus, adv) OFF
PPG (syllable onset, adv) ON	(-1, -1, 1)	(-1, Ø, -1) ¶
PPG (syllable onset, adv) OFF	(Ø, -1, -1)	<u>(Ø, Ø, Ø)</u>

b. Sub-matrix for PPG (trr)

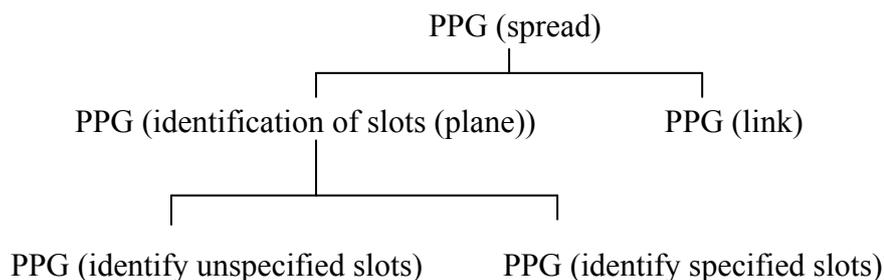
	PPG (syllable nucleus, trr) ON	PPG (syllable nucleus, trr) OFF
PPG (syllable onset, trr) ON	(-1, 1, 1)	(-1, -1, -1)
PPG (syllable onset, trr) OFF	(Ø, 1, -1) ¶	(Ø, -1, 1)

The underlined portions are assigned relatively high values in the relevant tables, while the symbol “¶” indicates that the linked activations of PPGs are executed. The

instance of pronunciation [k̥<sup>w</sup>ɔ:] is evaluated higher than \*[k̥ɔ:] within our framework of game-theoretic evaluations of applications of phonological strategies. The notion of “states of equilibria among articulatory gadgets” is directly captured by the total sum of the values that those gadgets have achieved.

The relationship among the PPGs, which I will call “the society of phonological processing gadgets,” can be diagrammed as follows:

(17) Society of PPGs (partial and tentative)



PPG (spread) is assumed to be composed of PPG (identification of slots) and PPG (link), the former of which, in turn, is composed of two PPGs. It is probable that the higher the PPG, the larger the value of (non-) achievements.

It is crucial to note that the set of strategies in the case of coarticulation is interpreted to correspond to stipulations defined in the associated *K-society*. Thus the total sum of the pay-off matrix of [k̥<sup>w</sup>ɔ:] is higher than any of the other candidates, where the sum is calculated with respect to the *S-society* and the *K-society*.

### 3.2. High-Vowel Devoicing in Japanese

The second example from the phenomena of mismatch between the two grammatical components is the cases of the interaction of voicing of stops and vowel devoicing observed in the phonology of two dialects of Japanese, as observed below:

(18) High Vowel Devoicing in the Two Dialects of Japanese

a. [NHK]

[ç̥i̥ktɯi] “low”, [ç̥i̥ŋaçi] “east”, \*[ç̥i̥ŋaçi] “east”

b. [Tohoku]

[ç̥i̥gtɯi] “low”, [ç̥i̥ŋaçɯi] “east”, \*[ç̥i̥ŋaçɯi] “east”

The present paper inherits traditional assumptions on phonological representations and derivations: (i) Autosegmental spreading of features (cf. Sagey (1986)) and (ii) Structure preservation (cf. Kiparsky (1985)). The two devices govern a finite number of identifiable phonological processing gadgets (henceforth, PPGs) and they are governed by the gadget *Cognitive Effect*. (i) the PPG *Spread* is an instance of *S-society* and the PPG *Structure Preservation* is an instance of *K-society* and (ii) that these two societies

are interconnected spirally, by which I mean that the *S-society* maps out a set of strategies (virtual articulatory gestures) of the PPGs and the set is sent to the *K-society* to have verifications of the correspondence with lexical representations. Some “administrative agents” (cf. Minsky (1988:102)) may intervene between the agent *Cognitive Effect* and the two agents *Spreading* and *Structure Preservation*.

Crucially I assume that the cooperative and non-cooperative relations among agents (gadgets) are parameterized. Thus, in the northern dialect of Japanese (Tohoku), the process of voicing of vowels is cooperative with voicing of obstruents, while in the variety of Japanese spoken in NHK (Japan Broadcasting Corporation) the two processes are antagonistic to each other. In the Tohoku dialect, devoicing of the high vowels in front of voiced consonants may be evaluated higher because it crucially satisfies the agents *Cognitive Effect* (the agent *Cognitive Effect* consults information stored in *K-society* to confirm that the palatalized fricative of *ch* (in *ich*) implies [i]) and *Spreading* ([+high] is shared by the variety and [i]), though it militates against the general devoicing of high vowels in the environment “[–voiced]\_\_\_[–voiced]” (cf. Vance (1987)).

#### 4. Semantics-Pragmatics Interface

In certain situations where two agents (i.e., persons) interact with each other to form one sentence with a conditional subordinate clause, we observe game-theoretic pay-off relations in the environment of communication. Let us assume that Agent  $\alpha$  utters a conditional subordinate clause and Agent  $\beta$  utters a corresponding main clause, as follows:

(19) Two Types of *If* Clause

- a. If you ask him kindly, John will help you.
- b. If you ask him kindly, John would not help you.

The sentence in (19a) is a discourse conditional (Athasiadou and Driven (2000:14)), while that in (19b) is interpreted to be a concessive clause. In (19a), if Agent  $\alpha$  expects that John will help him and if Agent  $\beta$  utters a positive consequence, the payoff relation can be [+1, +1]; when the positive expectation of the Agent  $\alpha$  is negated by Agent  $\beta$  as in (19b), the payoff relation is [–1, 0], which incurs a communicative confusion. In the case where the two agents agree with the negative prediction, we have a concessive reading as in (19b), transcribed as [+1, +1]: in the case where Agent  $\alpha$  is negative and Agent  $\beta$  is positive, we will be in an uninterpretable

confusion, transcribed as  $[-1, 0]$ .

#### **4. Concluding Remarks**

The theoretical framework of the present paper militates against a major assumption in the Optimality Theory (henceforth, OT) by Prince, McCarthy and Smolensky, which declares to totally abandon any reference to the derivational contents in the grammar of language: Richness of the Base Hypothesis. OT faces with an unsolvable problem, which is articulated as follows: Is the set of faithfulness constraints applicable to the input (base) forms GEN that are enumerated with no principled restrictions? Our game-theoretic approach assumes specifications on computational gadgets so that it gives a natural explanation for the fact that the range of the possible inputs is virtually specifiable.

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# Japanese particle *shika* ‘only’

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## Abstract

The Japanese particle *shika*, which has been viewed as equivalent to an exclusive marker such as *only*, seems at first blush to conflict with a compositional analysis of the semantics due to the unique property of this particle of always co-occurring with the negative morpheme *-na*. Yoshimura (2006) argues that *shika* is an exceptive marker like *everyone/thing except* and proposes a straightforward compositional semantics for it. In this paper, I discuss the semantic properties of exclusive and exceptive markers and argue that *shika* is indeed an exclusive marker. The exclusive particle *shika* entails the positive proposition in contrast to the exceptive counterpart, which just implicates the positive proposition.

**Keywords:** exclusive marker, exceptive marker, entailment, implicature, compositional semantics

## 1. Is *shika* ‘only’ or ‘everything except’?

When describing the meaning of an exclusive marker such as English *only*, one can think of two semantic components, the ‘positive’ and ‘negative proposition’. For example, sentence (1) expresses the positive proposition ‘John came’ and the negative proposition ‘Nobody except John came’.

(1) *Only John came.*

There have been debates about the status of these two semantic components: whether they are presupposition or assertion, or just implicature (Horn 1996, Atlas 1996). However, although very interesting, these discussions are not particularly relevant in the context of this paper.

Japanese has a particle *shika*, which is usually translated as an exclusive marker such as English *only*. If this analysis is correct, *shika* has to have the two semantic components, the positive and negative proposition.

However, what is interesting about the particle *shika* is that it obligatorily co-occurs with the negative morpheme *-na*, as shown in (2).

(2) *Daisuke-shika ko-na-katta.*

Daisuke-SHIKA come-NEG-PAST

a. ‘Only Daisuke came.’

b. ‘Everyone except Daisuke did not come.’ (Yoshimura 2006)

The sentence (2), although it has the negative morpheme *-na*, does not mean that ‘only Daisuke did not come’; it means that ‘only Daisuke came’. If *shika* means ‘only’ and (2a) is the translation of the sentence (2), the negative morpheme *-na* does not seem to contribute to the meaning of sentences in which *shika* occurs.

One of the compositional analyses of the occurrence of the negative morpheme *-na* with *shika* that has been proposed is Yoshimura (2006)’s, who argues that *shika* is an ‘exceptive’ marker like English’s *everyone except*. In her analysis, the sentence (2) means (2b); the negative morpheme *-na* has a straightforward compositional interpretation.

The difference between the widely accepted translation of *shika* as ‘only’ and Yoshimura’s analysis consists in whether the positive proposition is part of the meaning of the sentence. In the analysis of *shika* as an exclusive marker like English *only*, a sentence in which *shika* occurs entails both the positive and negative proposition, while in Yoshimura’s analysis of *shika* as an exceptive marker, a sentence in which *shika* occurs entails only the negative proposition and the positive proposition is just an implicature. The particle *shika* is less negative in the exclusive analysis compared to the exceptive analysis, in the sense that the positive proposition is a part of the meaning.

In this paper, I argue that *shika* is actually an exclusive marker although Yoshimura (2006)’s analysis seems to explain the existence of the negative morpheme *-na* straightforwardly. In the following sections, after looking at one particular piece of evidence which Yoshimura presents to support her analysis, I discuss four semantic properties, all of which cannot be explained if *shika* is considered to be an exceptive marker. After that, I discuss the compositional semantics of *shika* and the negative morpheme *-na*. The semantics is not straightforwardly represented because the action of a person referred to by the subject is negated although *shika* always co-occurs with a negation.

## 2. Yoshimura (2006)

Yoshimura (2006)'s analysis of *shika* as an exceptive marker is based on the following constraint:

- (3) Exceptive marker: Exceptive phrases cannot combine with non-universal quantifiers such as *most*.

The English sentences in (4) are not acceptable because they violate the constraint.

- (4) #*Most*/#*Three*/#*At least three*/#*Few*/#*The students but John came*.

The Japanese sentences in (5), in which the noun phrase marked with *shika* combines with non-universal quantifiers, are not acceptable either.

- (5) *John-wa ninjin-shika (\*mi-ttsu /\*takusan-no)*  
John-TOP carrot-SHIKA 3-CL/many-MOD  
*yasai-o tabe-naka-tta.*  
vegie-ACC eat-NEG-PAST  
'John didn't eat three/many vegetables but carrots.'

According to Yoshimura (2006), who argues that *shika* is an exceptive marker, the sentences in (5), in which the non-universal quantifiers, *mittu* and *takusanno* are combined with *shika*, are unacceptable because of the constraint in (3).

## 3. Arguments against Yoshimura (2006)

### 3.1 Downward entailment

Yoshimura (2006)'s analysis seems to explain the semantics of *shika* and the combination with the negative morpheme *-na* straightforwardly. However, there are several semantic properties which cannot be explained if one assumes that *shika* is an exceptive marker. In the following sections, I show differences between the particle *shika* and another particle, *igai*, which I treat as an exceptive marker, by comparing the two particles with English counterparts, namely *only* and *everyone except*. With respect

to four semantic properties I discuss, *shika* behaves more like *only*, and *igai* behaves more like *everyone except*.

One difference between *shika* and *igai* is found in entailment patterns. English *only*, when it focuses on a proper noun, is not downward entailing. (6a) does not entail (6b), whose predicate denotes a subset of what is denoted by the predicate in (6a). Even if Daisuke came, it does not necessarily follow that Daisuke came late. Similarly, *shika* is not downward entailing: (7a) does not entail (7b).

(6) a. **Only** Daisuke came.

b. **Only** Daisuke came late.

(7) a. Daisuke-**shika** ko-na-katta.

Daisuke-SHIKA come-NEG-PAST

‘**Only Daisuke came.**’ or ‘Everyone except Daisuke didn’t come.’

(Yoshimura 2006)

b. Daisuke-**shika** okurete ko-na-katta.

Daisuke-SHIKA late come-NEG-PAST

‘**Only Daisuke came late.**’ or ‘Everyone except Daisuke didn’t come

late.’ (Yoshimura 2006)

However, English *everyone except* plus negation is downward entailing: (8a) entails (8b). In every situation in which the proposition that ‘everyone except Daisuke did not come’ is true, the proposition that ‘everyone except Daisuke did not come late’ is also true.

(8) a. **Everyone except** Daisuke didn’t come.

b. **Everyone except** Daisuke didn’t come late.

Japanese *igai* is also downward entailing. When the sentence (9a) is true, (9b) also always true.

- (9) a. *Daisuke-igai ko-na-katta.*  
 Daisuke-except come-NEG-PAST  
 ‘Everyone except Daisuke didn’t come.’
- b. *Daisuke-igai okurete ko-na-katta.*  
 Daisuke-except late come-NEG-PAST  
 ‘Everyone except Daisuke didn’t come late.’

As shown in (6)–(9), *shika* and *only* are not downward entailing while *igai* and *everyone except* plus negation are downward entailing.

### 3.2 Entailment and implicature

Another semantic property distinguishing *shika* from *igai* is the status of the positive proposition. A sentence in which *shika* occurs entails the positive proposition while a sentence in which *igai* occurs just implicates the positive proposition.

After the sentence (10a), it is contradictory to say (10b). Since (10a) entails the positive proposition ‘Daisuke ate apples’, if one tries to cancel the positive proposition by saying (10b), one contradicts oneself. (11a), which suspends the entailment expressed by (11b) is not natural if followed by (11b). (11a) indicates that the speaker does not have a clear idea about whether the proposition ‘Daisuke came’ is true. (11b), which entails the positive proposition ‘Daisuke came’, is not compatible with the previous sentence, which suspends the truth value of the same proposition.

The examples in (10) and (11) show that a sentence in which *only* occurs entails the positive proposition, and it cannot be uttered in a context in which the positive proposition is cancelled or suspended.

- (10) a. **Only** *Daisuke ate apples.*
- b. #*And, Daisuke didn’t eat apples either.*
- (11) a. *I’m not sure whether Daisuke came, but...*
- b. #**Only** *Daisuke came.*

*Shika* shows the same pattern as *only*. After (12a), (12b) is not natural, and after (13a), (13b) is not natural. These examples indicate that a sentence in which *shika* occurs entails the positive proposition.

(12) a. *Ringo-o Daisuke-shika tabe-na-katta.*  
 apple-ACC Daisuke-SHIKA eat-NEG-PAST  
 ‘Only Daisuke ate apples.’

b. #*Sorekara Daisuke-mo tabe-na-kattanda.*  
 and Daisuke-also eat-NEG-PAST  
 ‘And, Daisuke didn’t eat apples either.’

(13) a. *Daisuke-wa ki-ta ka wakara-na-i-kedo*  
 Daisuke-CONTRASTIVE come-PAST if know-NEG-PRES-but  
 ‘I’m not sure whether Daisuke came, but...’

b. #*Daisuke-shika ko-na-katta.*  
 Daisuke-SHIKA come-NEG-PAST  
 ‘Only Daisuke came.’

However, after (14a), in which *everyone except* occurs, you can say (14b). One could wonder if (14) is actually a natural sequence because the speaker could just say a sentence *nobody ate apple* instead of the sequence in (14). The following context would help to make (14) a natural sequence: suppose somebody trying to demonstrate that nobody ate apples proceeds by considering two cases: first, they show that ‘nobody except Daisuke ate apples’; and having established that, they proceed to make the point that ‘Daisuke didn’t eat apples either’. In contrast to (11), after (15a), you can say (15b). (14b) cancels the positive proposition of (14a), and (15b) is not unacceptable after the positive proposition of the sentence has been blocked in the previous sentence. While a sentence in which *only* occurs entails the positive proposition, a sentence in which *everyone except* occurs just implicates the positive proposition, and therefore, the sentence is still acceptable even in a context in which the positive proposition will be cancelled, or the positive proposition is already blocked.

(14) a. **Everyone except** Daisuke didn't eat apples.

b. *And, Daisuke didn't eat apples either.*

(15) a. *I'm not sure whether Daisuke came, but...*

b. **Everyone except** Daisuke didn't come.

*Igai* shows the same pattern as *everyone except*. After (16a), you can say (16b) and cancel the positive proposition expressed by (16a). Similarly, after (17a), which suspends the positive proposition of (17b), one still can say (17b) without contradicting oneself. This indicates that a sentence in which *igai* occurs just implicates the positive proposition as *everyone except*.

(16) a. *Ringo-o Daisuke-igai tabe-na-katta.*  
apple-ACC Daisuke-except eat-NEG-PAST  
'Everyone except Daisuke didn't eat apples.'

b. *Sorekara, Daisuke-mo tabe-na-kattanda.*  
and Daisuke-also eat-NEG-PAST  
'And, Daisuke didn't eat apples either.'

(17) a. *Daisuke-wa ki-ta ka*  
Daisuke-CONTRASTIVE come-PAST if  
*wakara-na-i-kedo*  
know-NEG-PRES-but  
'I'm not sure whether Daisuke came, but...'

b. *Daisuke-igai ko-na-katta.*  
Daisuke-except come-NEG-PAST  
'Everyone except Daisuke didn't come.'

*Shika* and *igai* show the same pattern as *only* and *everyone except* respectively, regarding the status of the positive proposition. A sentence in which *shika* or *only* occurs entails the positive proposition, and it is not acceptable in a context in which the positive proposition will be cancelled or is already blocked, while a sentence in which

*igai* or *everyone except* occurs just implicates the positive proposition and is acceptable even in a context in which the positive proposition will be cancelled or is already blocked.

### 3.3 What is focused by *shika*

So far, the differences between *shika* and *igai* have been discussed by comparing the two particles with English *only* and *everyone except*. In the following examples, I do not compare the two Japanese particles with the English counterparts because they do not show strictly the same pattern. However, what I argue is that *shika* is “less negative”, so to speak, than *igai*, and for this purpose, it is enough to show differences between the two Japanese particles.

There is a difference between what is focused by *shika* and what is focused by *igai*. I use the terms ‘complement set’ and ‘reference set’, following Moxey & Sanford (1987). The reference set consists of individuals which are referred to by the focused noun phrase, and the complement set consists of individuals excluding the one referred to by the focused noun phrase. In the sentence (18), for example, the reference set contains only Daisuke and the complement set is the set of individuals which are not Daisuke.

- (18) *Ringo-o Daisuke-shika tabe-na-katta.*  
apple-ACC Daisuke-SHIKA eat-NEG-PAST  
‘Only Daisuke ate apples.’

In the previous section, I showed that a sentence in which *shika* occurs entails both the positive and negative proposition while a sentence in which *igai* occurs entails only the negative proposition. *Shika* and *igai* focus on what is mentioned in the entailed propositions. What is focused by *shika* is either the complement set or reference set, since a sentence in which *shika* occurs entails both the positive and negative proposition, and what the positive and negative proposition mention are the reference and complement set, respectively. What is focused by *igai*, on the other hand, is only the reference set since a sentence in which *igai* occurs entails only the negative proposition, and what the negative proposition mentions is only the reference set.

To the question in (19), in which *shika* occurs, for example, the answers in (19a) and (19b) are both acceptable because what is focused by *shika* can be either the complement set or the reference set.

(19) *Ringo-o Daisuke-shika tabe-na-katta-no.*  
apple-ACC Daisuke-SHIKA eat-NEG-PAST-Q  
'Did only Daisuke eat apples?'

a. *Un Daisuke-wa tabe-ta.*  
Yes Daisuke-CONTRASTIVE eat-PAST  
'Yes, Daisuke ate.'

b. *Un Takuya-wa tabe-na-katta.*  
Yes Takuya-CONTRASTIVE eat-NEG-PAST  
'Yes, Takuya didn't eat.'

However, to the question in (20), in which *igai* occurs, the answer in (20a) is not completely natural, whereas the answer in (20b) is acceptable. This indicates that what is focused by *igai* is only the complement set.

(20) *Ringo-o Daisuke-igai tabe-na-katta-no.*  
apple-ACC Daisuke-except eat-NEG-PAST-Q  
'Did everyone except Daisuke not eat apples?'

a. *#Un Daisuke-wa tabe-ta.*  
Yes Daisuke-CONTRASTIVE eat-PAST  
'Yes, Daisuke ate.'

b. *Un Takuya-wa tabe-na-katta.*  
Yes Takuya-CONTRASTIVE eat-NEG-PAST  
'Yes, Takuya didn't eat.'

It should be noted that the answer in (20a) is not completely unacceptable in some situations although the speaker does not seem to reply directly to the question in (20) in those situations. As I mentioned above, the answer in (20a) is not completely natural because it talks about the referent set to the question which asks about the complement set. However, the speaker might nevertheless opt for (20a) in case she does not have a clear idea whether or not everyone did not eat apples although in this case, the speaker would omit *un* 'yes'.

Another situation in which (20a) could be acceptable is when the question in (20) is used to ask another question indirectly. This is possible because although a sentence in which *igai* occurs entails the negative proposition and typically talks about the complement set, it also implicates the positive proposition and talks about the reference set implicitly. If a person who is asked the question in (20), somehow figures out from context that the person who asks the question (20) actually seeks information about the reference set, then (20a) could be acceptable.

Although there are several situations in which (20a) could be acceptable, (20a) is not the proper answer to the question in (20) in those situations. The difference between pragmatically appropriate and inappropriate answers is subtle. But *shika* differs from *Igai* in the conditions under which it occurs in appropriate answers to questions, and the two differ from one another in this respect just the way exclusive and exceptive markers are predicted to differ from one another.

### 3.4 NPI licensing

Finally, *shika* differs from *igai* in terms of licensing negative polarity items (NPIs). As shown in (21), *shika* with the negative morpheme *-na* cannot license the NPI *nanimo* ‘anything’. This is because a sentence in which *shika* occurs entails not only the negative proposition but also the positive proposition as shown in (22). *Shika* cannot license the NPI because the positive proposition does not have a negation and the NPI is not in the scope of negation in the positive proposition.

(21) #*Daisuke-shika nanimo tabe-na-katta.*

Daisuke-SHIKA anything eat-NEG-PAST

(22) *Daisuke-shika tabe-na-katta.*

Daisuke-SHIKA eat-NEG-PAST

‘Daisuke ate and everyone except Daisuke did not eat’

However, as shown in (23), *igai* with the negative morpheme *-na* can license the NPI because a sentence in which *igai* occurs entails only the negative proposition, as shown in (24), and the NPI is in the scope of negation in the negative proposition.

(23) *Daisuke-igai nanimo tabe-na-katta.*  
Daisuke-except anything eat-NEG-PAST  
'Everyone except Daisuke didn't eat at all.'

(24) *Daisuke-igai tabe-na-katta.*  
Daisuke-except eat-NEG-PAST  
'Everyone except Daisuke did not eat'

*Shika* and *igai* do not show the same pattern as English *only* and *everyone except* because both *only* and *everyone except* with negation can license NPIs like *any* as shown in (25) and (26). In the following discussion, I treat *everyone except* plus negation as a licenser of NPIs, even though a negation itself is sufficient as an NPI licenser. This is because the purpose of this section is to compare *only* to *everyone except* plus negation.

(25) ***Only*** *his sister will expect him to write **any** more novels.*  
(Horn 2006)

(26) ***Everyone except*** *Daisuke didn't eat **anything**.*

In contrast to Japanese *shika* plus negation, which cannot license NPIs at all, some NPIs can be licensed by English *only*, as shown in (27).

(27) *Only John ever suspected David Alexander.*

*Only John kissed Mary anymore.*

*#Only I was all that keen to go the party.*

*#Only Franz will be one bit interested.*

(28) *Everyone except John didn't ever suspect David Alexander.*

*Everyone except John didn't kiss Mary anymore.*

*Everyone except I wasn't all that keen to go the party.*

*Everyone except Franz will not be one bit interested.*

In Japanese, all NPIs are licensed by the negative morpheme *-na* except for the case when *-na* occurs with *shika*. Because of this character of Japanese NPI licensing, the distinction between *shika* and *igai* is clear: *shika* with *-na* does not license NPIs at all, while *igai* with *-na* licenses all NPIs.

In English, on the other hand, the distinction between *only* and *everyone except* plus negation is more relative. Although *shika* appears to behave differently from *only* as *shika* plus negation cannot license any NPIs while *only* can license some NPIs, the range of NPIs which are licensed by *only* is smaller than the range of NPIs which are licensed by the exceptive counterpart *everyone except* plus negation. If it is the case that the less negative an NPI licenser is, the smaller number of NPIs it can license, then *only* is less negative than *everyone except* plus negation, which can license wider range of NPIs than *only*, as shown in (28).

What is important here is to show that the exclusive marker *shika* is less negative than the exceptive marker *igai* plus negation. The English exclusive marker *only* is also less negative than the exceptive counterpart *everyone except* plus negation in the sense that the range of NPIs which can be licensed by *only* is smaller than the range of NPIs which can be licensed by *everyone except* plus negation.

#### **4. Compositional analysis of the meaning of *shika***

I have argued that *shika* has semantic properties which cannot be explained if it is an exceptive marker. However, if *shika* corresponds to exclusive markers like *only*, the semantic contribution of the negative morpheme *-na* is not obvious. The problem comes from the assumption that a sentence in which *shika* occurs entails both the negative and the positive proposition. The semantics of *shika* is not straightforward since the subject of a sentence in which *shika* occurs is the one from the positive proposition, while the polarity of the predicate, which is negative, is from the negative

proposition. In (29), the subject *Daisuke* is the subject of the positive proposition *Daisuke came*, but the polarity of the predicate is of the negative proposition *everyone except Daisuke did not come*. The semantics needs a negation on the predicate of the positive proposition to make the negative predicate which co-occurs with *shika* affirmative, as shown in (31).

(29) *Daisuke-shika ko-na-katta*  
 Daisuke-SHIKA come-NEG-PAST  
 ‘Only Daisuke came.’

Semantics of (29)

(30)  $\text{came (D)} \wedge \forall x (x \neq D \rightarrow \neg \text{came (x)})$

Semantics of *shika*

(31)  $\lambda Q \lambda P \{ \neg P (Q) \wedge \forall x (x \neq Q \rightarrow P (x)) \}$

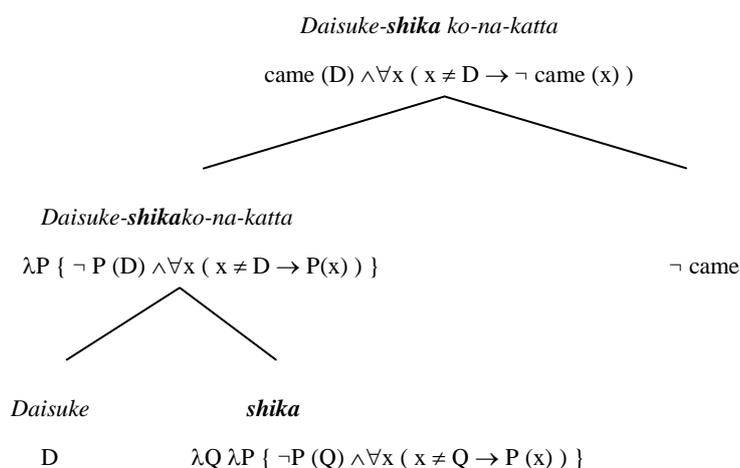


Figure 1. Semantics of (29)

## 5. Conclusion

Yoshimura (2006) analyzes *shika* as an exceptive marker such as English *everyone except*. However, her analysis fails to explain several semantic properties of *shika*.

First, *shika* behaves more like the English exclusive marker *only* than the exceptive marker *everyone except* for some semantic properties. *Shika*, like *only*, and unlike *everyone except* plus negation and its Japanese counterpart *igai*, is not downward entailing. *Shika* also shows the same pattern as *only* regarding the status of the two semantic components, the positive and negative proposition. A sentence in which *shika* or *only* occurs entails both the positive and negative proposition while a sentence in which *igai* or *everyone except* occurs entails *only* the negative proposition.

Yoshimura (2006)'s analysis that *shika* is an exceptive marker also fails to explain NPI licensing and what is focused by *shika*. *Shika* with the negative morpheme *-na* cannot license NPIs while *igai* with the negative morpheme *-na* can license NPIs. *Only* can license some NPIs but it is similar to *shika* in the sense that it is less negative than the exceptive counterpart in terms of the range of NPIs which it can license. *Shika* also behaves differently from *igai* for what it focuses on. What is focused by *shika* is either the reference set or the complement set while what is focused by *igai* is only the complement set.

I conclude that *shika* is less negative than exceptive markers such as English's *everyone except*. A sentence in which *shika* occurs does not only entail the negative proposition, but it also entails the positive proposition while the positive proposition is not a part of the meaning and just an implicature for a sentence in which an exceptive marker occurs.

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# Partial Accommodation and Activation in Definites<sup>1</sup>

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## Abstract

The notions *accommodation* and *binding* of presuppositions, as used in the DRT-based framework of Van der Sandt and Geurts, are critically assessed. Examples are presented which suggest the need for a narrower interpretation of, in particular, the term *accommodation* and the differentiation between accommodation proper and the process of presupposing hearer-old but discourse-new information. The notions are applied in a proposal for a new annotation scheme for information status, which is illustrated on some examples. The significance of the scheme is briefly demonstrated in a small study into the prosodic properties of a German corpus of radio news.

**Keywords:** information status, givenness, accommodation, DRT, discourse analysis.

## 1. Introduction

This paper discusses some well-known terminology from presupposition theory following the work of, primarily, Van der Sandt (1992) and Geurts (1999). In particular, I would like to take a closer look at the notions of “accommodation” and “binding”, which have frequently been presented as a binary opposition. It is my concern to question this dichotomy but also to verify to what degree it is possible to employ the two concepts in a task that attempts to classify nominal expressions concerning their informational contribution, known under the keyword “information status” (Prince 1981, 1992). Information status theory starts out from the observation that the intuitive notions *given* and *new* are not sufficient to adequately describe the richness of referential and information structural variation found in natural language expressions. I want to argue

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that not only can we identify more than two clearly distinguishable (and information structurally meaningful) classes, but that there is, furthermore, the need for a precise formal specification; a task for which presupposition theory and Discourse Representation Theory are our tools of choice.

## 2. Binding and accommodation

The term *presupposition* has originally been understood as a pre-condition of a sentence that a context has to fulfil if the sentence is meant to be acceptable. However, already Karttunen (1974) noted that “ordinary conversation does not always proceed in the ideal orderly fashion” sketched in that sense. Whenever a presupposition is neither entailed nor excluded by the context and it is at the same time specified in sufficient detail<sup>2</sup>, hearers will accept it as if it had been asserted. Since Lewis (1979) this process of acceptance is known as *accommodation*.

The work by Van der Sandt (1992) and Geurts (1999) comprises several important advancements in presupposition theory. First of all, the clear formal specification using DRT (Kamp 1981; Kamp & Reyle, 1993) allows for a systematic comparison of the broad variety of known presuppositional phenomena, the easy discovery of hitherto unknown presupposition triggers as well as their integration into a broader theoretical framework. Secondly, a new perspective on presuppositional phenomena is introduced, viz. the analogy between presuppositions and anaphors, which is probably most convincingly argued for in the field of definite descriptions, which on the one hand have been treated as prototypical presupposition triggers, requiring the identifiability of a somehow<sup>3</sup> unique referent satisfying the descriptive content, and, on the other hand, as expressions that have a great deal in common with pronouns and are, therefore, anaphors.

But it is not only individual type discourse referents that can be approached in terms of anaphora. On the contrary, any kind of presuppositional phenomenon can be rendered within the two-stage formalism offered by Van der Sandt and Geurts, and subsequently be subjected to comparison. The two stages consist in (i) the generation of

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<sup>2</sup> Compare „too“ for a presupposition trigger where this is not the case (cf. Van der Sandt & Geurts (2001), Beaver & Zeevat (2007), Riester (2008b)).

<sup>3</sup> Uniqueness of definite descriptions, as has been noted a long time ago, is rarely ever “global uniqueness” but requires a controlled context, which may be implicitly or explicitly defined.

a so-called *preliminary presupposition* and (ii) its subsequent *projection*, which ultimately leads to sentence-internal or -external *binding* of the presupposition (or more precisely: its discourse referent) to a referent available elsewhere in the discourse. If no antecedent referent can be found in the discourse, then, according to the standard theory, it has to be accommodated. Accommodation preferably takes place at the level of the main discourse representation structure (DRS). In the following sections, however, I will demonstrate that often there are cases which superficially look like accommodation phenomena but which are in fact better described in terms of binding and for which I will use the notion *activation*. Note that there are other uses of this term in the literature that for all I can tell describe similar as well as less similar processes; compare, Chafe (1994), Lambrecht (1994), Arnold (1998), and Beaver & Clark (2008). What is essential for me at this point is that the term semantically captures exactly the process of bringing something to attention that was there but not in the immediate centre of attention. This stands in contrast to the *accommodation* cases, which I take to establish hitherto *completely unavailable* information.

### 2.1. *Binding, accommodation and activation in DRT*

This section glances over some well-known cases of presupposition resolution in the DRT framework, pointing out some unclear issues, which are responsible for a terminological and conceptual deficit of the existing theory. Compare the following examples.

- (1) a. If John is married, his wife will be happy.  
b. If John made coffee, his wife will be happy.

In (1a), the presupposition triggered by “his wife” is bound by lexical material in the antecedent clause, whereas in (1b) it projects to the sentence level where it gets accommodated; at least, this is how the story has been told on countless occasions.

However, if we are taking a closer look, what we really can observe from the formal DRT specification (figure 1) is that the set of two presuppositions triggered by “his wife” is only *partly* found in the antecedent clause.

In figure 1 we see the preliminary DRS generated by sentence (1a). The boxes preceded by the  $\partial$  signs (Beaver, 2001) are unresolved presuppositions and correspond to the descriptive content of the possessive pronoun (male person) as well as to the possessive relation inherent to the genitive construction. The underlined discourse

referents (cf. Geurts, 1999; Kamp, 2001) differ from their non-underlined cousin in that they require anaphoric resolution.

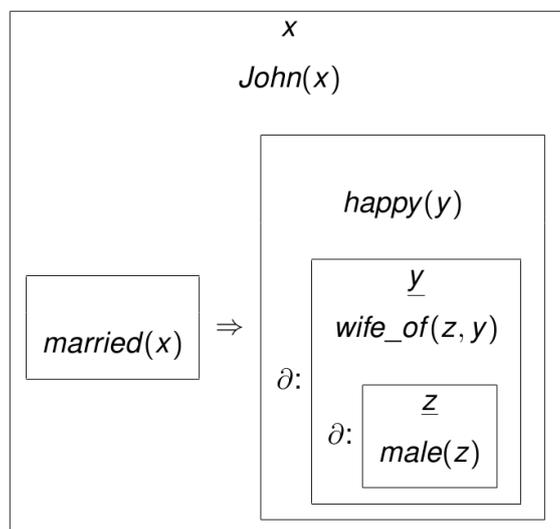


Figure 1: Preliminary representation of example (1a).

We start resolving the DRSs from the inside out. In figure 2, the inner presupposition has been projected along a path starting from its original location, via the box on the left-hand side, and up to the main level, while the discourse referent  $z$  has been bound to the referent denoting the person John.

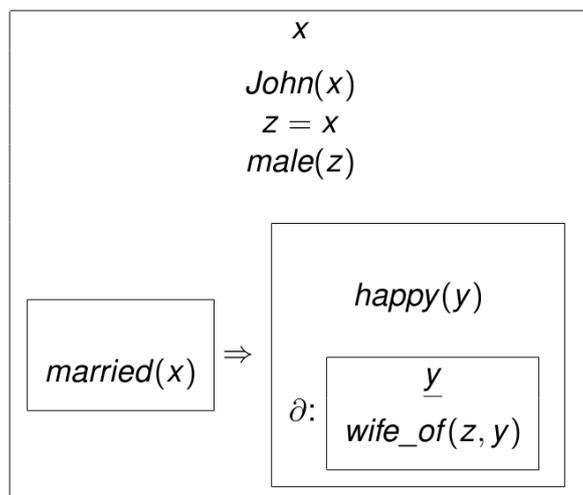


Figure 2: The innermost presupposition bound to  $x$ .

Now we try to proceed in an analogous fashion with the remaining preliminary presupposition. Intuitively John’s having a wife is what follows from his being married, hence, we would like to be able to resolve and bind the presupposition to the information contained in the antecedent box. This is not possible right away, however, because what needs to be done first is to *create* a discourse referent for John’s wife  $u$  in that box and then bind the anaphoric discourse referent  $y$  to  $u$  (figure 2b).

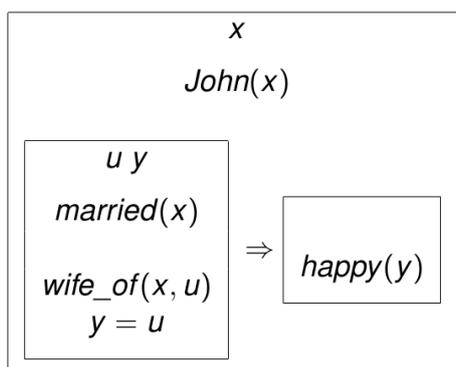


Figure 2b: Final representation of the discourse in (1a).

So, is this a process of accommodation? A mixture of binding and accommodation? I would like to argue that the process involved should not be called accommodation at all, neither are we dealing with binding in the strict sense. This case is quite different from one in which John’s wife is mentioned without previous use of the word “married” and in which the hearer doesn’t possess previous knowledge about John’s marital status. In that case accommodation is needed. But in the present case we can think of John’s wife as being uniquely available or accessible in a “marriage” scenario (figure 3), which is associated with the verb “married”.

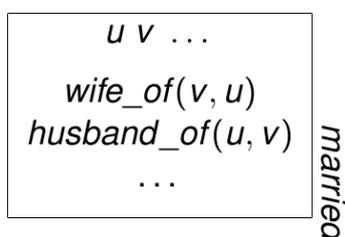


Figure 3: Simplified scenario context attributed to the word “married”.

The attribution of the property “married” to John in the antecedent of the conditional triggers this scenario and this is where the “wife”-presupposition is resolved. From the perspective of the main discourse representation, what happens is that a copy of the information associated with  $u$  is created in the left-hand box of the conditional, whereupon  $y$  will get bound to  $u$ . In order to distinguish this process terminologically from accommodation while preserving some degree of analogy, I will henceforth speak of the process using the notion *activation*.

*Activation* (definition): the process of copying information from a contextually available resource into the discourse context which did not exist there before, and binding a presupposition to this information.

## 2.2. Postponing new information

A different case is represented by the examples in (2)

- (2) a. Gerhard lives in Munich. The father of triplets is 42 years old.  
 b. I just met Fred's lawyer. She is really smart.

In both cases, we may say that the presuppositions triggered by the definite expressions in the second clause get anaphorically resolved or *bound* to the underlined expressions in the first clause. However, both cases also involve a certain degree of accommodation; in (2a) the entire descriptive content of the DP is accommodated and so is, in (2b), the information that the lawyer is a woman. The latter is shown in the transition from figures 4 and 5 (the discourse context and the representation of the second sentence of (2b)) to the integrated discourse context in figure 6.<sup>4</sup>

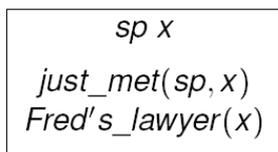


Figure 4: Discourse context after (2b-i).

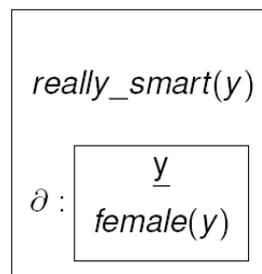


Figure 5: Contribution of (2b-ii).

<sup>4</sup> sp: “speaker”

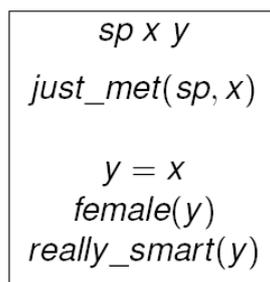


Figure 6: Integration of (2b-ii) into (2b-i).

Note that opposed to what we saw in the previous section, this is indeed a process of accommodation, as the “female” information existed nowhere except in the representation of the presupposition itself. Caveat: we could of course imagine a situation in which the sentences in (2) were spoken while it was already *common knowledge* that Gerhard had triplets or that Fred had a female lawyer although this information might not have been part of the recent discourse context. In such a situation we would have been justified to speak of *activation* once more, although the information involved would now have had to be copied from the hearer’s *encyclopaedic* (or knowledge) context (Kamp, ms; Riester, 2008a,b) rather than being taken from a special scenario.

Summary: in this section, I argued in favour of distinguishing “pure” accommodation processes from cases where a presupposition gets bound to information available in context resources other than the discourse. Such a move is desirable in order to fight an excessive – and hence confusing – use of the notion *accommodation*. Not everything which looks like accommodation from the perspective of the discourse context (for instance, in cases where seemingly new information suddenly pops up) should necessarily be given that name. This observation is already present in Geurts (1999: 84), although it doesn’t seem to have received much attention. Geurts remarked that the use of a name-like expression, e.g. “the moon”, for the first time in a conversation does not trigger accommodation on behalf of the hearer but should rather be seen as an instance of binding because the moon is not an unknown entity [unlike, for instance, “the red dwarf star Gliese 581”, A.R.]

### 3. From definiteness to information structure

#### 3.1. (De)accented definites

In Umbach (2002), we are provided with the following minimal pair of sentences in (3).

- (3) {John has an old cottage.}
- a. Last summer he reconSTRUCted the shed.
  - b. Last summer he reconstructed the SHED.

Umbach calls the object DPs “given definite” (3a) and “non-given definite” (3b), respectively, though we will see that these initially appealing terms will have to be used with great caution, as it is desirable to integrate the cases in (3) into a broader network of information status categories, which in some sense all have to do with given and new information.

It is unquestionable, however, that the prosodic difference present in the two examples corresponds with clear meaning differences, which we will now examine a bit more closely. Obviously, in (3a) “the shed” is used to refer back in a somewhat disrespectful manner to John’s old cottage. In (3b), on the other hand, “the shed” refers to an entity which is new to the discourse, and which is understood to be a different kind of building than what we have just called a cottage. Nevertheless, this new object is in some manner *related* to John’s old cottage.

In the DRT framework employed here, the contribution represented by the presuppositional expression “the shed” is in both cases the one in figure 7.

$$\partial: \boxed{\begin{array}{c} \underline{y} \\ shed(y) \end{array}}$$

Figure 7: Presupposition triggered by “the shed”.

From what we learnt in the previous section, we may again assume that different contexts play a role in resolving the presupposition. (3a) is of course the standard case of a presupposition being bound in the discourse context – compare figures 8 and 9.

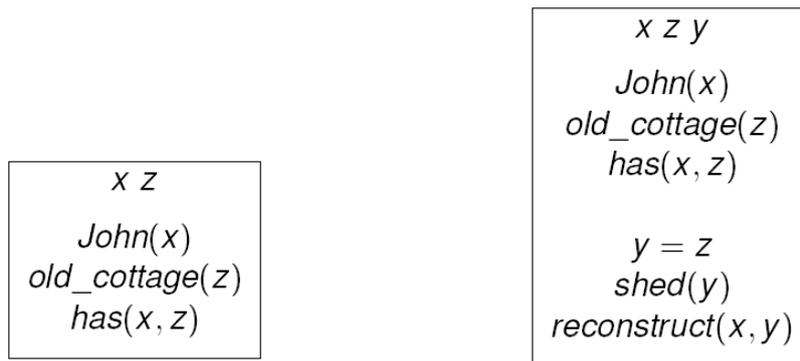


Figure 8: Discourse context before... Figure 9: ... and after integration of (3a).

(3b), on the other hand, requires what we already encountered in connection with example (1a) – the usage of a special scenario, without which the referent of the expression “the shed” remains unidentifiable. Hence, analogous to figure 3 above, I postulate the use of a “cottage” scenario (figure 10), which includes a number of entities prototypically associated with cottages – for instance a shed for storing tools.

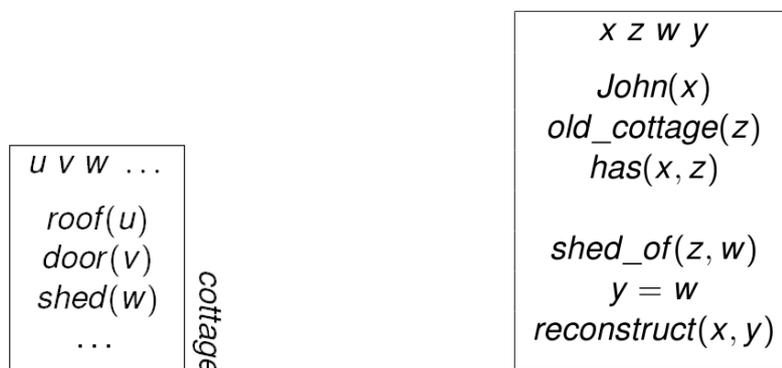


Figure 10: Scenario “cottage”. Figure 11: Integration of (3b) into discourse context using activated information.

As in the abovementioned case, we expect the relevant piece of information [*w*: *shed(w)*] to be copied (activated) from this “cottage scenario” into the discourse context where it can serve as the antecedent binding the anaphor.

### 3.2. Focus

An immediate complaint against the story just presented might be that the influence of focus has been completely neglected. Indeed, from what we know about focus since Selkirk (1984) and Rooth (1985, 1992) we should expect the accent on “SHED” to generate a focus feature in the syntax. The focus, then, triggers a presupposition to the effect that a set of alternatives must be identified. We certainly don’t seem to be on the wrong track if we assume that the set of alternatives triggered by the focus in (3b) consists of just the kinds of elements that we already postulated as being part of the “cottage” scenario in figure 10.<sup>5</sup> Hence, why wasn’t focus mentioned in the previous section?

This has to do with the more general perspective intrinsic to the annotation task that we are adopting. When labelling written text, accenting information as exemplified in (3) is usually not available. Nevertheless, the reader of a text is forced to make choices like that between the interpretation of “the shed” in (3a) and (3b) again and again. For the most part, it is contextual information provided by the text that enables such choices. Compare the discourses in (4a) and (4b).

- (4) a. When John set out to repair his old cottage he started with the roof, then went on with the shed and finally painted the façade in a lovely mint green.
- b. John inherited an old cottage, but quite frankly it was in such a bad shape that his first impulse was to tear the shed down and sell the land to a fast-food chain.

What is most directly available in ordinary text is the information status of the nominal expressions contained in it, not necessarily the focus-background structure of the sentences, although clues for the latter are also sometimes available (Riester, 2008b) and although information status (givenness) is, of course, not independent of information structure (Schwarzschild, 1999). Nevertheless, when analysing text, the first thing we should do is to ask the question in what sense the terms occurring in it are given. This is a feasible enterprise that we shall address in the next section.

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<sup>5</sup> This would mean to postulate an *implicit* contrast between equal siblings such as “the shed”, “the roof” etc, which are all, in some sense, parts of one and the same cottage. Another way to interpret the example is to assume an *explicit* contrast between “the shed” and “the cottage”. The contrast, in that case, involves elements from a (mereological) *scale*.

*Focus*, on the other hand, is a highly theory-loaded concept, which cannot be annotated as easily. We possess by now an impressive body of ideas that describe what the core features of focus are, cf. Beaver & Clark (2008). Nevertheless, there is still no consensus with regard to the question how many different (prosodic or morphosyntactic) realisations of focus there are (or whether this is can actually be a matter of counting at all). Quite certainly, there is not just a unique “focus accent”, but contextual features – among which information status but also different types of contrast – are likely to influence how focus is realised prosodically. Calling “the SHED” in (3b) a focus is therefore not wrong but unfortunately a bit too simplistic.

As a resume, using capital letters to represent focus is an acceptable way for a linguist to indicate where s/he wants a focus to be located (mostly, in an isolated sentence or well-controlled discourse) but if our long-term goal is to investigate the prosodic details based on a finer-grained semantic classification of information status, then, in this connection, focus semantics (e.g. in terms of alternatives) is simply of no help.

## **4. Information status revisited**

### *4.1. Terminology*

Recently, there has been an increased interest in the question of how to annotate information status. In Riester (2008a), I have compared my own approach to the frameworks provided by Nissim et al. (2004), by Götze et al. (2007) and to the “classical” approach by Prince (1981, 1992).

The approaches have more or less in common that all of them provide information status labels for expressions that refer back to material that is available in the previous discourse (*discourse-given, old, given, textually evoked*), in the hearer’s knowledge context but not in the discourse (*generally accessible, generally mediated, unused*), in the speaker environment (*situative, accessible-situation, mediated-situation, situationally evoked*) as well as material that can be inferred from the previous discourse without being coreferential (*bridging, accessible-inferred, mediated-inferred, inferable*). Also problematic is the label *new*, which is sometimes used to only describe (certain) indefinite expressions but in other cases to also cover definite expressions referring to known persons or places that occur in a discourse for the first time; compare the label *new-unused* in Prince (1981). The reader may verify that this issue is very closely

related to the problem I discussed in section 2.1 regarding the insufficiently delimited use of the notion *accommodation* in cases where information is addressed that is discourse-new but hearer-old (see also Riester 2008b).

#### 4.2. *The classification*

The information status taxonomy employed in Riester (2008a,b) is grounded in formal semantic theories of presupposition and discourse. While partly (though not entirely) compatible or overlapping with previous approaches, it offers a reanalysis of information status which can be summarized as “*information status categories (at least for definites) should reflect the default contexts in which their presuppositions are resolved*”. There should consequently also be a category for expressions that cannot be bound but must be accommodated. The default contexts that we are assuming are the discourse context, the environment context (Kaplan, 1989), the encyclopaedic context of the hearer (Kamp, ms.) as well as scenario contexts like the ones introduced above in sections 2.1 and 3.1. In a current project a corpus containing about 3000 sentences<sup>6</sup> from transcriptions of recorded German radio news bulletins has been annotated according to the scheme presented in Riester (2008a,b), briefly repeated below. The annotation tool we used was SALTO (Burchardt et al. 2006).

##### 4.2.1. *Environment context*

Expressions that refer to items within the environment context (deictic expressions such as “today”, the discourse participants, demonstratives referring to objects in the speaker situation and so forth) receive the label *situative*. An example is shown in figure 12.

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<sup>6</sup> The radio corpus described here was recorded half-hourly during three consecutive days. Necessarily, it contains many repetitions of the same news features. Those repetitions were skipped during the annotation process as were the weather forecasts.



be-accommodated) and known (activatable) entities is possible. The respective labels we are using are *accessible-via-description* (figure 14) and *accessible-general* (figure 15). Underspecification or ambiguity can be represented by assigning both labels at the same time and by ranking them.

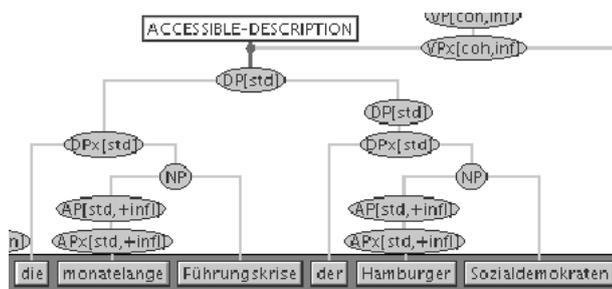


Figure 14: “the leadership crisis lasting for months among the Hamburg social democrats”

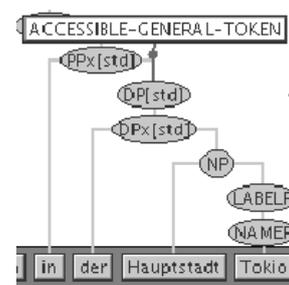


Figure 15: “in the capital Tokyo”

#### 4.2.4. Discourse context

In the scheme employed here, as in most others, discourse givenness is understood as being equivalent to coreference. This is not entirely uncontroversial, especially if the concept is to be generalised from referential phrases to words. For our purposes, however, coreference provides the strong advantage of logical clarity. The scheme distinguishes several subclasses of discourse givenness, four of which I will list below.

4.2.4.1. *D-given-pronoun*. This is the label attributed to entities referred to by a pronoun.

4.2.4.2. *D-given-repeated*. Whenever an entity is picked up again using literally the same string as before (e.g. Fred ... Fred) its second mention will receive this label.

4.2.4.3. *D-given-short*. This label is used for shortened forms of previously mentioned items. Example: Federal Chancellor Angela Merkel ... Merkel.

4.2.4.4 *D-given-epithet*. We are using this label to mark examples involving referential binding combined with accommodation of descriptive material like the one discussed above in section 2.2, repeated here.

- (2) a. Gerhard lives in Munich. The father of triplets is 42 years old.

Epithets are, traditionally, postponed descriptions, nicknames or titles of honour conventionally given to persons from history or legend, such as in “Alexander the Great” or when Homer uses the phrase “the horse tamer” to refer to the Trojan prince Hector. Our use of the term *epithet* is, however, technically defined as an expression which is on the one hand anaphoric but on the other hand introduces new information, which is not necessarily the case for many classical examples.

In integrating this term into our information status vocabulary, we therefore perform a slight meaning extension, which enables us to capture a previously insufficiently described linguistic phenomenon. The category label *d-given-epithet* replaces the earlier proposal *d-given-synonymous*, which we used previously and which was criticised by several commentators as terminologically inappropriate.<sup>7</sup> Synonyms are lexical terms that have the same meaning (*Sinn*) and can generally be exchanged for each other. While in (2a) “Gerhard” and “the father of triplets” refer to the same entity and, hence, in some sense do have the same meaning (*Bedeutung*), they can hardly be called synonyms.

#### 4.3. Labelling semantic examples

To round up the discussion from above, here is an overview on how the examples described in this paper would get classified using the proposed labelling scheme.

- (1) a. If John is married, [bridging [d-given-pronoun his] wife] will be happy.  
       b. If John made coffee, [accessible-via-description [d-given-pronoun his] wife] will be happy.
  
- (2) a. Gerhard lives in Munich. [d-given-epithet The father of triplets] is 42 years old.  
       b. I just met Fred’s lawyer. [d-given-epithet/d-given-pronoun <sup>8</sup>She] is really smart.
  
- (3) {John has an old cottage.}
  - a. Last summer he reconSTRUCted [d-given-epithet the shed].
  - b. Last summer he reconstructed [bridging the SHED].

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<sup>7</sup> „Epithet“ is a spontaneous proposal by Larry Horn (p.c.) who was among those to criticize the use of “synonymous” in the described cases.

<sup>8</sup> As happens from time to time in the area of discourse givenness, several labels can apply simultaneously. The SALTO tool allows for ambiguous labeling in such cases.

#### 4.4. A glance at prosody

A text labelled for information status is particularly well suited for investigations into formal characteristics such as prosody or constituent order. In work which is currently being done at the Institute for Natural Language Processing in Stuttgart, we are investigating phonological and phonetic properties of the spoken realisations corresponding to the transcribed radio text (Schweitzer et al. 2008).

In a smaller corpus consisting of 500 sentences, whose spoken realisation was independently annotated for pitch accents according to the (G)ToBI scheme (Mayer, 1995), we had a look at the last accentable syllables of all expressions labelled for information status (only unambiguous ones). While we did not detect exclusive correspondences between IS labels and pitch accent types, we found significantly different distributions of pitch accents (or their absence) between, for instance, the categories *accessible-via-description* and *accessible-general*. Table 1 shows, for instance, that L\*H is by far the most frequent accent in the *accessible-general* category whereas the pitch accents found for *accessible-via-description* are more evenly distributed.

GToBI accent	accessible-via-description	accessible-general
H*	6	2
HH*L	0	1
!H*L	5	1
H*L	7	14
L*H	11	56
L*!H	4	1
L*HL	1	2
NONE	17	9

Table 1: Pitch accent distributions for *accessible-via-description* and *accessible-general* categories.

I acknowledge that that the data presented here can only provide a first impression. Investigations on a larger scale are on the way.

## 5. Conclusion

In this paper, I have tried to argue, on the one hand, in favour of a formally more stringent and detailed classification of information status and on the other hand for a more careful use of the term *accommodation*. While a lot of work remains to be done, I hope to have given the reader some impression of the possibilities that a formally rigid annotation scheme applied to natural language data may offer. While a lot of research has already been conducted on the prosodic properties of *focus*, we are only beginning to understand that *information status* has its own reflexes in intonation<sup>9</sup>. I would like to end with two open questions that I think should be addressed soon.

1. Where in a phrase is information status prosodically marked? (Note that the results in section 4.4. only pertain to the last accentable syllable but there is obviously a lot more going on in the course of the entire phrase.)

2. How can we get a grip on the distorting prosodic influence of *contrast*, which is not fully captured by annotations of information status in written text?

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<sup>9</sup> Note also the work by Baumann (2006).

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# Stress and Strength by Clitics in Slovenian\*

Boštjan Dvořák

## I. Introduction

*Whereas within a big majority of languages with any difference between the strong and weak pronouns (like in the southern Slavic) as to their use and occurrence, clitic pronouns show a rather regular behaviour according to syntactic rules and phonological dependencies, the situation in Slovenian may be considered as extremely different in that they not only do not necessarily follow the respective clitic properties, but even obviously contradict them. With their ability of being used as short answers (1) or stressed for contrastive purposes (2), Slovenian pronominal clitics demonstrate a set of crosslinguistically rare peculiarities concerning position (Franks 2000, Bošković 2001), stress and use (Dvořák 2003), not only functionally unusual but even in opposite to the most definitions of what clitics are in general.*

- (1) A: A ga poznaš?  
Q CL.3.m.ACC know2.SG.PR  
'Do you know him?'  
B: Ga.  
CL.3.m.ACC  
'I do.'

- (2) Slišim TE, vidim Te pa NE.  
Hear1. SG CL.2.SG.ACC see1. SG CL.2.SG.GEN PART. NEG.  
'I (do) hear, but I don't see You.'

*Thus, the definition of them as being "clitics" represents a serious problem, since this term associates them with a certain group of properties typical for this category of words in general, but not necessarily obligatory for this group of words in Slovenian. The present contribution aims to show both a general presentation of such typologically untypical, but typically Slovenian clitic occurrences, in association with some of the concomitant phenomena, as well as to present an attempt to explain their unusual development on the base of the consequent functional difference between the "weak" and the "strong" pronouns, which seems to be an essential condition rather than a contradiction. It is claimed that the stable functional role enabled this group of words to accept some additional grammatical functions, regardless of their primary origin.*

Although there are quite some considerably deep and extensive considerations about the special character of Slovenian pronominal clitics, mainly in comparative studies, as being in opposite, or, at least unusual in comparison to those of the closely related neighbouring languages (Franks 2000, Golden & Sheppard 2000, Bošković 2001, O'Rourke 2004) and even with some justified problematization of the term »clitic« (Peti-Stantič 1993 and latter) in this context, specially concerning the clitic position in Slovenian and the kajkavian Croatian, there is still no general overview of the exciting anomalies of clitic use and associated details given or possible in Slovenian in this relation, nor can we point to a reliable explanation for

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\*The present contribution is a synopsis of the data presented at the CIL 18 Parallel Session on Information Structure in Seoul. I would specially like to thank to the organizers for including the contribution into the programme and to the audience for its constructive discussion.

the special development of the phenomenon described as »clitic predicatisation« in Dvořák 2003 or »Ga-ga Ellipsis«<sup>1</sup> in Dvořák/ Gergel 2004. Some of the most essential peculiarities of these object clitics and their use will be given therefore, and at the same time we will try to fill the gap for a valid explanation of these, in most points of view, comparably abnormal functions.

## II. Constraints and fields of use

### A) Short Answers<sup>2</sup>

Among the special fields of clitic use situations in Slovenian, that of the short answers by object clitics surely represents the richest, or at least the most striking one; they may occur after nearly any polar question containing a transitive construction of the type shown in (1), provided that the predicate is in the present tense. The other general condition for their occurrence is associated with the category of case; they do most frequently appear as accusative (1) and dative (3), but can also, though to a much minor frequency, be noticed as genitive clitic pronouns (4);

- (3) A: *A mu verjameš?*  
 Q CL.3.m.DAT believe2  
 ‘Do you believe him?’  
 B: *Mu.*  
 CL.3.m.DAT  
 ‘I do.’
- (4) A: *A ne popije dovolj vode?*  
 Q NEG. drink3 enough water. GEN  
 ‘Doesn’t (s)he drink enough water?’  
 B: *Je.*  
 CL.3.f.GEN  
 ‘(S)he does.’

The combination of the components tense and case represents a very simple and wide spread frame. However, there are some additional restrictions and special facilitating conditions to be mentioned in the use of such clitic answers. They will be listed in the following as separate points, some of which are also often to be considered as connected factors in certain domains.

1.) First, a clitic answer tends to occur after a question or another foregoing context, where the same object already occurs in the form of that clitic; if it is mentioned overtly, the same type of answer does mostly not sound acceptable any more – and the answer expressed by the clitic automatically changes from a declarative to an assertive one, according to a retrospective reinterpretation of the foregoing question from a standard to a dubitative one;

- (5) A: *A poznaš Boruta?*  
 Q know2.SG.PR B. ACC

<sup>1</sup> The expression “Ga-Ga-Ellipsis” (short: GGE) is another term for the “Predicatisation of Clitic Pronouns” (short: PCP), used in joint work with Remus Gergel (2004); it was inspired by the fact that *ga* (CL.3.m.ACC) shows the highest frequency among the words of this taxonomy.

<sup>2</sup> This field represents a type of *yes*-substitution occurring in several ways in different languages (illustrated in Dvořák 2003).

‘Do you know Borut?’

B: #*Ga*.  
CL.3.m.ACC  
‘(But) I do.’

B': *Poznam./ Ja*<sup>3</sup>.  
know1.SG.PR/ YES.  
‘I do.’/ ‘Yes.’

The expected positive answer in this case would be the verb, as given in B'. Similarly, the full verb is not impossible, but stylistically worse than the object clitic in cases like (1);

(1)' A: *A ga poznaš?*  
Q CL.3.m.ACC know2.SG.PR  
‘Do You know him?’

B: *Ga*.  
CL.3.m.ACC  
‘I do.’

B': #*Poznam*.  
know1.SG.PR  
‘I do.’

Though the possible use of isolated clitic pronouns covers a relatively broad area with respect to the general frame, where they usually represent a stylistic alternative for the positive answer “yes” in a polar context, there is a very special field of applicability, where their use is functionally stable and even most economical, when compared with any other kind of positive answer: that of an assertive function after a negated polar question.

2.) *The degree of specificity* is not entirely decisive, but plays an evident role for the acceptability of clitic answers<sup>4</sup>; the more specific resp. concrete an object is, the more it is likely for a speaker to use the clitic, whereas verbs generally fit better in cases where the object referred to is less specific; thus, in the following example referring to drinking wine the speaker uses the clitic when pointing to a bottle placed in front of himself, but prefers using the verb when drinking wine is associated with a general characteristic of a person;

(6) a) A: *Ne piješ tégale vina?*  
Neg. drink2 dem wineGen  
‘Don’t You drink that wine (here)?’

B: *Ga./ Ga, ga./ Sevéda ga.*  
It./ (redupl.)/ of course it.  
‘I do./ I do, I do./ Of course I do.’

b) A: *A ne piješ vina?*  
Q neg. drink2 wineGen  
‘Don’t You drink wine?’

B: *Pijem.* B' #*Ga*.  
Drink1 It.  
‘I do.’

<sup>3</sup> Ja, the Slovenian word for “yes”, can always be used as well, though it is not always the most elegant answer, stylistically.

<sup>4</sup> I would like to thank here Hans-Martin Gärtner from the ZAS, who has stimulated me to the experiments concerning this question.

3.) According to the above mentioned frame conditions it should be expected that the phenomenon is purely syntactically licensed and can occur after any transitive construction, but the verb *imeti* (to have) clearly indicates a further semantic constraint as well, as it completely excludes any kind of clitic answers. This exception is even more unusual, since *imeti* does not represent any auxiliary or differently used verb in Slovenian; however, it can be assumed that the amount of the components like transitivity or/and activity given in such sentences is not sufficient for the construction with this verb;

- (7) A: *Tole je moja hiša, ki*  
 DEM.n be3 POSS1f house REL  
 ‘This is my house, which  
*je včeraj še nisem imel.*  
 CL.3.f.GEN yesterday yet NEG.AUX1 ppam  
 I still didn’t have yesterday.’
- B: \**Danes pa JO. (Danes jo pa IMÁŠ.)*  
 Today PART.but CL.3.f.ACC  
 ‘But today you have it.’

Since possession is often indicated by verbs meaning *to be* and there is a lack of definiteness graduation in situations, where *iméti* is used, cases with definite objects like *hiša* in (7) are not as easy to find as with other transitive verbs (partly connection with 2.)); another speciality of *iméti* is its completely aspectless character (see further points). Any other transitive verb, even those with the same meaning, as *posedovati* e.g., do well within the construction;

- (8) A: *Tole je moja hiša, ki*  
 DEM.n be3 POSS1f house REL  
 ‘This is my house, which  
*je včeraj še nisem posedoval.*  
 CL.3.f.GEN yesterday yet NEG.AUX1 ppam  
 I still didn’t possess yesterday.’
- B: *Danes pa JO.*  
 Today PART.but CL.3.f.ACC  
 ‘But today you DO.’

No other evidence can surprisingly be found for a significant influence of what could be described as the activity degree of a transitive verb, on this phenomenon, since verbs clearly denoting non-active predicates like *poznáti* (to know) in (1) do not show any difference from those referring to obviously active acts like *povabíti* (to invite), in this respect – nor can a corresponding contrast be traced from such evident contrary pairs as *glédati* (active, to watch) and *vídeti* (passive, to see), the meaning of which is even too passive in Slovenian to allow an imperative form (\**vidi!*<sup>5</sup>), or *poslúšati* (active, to listen, *poslúšaj!*) and *slíšati* (passive, to hear, \**slíši!*). It is thus claimed in Dvořák & Gergel (2004) that the peculiarity connected with *iméti* should be interpreted in the frame of the more general set of semantic characteristics associated with the verb *to have* in a crosslinguistic view<sup>6</sup>.

<sup>5</sup> Though, this is quite possible in the closely related Croatian (e.g.: *Vidi ga!* ‘Look at him!’), and, due to some influence, also in a few adjacent areas of the Slovenian.

<sup>6</sup> Dvořák & Gergel 2004 associate this question with Kayne’s (1993) comparative study.

Similarly to *iméti*, Slovenian modal verbs also exclude pure clitic answers; they always require the presence of the same (repeated) modal verb form, which can be, and often is, combined with the according clitic pronoun, as e.g. in (9), (10) and (11);

- (9) A: *A ga móraš povabíti?*  
 Q CL.3.m.ACC must2.SG.PR INF.invite  
 ‘Do you must invite him?’
- B: *\*Ga./ Móram./ Móram ga./ Ga móram.*  
 ‘I must.’
- (10) A: *A mu ne móreš verjéti?*  
 Q CL.3.m.DAT NEG be able2.SG.PR INF.believe  
 ‘Can’t you believe him?’
- B: *Lahkó mu./ Mu lahkó./ Lahkó./ \*Mu.*  
 ADV.easily CL.3.m.DAT ADV.easily  
 ‘I can.’
- B’: *Ne mórem mu./ Mu ne mórem./ Ne mórem.*  
 NEG be able1.SG.PR CL.3.m.DAT NEG be able1.SG.PR  
 ‘I can’t.’

The modalized adverbial particle *lahkó* (easily), replacing the verbs *móči* (to be able) and *sméti* (to be allowed) in declarative use, as shown in (10)B, represents a borderline case, as far as it still may partly be understood as an adverb of manner by speakers<sup>7</sup> (11)B (as indicated by the segmentation in „*Mu. Lahkó.*”), whereas the full modal is used in negated sentences only, as in B' in (10) and (11).

- (11) A: *A mu lahkó verjámem?*  
 Q CL.3.m.DAT ADV.easy believe1.SG.PR  
 ‘Can I believe him?’
- B: *#Mu./ Lahkó./ Lahkó mu./ Mu lahkó./ Mu. Lahkó.*  
 ‘You can.’
- B’ *Ne móreš/ sméš mu./ Mu ne móreš/ sméš.*  
 ‘You can’t.’/ ‘You shouldn’t.’

The clitic pronoun *mu* in (3), (10) and (11), as well as *ga* in (1) and (9) refer to a singular referent of masculine gender, already known from some foregoing context; it is the short or weak form of the pronoun, generally used in contexts of known, not emphasized reference. If the reference is semantically emphasized, as is the case after a wh-question, when an object is being introduced into the context, the strong form of the pronoun, namely the tonic *njêmu* (12) resp. *njêga* (13) has to be used;

- (12) A: *Kómu verjámeš?* (13) A: *Koga kličeš?*  
 Wh believe2 Wh whom call2

<sup>7</sup> It could be speculated therefore about the role of those constructions for the evolving of the present phenomenon, as in *lahkó ga* the former adverb *lahkó* is really felt and can be interpreted as a verb by the speakers – and would thus represent a normal, non-elliptical construction.

‘To whom do you believe?’

B: *Njêmu.*  
PRON.3.SG.DAT  
‘To him.’

B’: \*Mu.

‘Whom do you call?’

B: *Njega.* B’: \*Ga.  
PRON.3.SG.ACC  
‘Him.’

This functional difference between the clitic and the tonic pronouns remains stable and strict in Slovenian, with any kind of mergence leading immediately to an ungrammatical construction. But nevertheless, what is officially called and – with respect to this functional difference – should be interpreted as clitic pronouns, can generally serve as positive answers after a polar question, standing alone, as seen in (1), with *ga*, or in (2), with *te*, or in (3), with *mu*, or in (4), with *je*, and in (8), with *jo* being but some of the various forms of the whole set shown in table 1 and 2 representing the Slovenian pronominal system;

Sg	1.)	2.)	3.)m	f	n
NOM	jaz	ti	on	ôna	ôno
GEN	mêne, <b>me</b>	têbe, <b>te</b>	njêga, <b>ga</b>	njé, <b>jè</b>	njêga, <b>ga</b>
DAT	mêni, <i>mi</i>	têbi, <i>ti</i>	njêmu, <i>mu</i>	njej, <i>ji</i>	njêmu, <i>mu</i>
ACC	mêne, <i>me</i>	têbe, <i>te</i>	njêga, <i>ga</i>	njó, <i>jò</i>	ôno, <i>ga</i>
LOC	pri mêni	pri têbi	pri njêm	pri njej	pri njêm
INS	z menój	s tebój	z njim	z njó	z njim
DI	1.)m f	2.)m f	3.)m	f	n
NOM	mídva médvé	vídva védvé	ônadva	ônidve	ônidve
GEN	náju	váju	njíju, <b>ju</b>		
DAT	<i>náma</i>	<i>váma</i>	njíma, <i>jíma</i>		
ACC	<i>náju</i>	<i>váju</i>	njíju, <i>ju</i>		
LOC	pri náju/náma	pri váju/váma	pri njíju/njíma		
INS	z náma	z váma	z njíma		
PI	1.)m f	2.)m f	3.)m	f	n
NOM	mi mé	vi vé	ôni	ône	ôna
GEN	nàs	vàs	njih, <b>jih</b>		
DAT	<i>nàm</i>	<i>vàm</i>	njim, <i>jim</i>		
ACC	<i>nàs</i>	<i>vàs</i>	njé, <i>jih</i>		
LOC	pri nàs	pri vàs	pri njih		
INS	z námi	z vámi	z njími		

Table 1: Slovenian pronominal system, consisting of 3 numbers, 3 persons, 3 genders (within the 3rd person) and 6 cases; the clitic forms in *italics* (dative and accusative) are often stressed for strength purposes, more seldom in genitive case. Those not **darkened** do not differ from the tonic pronouns in appearance.

Sg/DI/PI	1./2./3.
NOM	
GEN	sêbe, <b>se</b>
DAT	sêbi, <i>si</i>
ACC	sêbe, <i>se</i>
LOC	pri sêbi
INS	s sebój

Table 2: The same forms of reflexive pronouns are used for all numbers and persons.

The weak pronouns can and mostly do, but need not necessarily differ from the strong ones; in some cases the two pronominal forms are identical. However, the functions to be called “tonic” and “clitic” always stay separated, as will be shown in latter examples (see 39 below).

## B) Stress and Strength Relations

The second important fact about the possible use and behaviour of these (originally) clitic forms is shown in the example (2) at the beginning of this contribution; they are often or even usually stressed in cases where the stress occupies a full or an auxiliary verb in „normal“ languages, i.e. mainly for the purpose of strength expression. This behaviour could be interpreted, in some points, on the base of the syntax-phonology interface, since the position of clitic elements and auxiliary verbs in the past tense shows an exception for the 3<sup>rd</sup> person Sg subjects<sup>8</sup>, where the auxiliary is stressed (14’), instead, as with all other persons and numbers, the clitic; but in the present tense, the clitic pronouns represent an entire set again, with the common ability to overtake stress for strength purposes (15), (16), (17);

- (14) *Slišal sem TE, videl pa NE.*  
hear.ppa.m. AUX.1 CL.2.SG.ACC see.ppa.m PART. NEG.  
‘I heard, but I didn’t see you.’
- (14’) *Slišal Te JE, videl pa NE.*  
hear.ppa.m. CL.2.SG.ACC AUX.3 see.ppa.m PART. NEG.  
‘He heard, but he didn’t see you.’
- (15) (2) *Slišim TE, vidim Te pa NE.*  
Hear1 CL.2.SG.ACC see1 CL.2.SG.GEN PART. NEG  
‘I DO hear, but I don’t see you.’
- (16) *A ME slišiš?*  
Q CL.1.SG.ACC hear2  
‘Do you REALLY hear me?’
- (17) *Pravi, da JIM verjame.*  
Say3 that CL.3.PL.DAT believe3  
‘(S)he says that (s)he DOES believe them.’

The stress bearing role for strength purposes in a sentence, as shown in the above examples, coincides well with Höhles (1992 and latter) claim of semantically rather empty material, i.e. elements with low semantic importance easily assuming stress in this relation, as being most likely to be connected with the truth content within a statement. This situation is comparable with the stress bearing modal (English *to do*) or auxiliary (German *haben*) verbs, applied in past or present tense constructions, and indeed, the object clitics in Slovenian behave very much like these verbal elements in the mentioned Germanic languages.

However, stressed clitics do non occur exclusively in Slovenian; as it is well known, in some of the Romance languages object clitics may regularly appear in a stressed final position

<sup>8</sup> This is not a specifically Slovenian, but seems to be an old and common Slavic rule; several concepts as an attempt for explanation have been presented at the “3<sup>rd</sup> Person Workshop” by Dvořák, B., Homola, P. and Migdalski, K. on January 12<sup>th</sup> 2007 at ZAS, Berlin.

as well, and this is due to the phonological structure of those languages, as far as we have to deal with predominantly iambic patterns. Such cases are known from French (18) and Catalan imperative clauses with postponed object clitics. A further example comes from Bulgarian negated sentences, in which negation of a transitive clause containing an object clitic requires the stress of this very clitic in final position as well (19);

(18) *Prends - LE!*  
 Take2 CL.3.SG.M  
 ‘Take it/ Take him!’

(19) *Az ne GO viždam.*  
 Pron.1.P.Sg. Neg. CL.3.m.ACC see1  
 ‘I don’t see him.’

But the essential difference between those cases and the Slovenian data consists in the striking fact, that the clitics in French and Bulgarian are stressed exclusively for some purely phonological requirements and only in certain positions, in accordance to the mentioned iambic syllable structure, which does not allow any other position or stress variation in the respective case, whereas in Slovenian they obviously behave quite independently of the whole sentence structure, becoming thus rather neutrally marked, autonomous words with predicative characteristics. Thus, they can stand alone (as in the case of short answers), and stressing them in normal positions within complete sentence structures becomes semantically relevant, regardless to the syntactic position;

(17') *Pravi, da JIM verjame./, da verjame JIM.*  
 Say3 that CL.3.PL.DAT believe3  
 ‘(S)he says that (s)he DOES believe them.’

(17'') *Pravi, da jim VERJAME.*  
 Say3 that CL.3.PL.DAT believe3  
 ‘(S)he says that (s)he BELIEVES them.’

As demonstrated in (17') and (17''), the stressed object clitic effects a strength relation, whereas a theme introduction is indicated by the stressed full verb (17''). In spite of the above formulated free position rule, being true of stressed clitics, the unstressed are not free at all (17'''); in primary clitic use the position is much more restricted, making evident that the free position is essentially licensed by the stress.

(17''') \**Pravi, da VERJAME jim.*  
 Say3 that believe3 CL.3.PL.DAT

This stress-dependent relation and the fact, that the clitic and the tonic function cannot merge at all (20), show clearly that the new functional roles of Slovenian clitic pronouns do not replace the old ones; they are just added to the primary functions on the base of stress and a consequent difference between the „weak“ and „strong“ pronouns.

(20) *Pravi, da NJIM verjame./, da verjame NJIM.*  
 Say3 that PRON.3.PL believe3  
 ‘(S)he says that (s)he believes to THEM./... it is to THEM that (s)he believes.’

### C) Redundant use

Admittedly, there still are some detailed areas, where the pure phonological stress is obligatory, as seen in the context with the 3<sup>rd</sup> person subjects in (14) and (14'), or where the phonological structure is relevant as well, as seen in the below listed examples, both due to the tendentiously iambic pattern in Slovenian central dialects; those cases may reveal a former stage of the latter analogically extended system, originally comparable to that in the mentioned Romance languages. But the today's general "object clitic stressing ability" represents a complete system and is due to a longer continuous development, including a perceptual change, after which the elements may be interpreted as predicates by the speakers. A further evidence for this development is the fact that object clitics often remain in a sentence even when being semantically redundant – at least from an outer point of view – for the whole statement, as is the case in negated sentences, where the negative particle *ne* bears the stress – indicating that they are seen as predicates in the context;

- (21) *V* *Braziliji* *sadijo* *butije,* *v* *Sredozemlju*  
 In Brazil.LOC plant3. PL butia. PL in Mediterranean.LOC  
 'In Brazil they plant Butia-palms, in the Mediterranean
- jih* *pa* *NE.*  
 CL.3.PL.GEN but NEG  
 they don't.'

- (22) A: *Kje* *rastejo* *butije*  
 Where grow3. PL b.PL  
 'Where do the Butia-palms grow
- in* *kakšna* *klima* *jim* *paše?*  
 and what climate CL.3.PL.DAT suit3  
 and what kind of climate does suit to them?'
- B: *Ne* *vem,* *kaj* *jim* *paše*  
 NEG know1 what CL.3.PL.DAT suit3  
 'I don't know what they like
- in* *kaj* *jim* *NE.*  
 and what CL.3.PL.DAT NEG  
 and what they don't.'

In (21) and (22), the negation particle *ne* would be sufficient for the second part of the sentence construction, but the speakers feel like the clitic pronoun, extracted from an overt occurrence or repeated from the first part of the sentence, is needed again. After a negation, any accusative automatically turns to a genitive, as in (21); however, genitive and accusative pronominal forms are identical for all persons and numbers except for f. Sg. (23);

- (23) A: *A* *jo* *poznáš?*  
 Q CL.3.f.ACC know2.SG.PR  
 'Do you know her?'
- B: *Jo.* B': *Je* *NE.*  
 CL.3.f.ACC CL.3.f.GEN NEG

‘I do.’ (“Her.”)

‘I don’t.’ (“Her not.”)

Answering by clitic pronouns is not anyway limited to a fixed repeating of forms; a certain flexibility within the set of the taxonomy is always given and easily performed by the speakers, according to the rules required for grammatical adjustment and congruity, so that a jump from one to another person (24) or even number (25) happens automatically;

(24) A: *A mi ne verjámeš?*  
Q CL.1.DAT.SG NEG believe2.SG.PR  
‘Don’t you believe me?’

B: *Ti.*  
CL.2.DAT.SG  
‘I do.’ (“You.”)

B’: *Ti NE.*  
CL.2.DAT.SG NEG  
‘I don’t.’ (“You not.”)

(25) A: *A me ne poznáte?*  
Q CL.1.GEN.SG NEG know2. PL.PR  
‘Don’t you know me?’

B: *Vas.*  
CL.2.ACC.PL (polite form)  
‘I do.’

B’: *Vas NE.*  
CL.2.GEN.PL NEG  
‘I don’t.’

#### D) Economy and special areas of use

As already mentioned above, after a negated question like in (25), the positive answer by an object clitic pronoun represents a specially economic type of answer, as it avoids the ambiguity given with *ja*, the Slovenian “yes”, in such cases. Therefore, this type of answer is specially frequent after negated transitive questions, representing proportionally the most stable field of its occurrence in spoken dialogues. In these situations a clitic answer is also most frequently obtained in experiments done about general use of clitic sentences, namely almost always – due to the fact that no other answer type would be more effective and semantically fit better into the context. Due to the foregoing negative frame the object clitic effects an answer rather comparable to the German “doch” or the French “si” than a normal “yes”, similarly to the situation provoked by its use after overt object mentioning, according to Dvořák/Gergel 2004, as shown in (5) – and illustrated again in (26):

(26) A: *A poznáte to palmo?*  
Q know2.Pl DEM palm. ACC  
‘Do you know this palm species?’

B: *#Jo.*  
CL.3.f.ACC.SG  
‘(But) I do.’

B’: *Poznam.*  
know1  
‘I do.’

When the object is overtly mentioned in a polar question, the positive answer will be usually performed by the full verb and not by the clitic. Answering by using the object clitic is still possible here – but not completely grammatical, if it should stand just for the normal positive answer meaning “yes”; when used, however, the clitic answer effects a mutation of the discourse situation with the sense of the question changing retrospectively from a normal to a dubitative one automatically, as *jo* is an assertive answer in this case. After positive

questions the clitic answers are normally found when they already occur in the same form in the question. This restriction is of no importance for negated questions; as any positive answer is at least partly assertive after a negation, the object clitic may be used independently of whether it is repeated or congruently built (27) or representing an overt object (28) in the question;

- (27) A: *A je ne poznáte?*  
 Q CL.3.f.GEN.SG NEG know2.Pl  
 ‘Don't you know it?’
- B: *Jo.* B': *(Poznam.)*  
 CL.3.f.ACC.SG know1  
 ‘I do.’ ‘I know.’
- (28) A: *A ne poznáte te palme?*  
 Q NEG know2.Pl DEM.GEN palm.GEN  
 ‘Don't you know this palm species?’
- B: *Jo.* B': *#Poznam.*  
 CL.3.f.ACC.SG know1  
 ‘I do.’ ‘I know.’

The (positive) answers by object clitics in all these situations are even essentially better than any full verb repetition (B'). This is also proved by their frequency after those questions, whereas there is seemingly a partly mismatch with the full verb answers on their place.

A two-part object like the one effected by coordination in (29) can also be expressed by the object clitic (here a dual one according to the number rules) by no impediment, just like the repetition in (30), where it is additionally doubled;

- (29) A: *A ne vidiš Boruta in Maje?*  
 Q NEG see2 Borut.GEN and Maja.GEN  
 ‘Don't You see Borut and Maja?’
- B: *Ju.* B': *Vidim.*  
 CL.3.ACC.DL see1  
 ‘I do.’ ‘I see.’
- (30) A: *Ju ne vídi?*  
 CL.3.GEN.DL NEG see3.SG.PR  
 ‘Doesn't (s)he see both of them?’
- B: *Ju, ju.* B': *Ju NE.*  
 CL.3.ACC.DL CL.3.GEN.DL NEG  
 ‘He does, he does.’ (“Both of them, 2x.”) ‘He doesn't.’

Whenever the answer clause is negated – like in (30)B', but also in the above examples (23)B', (24)B' and (25)B' – the negative particle *ne* occupies the final position in it; this final position is reserved for *ne* in declarative negated clauses in general. With a changed word order from clitic + *ne* to *ne* + clitic, the sentence becomes automatically a negated imperative, as demonstrated in (31):

(31) A: *A naj ju pokličem?*  
 Q OPT CL.3. ACC.DL call  
 ‘Should I call (the both of) them?’

B: *NE ju!*  
 NEG CL.3.GEN.DL  
 ‘You shouldn’t!’

This opposition is demonstrated in (32), where the two possible answers to a foregoing ambiguous question represent a minimal pair – with the position of *cl + ne* vs. *ne + cl*. being the only distinctive point between a declarative and an imperative clause again; any position change (with the same meaning) is ungrammatical. The question and the two answers are formally analysed in (32’)<sup>9</sup>;

(32) A: *A ji zaupam?* B: *Ji NE.* B’: *NE ji!*  
 Q CL.3.f.DAT trust.1.SG.PR CL NEG NEG CL  
 ‘Do I trust her?’/ ‘Should I trust her?’ ‘You don’t.’ ‘Don’t!’

(32’) A) [<sub>CP</sub> [<sub>C</sub> a] [<sub>Mood P</sub> j<sub>i</sub>] [<sub>Mood P</sub> [<sub>Mood</sub> Ø] [<sub>TP</sub> [<sub>T</sub> Ø] [<sub>Pol P</sub> [<sub>Pol</sub> Ø] [<sub>VP</sub> t<sub>j</sub> [<sub>V</sub> zaúpa<sub>m</sub>] ] ] ] ] ] Procrostignate: V in situ  
 B) [<sub>CP</sub> [<sub>C</sub> Ø] [<sub>Mood P</sub> j<sub>i</sub>] [<sub>Mood P</sub> [<sub>Mood</sub> Ø] [<sub>TP</sub> [<sub>T</sub> Ø] [<sub>Pol P</sub> [<sub>Pol</sub> né zaúpaš<sub>i</sub>] [<sub>VP</sub> t<sub>j</sub> [<sub>V</sub> t<sub>i</sub>] ] ] ] ] ]  
 B’) [<sub>CP</sub> [<sub>C</sub> [né zaúpa<sub>j</sub>] ] [<sub>Pol P</sub> j<sub>i</sub>] [<sub>Pol P</sub> [<sub>Pol</sub> t<sub>k</sub>] [<sub>VP</sub> t<sub>j</sub> [<sub>V</sub> t<sub>i</sub>] ] ] ] ] ]

Usually, the question after which a negated imperative (B’) is to be expected, would be built with an Optative (33). A possible scenario of clitic movement, which probably led to the above elliptic constructions, is added below in this example; here, the minimal word order opposition is effected by embedding the imperative clause (B) in (B’), as an embedded imperative shows the same order (*cl + ne*) as a declarative clause. Thus, embedding wipes out the difference between the two clause types again (33B’, 34B’).

(33) A: *A naj ji zaupam?*  
 Q OPT CL.3.f.DAT trust.1.SG.PR  
 ‘Should I trust her?’

B: *NE ji!* B’: *Právi, da ji NE!*  
 NEG CL.3.f.DAT say.3 that CL.3.f.DAT NEG  
 ‘Don’t!’ ‘(S)he says you shouldn’t.’

(B: *Ne zaúpaj ji!* B’: *Právi, da ji ne zaúpaj!*)  
 NEG trust.IMP2.SG CL.3.f.DAT say.3 that CL NEG  
 IMP.2.

(34) A: *A ji zaúpa?*  
 Q CL.3.f.DAT trust.3.SG.PR  
 ‘Does (s)he trust her?’

<sup>9</sup> I owe many thanks to Ilse Zimmermann for the check, discussion and help in the formalization of these relations in German and Slovenian sentences (32’; 44’).

B: *Ji NE.*  
 CL.3.f.DAT NEG  
 '(S)he doesn't.'

B': *Právi, da ji NE.*  
 say.3 that CL.3.f.DAT NEG  
 '(S)he says that (s)he doesn't.'

Embedded imperatives are generally possible and frequent in Slovenian (Dvořák 2005, Rus 2005); this leads to many transitive constructions with object clitics in such cases too. Finally, approximately the same elliptic structures are licensed in such clauses as in declarative sentences, with clitics consequently being able to bear the imperative meaning as well (35c); though, an object clitic can only license an imperative when embedded, but never, when standing alone (as in 35b);

(35)a) A: *ZAUPAJ ji!*  
 IMP2.SG CL.3.SG.DAT.F  
 'Trust her!'

b) A: *\*Ji!*  
 CL.3.SG.DAT.F

c) A: *Sem rekel, da JI.*  
 Aux1 say.ppa.m that CL.3.SG.DAT.F  
 'I said (that) you SHOULD.'

With the conditions given by embedded imperative constructions, a new situation field arises and we obtain very unusual and typologically strange possibilities with respect to stress and strength relations, as e.g. strength-marked imperative clauses, which were even expected to be excluded crosslinguistically (Repp and Zimmermann, pc). In Slovenian, they exist and they are licensed by object clitics (36b). In such sentences, the stress can be put on the verb (for theme introduction, 36a) or on the object clitic (for indicating strength, 36b).

(36)a) A: *Sem rekel, da ji ZAUPAJ.*  
 Aux1 say.ppa.m that CL trust.IMP2.SG  
 'I said that you should TRUST her.'

(36)b) A: *Sem rekel, da JI zaupaj.*  
 Aux1 say.ppa.m that CL trust.IMP2.SG  
 'I said that you SHOULD trust her.'

Additionally, there are some rules to be mentioned about the further possibilities in connection with the stressed clitic position within a sentence; if put on the second place after the verb, as in (37a), a kind of inner dependency can be established, very much like in declarative clauses, when the clitic is stressed, and the hearer expects a sort of opposite or a narrowing of the statement in the following part of the clause; the other position (b) is not possible, except after embedding.

(37)a) A: *Zaupaj JI, ampak ne preveč!*  
 trust.IMP2.SG CL.3.SG.DAT.F but not too much  
 'You SHOULD trust her, but not too much.'

b) A: *\*JI zaúpaj, ampak....*

Whereas the clitic pronouns can be generally distinguished from the tonic ones by appearance (with the tonic pronouns being mostly longer, 38), this is not the case with 1<sup>st</sup> and 2<sup>nd</sup> Person in Dual and Plural, where there is only a functional, but no formal difference between the two forms, as shown in (39), and the function changes during the same context;

- (38) A: *Kóga klíčejo?*  
 WH whom call. 3.PL.PR  
 ‘Whom do they call?’
- B: *Mêne./ Têbe./ Njêga./ Njó.* B’: \**Me./ Te./ Ga./ Jo.*  
 Emph. Pron. Cl. Pron.  
 Me./ You./ Him./ Her.
- (39) A: *Kómu verjámejo, a VAMA?*  
 Wh who DAT. believe3.PL Q Emph.Pron.DL  
 ‘Whom do they believe, do they believe YOU (DL)?’
- B: *Ne.*  
 ‘No.’
- A’: *Pa VAMA.*  
 Part. CL.2.DAT.DL  
 ‘But they do.’

*Vama* (CL.2.DAT.DL, „to the both of you”) is emphasized for different purposes in (39); first, its stress refers to the wh-related context, as it is an open question with A asking directly to whom they (3.PL, the people) believe, with *vama* being therefore stressed in the role of a “strong”, tonic pronoun. But, after the negation addressed by B, A’ inserts the positive statement by introducing it with an adversative particle again, aiming thus to express strength in polar context; this requires the use of the clitic pronoun. Admittedly, the adversative particle *pa* could introduce the emphasized tonic pronoun as well, but after the statement expressed by this construction has been negated, it only can refer to adversative polarity.

In negated cases the negative particle *ne* is always stressed in Slovenian, as far as the truth value of a sentence is emphasised (40, 41, 42, 43); this being negated in preceding position, a positive contrast can be effected by stressing either the clitic pronoun or the particle *pa* (which licences a big amount of contrast constructions) in final position (43).

- (40) a) *Slišal sem TE, videl pa NE.*  
 hear.ppa.m. AUX.1 CL.2.SG.ACC see.ppa.m PART. NEG.  
 ‘I heard, but I didn’t see you.’
- b) *Slišal sem TE, videl Te pa Nísem.*  
 hear.ppa.m AUX.1 CL.2.SG.ACC ppa.m CL.2.SG.GEN PART NEG.AUX.1.  
 ‘I heard, but I didn’t see you.’
- (41) a) *Slišal Te JE, videl pa NE.*  
 hear.ppa.m CL.2.SG.ACC AUX.3 see.ppa.m PART. NEG.  
 ‘He heard, but he didn’t see you.’
- b) *Slišal Te JE, videl Te pa NI.*  
 hear.ppa.m CL.2.SG.ACC AUX.3 ppa.m CL.2.SG.GEN PART. NEG.AUX.3.  
 ‘He heard, but he didn’t see you.’

- (42) a) Slíšim TE, vídim Te pa NE.  
hear.1.SG.PR CL.2.SG.ACC see.1.SG.PR CL.2.SG.GEN PART NEG  
'I do hear, but I don't see you.'
- b) Slíši ME, vídi me pa NE.  
hear.3.SG.PR CL.1.SG.ACC see.3.SG.PR CL.1.SG.GEN PART NEG  
'He does hear, but he doesn't see me.'
- (43) a) *Slišim Te NE, vidim pa TE*  
hear1.SG.PR CL.2.SG.GEN NEG see1.SG.PR pa CL.2.SG.ACC  
'I don't hear you, but I see you.'
- b) *Slišim Te NE, vidim Te PA.*  
hear1.SG.PR CL.2.SG.GEN NEG see1.SG.PR CL.2.SG.ACC PART  
'I don't hear you, but I see you.'

In the above sentences, *ne* and object clitics appear in several positions, always in a polar context, being stressed in parallel connection for the strength purposes. In past tense constructions, *ne* is prefixed to auxiliaries. Some essential rules of its behaviour – with special regard to the object clitics – may be assumed from the given examples, and listed in a short sketch<sup>3</sup>:

- There are two kinds of negation, Pol- and Strength- negation. Pol- is used in normal sentence negation. Strength negation obtains additional stress as confirmation of a statement (Repp 2006).
- CP<sub>+/force</sub> (Strength P) (Mood P) (TP) Pol P vP\* VP (Zimmerman 2006)
- *Ne* can be merged in Pol and/or in Strength.
- Clitics except *je* are moved to the left to the Wackernagel position, verbs to F<sup>0</sup>, pronouns to the adjunct position. This results to the clitic cluster order: Aux + Refl + Dat + Acc
- *Ne* is a proclitic requiring a verbal host: *ne vidim, nisem videl...* It moves together with the verb to the left periphery of the sentence, passing over the other clitics. This is a last resort movement.
- In elliptic answer statements the elision proceeds on the surface structure; thus the sentence stress can be placed on clitic formatives.
- In Strength the contrast *ne/Ø* is placed by extra accent for FALSUM/VERUM. This accent is situated in Ø on the left neighbour constituent of Strength.

As already indicated and partly commented, Slovenian facts generally fit well in Hoehles (1992) claim of the most unspecific elements overtaking easily the key role by *verum focus* constructions in biased contexts; for comparison, three German sentences are analysed with respect to strength conditioned stressing of – in the German case – auxiliary verb *haben* (to have, a) in the contrast to emphasized negation (b) and theme introduction (c), and formally analysed in (44').

- (44) a) *Es HAT hier drei Monate lang nicht geregnet.*  
It AUX.3 here three months long NEG rain.ppp  
'It REALLY didn't rain here for three months.'



missing, the meaning is clearly past, as the tense is automatically copied from the first part of the sentence (a).

- (48) a) *Danica ni razuméla predpisov, Lukrecija PA.*  
 D. n.aux ppaf ipf instructions GEN, L. PART.  
 ‘Danica did not understand the instructions, but Lukrecija did.’
- b) *Danica ni razuméla predpisov, Natáša pa JIH.*  
 D. n.aux ppaf ipf instructions GEN, N. PART.them  
 ‘Danica did not understand the instructions, but Lukrecija does.’
- c) *Anica ni povabila sosédov, Natálija PA.*  
 A. n.aux ppaf pf neighbours GEN, N PART.  
 ‘Anica did not invite the neighbours, but Natalija did.’
- d) *\*Anica ni povabila sosédov, Johánca pa JIH.*  
 A. n.aux ppaf pf neighbours GEN, J. PART.  
 them  
 ‘Anica did not invite the neighbours, but Johanca does.’
- e) *Anica ni vabila sosédov, Johánca pa JIH.*  
 A. n.aux ppaf ipf neighbours GEN, J. PART.  
 them  
 ‘Anica did not invite the neighbours, but Johanca does.’

In the sentences b) and d), *jih* (the m/f Pl Acc clitic pronoun) is added – and this effects the present tense meaning of the second part of the sentence. However, the second part of the sentence in d) is fully ungrammatical because of the perfective aspect of the verb in the preceding part. The version e) is completely grammatical again; the verb form used in it is imperfective. – This special effect is due to the simple fact that perfective verbs can generally not be used in present tense function (except when this is used in iterative meaning) in Slovenian; like in several Slavic languages, perfective verbs in present form are automatically associated with a future meaning – but this does not work with clitic pronouns.

A further interesting dimension of the predicatisation of clitic pronouns (PCP) in Slovenian is that of their occurrence in clustered groups, in which they originally appear in a strict order according to consequent priority rules, Refl + Dat + Acc; clusters may be double or triple sequences, as shown in (49) and (50). It is an amazing fact that, though being defined by a stable construction and not variable in their sequence order, they may be split by additional (e.g. adverbial material) and the single clitic elements can thus represent quite independent constituents again, as in (49)B’ and (50)C;

- (49) A: *Misliš, da mu zapeljuje ženo?*  
 think2 that CL.3.m.DAT seduce3 wife ACC  
 ‘Do you think that he seduces his wife?’
- B: *Mislim, da mu JO. / \*da jo MU.*  
 think1 that CL.3.m.DAT CL.3.f.ACC  
 ‘I think he does.’ (‘I think that him HER.’)
- B’: *Mislim, da mu kdaj pa kdaj res JO.*

think1 that CL.3.m.DAT when and when really CL.3.f.ACC  
 ‘I think he sometimes really does.’ (‘I think that him sometimes really HER.’)

(50) A: *Diplómo se mu prizná.*  
 diplomaACC CL.REFL.ACC CL.3.m.DAT recognize3  
 ‘They recognize his diploma.’

B: *A se mu JO?*  
 Q CL.REFL.ACC CL.3.m.DAT CL.3.f.ACC  
 ‘Do they?’

A: *Se mu JO, se mu JO.*  
 ‘They do, they do.’

C: *Mislím, da je pràv, da*  
 think1 that be3 correct, that  
 ‘I think it is correct, that

*se mu končno vendarle JO.*  
 CL.REFL.ACC CL.3.m.DAT finally nevertheless CL.3.f.ACC  
 they finally do (it), after all.’

There are several details to be commented in the above sentences. First, the rule formulated about PCP differences in reflecting pronominal vs. overt reference is not decisive in a clustered construction, as may be seen in (49)B; a sequence of an accusative element following a dative clitic in the question is a sufficient mechanism for a clitic cluster to arise in the answer. This does not change even when the dative clitic *mu* is replaced by an overt name, e.g. *Petru*. Second, stress seems to play an essential role in all those cluster constructions again, since the final element (usually monosyllabic) is always stressed and any other variation is impossible. The final accent rule results first in the iambic pattern of minimal parts of the clause (pa MU/mu PA; se GA; ji JO; mu JO; me NE; sem GA; ga JE etc.) and can be further expanded to the anapestic pattern in triple sequences (se mu JO; mu jo JE; sem mu JO; nama JIH; si ju JE etc.). The pronunciation of those sequences may not always be phonologically uniform; there is a variety of obligatory spelling properties, defined by minimally differing details of intonation, which can be but shortly mentioned here, but which obviously play an important role in both the realization and perception of produced speech acts by speakers, as e.g. – just to mention one of them – the fact that “*mu JO*” in (49)B is fluently pronounced without any break in the iambic step, whereas in “*mu kdaj pa kdaj /res/ JO*” in (49)B’ the adverb *res* requires an additional intonation – effecting a break – before the final accent, and a pure fluent iambic \**res JO* is not sufficient. Similarly, there is a semantic difference between a “staccato”-like *vÈndarle JO* and a “smooth” *vendarle JÒ* with respect to the strength dimension again – as well as to the question of whether it is pronounced in direct or indirect speech.

Whenever clusters are split by additional information, this can obviously only happen by inserting the material before the final step of the cluster.

### III. On origins of PCP

Whatever can be observed in the domain of clitic pronouns (and, to some extent, of all other clitic elements as well) in Slovenian, can be combined, connected and contextually referred to

independent stress rules; focussing a pronominal clitic by stressing it can license most unusual positions and functions – in a crosslinguistic view. Nevertheless, the functional difference between the pronominal clitics and their tonic counterparts always remained, and still remains, stable in Slovenian – and is even increasing compared to the situation in (Štokavian) Croatian and Serbian, where some degree of functional mergence is not ungrammatical if depending on what could be called environmental harmony requirements (51), whereas the Slovenian definition of a clitic pronoun tended to become purely functional at least after 1500 and is remaining so even in cases of morphological identity, as illustrated in (39) above. If compared with the standard Štokavian situation illustrated in (51) – when the subject pronoun is used, the tonic pronoun is better than the clitic one for the object, consequently –, the Slovenian conditions (52) seem to be essentially different;

(51) (ŠTOKAVIAN) CROATIAN/ SERBIAN

- a) *Ja njega vidim.* / *VIDIM ga.*  
 I tonic pron. see 1.SG.PRES see 1.SG.PRES CL.3.SG.ACC  
 ‘I see him.’ ‘I see him.’
- b) *#Ja ga vidim.*  
 I CL.3.SG.ACC see 1.SG.PRES  
 ‘I see him.’

(52) SLOVENIAN

- a) *Jaz ga vidim.* / *Vidim ga./Ga vidim.*  
 I CL.3.SG.ACC see 1.SG.PRES  
 ‘I see him.’ ‘I see him.’
- b) *\*Jaz njega vidim.*  
 I tonic pron. see 1.SG.PRES  
 ‘I see him.’

It is thus to expect and seems quite plausible that this very consequent functional separation was the main condition to enable the clitic pronouns to gain additional functions after some time, as it completely excluded any confusion or misunderstanding. However, the situation described and typical for Slovenian – with purely functional clitics being most probably the main condition for latter special development – is also found, at least in a certain extent, in considerable parts of Croatian language territory; specially the Kajkavian dialects (Peti-Stantić, pc) show many characteristics concerning position and use of the clitics differing from the standard rules of the today’s written Štokavian and parallel to those described for Slovenian. However, it must be admitted in this respect that the Slovenian language territory is not completely uniform either; the situation described in this contribution mainly fits for the most of the central and western dialectal area including the spoken standard language. In parts of the eastern dialectal area (Prekmurje, Štajersko) the functional separation between tonic and clitic (long and short) pronominal forms is much weaker and not as consequent as farther west; this fact may be illustrated by a well-known and popular folk song from Štajerska beginning with following verse:

- (53) a) *Óna méne ljúbi.*  
 She.PRONf PRON.1.SG.ACC love3  
 ‘She loves me.’

For the speakers of the central area, the sentence is completely ungrammatical in this interpretation, unless the object pronoun (as in the tonic form) is stressed (and semantically emphasized), meaning consequently: *She loves ME.* – but this is not the case. It is specially for its meaningful and funny ambiguity that the song is so much beloved in the whole Slovenian area, as it can be understood as meaning just the contrary, when interpreted as a grammatically correct sentence:

- b) *Ona me ne ljubi.*  
 She.PRONf CL.1.SG.ACC NEG love3  
 ‘She does not love me.’

Besides the regional alternations with their indigenous differences, the urban slang speech (as spoken in Ljubljana and elsewhere) often exhibits an opulent use of strong pronouns where the weak forms would be expected – apparently in opposite to the above assumptions; however, it must be restrictively noticed, that a stylistic (over)emphasizing of each single element of a chain is the real reason for these occurrence and not a decrease of the weak forms in general<sup>10</sup>;

- (54) A: *Jest sem teb’ že reku, de*  
 I.PRON AUX1 CL.2.SG.DAT already say.ppam that  
 ‘I’ve already said you that
- ti mene zajebavaš.*  
 You. PRON PRON.1.SG.ACC make fun2  
 you are making fun of me.’

The predicatisation of pronominal clitics and its concomitant phenomena are a stable element of today's standard Slovenian, present, actively used or at least passively intellegible in all of its areas and parts, and not about to disappear or to evolve separately; after the essential step on the path of what we now call *predicativization* had taken place, it is a firm characteristic of this language, mutually influenced by its structure and influencing it at the same time. Corresponding to the spread and density of the phenomenon<sup>11</sup>, the children normally acquire it at an early age. This is specially facilitated with some elliptically constructed interrogative sentences frequently used when communicating with little children, as the following example from a Kindergarten (Piran, 1978) demonstrates:

- (55) A: *Robi, a te<sup>12</sup> (tiščí) lúlat?*  
 R. Q CL.2.SG.ACC press3 INF.pee-pee  
 ‘Robi, do you must pee?’

<sup>10</sup> Though, some mergence (due to influence from Croatian or stemming from an older, more archaic type – with Subj.Pronoun + Object Clitic Pronoun > Strong Object Pronoun?) may be found in sentences like *Povèj ti nêmu/mên, kaj zdej misl’š.* “(Let you) say me/him, what you think now!” – To compare with Cr. *Vidi Ti njega!* (also often cited in colloquial Slovenian, for the more usual *Lej ga no!*).

<sup>11</sup> It is interesting to notice, however, that, in spite of its wide spread, the phenomenon was not payed much attention in the literature so far, and that it was rather lately observed at all; this amazing fact is probably due to a more negative attitude towards colloquial phenomena, as well as to the fact that the construction mostly occurs in rather natural, spontaneous and non-constructed speech; a further factor for this lack of evidence might have been demands on children to always answer questions in full, complete sentences...

<sup>12</sup> Since the full verb *tiščati* (to press, to urge) is generally not used, the children may acquire the *CL+Inf.* Construction very fast and early; this is evident by the introducing statements with the strong pronoun: *Tušica, mene lulat!* (Mrs. Educator, I must pee-pee!).

B: *Ja, me.*  
 Yes, CL.1.SG.ACC  
 ‘Yes, I must.’

Finally, another, at least partly connected point should be mentioned, which may have played a role and eventually additionally encouraged the spread of the PCP in Slovenian language development – that of the *relativum absolutum*, the bipartite relative pronoun<sup>13</sup>, consisting of *ki* + *clitic pronoun* for object reference, – in that it effected an additional segmentation or iambic patterned parsing of clause parts. When splitting an object relative clause, as is shown by the next example (56), by inserting some material, the stress is automatically put on the second syllable of the relative cluster, i.e. on the pronominal clitic, without a semantic effect;

(56) *Oleándrovec imá prekrásno gosénico, ki JO,*  
 oleander hawk-moth have3 wonderful ACC larva ACC that CL.3.f.ACC  
 ‘The Oleander hawk-moth has a wonderful caterpillar, that

*če imámo sréčo, jeséni nájdemo na oleándru.*  
 when have1.PL luck in autumn find1.PL ON ol. ACC  
 we can find on oleander in autumn, if we are lucky.’

Even if the evolving of this trait had no decisive influence on the formation and significant importance for the high occurrence of the PCP-phenomenon in detail, its outcome and spread after 1500<sup>14</sup> has essentially contributed to the general frequency of stressed clitic pronouns in Slovenian, the main ingredient of our construction. Several connected factors must have influenced, encouraged and affirmed the strange Slovenian verb-less clause type since then, resulting in the scarcely known, but amazing peculiarity. Let us for the conclusion listen to a conversation (57) among boys on Trubarjeva-street, from 1998, in Ljubljana;

(57)  
 A: *A Ti poznaš pol tega Petra? Jest ga*  
       *NE.*  
 Q you know2 then DEM Peter I him GEN  
 not  
 ‘Do you know this Peter then? I don’t.’

B: *Sej ga jest tud’ NE. Kdó pa misl’š, de GA?*  
 PART him GEN I also not who but think2 that HIM  
 ‘But I don’t either. Who do you think, at all, does?’

C: *Janez GA. Pa jest ga tut’, še iz vrtca.*  
 J. HIM. And I him also yet from Kindergarten  
 ‘Janez DOES. And I also do from the Kindergarten on.’

A’:  
*Tu pa tam kdó GA. Ga pa nobèn NÈ dob’r.*  
 Here and there who HIM HIM but nobody not well  
 ‘Now and then somebody does. But nobody does well.’

<sup>13</sup> The same type is also found in several other Slavic languages, as eg. older Czech and Old Church Slavonic, but is mostly dominated by the monomorphous forms; the Slovenian situation is similar to that in Modern Greek.

<sup>14</sup> An exact dating is still rather speculative, specially for different regions, but texts written by Primož Trubar seem to be good evidence for the spread of the formerly predominant monomorphous forms.

B': *Kdó ga? Kdó pa GA? Nej se jav' tist', ke GA!*  
 who him who but HIM should refl announce that who HIM  
 'Who does? Who does then? The one who does, should tell it!'

D: *Kdor GA, GA, kdor ga NE, ga pa NE.*  
 who HIM HIM who him NOT him but NOT  
 'Those who do, do. Those who don't, don't.'

A'': *Tako je. Zakvá te to zaníma, kdó GA pa kdó ga NE?*  
 so is why you that interests who HIM and who him NOT  
 'So it is. Why are you so curious about who does and who doesn't?'

B'': *ME, ke bi ga rad spoznov! No, sam', de kdó GA.*  
 ME as Kond him gladly ppam get to know well, only that who HIM  
 'I AM, as I would like to know him. Well, great that somebody does.'

C': *Ga, ga. Jest ga še kar dob'r. A ti ga predstav'm?*  
 him, him I him rather well Q you him introduce  
 'I do, I do. I do (know) him quite well. Should I introduce him to you?'

B''': *Ja! Prós'm, de mi ga!*  
 Yes please that me him  
 'Yes! Please, do that!'

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# **On the variability of focus meanings**

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## **Abstract**

The abundant evidence for semantic variation of focus constructions across languages suggests that focus is not a classical Aristotelian category definable in terms of sufficient and necessary conditions, but rather a fuzzy set of family resemblances. There are many possible ways to address this variability, from a universalist stance to a radically relativist position, with a number of intermediate positions between these two extremes. The present paper does not offer a ready-made answer to the question of semantic variability, but rather aims at illustrating the full range of cross-linguistic variation and at scrutinising the merits and faults of possible approaches to this variation.

**Keywords:** focus, semantics, pragmatics, linguistic relativity, linguistic category.

## **0. Introduction**

Much of the work done on focus constructions in linguistic typology rests upon the silent assumption that there exists a clear-cut cross-linguistically valid unitary focus meaning which may serve as a basis for both language description and language comparison. The primary purpose of this paper is to demonstrate that this assumption should not remain silent, i.e. that it cannot be taken for granted and needs to be subject to scrutiny. This, in turn, will be shown to have consequences for the typological research on so-called focus constructions.

In order to make my point, I will first present the standard view (Section 1) and then offer evidence for semantic and/or pragmatic variation of focus constructions across languages (Section 2). Section 3 contains an outline of possible and actual theoretical responses to this variability, while Section 4 is devoted to the assessment of these responses. In conclusion, I will try to sketch the consequences of the data presented for both typological and theoretical approaches to focus.

## **1. The universality of focus: Standard treatment of focus constructions**

The procedure usually applied in comparative and typological works on focus and in descriptions of less known languages may be roughly summarised as follows. A very general definition of focus is assumed, either an intuitively appealing description based on the notion of discourse newness, or some version of the Roothian focus semantics (Rooth 1992; see Krifka 2007 for a good overview). Then a context believed to be indicative of focus semantics is singled out. This is typically constituent questions and answers to them, where the elements of the answer corresponding to the question word in the question are widely believed to denote focus. The next step is to identify formal properties of the elements thus identified as ‘focus’ and to assume that they invariably denote the specific meaning attributed to focus. These formal properties are labelled ‘focus construction’. If a language has more than one focus constructions, they are as a rule compatible with different contexts and are therefore taken to denote different types of focus.

The typological perspective implies comparison of focus constructions in different languages in order to reduce their variability to a limited number of types. If the intention of the focus typology is purely taxonomic, the research results in an inventory of focus construction types which are attested cross-linguistically (cf. e.g. Drubig & Schaffar 2001, Elordieta 2007). If the goal of typologising focus constructions is to uncover the universal features of the human language, an attempt is made to reduce the variability of focus constructions to one single structure which somehow underlies all the different means of expressing focus across languages. More often than not, focus is transformed into a syntactic feature and thus reified (cf. e.g. É. Kiss 1998, Drubig 2007). The following quote nicely illustrates the general gist of various typological approaches to focus:

[T]he heterogeneity of (non-neutral) focus marking mechanisms attested in natural language – positional, prosodic and morphological – differ only in terms of superficial realization of an identical feature. (Kidwai 1999: 224)

Even though not all approaches are so explicit as to the universality of the semantic (and, in some cases, syntactic) feature ‘focus’ as the quote above, the simplified outline of the methodology commonly employed given in this section makes

it sufficiently clear that the posited semantic/syntactic primitive ‘focus’ is the necessary precondition for both identification and comparison of focus constructions: if there were no cross-linguistically valid grammatical category based on clear-cut semantic criteria, what the typologists compare would be basically apples and oranges. Accordingly, the assumption of the existence of the grammatical primitive ‘focus’ must result in the following prediction:

#### Focus Universality Prediction (FUP)

If there is a universal semantically based grammatical feature ‘focus’, focus constructions in all languages must:

- (a) be compatible with identical contexts,
- (b) display identical types, and
- (c) induce identical truth conditional effects.

In the following section, I will show that this prediction is not universally satisfied and investigate the consequences of this for the typology of focus constructions.<sup>1</sup>

## 2. Challenges to the universality of focus

### 2.1. *Different context compatibilities*

The first clause of FUP predicts that, for a construction to count as a focus construction, it must be compatible with contexts in which other non-controversial focus constructions are regularly used. This, however, does not seem to be universally the case: in many languages, what is identified as a focus construction on the basis of the question-answer test either covers only a subset of contexts in which focus constructions are expected to appear, or it can appear even in those contexts in which focus constructions should not appear, given the adopted definition of focus. Latter case is illustrated in example (1):

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<sup>1</sup> Unless otherwise indicated, the data quoted in Sections 2, 3, and 4 stem either from my own fieldwork or from my native intuitions.

(1) Kolyma Yukaghir

D'ə ta:t anda: merej-dəllə šoromə-p-ki **tabud-ək** aŋsi:la:l'əl-ŋilə...

ptl so there fly-ss.perf man-pl-3.poss that-foc search-obj.foc.3pl

[A girl asks the Moon to take her up in the sky; the Moon goes down to Earth to pick her up, the girl steps on it and they fly to the sky.]

# 'When she flew away, her relatives looked for HER'

# '... it was HER her relatives looked for'. (Nikolaeva 1997: 46.21)

In Kolyma Yukaghir, a Paleosiberian language spoken in north-eastern Siberia, the combination of a direct object marked with the suffix *-ək* ('focus case') and a special agreement pattern on the main predicate ('object focus suffixes') is widely believed to be a focus construction denoting narrow focus on the object, among other reasons, due to the obligatoriness of this formal marking in constituent questions and answers to them (cf. Maslova 2003). However, in a considerable number of cases, this construction is used in contexts in which both the definition of focus and the evidence from the languages with non-controversial focus constructions would predict that the object should be treated as the topic, not as the focus of the clause. This is exemplified in (1), where Kolyma Yukaghir employs its focus construction in a context in which it is impossible to use the two canonical English focus constructions (prosodic focus and clefts).<sup>2</sup> This is a prima facie evidence for the invalidity of the first clause of FUP: an otherwise well-behaved Kolyma Yukaghir focus construction is compatible with a set of contexts which is wider than the one with which focus constructions are supposed to be compatible. We have to conclude that the semantic basis of the Kolyma Yukaghir focus construction is different from that of many European languages, i.e. that it is not a focus construction at all. But then we are faced with another problem: we must find a way to account for the fact that, despite differences, it does regularly appear in a number of contexts which are indicative of focus. The standard view of focus as a cross-linguistically valid grammatical primitive does not predict cases in which linguistic forms – in this case Kolyma Yukaghir 'focus' construction and the English focus constructions – only partially overlap semantically.

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<sup>2</sup> Apart from the sentence given in (1), I have counted some 40-odd instances of topic-like objects encoded with the focus construction in the relatively small corpus published by Nikolaeva (1997) – see e.g. another nice example in Nikolaeva (1997: 29.19-20).

## 2.2. Different types

The second clause of FUP predicts that, if there is a universal grammatical primitive ‘focus’, the types of focus across languages should be identical. In order to evaluate this claim, consider first example (2), in which two types of focus marking in English are compared with two types of focus marking in Hungarian in a prototypical focus context, a question-answer pair:

### (2) English vs. Hungarian I: Question-Answer Pairs

- |   |                  |          |                  |              |
|---|------------------|----------|------------------|--------------|
| Who did he invite?                          | Kit              | hívott   | meg?             |              |
|   | who-acc          | call-pst | prv              |              |
| (a) ✓He invited <b>JOHN</b> . (prosodic)    | # Meg            | hív-ta   | <b>János-t</b> . | (postverbal) |
|   | prv              | call-pst | J.-acc           |              |
| (b) # It is <b>John</b> he invited. (cleft) | ✓ <b>János-t</b> | hív-ta   | meg.             | (preverbal)  |
|   | J.-acc           | call-pst | prv              |              |

The comparison of English and Hungarian focus constructions in a question-answer pair suggests that we are dealing with a simple equivalence: the prosodic focus in English corresponds to the preverbal focus in Hungarian. If this is the case, this equivalence should hold across contexts. Sentences in (3), however, exemplifying another typical focus context, correction of the Common Ground of the interlocutor, show a slightly different picture:

### (3) English vs. Hungarian II: Corrective utterances

- |   |        |          |     |            |
|---|--------|----------|-----|------------|
| (a) ✓It is <b>John</b> he invited, not Tom. (cleft)       |        |          |     |            |
| (b) ✓ <b>János-t</b> hív-ta meg, nem Tamás-t. (preverbal) |        |          |     |            |
|   | J.-acc | call-pst | prv | not T.-acc |

In a corrective context, the Hungarian preverbal focus does not correspond to the prosodic focus in English, as in question-answer pairs, but rather to the cleft construction. Table 1 gives a rough schematic representation of this:

English	prosodic focus	cleft
Hungarian	postverbal focus	preverbal focus

Table 1: English and Hungarian focus constructions

Obviously, the preverbal focus construction in Hungarian covers a range of semantic/pragmatic functions which cross-cuts the division of labour of the prosodic focus and the cleft construction in English. Again, as in the case of Kolyma Yukaghir, the hypothesis of the existence of the universal grammatical primitive ‘focus’ does not seem to be able to cope with this type of variation. If a simple semantic core (or a syntactic feature derived from it) is supposed to trigger the use of a set of constructions cross-linguistically, then this semantic core should be either invariable or vary along identical lines in all languages. Since this is obviously not the case in Hungarian and English, the second clause of FUP must also be considered invalid, at least in its universalist reading.

### 2.3. Different truth-conditional effects

Finally, if focus constructions are invariably defined by the same semantic core, they must be expected to trigger identical truth-conditional effects (third clause of FUP). Since focus-sensitive items are the standard test case for the truth-conditional impact of focus, I will use one example of (the lack of) association with focus to demonstrate cross-linguistic variation in this domain. It is a well known fact that items like *only* or *even* function as operators scoping over the set of focus-defined alternatives. Thus, in the sentence ‘The man is adding only SALT’, *only* takes the set of alternatives to ‘salt’ and quantifies universally over them; the particle has to be associated with focus and cannot be interpreted independently of it (with some well-defined exceptions; see Beaver & Clark 2007 for a more elaborate account). Examples (4) and (5) illustrate how the restrictive clitic =*t(A)kAn*, roughly corresponding to *only*, functions in Even, a North Tungusic language of north-eastern Siberia:

- (4) Ah̄i ulku-d-de-n, ńari=**dm̄ar=takan** tak-ŭ ne:-d-ni.  
 woman stir-prog-nfut-3 man=foc=only salt-acc put-nfut-3  
 ‘The woman is stirring, and only the MAN is adding salt’.
- (5) Ah̄i ulku-d-de-n, ńari=**dm̄ar** takŭ=**tkan** ne:-d-ni.  
 woman stir-prog-nfut-3 man=foc salt=only put-nfut-3  
 #‘The woman is stirring, and the MAN is adding only salt’. (not a second instance focus!)

The clitic particle =*d(A)mAr* can be used in question-answer pairs and it often occurs in corrective contexts, which makes it a good candidate for a focus construction.

In (4), it interacts with the restrictive clitic  $=t(A)kAn$  in exactly the same way the English prosodic focus interacts with the particle *only*. In (5), however,  $=t(A)kAn$  is interpreted independently of  $=d(A)mAr$ , and that in a clause which does not represent a second instance utterance. If  $=d(A)mAr$  is really to be considered a focus marker, then this is another serious problem for the approach which assumes a universal focus semantics.

#### 2.4. Possible conclusion I: Focus is not universal

What the data presented in examples (1) to (5) demonstrate is that Focus Universality Prediction is not satisfied in any of its clauses, i.e. that cross-linguistically, focus not only does not correspond to a single, unified meaning, but it actually does not seem to represent an Aristotelian category, definable in terms of necessary and sufficient conditions. The conclusion is thus that what is called ‘focus’ seems to be merely a set of partial overlaps of certain linguistic structures lumped together because of the general feeling that they somehow convey some kind of emphasis. In other words, focus is not universal.

### 3. Salvaging the universality of focus

In what follows, I am going to sketch a possible way out of the pessimistic conclusion reached in Section 2.4. The first step is to uncover one further tacit assumption in the research on information structure, which I will label *contextual determinism*. Against this background, two possible remedies for the universality of focus will be presented.

#### 3.1. Contextual determinism

The basic diagnostics for determining whether a construction denotes focus or not is, as mentioned above, its applicability/obligatoriness in question-answer pairs. This methodological procedure is based on two premises, of which the latter is as a rule simply tacitly assumed: (a) If construction  $\alpha$  is congruently used in Q-A pairs,  $\alpha$  denotes focus, and (b) Meaning is uniquely determined via context (context-to-meaning approach). Both premises have their logical consequences in cross-linguistic research of information structure: (a) If constructions  $\alpha_1$  and  $\alpha_2$  are congruently used in Q-A pairs

in languages L1 and L2, they have the identical focal meaning, and (b) If context uniquely determines meaning,  $\alpha_1$  and  $\alpha_2$  have to appear in identical contexts and display identical types.

Both remedies to be proposed in this section question the validity of this line of reasoning, though in quite different ways. I will try to show that strict adherence to contextual determinism is not justified not only from the point of view of typology, but also from the point of view of simple linguistic description of focus systems.

### *3.2. Partial remedy 1: Parametric feature variation*

One method of accounting for at least some instances of cross-linguistic variation of focus constructions is to assume that focus is indeed a universal category with a unitary core meaning, and that different context compatibilities are due to additional semantic features, specified as [+], [-] or [+/-]. This elegant solution was first proposed by É. Kiss (1998) and has gained considerable popularity (cf. e.g. Drubig 2007). The approach has a relatively simple underlying logic. When two focus constructions in different languages,  $\alpha_1$  and  $\alpha_2$ , are compared, the congruent use of both constructions in question-answer pairs leads to the assumption that  $\alpha_1$  and  $\alpha_2$  are basically identical in meaning. If  $\alpha_1$  is applicable in a more restricted set of contexts than  $\alpha_2$ , then this is the case because  $\alpha_1$ , but not  $\alpha_2$ , has the [+] specification for a feature, which restricts  $\alpha_1$ 's applicability to a subset of contexts covered by  $\alpha_2$ . The features of variation mentioned in this connection are invariably connected with the alternative semantics of focus: quantificational properties ([+/-universal], [+/-scalar], etc.), limitations on the cardinality of the focus set (binary vs. n-ary set), etc..

An often cited example of this kind of variation is Hungarian preverbal focus as opposed to English prosodic focus. It is assumed that the prosodic focus in English is not specified for the feature [exhaustive] (which boils down to universal quantification over the focus set of alternatives), whereas the preverbal focus in Hungarian is invariably [+exhaustive].<sup>3</sup> The contextual mismatch described in Section 2.2. (ex. (2) and (3)) is, on this interpretation, basically reducible to the difference in context compatibilities due to a difference in feature specification.

The objective of this approach is obviously to salvage both the universality of focus and the context-to-meaning approach: context is still the unique determinant of

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<sup>3</sup> The exhaustivity interpretation of Hungarian focus is not uncontroversial – see e.g. Wedgwood (2005) for convincing counterarguments.

meaning, while the variation in use is due to parametrisable semantic variation. The idea that different focus constructions can have different feature specifications seems to me to be beyond doubt, since it is well attested both within and across languages (cf., for instance, the difference between the prosodic focus and the cleft construction in English). It is the context-to-meaning part that is in need of some clarification. In example (2) it is shown that in Hungarian, the acceptable answer to a constituent question must contain a preverbal focus. If the context uniquely determines the acceptability of a focus construction, this implies that all answers to questions in Hungarian have to be exhaustive, i.e. that focus alternatives have to be in the scope of a universal quantifier. This is not a plausible interpretation, given the everyday pragmatics of answers, so that we have to assume that there is more to Hungarian preverbal focus than a simple feature specification. I would like to suggest that it is the second possible remedy for the universality of focus, rhetorical variation, i.e. variation in the rhetorical specifications for different contexts in natural discourse.

### *3.3. Partial remedy 2: Rhetorical variation*

If we drop the context-to-meaning approach, i.e. if we recognise that there is no natural one-to-one relationship between contexts and focus constructions which has to be valid across languages, we can argue for the existence of yet another possible solution to the problem of the universality of focus: rhetorical variation. In this line of explanation, focus can still be considered a universal category with unitary core meaning; observed variation, if it cannot be accounted for by resorting to parametric feature variation, is reduced to different rhetorical conventions in discourse. Rhetorical conventions, which can vary from language to language, can be represented as sets of contexts in which the focus meaning is expressed in L(anguage)<sub>1</sub> and left underspecified in L<sub>2</sub>. The underlying logic of this approach similar to that of the previous remedy: Two focus constructions in two languages,  $\alpha_1$  and  $\alpha_2$ , are identified as such by means of focality tests and are assumed to be basically identical in meaning. The fact that  $\alpha_1$  and  $\alpha_2$  appear in contexts which only partially overlap is explained as a consequence of different rhetorical specifications for specific contexts in the given languages.

One convenient example for this type of variation would be question-answer pairs in Hungarian and English, if we assume that this specific context class is specified for one type of focus in one language and for another in another language; in this way the initial equation “Hungarian preverbal focus = English cleft” can be upheld, and the

burden of accounting for the observed variation is on the discourse rhetoric of these two languages. Another instance of rhetorical variation is the fronted focus constructions in the languages of the Balkans. Modern Greek and Serbo-Croat both have a focus construction in which the focus is placed clause-initially (F(ron)ted)F(ocus)-construction). As I demonstrated elsewhere (Matić 2003), the semantics of this construction is basically identical in both languages: FF construction has a scalar additive focus semantics, quantifying over alternatives in a way resembling (though not identical to) the English particle *even*. Despite this semantic identity, Modern Greek and Serbo-Croat FF constructions are not used in identical contexts. Consider the following example:

- (6) (a) Modern Greek (article title, *Elefterotipia*, 13.09.2000, p. 20)  
 ✓[Tin arsi ton kirose-on kata tis Afstria-s]<sub>FOC</sub>  
 art.acc raising art.gen.pl sanction-gen.pl against art.gen A.-gen  
 apofasi-s-e i EE.  
 decide-aor-3 art EU
- (b) Serbo-Croat  
 # [O ukidanj-u sankcija protiv Austrij-e]<sub>FOC</sub> odluči-la je EU.  
 on raising-acc sanction.gen.pl against A.-gen decide-ptc aux EU  
 ‘The European Union decided to lift the sanctions against Austria.’

In Modern Greek, FF construction is often used in out of the blue contexts, as in (7a); in Serbo-Croat, as shown in (7b), this construction is unequivocally infelicitous in uttered out of the blue. Since the semantics of FF construction is identical in both languages, we have to conclude that the difference lies in the context specification: Modern Greek has conventionalised the use of a specific type of focus construction in one context type, whereas Serbo-Croat strongly disfavours the use of this construction in this same context. This basically boils down to the claim that the expression of a certain meaning in a certain context is in part a function of language-specific discourse conventionalisations.

This approach to the variation of focus constructions does not exclude the idea of parametric feature variation, but rather complements it by acknowledging the possibility of a one-to-many relationship between context and meaning.

### 3.4. Possible conclusion II: Focus is universal, after all?

Taken together, parametric feature variation and rhetorical variation can probably account for a considerable number of the variation phenomena mentioned in this paper and thus make the existence of a semantically based grammatical primitive ‘focus’ more probable than it seemed at the outset. Differences in context compatibilities and in focus types receive their natural explanation in the parametric nature of focus and in the parametric nature of discourse. We may thus conclude that focus indeed is universal, but with a proviso: semantic and rhetorical feature variations must be taken into account in the typological work on focus.

## 4. Limits of parametric variation

The optimistic conclusion reached at in the preceding section – optimistic for the universalist stance, that is – basically assumes that all constructions signalling presence of alternatives encode focus and relegates all differences to the realm of parametric variation. The question that naturally arises in this kind of account is how far the variation can go for a construction to still count as focus-denoting, i.e. how many idiosyncrasies a construction can have and still be a focus construction. This is a crucial question, since postulating a universal category can only be scientifically justified if the precise limits of the category can be determined.

To illustrate the difficulties of delimitation, let us take a look at a relatively well known focus construction, the nominal focus marked with *baa/ayaa* in Somali, a Cushitic language spoken in eastern Africa (see Saeed 1984 for a detailed description of the system). On the basis of the question-answer test it is easy to conclude that *baa/ayaa* is indeed attached to constituents denoting focus, so that it can be safely assumed to be a focus construction:

- (7) **Yaa** Maryam dilay?                    – **Cali baa** Maryam dilay.  
who Maryam beat.pst.3m.foc Cali foc Maryam beat.pst.3m.foc  
‘Who beat Maryam?’ – ‘CALI beat Maryam.’ (Tosco 2002: 31)

However, there are some indications that the denotational field of *baa/ayaa* is much broader than that of a typical focus construction. First, it is regularly used with

dummy arguments (Lecarme 1999: 284), which cannot invoke alternatives and can therefore not be focused:

- (8) **Wax baan** akhrínayaa  
thing foc:1sg read  
'I am reading.' (lit. # 'I am reading SOMETHING' as an answer to the question 'What are you doing')

Second, and more important, a look at Somali natural discourse reveals that in most instances, *baa/ayaa* is not used to demarcate expressions which are to be interpreted with respect to alternatives, i.e. classical foci, but rather to mark constituents denoting topic or scene switch in narrative discourse (Tosco 2002); for instance, expressions corresponding to the discourse connector 'and then' are regularly marked with *baa/ayaa*. Example (10) illustrates this:

- (9) **Maalin baa** nin socota ahi, shabeel waddada dhex bilqan  
day foc man traveller was leopard road=def middle spread  
ku kulmay.  
in met  
# 'ONE DAY a traveller met a leopard lying on the road'.  
# 'It was ONE DAY that a traveller met a leopard...' (Tosco 2002: 37)

It is important to note that the semantics of *baa/ayaa* can be construed as having to do with alternatives, even for examples like (8) and (9), if one is willing to do so. Thus, it is possible to claim that in (9), *maalin baa* 'one day' is interpreted against the background of the previous days in a story, or in contrast to all the possible days or nights in which one could bump into a leopard, or similar; and the focused dummy in (8) can be assumed to be interpreted in contrast to a negative existential, i.e. that 'reading (something)' stands in opposition to 'reading nothing', etc. The contexts of usage which are doubtless radically different from those in which e.g. European languages employ focus constructions can be attributed to different rhetorical constraints in Somali discourse, or perhaps also to one or another type of difference in feature specification.

But if we decide to do so, i.e. to force an obviously recalcitrant construction into our general definition of focus, we should still be aware that the category denoted by *baa/ayaa* is in actual fact quite different from the category denoted by prosody or

clefting in English and other European languages, on the basis of which the notion of focus is defined in the first place. We are faced with a dilemma here: on the one hand, there is a possibility to use the remedies proposed in Section 3 in order to salvage the universality of the posited grammatical primitive ‘focus’, but on the other, these remedies seem to be so generous to the analysing linguist that they may lead to a wrong characterisation of the construction in question. In other words, we can reach the desired level of generality with our tools, but at the price of possibly misinterpreting data and rendering the tools we use vacuous, since they can turn anything to focus, if need be.

Thus, the dilemma we are confronted with is actually the classical linguistic problem of having to decide whether one wishes to lump categories together or to split them apart. Lumping categories together implies a conscious decision to neglect the differences, since they only blur the great picture. The advantage of this approach is that one can easily assume the existence of a unified category and make large-scale generalisations on the encoding of focus and on the syntax-semantics interface in general. Splitting categories basically means that one takes differences seriously. This inevitably leads to the assumption that there are a number of cognate, but not identical categories and results in the kind of research which investigates differences themselves, since they allow us an insight into the possible range of variation across languages. Lumping and splitting are thus not only distinct with respect to their attitude towards the linguistic methodology, but they basically correspond to two distinct research programmes.

At least with respect to the typology of focus constructions, both approaches face some serious problems. In ignoring semantic/pragmatic differences, lumpers may find themselves in a position to compare apples and oranges, i.e. to draw conclusions on the basis of a completely heterogeneous material; the problem lumpers have is thus obviously an ontological one. Splitters, on the other hand, have to cope with a methodological difficulty: given the current definition of focus and the parameters of variation, there are no explicit criteria for drawing a line between the variation within one category and two distinct categories.

One solution for the lumpers’ problem that I can think of would be to assume that cross-linguistic categories, including focus, are organised as prototypical categories. Since in this understanding of categories, having only some properties of a category presents no serious obstacle for the membership in it, the apples-and-oranges problem would not arise. This solution has a quirk, though: the psychological reality of cross-linguistic prototypes is highly doubtful (cf. e.g. Dryer 1997), so that it is not clear what independent justification we have for positing their existence, apart from avoiding

problematic consequences of our disregard for variation. It hence seems to me that we still do not have a good solution for the ontological problem of lumping approaches.

The solution of the problem splitters face seems easier to reach. The splitters' difficulty is basically the fact that the definition of focus usually employed is too broad, since it is based on only one attribute, that of invoking alternatives. Greater precision and clearer criteria for discerning a member of the category 'focus' from a member of similar, but distinct categories, can be achieved by enriching the definition with further attributes. For instance, one possible candidate would be the condition that the alternatives invoked have to belong to the assertive part of the utterance (cf. Lambrecht 1994); other enrichments are also conceivable (and desirable).

In other words, my impression is that the splitting approach has a better chance to overcome the obstacle of insufficient precision in dealing with focus constructions cross-linguistically. This means that constructions like the Somali *baa/ayaa* structure cannot be counted as focus constructions anymore, since they clearly transgress the limit posited by the enriched definition of focus. The typological corollary of this is that we once more have to get back to the preliminary conclusion I (Section 2.4), which denies the universality of focus, albeit this time with a more cautious wording.

## **5. En lieu of a conclusion: Focus needn't be universal**

It has been shown that the a priori assumption of the existence of a unitary focus meaning across languages cannot be upheld without serious damage to descriptive adequacy and methodological accuracy. On the other hand, it is also clear that not every difference between two constructions must lead to the conclusion that there is no cross-linguistic comparability at all, since we have means to account for the variation within certain limits. Given our present state of knowledge and the present state of our methodology, it seems reasonable to refrain from apodictic judgements of the type 'there is/there isn't a universal grammatical feature "focus"' and formulate our conclusions with more caution. I would like to suggest that focus as a grammatical category need not necessarily be encoded in every language, though it might perhaps in the end turn out that it is encoded in many, maybe in the majority of languages. This is basically an empirical question, and in dealing with single languages, it seems reasonable to have in mind both the ways of explaining the observed semantic variation (my remedies 1 and 2), and the limits of these remedies (as demonstrated in Section 4).

From the European perspective, focusing seems to be all-pervasive, so that one might wonder whether it is really conceivable that it may turn out that there is a language which does not encode focus at all (and this a possible, even probable outcome of the research programme outlined above). A nice quote can give us a clue on how this may work:

Many of the ideas associated with focus [...] are closely related to context and speaker's intentions (salience, noteworthiness, inferred alternatives), which implies that they needn't always be directly encoded in linguistic structure. (Wedgwood 2008)

In addition to the rather technical methodological caveats to which this paper is dedicated, this quote adds a more general caveat: Not everything that is relevant for interpretation must be encoded as a separate grammatical category, and this holds true for focus as for any other semantic value.

## Abbreviations

acc – accusative; aor – aorist; art – article; aux – auxiliary; def – definite; gen – genitive; foc – focus; m – masculine; nfut – non-future; obj – object; perf – perfective; pl – plural; poss – possessive; prog – progressive; prv – preverb; pst – past; ptc – participle; ptl – particle; ss – same subject;

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# The Korean Focus Particle *-lato* and Weak Additivity<sup>1</sup>

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## Abstract

The Korean focus particle *-lato* carries the implication similar to that of English *even*, but also shows distributions which are unlike *even*, or *even*-like items in other languages (German *auch nur*, Italian *anche solo*, etc). In this paper I claim that the Korean focus particle *-lato* can be analyzed in parallel with *auch nur* or *anche solo*, by decomposing it into the covert exclusive particle similar to English *merely* and the additive particle *-to*, which is similar to *also*. Furthermore, to account for the difference between *-lato* and *auch nur* or *anche solo*, I assume that *-to* in *-lato* introduces an additive presupposition weaker than that of *also*, *auch* or *anche*.

**Keywords:** *-lato*, *even*, weak additivity, exclusivity, factivity, scalarity.

## 1. Introduction

The Korean focus particle *-lato* has been widely discussed by various authors (Lee et al. 2000, Choi 2007, among others) due to its unique distribution and implication. The following examples exhibit the characteristic properties of *-lato*. First, *-lato* associates with focus (Rooth 1985), and carries a scalar implication apparently identical to that of English *even*:

- (1) a. *Mary-ka John-ekey [sakwa]<sub>f</sub>-lato cwuessta-nun kes-un sasil-i anita.*

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<sup>1</sup> This paper is a direct extension of Lim (to appear): the core analysis and the organization are basically identical, but some revisions and extensive discussions are added. I would like to thank audiences at 17<sup>th</sup> Japanese/Korean Linguistics Conference and CIL 18, as well as Jinyoung Choi, Barry Schein, and Roumyana Pancheva, for their comments and suggestions. Special thanks go to Elena Guerzoni for the detailed comments and extensive discussions. All remaining errors are mine.

Mary-Nom John-Dat apple-*lato* gave-Rel Comp-Top fact-Nom Neg  
 “It is not the case that Mary even gave [apples]<sub>f</sub> to John.”

- b. *Mary-ka [John]<sub>f</sub>-ekey-lato sakwa-lul cwuessta-nun kes-un sasil-i anita.*  
 Mary-Nom John-Dat-*lato* apple-Acc gave-Rel Comp-Top fact-Nom Neg  
 “It is not the case that Mary even gave apples to [John]<sub>f</sub>.”

(1a), where *-lato* associates with *sakwa* ‘apple’, carries the implication that apples are the most likely objects for Mary to give to John, just like its English counterpart, where *even* associates with *apples*. Similarly, the implication of (1b) is that John is the most likely person to receive apples from Mary, the same implication as what its English counterpart carries.

Second, the distribution of *-lato* is similar to that of Negative Polarity Items (hereafter NPIs) like *any* or *lift a finger*. (2) shows *-lato* is not acceptable in plain affirmative sentences, and (3) shows it is acceptable in the scope of long-distance negation.

- (2) a. ??*John-un [sakwa]<sub>f</sub>-lato mekessta.*  
 John-Top apple-*lato* ate  
 b. #John ate any apple.
- (3) a. *Mary-ka [sakwa]<sub>f</sub>-lato mekessta-nun kes-un sasil-i anita.*  
 Mary-Nom apple-*lato* ate-Rel Comp-Top fact-Nom Neg  
 “It is not the case that Mary even ate apples.”  
 b. It is not the case that Mary ate any apples.

Things become complicated, however, when we notice that *-lato* is different from run-of-the-mill NPIs in two crucial respects. First, as (4) shows, *-lato* is not acceptable in the immediate scope of negation, which is different from *any*:

- (4) a. #*John-un [sakwa]<sub>f</sub>-lato mek-cianh-ass-ta.*  
 John-Top apple-*lato* eat-Neg-Past-Decl  
 b. John did not eat any apple.

Secondly, *-lato* is licensed in a significant number of contexts where NPIs are known to be unacceptable, including under modals, as shown in (5):

- (5) *John-un [Bill]<sub>f</sub>-i-lato manna-yaha-n-ta.*

John-Top Bill-L-*lato* meet-necessary-Pres-Decl  
 “John must meet even/at least Bill.”

In this paper I claim that, a la Guerzoni’s (2003, 2006) analysis of German *auch nur* ‘(lit.) also only’ and Italian *anche solo* ‘(lit.) also only’, and Nakanishi’s (2006) analysis of Japanese *-dake-demo* ‘(lit.) only even’, *-lato* can be decomposed into two independent scope-taking components. Specifically, I propose that, *-lato* consists of the covert exclusive particle corresponding to English *just* or *merely*, which carries the exclusive and most-likely presuppositions, and another particle which carries a weaker additive presupposition than *auch*, *anche*, and *-demo*, requiring the existence of the *non-false* alternatives to the assertion instead of true ones. Before presenting the analysis, however, let us first see some of previous analyses, and why they failed to correctly account for the peculiar behavior of *-lato*.

## 2. First trial: *-lato* vs. *even<sub>npi</sub>*

### 2.1. Rooth’s (1985) *even<sub>npi</sub>*

Rooth(1985) analyzes *even* as taking a propositional scope and quantifying over a set of contextually salient alternatives to the proposition in its scope. In this analysis, the set of alternatives (*focus value* in Rooth 1985, and marked by the notation  $[[ \ ]]^f$ ) is obtained compositionally by replacing the denotation of focused constituents with the objects of the same semantic type. An example is given in (6).

- (6) a. *I met even [Mary]<sub>f</sub>.*  
 b. LF: *even [I met Mary]*  
 c.  $[[[(6b)]]]^f = \{I \text{ met Mary, I met Bill, I met John, .....}\}$

Once combined with this set and the proposition in its scope (the *prejacent*), *even* introduces the presupposition that the prejacent is the least likely presupposition among the alternatives in the contextually salient set C (Horn 1969, Rooth 1985). An example is given in (7), and the lexical entry for *even* can be described as (8).

- (7) a. *I met even [Mary]<sub>f</sub>.*  
 b. Assertion: *I met Mary*

c. Scalar presupposition: Mary is the least-likely person for me to meet.

(8)  $[[\textit{even}]]^w(C)(p)$  presupposes that  $p$  is the **least likely** proposition in  $C$

However, the presupposition of *even* seems to be changed under the negation, as shown in (9), where the scalar presupposition is most-likely rather than least-likely. This is problematic in the standard theory of presupposition projection, for it is generally accepted that under negation presuppositions do not change.

(9) a. *I did not meet even [Mary]<sub>f</sub>.*

b. Assertion: *I did not meet Mary*

c. Scalar presupposition: Mary is the most-likely person for me to meet.

Rooth (1985) tries to solve this problem by assuming that *even* in (9c) is a different homophone (*even<sub>npi</sub>*) which is only licensed under the context where NPIs are licensed, and directly introduces a most-likely presupposition:

(10)  $[[\textit{even}_{npi}]]^w(C)(p)$  presupposes that  $p$  is the **most likely** proposition in  $C$

(11) a. *I did not meet even [Mary]<sub>f</sub>.*

b. LF: [Neg [*even<sub>npi</sub>* [I met Mary]]]

c. Scalar presupposition: Mary is the most likely person for me to meet.

## 2.2. *-lato as even<sub>npi</sub>* - why and why not

We have already seen some examples suggesting that *-lato* seemingly corresponds to Rooth(1985)'s *even<sub>npi</sub>*: it is not acceptable in episodic affirmative sentences (see 2), but acceptable in the scope of negation (see 3). (12) shows two further pieces of seemingly supporting evidence. First, *-lato* is acceptable under some entailment-reversal environments (including downward-entailment and Strawson-entailment in the sense of von Stechow 1999), like under the scope of *nollap*- 'be surprised'. Second, *-lato* combines with semantically weak foci, which is compatible with the most-likely presupposition, line the one triggered by *even<sub>npi</sub>*.

(12) *Na-nun John-i kwuk [han]<sub>f</sub> / #[payk]<sub>f</sub> swukalak-i-lato*  
 I-Top John-Nom soup one / 100 spoon-L-lato  
*mekessta-nun sasil-i nollapta.*

Ate-Rel                      fact-Nom                      be surprised.

“I am surprised that John even ate one spoon of soup.”

This view faces several problems, however. First, as shown in (4), *-lato* is not acceptable under local negation. Second, *-lato* is allowed under some contexts where NPIs are not acceptable, including modals (see 5) and attitude predicates (13).

- (13) *Na-nun John-i kwuk [han]<sub>f</sub>/#[payk]<sub>f</sub> swukalak-i-lato*  
 I-Top John-Nom soup one / 100 spoon-L-lato  
*mekessta-ko mitnunta.*  
 Ate-Comp believe

“I believe that John even ate one spoon of soup.”

Finally, in yes/no questions *-lato* triggers an obligatory negatively biased interpretation, which cannot be accounted for in terms of *even<sub>npi</sub>* analysis (see Guerzoni 2003, 2004). The bias effect is illustrated in (14):

- (14) *John-i [il]<sub>f</sub> talle-lato peless-ni?*  
 John-Nom one dollar-lato earned-Q  
 “Did John make (even) a single dollar?”  
 Bias: John did not make any money.

### 3. Second trial: *-lato* vs. *auch nur* and *anche solo*

*-lato* actually shares some semantic and distributional properties with German *auch nur*, Italian *anche solo*, or Japanese *-dake-demo*. Following examples show similarities between *-lato* and *auch nur*, *anche solo*, or *-dake-demo*, and the differences between them and English *even*. First, unlike English *even*, *-lato*, as well as *auch nur*, *anche solo*, and *-dake-demo*, is not acceptable in the local scope of negation, as already mentioned in the introduction.

- (15) a. *#John-un [sakwa]<sub>f</sub>-lato mek-cianh-ass-ta.*  
 John-Top apple-lato eat-neg-Past-Decl  
 b. *#Hans kann nicht auch nur [Italienisch]<sub>f</sub>* (German)  
 Hans knows not also only Italian (Schwarz 2005)  
 c. *#John-wa [sono hon]<sub>f</sub>-dake-demo yom-ana-katta.* (Japanese)

John-Top that book-only-even read-Neg-Past (Nakanishi 2006)

Furthermore, *-lato* does not associate with semantically strong foci, unlike English *even*, but similarly to *auch nur*, *anche solo*, and *-dake-demo*.

(16) a. *John-un Mary-ka sakwa [han]<sub>f</sub> /#[paek]<sub>f</sub> kay-lato*

John-Top Mary-Nom apple one /100 CL-*lato*

*mek-ess-ta-nun sasil-ey nola-ess-ta.*

eat-Past-Decl-Rel fact-Dat be surprised-Past-Decl

“John was surprised that Mary ate even one apple / 100 apples”

b. *Es hast mich überrascht dass die Maria auch nur die [einfachste]<sub>f</sub>/*

It has me surprised that the Maria also only the easiest /

*#[schwierigste]<sub>f</sub>frage beantworten konnte.*

hardest question answer could (German: Guerzoni 2006)

Facts considered above lead us to consider about Guerzoni(2003, 2006)’s proposal about *auch nur* and *anche solo*, and Nakanishi(2006)’s proposal about *-dake-demo*.

### 3.1. Guerzoni’s (2003, 2006) analysis on *auch nur* and *anche solo*

Guerzoni (2003, 2006) proposes that the *even*-like semantics and restricted (NPI-like) distribution of items like *auch nur* or *anche solo* is the consequence of the composition and scope of their evident subcomponents. In her proposal, *auch nur*, *anche solo*, and their cross-linguistic cognates can be analyzed compositionally as a combination of two particles: the additive particle (17) (like *also*) and the scalar exclusive particle in (18) (corresponding to *only*), consisting of three different components – factivity, scalarity, and exclusivity (Guerzoni 2003: 175).

(17)  $[[auch/anche/also]]^w(C)(P)$  is defined iff some proposition in  $C \neq p$  is true in  $w$ .

(18)  $[[nur/solo/only]]^w(C)(P)$  is defined iff

(i)  $p(w) = 1$  factivity

(ii)  $p$  is the most likely/insignificant proposition in  $C$  scalarity

If defined, then (iii)  $\sim \exists q \neq p$  in  $C$  that is true (unless  $p$  entails  $q$ ) exclusivity

Guerzoni (2003, 2006) also assumes that in German and Italian, *nur/solo* is

underspecified relative to whether the prejacent is presupposed and exclusivity asserted or the other way around. Guerzoni labels this second option *nur<sub>2</sub>/solo<sub>2</sub>*:

- (19)  $[[nur_2/solo_2]]^w(C)(p)$  is defined iff
- |  |             |
|--|-------------|
| (ii) p is the most likely/insignificant proposition in C             | scalarity   |
| (iii) there is no other q in C that is true (unless p entails q)     | exclusivity |
| If defined, then (i) $[[nur_2/solo_2]]^w(C)(p)$ is true iff $p(w)=1$ | factivity   |

Guerzoni argues that the unacceptability of *auch nur* or *anche solo* in plain affirmative sentences and a number of other linguistic contexts is due to the contradiction between their presuppositions emerging when the particles associate with the same focus and take the same scope (see 20), whereas the clash is resolved when *auch* or *anche* scopes outside entailment reversal expressions at LF (see 21).

- (20) #*Hans hat auch nur [[die Maria]<sub>f</sub> getroffen*.

LF: [auch [nur<sub>2</sub> [Hans hat [[die Maria]<sub>f</sub> getroffen]]]

Presupposition due to *nur<sub>2</sub>*: Hans met no x different from Mary & Mary was the most likely for him to meet.

Presupposition due to *auch*: Hans met someone different from Mary.

- (21) *Niemand auch nur [[die Maria]<sub>f</sub> getroffen*.

LF: (iii) auch [niemand<sub>1</sub> (ii) 1 [nur [t<sub>1</sub> [[die Maria]<sub>f</sub> getroffen]]]

Presupposition of *auch*: There is some  $x \neq M$ . that nobody met x.

Presupposition of *nur<sub>2</sub>* at (ii): There is no  $x \neq M$ . that everybody met x & Mary was the most likely for everyone to meet.

### 3.2. -lato as also + only: preliminary evidence

One part of my proposal about -lato is that, in parallel with Guerzoni's analysis of *auch nur* / *anche solo*, -lato can be decomposed into a covert exclusive particle, corresponding to Guerzoni's *nur<sub>2</sub>/solo<sub>2</sub>*, and an additive particle -to. In the following subsection I will provide some preliminary evidence supporting my proposal.

#### 3.2.1. Morphological complexity of -lato

Overtly, -lato contains the particle -to, comparable to English *even/also*, and the affix -la, which also features in Korean as combined with the conditional marker -myen in -lamyen and the contrastive marker -ya in -laya:

(22) *-la* + {*myen*, *to*, *ya*}

- a. *John-i-la-myen ku il-ul ha-lswuiss-ta.*  
 John-L-*la*-COND that work-Acc do-be able to-Decl  
 “If he is John, he can do that work.”
- b. *John-i-la-to ku il-ul ha-lswu-iss-ta.*  
 John-L-*la*-also that work-Acc do-be able to-Decl  
 “Even if he is John, he can do that work.”
- c. *John-i-la-ya ku il-ul ha-lswuiss-ta.*  
 John-L-*la*-Cont that work-Acc do-be able to-Decl  
 “(roughly) Only John can do that work.”

Each particle, *-myen*, *-to*, and *-ya* can be used in isolation in Korean. In addition, *-man* can appear before *-lato*, forming *-manilato*, but cannot co-occur with *-to*, forming *-manto* as shown in (23):

- (23) a. *wain [han]<sub>f</sub> can-(man)-i-lato masi-myen ku-nun haykotoy-lkes-ita.*  
 wine one CL-only-L-*lato* drink-Cond he-Top get fired-Fut-Decl  
 “Even if he drinks one glass of wine he will get fired.”
- b. \**wain [han]<sub>f</sub> can-man-to masi-myen ku-nun haykotoy-lkes-ita.*  
 wine one CL-only-*to* drink-Cond he-Top get fired-Fut-Decl  
 (Intended reading: same as 23a)

It is plausible to account for the facts given in (22) and (23) by assuming that *-la* in *-lato* signals the presence of a covert exclusive *-man<sub>2</sub>*, corresponding to English *merely* and Guerzoni’s *nur<sub>2</sub>/solo<sub>2</sub>*, but semantically different from the overt *-man* (corresponding to Guerzoni’s *nur<sub>1</sub>/solo<sub>1</sub>*).<sup>2</sup>

### 3.2.2. Semantic equivalence between *-lato* and *-man...-to*

In Korean concessive conditionals with *-lato* are fully equivalent to concessive conditionals with *-man...to*. In (24a) the conditional marker *-myen* is on the antecedent, and *-lato* is on the focus of the antecedent, whereas in (24b) *-man* is on the focus of the antecedent and *-to* is on the antecedent. However, they seem semantically equivalent: both (24a) and (24b) means (24c).

<sup>2</sup> Chungmin Lee and Jiyoung Shim (p.c.) pointed out the difference between *-lato* and *-man-i-lato*, and Elena Guerzoni and Maria-Luisa Zubizarreta (p.c.) suggested to me to make it clear the difference between the covert exclusive particle and the overt *-man*.

- (24) a. *wain [han]<sub>f</sub> can-i-lato masi-myen ku-nun haykotoy-lkes-ita.*  
 wine one CL-L-*lato* drink-Cond he-Top get fired-Fut-Decl  
 b. *wain [han]<sub>f</sub> can-man masi-e-to ku-nun haykotoy-lkes-ita.*  
 wine one CL-L-only drink-L-also he-Top get fired-Fut-Decl  
 c. *Even if he drinks [one]<sub>f</sub> glass of wine he will get fired.*

This equivalence lends further plausibility to the idea that *-lato* consists of the covert exclusive particle and the overt additive particle.

### 3.3. Why *-lato* is not *auch nur* or *anche solo* - difference in distribution

Even though there are striking similarities between *-lato*, on the one hand, and *auch nur* and *anche solo*, on the other hand, there are significant differences between them, which prevents us from applying Guerzoni's proposal to *-lato* without any revision. Most of all, as pointed out in the introduction, *-lato* is licensed under attitude predicates (see 13 above) and non-counterfactual modals (see 5 above), whereas its German and Italian cognates are not acceptable under these contexts. See (25).

- (25) a. *Ich glaube #(nicht) dass du auch nur die Maria begrüsst hast.*  
 I believe not that you also only the Mary greet have  
 b. *#Es ist möglich dass der Hans auch nur die Maria begrüsst.*  
 It is possible that the Hans also only the Mary greets.

## 4. Solving the puzzle

To account for the apparently contradicting facts, I would like to propose that the difference between *-lato* and *auch nur/anche solo* is due to the fact that *-to* in *-lato* carries presuppositions different from the ones that *also/auch/anche* carry. The lexical entries for the covert exclusive particle *-man<sub>2</sub>* and the additive particle *-to* are shown in (26) and (27), respectively.

- (26)  $[[\text{-man}_2]]^w(C)(p) = [[\text{nur}_2/\text{solo}_2]]^w(C)(p)$  is defined iff
- |  |             |
|--|-------------|
| (i) p is the most likely/insignificant proposition in C                        | scalarity   |
| (ii) there is no other q in C that is true (unless p entails q)                | exclusivity |
| If defined, then $[[\text{nur}_2/\text{solo}_2]]^w(C)(p)$ is true iff $p(w)=1$ | factivity   |

(27)  $[[\text{-to}]]^w(C)(p)$  is defined iff

(i)  $\exists q [q \in C \wedge q \neq p] \wedge q(w) \neq 0$  (weak) additivity

(ii)  $p$  is the LEAST likely proposition in  $C$  scalarity

If defined, then  $[[\text{-to}]]^w(C)(p) = p(w)$

In this proposal,  $\text{-man}_2$  shares the same lexical entry as Guerzoni's  $\text{nur}_2/\text{solo}_2$ , but  $\text{-to}$  is different from  $\text{auch/anche/also}$  in two respects. First, as in (27ii),  $\text{-to}$  introduces the same scalar presupposition as Karttunen and Peters' (1979) *even*, unlike what has been assumed about other additive particles like *also*. Second, the additive presupposition of  $\text{-to}$  is weaker than the additive presupposition of  $\text{auch/anche/also}$ , in that it only requires that there be an alternative proposition different from the prejacent which is *not false* (i.e. either *true* or *undefined*), while *auch* requires the existence of a true alternative. In the following subsections I will show how this lexical difference explains the distribution and meaning of  $\text{-lato}$ .

#### 4.1. Simple affirmative sentences

Let us begin with the simple affirmative sentence (28).

(28) ??John-un [Bill]<sub>f</sub>-i-lato manna-ess-ta.

John-Top Bill-L-*lato* meet-Past-Decl

(Intended reading: 'John even met [Bill]<sub>f</sub>')

My account predicts that (28) is unacceptable because of the contradiction between the presupposition of the covert exclusive particle  $\text{-man}_2$  and that of the overt additive particle  $\text{-to}$ , like Guerzoni's account for *auch nur/anche solo*. However, I claim that, unlike *auch nur/anche solo*, presuppositions in contradiction in  $\text{-lato}$  are the scalar ones rather than the existential ones. (29) shows this point.

(29) Scalarity

LF: [(iii) *to* [(ii)  $\text{man}_2$  [(i) John [[Bill]<sub>f</sub> manna-]]]

(i):  $[[\text{(i)}]]^o(w) = 1$  iff John met Bill in  $w$

$[[\text{(i)}]]^f(w) = \{\lambda w. J. \text{ met } x \text{ in } w: x \in D_e\}$

(ii):  $[[\text{(ii)}]]^o(w)$  is defined if B. is the MOST likely for J. to meet in  $w$

(iii):  $[[\text{(iii)}]]^o(w)$  is defined iff

B. is the MOST likely person in  $w$  for J. to meet. (from  $\text{man}_2$ )

AND B. is the LEAST likely person in w for J. to meet. (from  $-to$ ) ( $\perp$ )

In (29), since the two focus particles take essentially the same scope, in (iii), we derive the scalar presupposition that Bill is the most likely person for John to meet, due to the presence of  $-man_2$ ; and at the same time, we also derive the scalar presupposition that Bill is the least likely person for John to meet, because of the presence of  $-to$ . Therefore we get the presupposition clash.

On the other hand, (30) shows, unlike in *auch nur* or *anche solo*, there is no clash between the exclusive presupposition of  $-man_2$  and the additive presupposition of  $-to$  due to the weakness of the latter.

(30) (Weak) additivity and exclusivity

LF: [(iii) *to* [(ii)  $man_2$  [(i) *John* [[*Bill*]<sub>f</sub> *man-na*]]]

(i):  $[[\text{(i)}]]^o(w) = 1$  iff John met Bill in w

$[[\text{(i)}]]^f(w) = \{\lambda w. J. \text{ met } x \text{ in } w: x \in D_e\}$

(ii):  $[[\text{(ii)}]]^o(w)$  is defined iff  $\sim \exists x \neq B. \text{ s.t. } J. \text{ met } x$

$[[\text{(ii)}]]^f(w) = \{\lambda w. \sim \exists y \neq x \text{ s.t. } J. \text{ met } y \text{ in } w. \text{ John met } x \text{ in } w: x \in D_e\}$

(iii):  $[[\text{(iii)}]]^o(w)$  is defined iff

John met no one different from Bill (from  $man_2$ )

AND for some  $x \neq \text{Bill}$ ,  $[\lambda w'. \text{ John met no one } \neq x.$

$\text{John met } x](w) = 1$  or undefined (from  $-to$ )

The focus value of (i) in (30) is a set of alternatives determined by the focus on *Bill*. Turning to (ii), the interpretation of this constituent comes with the definedness condition introduced by  $man_2$ , that is that John met Bill and no one else. Given this, the focus value of this same constituent is going to be a set of alternatives, each coming with a similar definedness condition. Specifically, each alternative is defined iff John met no individual different from the one substituted for Bill in that alternative. Given this, and given that the assertion entails that John met Bill, all alternatives different from the prejacent will turn out to be undefined, a situation that trivially satisfies the weak additive presupposition of  $-to$ , hence no clash. Therefore, we can safely conclude that, within this analysis, scalarity is the only factor ruling out (28).

This conclusion leads us to a very interesting and novel prediction: if we can construct examples where the relative scope of the two particles makes the scalar presuppositions of  $-to$  and  $-man_2$  compatible, we expect that example to be grammatical. The prediction is correct, as this is exactly what happens when moving  $-to$

outside the scope of modals, attitude predicates, and long-distance negation. As an illustration, in the following subsection I will show how the presupposition clash between two scalar presuppositions can be resolved via movement in modalized sentences.

### 3.2. Modals

Consider the following example.

- (31) *John-i [Bill]<sub>f</sub>-i-lato manna-totoy-n-ta.*  
 John-Nom Bill-L-*lato* meet-may-Pres-Decl  
 “John may meet merely Bill.”

The additive presupposition of *-to* and the exclusive presupposition of the hidden *-man<sub>2</sub>* are going to be compatible with each other, regardless of the position of *-to* at LF. (32) shows that two scalar presuppositions are compatible each other if *-to* moves above the modal.

#### (32) Scalarity

- LF: [(iv) *-to* [(iii)  $\diamond$  [(ii) *-man<sub>2</sub>* [(i) John [[*Bill*]<sub>f</sub> manna-]]]]]
- (i): [[(i)]]<sup>o</sup>(w) = 1 iff John meet Bill in w  
 [[(i)]]<sup>f</sup>(w) = { $\lambda w$ . John meet x in w:  $x \in D_e$ }
- (ii): [[(ii)]]<sup>o</sup>(w) is defined iff  $\sim \exists x \neq \text{Bill}$  such that John meet x  
 [[(ii)]]<sup>f</sup>(w) = { $\lambda w$ :  $\sim \exists y \neq x$  s.t. John met y in w. John meet x in w:  $x \in D_e$ }
- (iii): [[(iii)]]<sup>o</sup>(w) is defined iff B. is the most likely for J. to meet in w  
 If defined, [[(iii)]]<sup>o</sup>(w) = 1 iff J. is allowed to meet B. in w.  
 [[(iii)]]<sup>f</sup>(w) = { $\lambda w$ : B. is the most likely person for J. to meet in w.  
 $\exists w'$ , John is allowed to meet x in w':  $x \in D_e$  }
- (iv): [[(iv)]]<sup>o</sup>(w) is defined iff  
 B. is **the most likely person for J. to meet in w (due to *-man<sub>2</sub>*)**  
 AND B. is **the least likely person for J. to be allowed to meet (due to *-to*)**.

As in (32), the two scalar presuppositions are ‘Bill is the most likely person for John to meet in w’ (due to *man<sub>2</sub>*) and ‘Bill is the least likely person for John to be allowed to meet in w.’ (due to *to*) One can easily think about a scenario where these presuppositions are simultaneously true, like (33):

- (33) John is an interviewer of a local newspaper, and it is typically prohibited for interviewers to get close to the secret agents. Bill, one in John's neighborhood, is indeed a secret agent. However, since Bill happens to be John's closest neighbor, it is really hard for John to avoid Bill.

In this situation it is true that (among the neighbors) Bill is the most likely person for John to meet, given the locations of their respective homes, and yet it is also true that Bill is the least likely person (among the neighbors) for John to be allowed to meet, due to their respective professions.

The same reasoning can be applied to necessity modals and attitude predicates, since one can also think about scenarios where Bill is the most likely person for John to meet as well as the least likely person for John to be required to meet, or for some to believe that John met him, etc.

### 3.3. Quantifiers<sup>3</sup>

The discussion about modals raises another problem about quantifiers. Modals can be considered quantifiers over possible worlds, and under modals the clash between scalar presuppositions of *-man* and *-to* can be resolved, we might also expect that the presupposition clash of *-lato* should be resolved under usual quantifiers, such as *nwukwunka* 'someone' or *motun* 'every'. This prediction is not borne out, however. (i) is still unacceptable even though *-lato* appears under the scope of the quantifier *nwukwunka* 'someone':

- (34) #*Haksayng nwukwunka-ka [sakwa]<sub>f</sub>-lato mek-ess-ta.*  
 student someone-Nom apple-*lato* eat-Past-Decl

This problem may be resolved if we adopt Heim's (1988) theory of presupposition projection under the scope of quantifiers, according to which a universal presupposition is derived in the scope of quantifiers. For example, in Heim (1998), the lexical entry for *some* is (35).

- (35) [[some]] =  $\lambda P.\lambda Q: \forall xP(x), x \in \text{Dom}_Q. \exists y[P(y) \& Q(y)]$

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<sup>3</sup> The problem in this subsection was originally pointed out by Daniel Büring (p.c.).

(36) shows why under this lexical entry the presupposition clash emerges.

(36) Scalarity

LF: [(v) -to[(iv)  $\exists$ student<sub>1</sub> [(iii)  $\lambda 1$  [(ii) -man(i) [g(1)[[Mary]<sub>f</sub>]<sub>f</sub> manna-]]]]]]

[[i)]<sup>o</sup>=  $\lambda w$ . g(1) met Mary in w

[[ii)]<sup>o</sup>=  $\lambda w$ : g(1) met Mary and no one else

& Mary was the most likely for g(1) to meet. g(1) met Mary in w

[[iii)]<sup>o</sup>=  $\lambda w$ . $\lambda x$ : x met Mary and no one else

& Mary was the most likely for x to meet. x met Mary in w

[[ $\exists$ st.]<sup>o</sup>=  $\lambda P$ . $\lambda Q$ :  $\forall xP(x)$ ,  $x \in \text{Dom}_Q$ .  $\exists y[P(y) \& Q(y)](\text{student})$

=  $\lambda Q$ :  $\forall x$ : student(x),  $x \in \text{Dom}_Q$ .  $\exists y[\text{student}(y) \& Q(y)]$

[[iv)]<sup>o</sup>=  $\lambda w$ :  $\forall x$ : student(x) [x met Mary and no one else

& Mary was the most likely for x to meet].

$\exists y$  [student(y) & x met Mary in w]

[[v)]<sup>o</sup>=  $\lambda w$ :  $\forall x$ : student(x) [x met Mary and no one else

& Mary was the most likely for x to meet]

&  $\exists z \neq \text{Mary}$  such that [ $\lambda w'$ :  $\forall u$ : student(u), u met z and no one else

& z was the most likely for u to meet.

$\exists v$  [student(v) & v met z in w']](w)  $\neq 0$

&  $\forall r$ : student(r) [Mary was the least likely person for r to meet].

$\exists y$  [student(y) & y met Mary in w]

As the underlined presuppositions show in (36), under Heim(1988)'s theory of presupposition projection, the presuppositions we finally get in (36) will be, Mary was the most likely for every student to meet in w (due to the scalar presupposition of *-man*<sub>2</sub>, which is projected under the existential quantifier), and Mary was the least likely person for every student to meet in w (due to the scalar presupposition of *-to*), which clash with each other.

### 3.4. Local negation

In this last section I would like to return to the case of *-lato* under local negation.

(37) a. #John-un [aiskhulim]<sub>f</sub>-i-lato mek-cianh-ass-ta.

John-Top ice cream-L-lato eat-neg-Past-Decl

b. John did not eat any ice cream. (English)

Why does local negation matter? While the analysis proposed so far explains most cases of unacceptability of *-lato* in terms of an unavoidable conflict between the two scalar presuppositions of *-to* and *-man* respectively, in cases like (37) the scope of *-to* above negation could in principle resolve the contradiction. Given this, facts like (37) still await an explanation. Here I adopt Nakanishi's (2006) proposal on Japanese *-dake-demo* 'only even'. The following example (from Nakanishi 2006: 290) shows that *-dake-demo*, like *-lato*, is unacceptable under local negation.

- (38) \**John-wa* [sono hon]<sub>F</sub>-*dake-demo* *yom-ana-katta*.  
 John-TOP that book-only-even read-NEG-PAST  
 (Intended reading: 'John even read [that book]<sub>f</sub>')

Nakanishi (2006), whose view on *-dake-demo* is otherwise fully parallel to Guerzoni's (2003, 2006) analysis of *auch nur* and *anche solo*, provides a convincing explanation for cases like (38), which is missing in Guerzoni's theory (and in fact is not applicable in the analysis of German and Italian). Nakanishi notes that Japanese negation always takes scope under *-dake* 'only', as shown in (39).

- (39) (from Nakanishi 2006: 291, ex. 8)  
 a. *John-wa* [*Hon A*]<sub>F</sub> {-*mo*/*-demo*} *yonda-wake-de-wa-nai*.  
 John-TOP Book A {even/*-even*} read-it is not the case  
 "It is not the case that John even read Book A."  
 b. LF: [not [ even C [ John read [Book A]<sub>F</sub> ] ] ]      $\neg > \text{even}$

Given this, Nakanishi (2006) argues that both *-dake* and *-demo* in *-dake-demo* take wide scope over local negation, and the clash between two scalar presuppositions remains unresolved when they both combine with the negative proposition. (40) shows Korean *-man* also always takes wide scope over negation:

- (40) *John-un* [*Barriers*]<sub>f</sub>-*man* *an ilk-ess-ta*.<sup>4</sup>

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<sup>4</sup> To avoid confusion here I use so-called short-form negation in Korean. In the case of long-form negation, the scope between *-man* and negation varies depending on the intonational cue.

- John-un* *Barriers-man* *ilk-cianh-ass-ta*.  
 John-Top *Barriers-only* read-neg-Past-Decl  
 a. *John-un* [*Barriers*]<sub>f</sub>-*man* *ilk-cianh-ass-ta*.

John-Top *Barriers*-only neg read-Past-Decl

“John read everything except *Barriers*” Only > Neg, \*Neg > Only

Based on this, I propose that local negation always takes narrow scope with respect to *-lato*, which makes it impossible to resolve the presupposition clash by moving *-to* in *-lato* to take a different scope from *-man<sub>2</sub>*.

#### 4. Conclusions and remaining problems

In this paper I argued that *-lato* can be decomposed into two subparts, the covert *-man<sub>2</sub>* and the overt *-to*, following decompositional analysis of alleged NPI *evens*, like *auch nur* or *anche solo*. Furthermore, I also argued that *-to* in *-lato* introduces the additive presupposition weaker than that of *also*, *auch* or *solo*. This decompositional analysis can account for the unique distribution and the semantics of *-lato*, without stipulating any NPI-like behavior.

Of course there are still remaining problems, among which I would like to address one - *-lato* and *amwu* ‘any’. As thoroughly examined in Choi (2007), *-lato* can combine with *amwu* (NP)- ‘any (NP)’, behaving like free-choice (FC) items *any* NP in English, as indicated in the interpretation of (41):

(41) *John-un amwu/etten-koki-lato mek-elswuiiss-ta.*

John-Top any/what-meat-lato eat-may/can-Decl

“John is allowed to eat meat: every meat is a possible eating option for John.”

(Choi 2007: 318)

Choi (2007) pointed out that the decompositional analysis of *-lato* made in this paper does not capture the FC flavor of *amwu* (NP) *lato*. For example, the presuppositions introduced by *-lato* in (41) are shown in (42), where we cannot derive the FC effect.

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‘John read everything except *Barriers*.’ Only > Neg

b. *John-un Barriers-man ilk-[ci]anh-ass-ta.*

‘John read not only *Barriers* (but other books).’ Neg > Only

Since *-lato* is accompanied with an intonational cue, we may still conclude that both particles in *-lato* always takes wide scope over local negation.

- (42) a. LF:[ -to [  $\diamond$  [ -man [ John eats *amwu-/wh*-meat ] ] ] ]  
 b. ExclP of *-man* : John eats nothing different from *amwu-/wh*-meat  
 c. ScalarP of *-man*: *Amwu-/wh*-meat is the most likely meat for John to eat.  
 d. ScalarP of *-to*: *Amwu-/wh*-meat is the least likely for J. to be allowed to eat.  
 e. Weak Additivity of *-to*: There was an x different from *amwu-/wh*-meat such that if John eats nothing different from *amwu-/wh*-meat, and if x was the most likely meat for John to eat, then John is allowed to eat x.

(Choi 2007: 315ff)

To solve this problem, Choi (2007) claims, in parallel with Guerzoni's (2003, 2006) analysis of *auch nur* and *anche solo* (and therefore mine), that *-lato* introduces three different presuppositions, the exclusive one, the additive one, and the scalar one. Unlikely to those analyses, however, Choi (2007) also claims that: i) *-lato* does not introduce a weak additive presupposition, but the (usual) additive presupposition, and ii) the exclusive presupposition is not projected globally, but is accommodated locally. For instance, in Choi (2007), the presupposition introduced by *-lato* in (41) will be as (43):

- (43) a. ScalarP: *Amwu/etten koki* (x), i.e., some meat (x) is the most likely or insignificant (amount/kind of) meat for John to eat.  
 b. ExclP: There is nothing different from *amwu/etten-koki* (x) that John eats.  
 c. ExistP: There is some other (amount/kind of) meat (y) such that John is allowed to eat y.  
 d. Assertion (together with locally projected presupposition): It is allowed that there is no different *amwu/etten-koki* (x) that John eats.

Even though in Choi's (2007) framework the FC-effect of *amwu* (NP) *lato* may be accounted for, she does not give us a satisfactory explanation of the behavior of *-lato* in general. First, as already pointed out by Choi(2007) herself, it is unclear in her analysis what motivates the local accommodation of the exclusive presupposition introduced by *-lato* in modal contexts. Furthermore, it is still unclear in Choi's (2007) analysis how to derive the negatively-biased yes/no questions. If local accommodation occurs in each of possible answers (in this case, the positive answer and the negative answer),<sup>5</sup> it seems that these accommodated alternatives seem not to show any clash with the existential presupposition, which is essential to derive the negative-bias in

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<sup>5</sup> Following Guerzoni(2003, 2004), we assume Karttunen(1977)'s semantics of questions.

Guerzoni(2003, 2004)'s analysis (since the exclusive presupposition is accommodated). However, at this point I have no definite answer to the question of how the FC-effect of *amwu* (NP) *lato* can be analyzed in a compositional way, either.

### **Selected References**

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# The myth of Hungarian focus

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## Abstract

Due to a number of syntactic and semantic properties associated with preverbal focus in Hungarian, most prominently the exhaustiveness feature, “Hungarian focus” has led to the assumption of specific functional and semantic categories in cross linguistic literature and to the relatively widespread distinction between structural (identificational) and prosodic (information) focus. While there have been attempts to motivate such categories cross linguistically, the Hungarian data still remains the principle piece of evidence.

On the one hand, this paper presents a selection of the data and arguments in favor of a structural analysis of Hungarian focus and for the assumption that it involves exhaustification (or a similar semantic operation). But on the other hand, I will also present evidence for problems with this kind of analysis and claim that the aspectual structure of Hungarian might be relevant for a deeper understanding of the syntactic and semantic properties of Hungarian focus. Based on such considerations I will suggest that Hungarian focus could be analyzed without postulating a special kind of focus or any specific exhaustification operator at the syntax-semantics interface. Instead, I will suggest that exhaustiveness emerges from the interaction of different factors such as the pragmatics of focus and aspectual properties.

## 1. Focus and Hungarian focus

Since the work of Szabolcsi (1981, 1994) and É. Kiss (1998, 2006, 2008) Hungarian focus has become one of the best known and best studied notions of information structure. The general claim is that in Hungarian a particular functional projection is dedicated to a specific kind of focus that has been also called “exhaustive” or “identificational focus” and is often used synonymously for the term “operator focus”. So, in (1) the focused expression *Marit* appears in an immediately pre-verbal position analyzed as the focus projection and imposes a strongly exhaustive interpretation as given in the translation: if *Marit* appeared at some other position in the clause, the exhaustiveness effect would disappear regardless of the prosodic properties of the expression.

- (1) *Péter [Marit]<sub>F</sub> csókolta meg.*  
Peter Mary.ACC kissed PRF  
‘Peter kissed Mary (and noone else).’

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There is a whole array of both syntactic and semantic/pragmatic evidence that the basic observation about Hungarian focus is on the right track and cross linguistic studies have also provided some additional support inasmuch as similarities between focus fronting constructions in other languages and Hungarian focus have been found.

Nevertheless, in this paper I will suggest an alternative analysis for Hungarian focus, without making so radical assumptions about different types of focus. In particular I will propose an analysis that derives exhaustiveness from the interaction between standard semantics of focus and verbal semantics in Hungarian. While the first motivation of this new analysis is related to the data and will become evident in the data section, there is also an additional motivation, i.e. that strong theoretical and cross linguistic consequences are drawn from the analysis of Hungarian focus which might turn out not to be necessary if this alternative analysis is, at least in principle, correct. There are three aspects of this: i) the question, how a very specific notion of exhaustive focus is compatible with more general notions of information structure, ii) whether an exhaustification operator needs to be assumed at the syntax-semantics/pragmatics interface and finally iii) whether focus movement needs to be assumed in syntax and if so, what kind of triggering conditions are assumed.

For the purposes of this paper the first two aspects are more relevant. In semantic and pragmatic theories of information structure Hungarian focus never was adequately integrated and mostly remained a more or less exotic exception. The main reason for this is that – given the significant variability in what the prosodic accent may indicate – the semantics of focus is generally treated as weaker. Note for instance the definition of focus given in Krifka (2007:18): “focus indicates the presence of alternatives that are relevant for the interpretation of linguistic expressions”. The punch line of the Hungarian focus argument is that cross linguistically (possibly as part of Universal Grammar) there is a special kind of exhaustive focus that differs from other kinds of focus by the semantic feature of exhaustiveness. While this does not directly contradict more standard pragmatic views on focus it gives rise to a quite different view of the role of focus in grammar. This is particularly striking if one considers that for a language like English it is not even clear whether we are entitled to assume any particular semantic import of prosodic prominence or whether prosodic prominence is rather a formal reflex of discourse structure in terms of givenness, prominence or activation (cf. e.g. Beaver & Clark (2008) and Büring (2008) for discussion).

Another way to pin down this point is that Hungarian focus is structural as opposed to prosodic focus. Structural focus is an overtly syntactic phenomenon and needs to have some effect on the compositional semantic value of sentences containing it. In this case, Hungarian focus seems similar to *it*-clefts in English. But then again, at a closer look, in Hungarian the structural focus is the rather unmarked case of what would count as prosodic focus in English and in Hungarian, as compared to the structural focus, the prosodic/in situ focus is pragmatically rather marked. If so, that would mean that the Hungarian pragmatics is – after all – quite radically different from English. The second aspect of the discussion, involves the question of the status of exhaustiveness between semantics and pragmatics. Hungarian focus, being arguably exhaustive at the syntax-semantics or pragmatics interface, is considered as one of the principle motivations for the assumption that an

exhaustiveness operator at a higher CP level should universally be assumed for any language. This claim is used e.g. by Fox (2006) for deriving scalar implicatures, while more globalist approaches would rather use exhaustiveness operators independently of syntax as implementation of more general pragmatic principles (e.g. Horn 1972, van Rooij & Schulz 2004).

Finally, another dimension of the discussion regards the interface between syntax and phonology. As discussed e.g. in Szendrői (2003) at some length, there are reasons to believe that the so called focus movement in Hungarian is in fact prosodically and not syntactically motivated. As opposed to this, Horváth (2005, 2006) argues that the alleged focus movement is in fact feature-checking syntactic movement which is independent of the notion of focus but rather motivated directly the exhaustiveness feature itself. É. Kiss (2008) defends the more traditional view that Hungarian focus cannot be reduced to prosodic or independently motivated syntactic movement. Again, this discussion is directly relevant to the question, how grammar deals with notions of information structure at the syntax-pragmatics interface.

In this paper I will argue that the situation regarding Hungarian focus may be somewhat more different than it has been assumed, because some potentially relevant factors have not been discussed sufficiently. In particular, I will argue that verbal semantics, more specifically, the aspectual properties of Hungarian is directly related to both the syntactic position and to the interpretation of focus in Hungarian. I assume that at least part of the special properties of Hungarian focus can be traced back to the peculiarities of the interaction between a more standard notion of focus and the aspectual system. In other words: it will be argued that Hungarian focus is in fact just plain and usual focus and the peculiarities that contribute to its mythical status can be derived from the aspectual system of Hungarian.

The paper is structured as follows. In the first part of this paper, I will discuss the principle data about Hungarian focus and show evidence for and against the exhaustiveness analysis already discussed in the literature. In the second part of the paper I will provide some new data connected to verbal semantics and aspectual variation interacting with focus interpretation and sketch the idea of an alternative analysis.

## **2. Hungarian focus and exhaustiveness**

This section presents the basic data about Hungarian focus and the principle arguments that favour the assumption that Hungarian focus is semantically exhaustive or at least exhaustive in a distinguished way. In the first part of this section I present the general data while I turn to the exhaustiveness arguments in the second part.

### *2.1. The data*

Word order in Hungarian sentences is not used to mark grammatical relations (subject, object etc.), which are entirely assigned by case, but to reflect information structure and scope. Hence virtually

any word order between arguments and verb is possible. The most neutral word order seems, however, SVO as shown in (2). Adverbs, temporal modifiers and other adjuncts may appear both pre- and post-verbally and the order of arguments and adjuncts both in pre- and post-verbal positions is relatively free.

- (2) *Péter meg-csókolta Marit.*  
 Peter PRF kissed Mary.ACC.  
 ‘Peter kissed Mary.’

If several arguments are in front of the verb they are considered topical in the sense of Reinhardt (1981), i.e. “what the sentence is about”, and if they or some of them are prosodically highlighted with an A-accent (Jackendoff 1972) the highlighted constituent must be adjacent to the verb as shown in (3). For the purposes of data presentation focus is used (as in most of the literature) as synonymous with F-marked in the sense of Selkirk (1996) or Schwazschild (1999). This notion will be significantly revised at the end of this section, so it is important to keep in mind that this particular use of “focus” is limited to this section.

Focused elements may appear post-verbally as well, as shown in (4). Crucially, an adverb may appear between the verb and a post-verbal focus but not between the pre-verbal focus and the verb.

- (3) [*Tegnap Péter*]<sub>Top</sub> [*MARIT*]<sub>F</sub> *látta*.  
 Yesterday Peter Mary.ACC saw  
 ‘Yesterday, Peter saw MARY.’
- (4) [*Tegnap Péter*]<sub>Top</sub> *látta* [*MARIT*]<sub>F</sub>.  
 Yesterday Peter saw Mary.ACC  
 ‘Yesterday, Peter saw MARY.’

There is one single case in which an adverb may occur between a pre-verbally focused expression and the verbal predicate: if the focused constituent is a quantifier like *minden* (‘every’) or an *is*(‘too’)-phrase. This phenomenon is illustrated in (5), but in such a case the adverb appearing between the verbal predicate and the focused *minden*-phrase or *is*-phrase is focused itself, although prosodically not bearing the main accent. In the literature such foci are known as second occurrence focus (cf. Rooth 1996). Note that in (5) any other adverb, argument or adjunct could appear instead of *tegnap* (‘yesterday’).

- (5) *Péter [minden lányt]<sub>F</sub> [tegnap]<sub>F</sub> látott.*  
 Peter every girl yesterday saw  
 ‘It was every girl that Peter saw just yesterday.’

Verbs in Hungarian may be simple such as *csókol* (‘kiss’) or complex. Complex verbs may contain an incorporated pre-verbal bare noun (i.e. a noun with no determiner as *fát-vág* (‘tree-chop’) (cf.

Farkas & de Swart (2003)) or a verbal prefix (PRF) as *le-vág* ('down-chop'). (I will ignore bare nouns in this paper completely.) The meaning of PRF in Hungarian interacts with the meaning of the main verb giving rise to mostly predictable meaning composites, as shown in (6), where the meaning of the composite *kiment* ('went out') is directly derivable from *ki* ('out') and *ment* ('went'). In most of the cases PRF are spatial prepositions expressing the direction of some motion and they also have impact on telicity and perfectivity of events expressed by verbal predicates. Simple verbs and complex verbs consisting of a BN and a verb are not perfective and usually a-telic as shown in (7) while complex verbs consisting of PRF and verb are telic and perfective as shown in (8)<sup>1</sup>.

(6) *Péter kiment.*

Peter PRF-went

'Peter went out.'

(7) *Péter (\*egy óra alatt) (egy órát) nézte Marit.*

Peter one hour under one hour.ACC watched Mary.ACC

'Peter watched Mary (\*in an hour) (for an hour)'

(8) *Péter (egy óra alatt) (\*egy órát) megnézte Marit.*

Peter one hour under one hour.ACC PRF-watched Mary.ACC

'Peter watched Mary (in an hour) (\*for an hour)'

A pre-verbal PRF bears the main stress of the verbal complex. This may be related to the fact the Hungarian has word-initial accent and pre-verbal PRF or BN form together with the verb a phonological word, cf. Szendrői (2001, 2003) for discussion. If a post-verbal focus occurs, the PRF remains pre-verbal and continues to bear the main stress of the verbal complex. However, if a pre-verbal focus occurs PRF appears post-verbally, as shown in (9). Excepted from this rule are (among others) cases in which the pre-verbally focused expression is a universal quantifier like *minden* ('every') or the focused expression is accompanied by *is* ('too') as shown in (10). In addition if the focused expression is a quantifier like *sok* ('many') or *több* ('more') PRF may appear both pre-verbally and post-verbally as shown in (11). Note that both for foci containing *sok*-('many') and *minden*('every') phrases PRF must appear post-verbally, if the stress is not on the quantifier but on the restrictor, as shown in (12).

(9) *Péter [Marit]<sub>F</sub> (\*meg)nézte meg.*

Peter Mary.ACC PRF-watched-PRF

'Peter watched MARY.'

(10) *Péter [Marit is]<sub>F</sub> megnézte (\*meg).*

Peter Mary.ACC too watched-PRF

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<sup>1</sup> Verbal prefixes can often be used as perfectivity and telicity markers. This function of PRF is inasmuch central that the most frequent PRF *meg* does not have any spatial meaning, it is used just as an aspect marker and cannot be properly translated into English. Note, however that there are exceptions from this generalization, cf. Kiefer (2008) for details.

‘Peter watched MARY too.’

(11) *Péter [sok lányt]<sub>F</sub> (meg)csókolt (meg).*

Peter many girl.ACC kissed PRF

‘Peter kissed MANY GIRLS.’

(12) *Péter sok [lányt]<sub>F</sub> (\*meg)csókolt (meg).*

Peter many girl.ACC kissed PRF

‘Peter kissed many GIRLS.’

If a pre-verbal focus appears and PRF appears post-verbally it is de-stressed but if pre-verbal focus occurs and PRF still appears pre-verbally it is not de-stressed and bears the main stress of the verbal complex.

It has often been overseen in the literature that in Hungarian post-verbal focus does not mark the answer to a *wh*-question, while pre-verbal focus does, as shown in (13). The a. answer, in which the focused expression is pre-verbal, marks a natural answer to the question, while the b. answer, in which the focused expression is post-verbal, cannot be interpreted as a natural, direct answer to the question. The b. answer seems to require some continuation in which a contrasting expression to the focused expression appears, in other words the answer seems incomplete.

(13) *Ki csókolta meg Marit?*

Who kissed PRF Mary.ACC

‘Who kissed Mary?’

- a. *[Péter] csókolta meg Marit.*  
Peter kissed PRF Mary.ACC  
‘PETER kissed Mary’
- b. *? Marit megcsókolta [Péter].*  
Mary.ACC PRF-kissed Peter  
‘PETER kissed Mary’

Excepted from this observation are pre-verbal foci which do not trigger a post-verbal occurrence of PRF, such as the quantifier *minden* (‘every’) or – even more interestingly – in the case of *sok* (‘many’) which, if focused, allow both pre-verbal and post-verbal PRF: in (14) the a. answer is interpreted as an indirect answer to the question, indicating something like there is no point in asking how many girls since there were really many, while the b. answer marks *sok* (‘many’) as the direct answer to the question. Hence the descriptive generalization is that pre-verbal focus marks the direct, natural answer to a question exactly in case PRF appears post-verbally, and fails to do so if PRF appears pre-verbally.

(14) *Hány lány csókolta meg Pétert?*

How-many girl kissed PRF Peter.ACC

‘How many girls did kiss Peter?’

- a. *Pétert [sok lány]<sub>F</sub> megcsókolta.*  
 Peter.ACC many girl PRF-kissed  
 ‘MANY GIRLS kissed Peter. (So don’t ask how many!)’
- b. *Pétert [sok lány]<sub>F</sub> csókolta meg.*  
 Peter.ACC many girl PRF-kissed  
 ‘MANY GIRLS kissed Peter. (And not just a few.)’

In all cases in which focus can mark the direct answer to a *wh*-question, i.e. if PRF are post-verbal, focus can also be used to contradict a previously made assertion, by replacing an argument of the former sentence by the focused expression. Again, in such cases post-verbal focus or the use of quantifiers that do not allow a post-verbal occurrence of PRF is pragmatically weird.

It is widely assumed that pre-verbal focus in Hungarian (at least if it co occurs with post-verbal PRF) gets an exhaustive interpretation. Hence (9) is interpreted as conveying the information that Peter saw Mary and only Mary. In other words, the observation is that if focus marks the direct answer to a question, we get an exhaustive interpretation.

Given the difference between different foci at different positions in a Hungarian clause some additional classification appears to be necessary:

(15) Different types of foci in Hungarian:

- a. I call a focused expression a **F<sub>1</sub>** if it is
- (i) pre-verbal and
  - (ii) if a PRF is present it occurs post-verbally and
  - (iii) the focused expression can mark the direct answer to a *wh*-question.
- b. I call a focused expression a **F<sub>2</sub>** if it is
- (i) post-verbal or
  - (ii) pre-verbal and if a PRF is present it occurs pre-verbally and
  - (iii) the focused expression does not mark the direct answer to a *wh*-question

Note that this terminological distinction is made or presupposed (in a compatible way) in virtually any paper on Hungarian focus, however the labelling is somewhat different: e.g. **F<sub>1</sub>** has been also dubbed *identificational focus*.

## 2.2 The exhaustiveness discussion

The basic observation made in the literature about **F<sub>1</sub>** in Hungarian is that it is semantically very similar to English *it*-clefts. This observation is one of the main motivations that lead É. Kiss (1998) to assume that **F<sub>1</sub>** in Hungarian can be viewed in a broader context in which so called “in situ” focus can be distinguished from “moved” focus by the existence of some features like [ $\pm$ exhaustive] and [ $\pm$ contrastive] which in different languages trigger focus-movement in different combinations.

Indeed, when it comes to exhaustivity, the comparison of **F<sub>1</sub>** in Hungarian with *it*-clefts holds over a

number of tests. Maybe the most convincing of these is that in expressions that are excluded from F<sub>1</sub> in Hungarian e.g. in (10) *it*-clefts are excluded in English as well, as shown in (16).

(16) ??*It was PETER too, who kissed Mary.*

The claim that F<sub>1</sub> in Hungarian is strictly exhaustive, has been advocated in two different ways.

On the one hand it has been assumed that there is a covert exhaustivity operator in the immediately pre-verbal position in Hungarian, which can account for the [+exhaustive] feature of F<sub>1</sub>. This operator is very similar to the focus sensitive particle ‘only’. This implicates that even though *it*-clefts and F<sub>1</sub> in Hungarian are similar, they get exhaustivity effects in different ways: *it*-clefts via presupposition and F<sub>1</sub> in Hungarian via an exhaustivity operator. Of course this argument only works if one assumes that F<sub>1</sub> and pre-verbal F<sub>2</sub> occupy distinct syntactic positions, since otherwise F<sub>2</sub> (that is nevertheless pre-verbal) would also be predicted to have an exhaustive reading.

This exhaustification-operator argument has received some criticism in the literature. It has been shown for instance that this exhaustive reading is achieved without a covert ‘only’. Wedgwood (2005), based on an example going back to Horn, provides an example showing that there is no covert ‘only’ in the pre-verbal position in Hungarian. If there were a covert ‘only’ in the pre-verbal position, one would expect not only (18) but also (17) to be acceptable in Hungarian, which however is not the case.

(17) ??*Azt tudtam, hogy Mari megevett egy pizzát, de most vettem észre,*  
 that knew.I.SG that Mary ate a pizza.ACC but now took.I.SG notice  
*hogy [egy pizzát]<sub>F</sub> evett meg.*  
 that a pizza.ACC ate PRF

Intended reading: ‘I knew that Mary ate a pizza, but I have just noticed that it was (only) a PIZZA she ate.’

(18) *Azt tudtam, hogy Mari megevett egy pizzát, de most vettem észre,*  
 that knew.I.SG that Mary ate a pizza.ACC but now took.I.SG notice  
*hogy csak [egy pizzát]<sub>F</sub> evett meg.*  
 that only a pizza.ACC ate PRF

‘I knew that Mary ate a pizza, but I have just noticed that it was only A PIZZA she ate.’

É.Kiss (2007) argues that the contrast between (17) and (18) only shows that the covert operator is not a full fledged ‘only’ and not that there is no exhaustivity operator. In her view ‘only’ has some discourse function, such that ‘only’ is an evaluative particle marking that on a scale of alternatives the focus represents a non-maximal value, while the covert exhaustivity operator has only truth conditional effects. The same view is also advocated by Horváth (2006).

Another kind of counter-evidence for the exhaustivity operator approach is based on examples like (19) provided by a corpus study of Wedgwood et al. (2007). The argument is, that if in (19) *Marit* is an instance of F<sub>1</sub>, which according to the definition it must be, the exhaustivity operator must be

applied to the phrase ‘among others Mary’. But this simply contradicts exhaustification. The point here is not only (as it might seem) that an exhaustive reading does not arise (since in some way the operator might be neutralized by the expression itself) but rather why  $F_1$  is used if exhaustification is not intended.

- (19) *Péter többek között [Marit]<sub>F</sub> csókolta meg.*  
 Peter among others Mary.ACC kissed PRF  
 ‘Peter kissed among other MARY’

The other way to derive exhaustiveness involves a presuppositional effect (Kenesei 1989, 2005, Szabolcsi 1994). The idea is that  $F_1$  in Hungarian exhaustively identifies a term presupposed by the rest of the sentence. Note that identifying a presupposed entity does not necessarily yield a semantically encoded exhaustivity effect. Hence, in most approaches of this kind the presupposition is viewed as something similar to a definite description. According to such analyses the semantics of the immediately pre-verbal position in Hungarian includes an operator that compositionally turns the focused expression to an identificational term applied to a definite description:  $\lambda x \lambda P [x = \iota y [P(y)]]$ , where P stands for the background (Krifka 1992) and x for the referent of the focused expression<sup>2</sup>. Hence, for instance in (9) we get a partition of the sentence into a focus: *Mary* and a background:  $\lambda x$  *Peter kissed x*, and the exhaustivity operator applied to these expressions yields:  $Mary = \iota y [\lambda x$  Peter kissed x (y)].

A presupposition associated with focus has been widely discussed in the literature. Similarly such a presupposition can be assumed for *it*-clefts in English, as e.g. in Rooth (1999), but the exhaustivity effect is usually derived pragmatically in order to avoid standard issues with plurals etc. If however for Hungarian uniqueness is included into the presupposition, this leads to serious problems as soon as even simple plurals have to be discussed. These problems can be solved, but solutions are not trivial. (Note that in Hungarian “nobody” can be in  $F_1$ .)

The two main approaches briefly introduced above have been rejected in Wedgwood (2005) and Horváth (2006). Horváth (2006) rejects the mentioned approaches arguing that the so called focus position is indeed exhaustive in nature, just that it has nothing intrinsically to do with focus. In her view, the immediately pre-verbal position is interpreted as an operator of exhaustive identification, which is focus sensitive and hence has a strong tendency to be a good attachment site for focused expressions, but it may host also non-focused elements and focused elements may appear in other positions as well, even in cases in which the immediately pre-verbal position is occupied by a non-focused expression. Examples like (5) are central to her approach because they show that the immediately pre-verbal position is exhaustive even if the main prosodic focus is elsewhere in the clause. Indeed for this kind of examples her analysis makes the right predictions and it has to be noted that this is the only analysis “on the market” making those right predictions.

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<sup>2</sup> These notions are generally associated with a structured-meaning approach to focus whereby the general idea is that focus triggers a partition of meanings into a focus and background-part, which applied to the focus denotation, yields the ordinary truth conditions of the sentence (cf. Krifka 2007 for introduction).

However: Horváth treats *tegnap* ('yesterday') as unfocused, while I introduced a focus marking for *tegnap* arguing that this is an instance of a second occurrence focus, which does not need to bear a pitch accent but arguably still is prominent in a particular way (cf. Beaver et al. 2007 and Beaver & Clark 2008 for English). But of course, second occurrence focus *can* bear a pitch accent and indeed speakers tend to place a pitch accent onto the adverb as well, even though it is clearly not the main accent of the sentence.

On Horváth's approach a crucial fact is not accounted for: the fact that only very few quantifiers can appear in the pre-pre-verbal position, as in (5), namely *minden* ('every') and *is*('too')-phrases, which can be focused pre-verbally without triggering the post-verbal appearance of PRF, while e.g. *sok* ('many'), which also can be focused pre-verbally without triggering the post-verbal appearance of PRF, or other expressions like names or definite NPs cannot, as shown in (20).

- (20) \**Péter [sok lányt]<sub>F</sub> tegnap/[tegnap]<sub>F</sub> csókolt meg.*  
 Peter many girl.ACC yesterday kissed PRF  
 'Peter kissed MANY GIRLS yesterday'

The most likely interpretation of (5) is, as correctly predicted by Horváth, that Peter saw not only some but every girl exactly yesterday (and on no other day), however such a sentence may only be used in Hungarian to contradict implicatures that might arise from 'Peter saw Mary YESTERDAY', by pointing out that there is no special thing about Peter seeing Mary exactly yesterday since in fact this is not only true for Mary but for all of the girls. Of course in such a case examples like (5) do not necessarily show that the pre-verbal position is independent of focus but rather that second occurrence focus may but needn't be significantly distressed in Hungarian, while it may still appear in an immediately pre-verbal position. In this case 'every girl' is a focus indicating a contradiction and 'yesterday' is a second occurrence focus. But then the crucial question is, why can't the second occurrence focus appear pre-verbally if the focused expression is a *sok*('many')-phrase as in (20), while the second occurrence focus may appear in the post-verbal position in a similar construction, as in (21).<sup>3</sup>

- (21) *Péter [sok lányt]<sub>F</sub> csókolt meg [tegnap]<sub>F</sub>.*  
 Peter many girl.ACC yesterday kissed PRF  
 'Peter kissed MANY GIRLS yesterday'

Wedgwood (2005) extensively argues against the idea that the exhaustive nature of  $F_1$  is semantically encoded in Hungarian and attempts to derive that particular effect at the semantics-pragmatics interface. Crucially, he argues, that the expression in  $F_1$  is a predicate over an  $\varepsilon$ -term in the sense of Egli & von Stechow (1995), i.e. something like a definite description. Unfortunately, the predictions of Wedgwood (2005) regarding exhaustiveness are not so clear, since an  $\varepsilon$ -term does not presuppose uniqueness – in fact the very reason that it has been introduced for describing

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<sup>3</sup> Note that this contrast has not been accounted for by any theory of Hungarian.

definite descriptions was to account for definite descriptions without a uniqueness presupposition. If enriched by a uniqueness presupposition, the analyses would have the same predictions as Szabolcsi (1994), otherwise it seems to derive a somewhat more fuzzy pragmatic exhaustiveness effect which cannot derive exhaustiveness as an entailment or some particularly stable inference.

Summing up the discussion,  $F_1$  in Hungarian has been argued to be semantically exhaustive and support exhaustivity at the level of entailment (as opposed to implicatures). While it is debatable whether this is a real case of entailment or not, the data require an analysis that at some level yields a strong exhaustiveness prediction. On the other hand there are counter examples and problems with this kind of analysis which suggest that at some level more has to be said about Hungarian focus: while exhaustiveness may be a fact about  $F_1$  in Hungarian, certainly more has to be said about it before one can draw the conclusion that there is something like “exhaustive” or “identificational” focus as part of grammar (especially if the claim is considered cross linguistically relevant).

### **3. An alternative approach**

My main point in this paper is that, given the complicated data and the complexity of the discussion about Hungarian focus, it may actually be the wrong strategy to try to reduce the whole question to the presence or absence of a semantic feature or operator. Certainly, any approach to Hungarian focus that does not accept the exhaustiveness facts and derives something weaker than what is needed to account for the data is doomed to failure. Similarly, any attempt to push the idea of an exhaustiveness operator as truth conditional part of the meaning of Hungarian sentences involving  $F_1$  is suspect given some of the data above.

So, one might consider a different strategy: why shouldn't exhaustiveness in the case of  $F_1$  focus simply be the effect of the interaction of different factors. Depending on the nature of the factors involved it might even be possible to sometimes derive exhaustiveness in terms of truth conditions at the level of sentence meaning, sometimes, this might be a possible outcome of contextual factors and sometimes this inference may not arise at all. This certainly seems to be just about the right description of the data.

In this paper I argue that two of the factors involved (whereas there may be more) are: (i) the semantic import of focus in general and (ii) the aspectual system of Hungarian and I will sketch a model that is able to deal with this kind of interaction. Concerning the first point I will argue that in Hungarian  $F_1$  is the only possible focus position and in fact  $F_2$  is not an instance of focus but rather of contrast in a more specific sense. Regarding the second point I will elaborate on an idea presented in Onea (2007) according to which the word order between verbal prefix and verb associated with  $F_1$  sentences is relevant for the semantic analysis of Hungarian focus.

#### *3.1. Focus and contrast in Hungarian*

A crucial part of the exhaustiveness argument for  $F_1$  in Hungarian is directly related to the

observation that  $F_1$  is very similar to English *it*-clefts. There is, however, a very important difference between them as well, namely that in Hungarian  $F_1$  marks a natural answer to a *wh*-question as discussed above (cf. example (13)), while English *it*-clefts, which are supposed to share at least some of the key properties of  $F_1$  in Hungarian, do not mark natural answers to *wh*-questions, as shown in (22).

Moreover in other languages in which something dubbed ‘focus movement’ is attested, there is absolutely no such effect as observed in Hungarian: For instance in Romanian both pre-verbal and post-verbal focus can mark natural answers to a question as in (23), though an answer containing a pre-verbal focus seems somewhat more natural.

(22) *Who did John see?*

- a. *John saw [Mary]<sub>F</sub>.*
- b. *? It was [Mary]<sub>F</sub>, John saw.*

(23) *Pe cine a văzut Ion?*

ACC Who did see John

‘Who did John see?’

- a. *Ion l-a văzut [pe Mihai]<sub>F</sub>.*

John CL-did see ACC Michael

‘John saw MICHAEL’

- b. *Ion [pe Mihai]<sub>F</sub> l-a văzut.*

John ACC Michael CL-did see

‘John saw MICHAEL’

This observation has two sides: first, even if we were to accept the presuppositional analysis, one still needs to explain why  $F_2$  is not a direct answer to a question while its semantic pendant in other languages seems to be, and second, why would only a strictly exhaustively identifying answer be a good answer to a question, while in English this (i.e. *it*-clefts) is not conceived as a natural answer to *wh*-questions.

One way to deal with this problem is to say that in Hungarian the function (or one of the functions) of  $F_1$  is precisely to mark the answer to a question, while  $F_2$  in Hungarian does not have this function. It is widely known that in languages like English or German, prosodic prominence (even involving A-accent) can have different functional motivations. Marking the answering constituent to a *wh*-question is one of those functions, as argued e.g. by Roberts (1996) or Büring (2000), while there may be other reasons as well, such as being a contrasted expression to some other expression in the discourse cf. Rooth (1992). Arguably such different functions of (or reasons for) prosodic prominence are semantically related in the wider sense that they all evoke alternatives, since marking the answering constituent to the question under discussion can be analysed as presupposing precisely the set of alternatives that constitute the semantic value of the question itself as proposed in Hamblin (1973). But then again, marking the answering constituent is a functionally clearly distinguishable function of prosodic prominence and as a matter of terminology one can reserve the

term “focus” for this particular function, while reserving the term “contrast” for the other cases of contrast in a wider sense. A similar terminological decision regarding the term “focus” is also made in Beaver and Clark (2008).

Let us, hence, call  $F_1$  “focus” and  $F_2$  “contrast”.

Of course this is not a solution to the problem, just a re-labeling. But the advantage of this terminological move is that it becomes clear that there is at least one semantic description of the function of focus in general that perfectly fits the Hungarian data at least regarding their syntactic distribution. From this, exhaustiveness does not follow semantically, but – since the answer to a question is generally interpreted as exhaustive in most contexts – there is reason to assume a pragmatic notion of exhaustiveness for Hungarian focus.

But what evidence is there actually for this rephrasing of the problem? Why would e.g. (10) not be a good answer to a question? Empirically, this is because one may only focus ‘every’ or ‘too’ phrases if this is meant to contrast to a former assertion or to a *wh*-question word, which is hence conceived as “the wrong way of putting the question”. From a rather formal point of view, one may put it this way: let both contrast and focus generate alternatives, hence fall under a wider notion of focus in the sense of Krifka (2008), but let focus generate complete clauses as alternatives while contrast generates singular expressions as alternatives. Crucially, a set of clausal alternatives is a question-presupposition, hence we get immediately that a focus answers a question under discussion. For contrast the presupposition is not a question but some constituent to which the  $F_2$  constituent is contrasted. This immediately predicts that as an answer to a question  $F_1$  is preferred over  $F_2$  and as a contrast to some constituent,  $F_2$  is preferred over  $F_1$ .

To make this point more explicit I will adopt the compositional system of Alternative Semantics (Rooth 1992) with minor modifications:

$\varphi$  is an expression,  
 $\|\varphi\|^O$  is the ordinary semantic value of  $\varphi$  and  
 $\|\varphi\|^F$  is the focus semantic value of  $\varphi$ .

Rules for determining  $\|\varphi\|^F$

$$\begin{aligned} \|\varphi\|^O &= \|\varphi_F\|^O \\ \|\varphi\|^F &= \{\|\varphi\|^O\} \\ \|\varphi_F\|^F &= D_{\text{type}(\|\varphi\|^O)} \end{aligned}$$

Compositional rules:

$$\begin{aligned} \|\alpha \beta\|^O &= \|\alpha\|^O(\|\beta\|^O) \\ \|\alpha \beta\|^F &= \{ \alpha'(\beta') \mid \alpha' \in \|\alpha\|^F, \beta' \in \|\beta\|^F \} \end{aligned}$$

Additional rule: in the composition of the focus semantic value presuppositions do not project to the level of alternatives<sup>4</sup>

At the level of focus interpretation a set presupposition arises. The presupposition is modeled as a free set variable  $\sim C$  with the following conditions:

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<sup>4</sup> The alternatives do not need to be presupposed. This is an extension of the framework and tackles the problem of definite descriptions in Alternative Semantics (von Stechow 2008). The problem is that the alternatives to a definite term are alternative definite descriptions and if they were presupposed in the discourse wrong results would be predicted. For an independent motivation of a similar assumption, cf. Oëna & von Stechow (2008).

$$C \subseteq \|\varphi_2\|^F$$

$$\exists \psi [p \neq \|\varphi_2\|^O \wedge \psi \in C]^5 \quad (\psi \text{ is not restricted for type})$$

For  $F_1$   $\sim C$  is at the clause level.

For  $F_2$   $\sim C$  is at the constituent level.

Hence, alternatives to a clause containing  $F_1$  are a set of entities of type  $t$ , while for a clause containing  $F_2$  only a set containing entities of type  $e$  are generated.

By saying this, I still have told why and how this semantic difference arises: one may assume that there is a particular blocking effect in Hungarian i.e. the alternative calculation in the sense of Rooth (1992) may collapse at a certain syntactic projection as argued in Onea (2007 and 2008), or that clause-level alternatives are restricted by syntax or by some operator to this peculiar position. Even a bidirectional OT analysis is conceivable, which would derive the unmarked alternatives (i.e. the clause level alternatives) for the unmarked focus position and marked alternatives (i.e. constituent level alternatives) at any other position. But for the proposal to be made here this is not of central interest, since deriving clause level alternatives on its own yields at best some pragmatic exhaustiveness effect, as it has been argued for focus and contrastive topics even in English (e.g. by van Rooij (this volume), so for such an account it is crucial to have some more to say about the other factors involved in Hungarian sentence structure or event structure.

### 3.2 Events and Focus in Hungarian

An important fact about focus that I want to present here is associated with the de-accenting of the verbal prefixes. This de-accenting is not of the same kind as in the case of the occurrence of contrast: the prefix does not bear the main stress of the clause if a contrast is present, but still the main stress of the verbal predicate is on the prefix, however if a focus is present the prefix is totally de-accented. The fact that the prefix is de-accented and appears in post-verbal position in case of a focus could be a mere phonological fact about Hungarian or it could be relevant to semantics. If the former is the case, then there is not significantly more to say about it. However, if the latter is the case, than one could assume that the fact that a prefix loses prominence in Hungarian may trigger some semantic effects that on their turn could interact with the semantics of focus and lead to exhaustiveness effects. Our task then is to find out what this semantic effect could be and how it would interact with the semantics of focus.

I have argued above that if a verbal prefix appears pre-verbally (usually) telicity and perfectivity effects arise as shown in (7) and (8). However, if verbal prefixes appear post-verbally, telicity effects associated with them are significantly weakened, while the spatial meaning of the prefixes is still present in the composition: while a-telic temporal modification (e.g. *egy óra hosszat* or *egy órát* ‘for an hour’) is not appropriate if the prefix is pre-verbal as shown in (8), it gets significantly better if the prefix is post-verbal. Moreover, the more the directional element expressed by the prefix is inherent to the verb or, in other words, the less relevant the directional component for the

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<sup>5</sup> As opposed to Rooth(1992) there is no constraint that the ordinary semantic value  $\|\varphi\|^O$  is part of the presupposed set.

understanding of the event, the worse a-telic modification with post-verbal prefixes gets, as shown in the contrast between (24), (25) and (26). Note that in (24) the spatial semantic import of “down” is significant, since one could also imagine a context in which carrying the boxes to the third floor is a carrying up and not a carrying down operation, but in (25) the directional component is inherent to the verb (no other prefix is likely to be used for *mos* (‘to wash’) in Hungarian) and in (26) there is no directional component at all. In contrast, telic verbal modification (i.e. *egy óra alatt* ‘in an hour’) is appropriate in any case if a prefix is present (either pre- or post-verbally).

- (24) [Egy óra hosszat]<sub>F</sub> vittem le a dobozokat a harmadik emeletre.  
 One hour long.ACC carried PRF the boxes.ACC the third floor-to  
 ‘I carried the boxes down to the third floor one hour long’
- (25) ?? [Egy óra hosszat]<sub>F</sub> mostam ki a nadrágomat.  
 One hour long.ACC washed PRF-the trousers.my.ACC  
 ‘I washed my trousers for an hour’
- (26) \* [Egy óra hosszat]<sub>F</sub> írtam meg a leveleket.  
 One hour long.ACC wrote PRF the letters.ACC  
 ‘I wrote the letters for one hour.’

Note that the existence of a focus is not the only possible reason for a prefix to appear post-verbally. In *wh*-questions (27) and after negation (28) prefixes appear post-verbally as well. In the presence of bare nouns prefixes appear post-verbally as well, as shown in (29). (29) is in fact the only pattern in which prefixes can co-occur with bare nouns, i.e. it is not possible to have pre-verbal prefix and a post verbal bare noun. This is little surprising given that they impose different telicity effects and if the prefix is post-verbal its telicity effect is strongly reduced, as shown above.

- (27) *Ki (\*oda)adott (oda) Marinak egy könyvet?*  
 Who PRF-gave PRF MARY.DAT a book.ACC  
 ‘Who gave Mary a book?’
- (28) *Péter nem (\*oda)adott (oda) Marinak egy könyvet.*  
 Peter not PRF-gave PRF Mary.DAT a book.ACC  
 ‘Peter did not give Mary a book.’
- (29) *Mari lámpá(ka)t szerelt fel a plafonra.* (Farkas & de Swart 2003)  
 Mari lamp.(PL).ACC set.Past PRF the ceiling.on  
 ‘Mari set up a lamp(s) on the ceiling.’

Wedgwood (2005) argues that the immediate pre-verbal position, which is shared between focus and verbal prefixes in complementary distribution, is semantically interpreted as the main predication of Hungarian sentence structure. The general idea of Wedgwood’s approach is that the meaning of a sentence is incrementally constructed in the process of interpretation in a dynamic system of predications, whereas for Hungarian the immediate pre-verbal position is the point where

the final – proposition creating act of predication takes place. As mentioned above, this leads Wedgwood to assume that focus is nothing but a predicate over a definite description, but he have already seen that this is not quite enough to account for the data.

One particular way to tackle this problem which is quite similar to Wedgwoods analysis would be to assume that pre-verbal prefixes (among other things they may do) contribute the existential quantification over the event introduced by the verb. Crucially, if the verbal prefix appears post-verbally, this leads to the effect that the event of the verb is not introduced into the discourse but rather presupposed. If, however, the event is presupposed, it will be predicted to be co-referential with the event under question – given that focus already indicates that the question answers a specific question under discussion. If, finally, the question is predicted to ask for a participant of a specific event, and the answer is referring to that particular event under question, exhaustiveness is very likely to emerge. This idea has been proposed in Onea (2008) and a similar line of thinking has been also proposed for Chinese in Hole (2008), where a presupposition is implemented which requires one and only one event of the type specified by the CP in the context.<sup>6</sup>

Pseudo-formally, this can be represented as follows:

We assume existential quantification to be the semantic role of the pre-verbal position:

(EXIST)-V-PRF:  $(\partial\exists e. ASP(e) \wedge V(e)) \wedge (\lambda e'. rest\_of\_sentence(e'))(e)$

PRF+EXIST-V:  $\exists e. ASP(e) \wedge V(e) \wedge rest\_of\_sentence(e)$

Unfortunately such a solution – how formally explicit it may be – is dependent on the assumed event ontology. Exhaustivity is predicted if and only if the event ontology predicts that one event has one particular participant (may it even be a sum individual), if discontinuous events with different participants are allowed exhaustivity is not so clearly predicted.

Nevertheless, such an approach, if the event ontology is defined properly, is able to predict exhaustivity pragmatically without assuming a specific operator in Hungarian or without assuming any language specific rules for interpreting Hungarian focus.

Moreover, the approach not only copes with the standard examples of exhaustiveness but even makes more refined predictions than other theories. Consider the famous example given in (30) from Szabolcsi (1981), which would be a contradiction if the first part of (30) would not mean something like ‘Peter (and only Peter) slept on the floor’. While Szabolcsi explains this in terms of an exhaustiveness operator, the current approach would explain it as emerging from the fact that we interpret (30) as specifying the participants of a particular event. If so, the continuation is acceptable, because the continuation corrects the participant of a particular event.

(30) *Nem [Péter]<sub>F</sub> aludt a padlón, (hanem [Péter és Pál]<sub>F</sub> (aludt a padlón)).*

Not Peter slept the floor-on but Peter and Paul slept the floor-on

‘It isn’t Peter who slept on the floor; (it’s Peter and Paul who slept on the floor.)’

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<sup>6</sup> Note that the only essential difference to Wedgwoods (2005) approach is that the exhaustiveness is not meant to be derived from the presupposition in this view but rather from the interaction between the presupposition and the question under discussion.

But then it would be predicted that (31) is acceptable if we think of Peter and Paul getting a ten grade together while unacceptable if they've got these grades for different works. Some speakers tend to accept this prediction, but unfortunately the data is not as solid as it would need to be to provide clear evidence for the analysis, as Anna Szabolcsi (p.c.) pointed out to me. In addition, it is not trivial to see, how such an account can be extended to stative verbs and to simple verbs as has been argued by Ferenc Kiefer (p.c.). In fact, it has to be shown, how exactly, the current proposal should be applied to (30) or (31) at all, given that they do not have PRF. One solution would be to assume a zero-PRF for those cases.

- (31) <sup>??</sup>*Nem PÉTER kapott tizest, hanem Péter és PÁL (kapott tizest).*  
 Not Peter got ten.ACC but Peter and Paul got  
 ten.ACC  
 'It isn't Peter who got a ten (grade), it's Peter and Paul who got a ten (grade)'

Even though this sketch of an analysis does not handle all the data and makes predictions that are empirically not quite clearly confirmed, for the aims of the current paper it shows that the data concerning Hungarian focus are more complex than they might have seemed to be. There are factors involved which have been seen as little relevant in the literature, but as pointed out by Wedgwood (2005) this is more likely to be due to framework-internal considerations. If, as I hope to have shown in this paper, such factors are treated as semantically relevant the exhaustive feature of Hungarian focus might boil down to the interaction between different factors instead of one single operator.

#### 4. Conclusion

I conclude that the least the possibility of such an argument shows is that one can think of Hungarian focus not as exhaustive focus hard-wired into the syntax-semantics interface but rather as exhaustive by emerging from the interaction of different factors which are peculiarities of Hungarian: one of them is the generalization that focus and contrast can be separated syntactically in Hungarian (which is not that common for other languages) and the other one is the word order effects associated with focus, verbs and prefixes. Of course, other factors may also be relevant.

If so, Hungarian focus may turn out to be less exotic than it was pretended to be: a rather usual notion of focus would suffice to describe it if further factors are also taken into consideration. To finally clarify the situation, certainly, more research has to be conducted – and specifically the cases in which the intuitions are less clear, should be empirically discussed.

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# Focus, contrast, and the syntax-phonology interface: The case of French cleft-sentences

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## Abstract

In this paper, we argue for a prosodic approach (Samek-Lodovici 2005) to the preference for cleft-sentences over canonical sentences in two focusing contexts in French: answers to subject constituent questions and contrastive [+/- corrective] contexts. Our proposal is that the ranking SF >> EPP,HI >> HU >> \*STRUCTURE is responsible for the emergence of cleft-sentences in answers to subject constituent questions and the emergence of canonical sentences in answers to non-subject constituent questions. As for contrastive [+/- corrective] cleft-sentences, we propose to treat them as cases of nested foci, in the same line as the analysis offered by Féry & Samek-Lodovici (2006) for so-called *Superman* sentences.

**Keywords:** French, cleft-sentences, prosody, subject focusing, nested foci, typology.

## 1. Introduction

Languages vary in the extent to which they use cleft-sentences and also in the contexts in which they use them. The fact that French speakers tend to use cleft-sentences as answers to subject wh-questions has been noticed by Belletti & Leonini (2004) in their experimental investigation of French learners of Italian as well as by Lambrecht (2001), who claims that focused constituents are excluded from the preverbal subject position in French. Lambrecht discards the possibility that this ban on preverbal foci in French follows from a phonological requirement, and suggests that instead, “the relevant constraint operates at the level of the mapping of syntax and information structure, prohibiting the occurrence of focus elements in preverbal subject position”. The same view is advocated by Zerbian (2005, 2006, 2007) in her OT account of Northern Sotho, a Bantu language spoken in South Africa which exhibits a subject/non-subject asymmetry strikingly close to the one observed in French. The aim of this work is to consider the alternative according to which the ban on focused preverbal subjects in French follows from

phonology, and more particularly from the fact that, although the preverbal position can host a pitch accent, it cannot receive the main stress of the clause. We argue that, in French, the preference for cleft-sentences over canonical sentences in subject focusing follows from the high ranking of the constraint which requires that a focus be most prominent in its focus domain (SRESSFOCUS), the tie on EPP, which requires that clauses have overt subjects, and HI, which requires that the head of an intonation phrase be aligned with its right boundary and the ranking of \*STRUCTURE below these constraints. What about non-subject cleft-sentences? Although they are excluded from information focus contexts, they are well formed and often preferred to canonical sentences in some contrastive contexts. We propose an account of these cleft-sentences in the same line as the one proposed by Féry & Samek-Lodovici (2006) (henceforth F&SL) for so-called *Superman* sentences, that is, a type of nested foci which constitute an exception to rightmost stress. Finally, we propose that our analysis extends to corrective cleft-sentences, which in our view constitute an instance of free second occurrence focus. The paper is organized as follows. Section 2 presents the French in 2.1 as well as the NS data and Zerbian's syntax-information structure interface account in 2.2. Section 3 is dedicated to our prosodic account of French cleft-sentences: section 3.1 concentrates on non-contrastive cleft-sentences and section 3.2 on two types of contrastive clefts. Section 4 concludes the paper.

## 2. Subject/non-subject asymmetry in French and Northern Sotho's information focusing

### 2.1. French subject focusing

In their L2 acquisition experimental study, Belletti & Leonini (2004) (henceforth B&L) observe that non-advanced French L2 speakers of Italian produce cleft-sentences with a very high percentage in contexts where the Italian verb-subject order is expected that is, in focusing subject contexts. This is illustrated in the following data (B&L 2004: 111).

- (1) A: Chi ha portato questi fiori?  
 'Who brought these flowers?'  
 B: ha portato i fiori una donna. (L1 speaker)  
 has brought the flowers a woman  
 C: E' una donna che ha portato i fiori. (L2 speaker )  
 is a woman who has brought the flowers  
 'It is a woman who has brought the flowers.'

As observed by B&L, the French learners of Italian investigated in their study tend to

transfer the strategy of their L1 to their L2 and consequently, to produce a cleft-sentence in a context where Italian speakers would produce a verb-subject inversion. Lambrecht (2001:491) also acknowledges the fact that French is similar to Spanish and differs from languages such as English and German in that the focus is banned from the preverbal position. Indeed, for many French speakers, the most common way to answer a question such as the one in example (2A) is by means of cleft-sentence (2B)<sup>1</sup>. However, in object and adjunct focusing, canonical sentences are preferred to their cleft-sentence counterpart. This is illustrated in the subsequent examples.

- (2) A: Qui est-ce qui mange un biscuit?  
 who is-it that eats a cookie  
 ‘Who is eating a cookie?’  
 B: C’est Thomas qui mange un biscuit.  
 it-is Thomas that eats a cookie  
 ‘It is Thomas that is eating a cookie.’
- (3) A: Qu’est-ce qu’il mange?  
 what is-it that he eats  
 ‘What is he eating?’  
 B: # C’est un biscuit qu’il mange.  
 is-it a cookie that he eats  
 ‘It is a cookie that he is eating.’  
 B’: Il mange un biscuit.  
 he eats a cookie  
 ‘He is eating a cookie.’
- (4) A: A qui est-ce qu’il parle?  
 ‘Whom is he talking to?’  
 B: # C’est à Marie qu’il parle.  
 ‘It is Mary that he is talking to.’  
 B’: Il parle à Marie.  
 ‘He is talking to Mary.’
- (5) A: Où est-ce qu’il va?  
 ‘Where is he going?’  
 B: # C’est à la maison qu’il va.  
 ‘It is at home that he is going.’  
 B’: Il va à la maison.  
 ‘He is going home.’

The label ‘cleft-sentence’ refers to the sentences from (2B) to (5B), bi-clausal structures divided into a matrix clause (TP) and a relative-like clause (CP). In a context such as the one provided in (2A), the relative clause in (2B) can simply be omitted, yielding what is usually referred to as a ‘reduced’ cleft-sentence.

There is a vast literature on cleft-sentences, as they have long been an object of interest. From a syntactic perspective, we assume the analysis proposed for French cleft-sentences by Clech-Darbon, Rebuschi & Rialland (1999) (henceforth CR&R). The syntactic structure they propose appears in (6) below.

(6) [IP [IP C'est<sub>i</sub> [VP t<sub>i</sub> [DP Ella]]] [CP Op<sub>j</sub> [C' qui [IP t<sub>j</sub> a mangé [DP un biscuit]]]]

Their approach challenges Lambrecht's (2001:466 and references therein) constructional view of cleft-sentences, in arguing that they are the simple "amalgamation of independently occurring types of identificational sentences and relative clauses", namely that there is nothing in their semantic and syntactic properties that "cannot, or not entirely, be accounted for in terms of other properties of the grammar of a language or universal grammar and which therefore require independent explanation". In their view, the matrix clause is a typical identificational TP, whose specifier is occupied by the demonstrative pronoun *c'*. Their analysis is "maximally simple" in that there is no movement other than that of an abstract relative operator within the relative-like clause. The functional category heading the relative-like CP is *qui* when the clefted constituent, that is, the complement of the copula, is the logical subject of the verb within the CP and *que* in all the other cases. As acknowledged by CR&R, French admits no explicit relative pronoun as head of this CP. This is illustrated in the following examples, in which the presence of an explicit relative marker forces to interpret the sentences as presentational sentences involving a genuine restrictive relative clause and discard the cleft-sentence reading.

- (7) C'est la maison dans laquelle j'ai dormi.  
 It-is the house in the-which I-have slept  
 'This is the house in which I slept.'
- (8) C'est la fille à qui j'ai confié Fido.  
 It-is the girl to whom I-have entrusted Fido  
 'This is the girl to whom I entrusted Fido.'

In their analysis, they treat the functional category heading the CP in cleft-sentences as a complementizer (Comp) and assume that an abstract relative pronoun covertly moves from an argument/adjunct position to Spec,CP. Although we agree with their analysis, we depart from it in the following respect: we adopt the view advocated by Taraldsen (2002) that, in Standard French, the form *qui* which emerges in so-called cases of 'subject-extraction' is actually an amalgamation of the Comp *que* and an expletive subject pronoun *-i*. In some dialects of French, a subject pronoun explicitly occurs in this position. This is illustrated in the following example from a song by Loïc Lantoine<sup>2</sup>:

- (9) C'est nous qu' on s'ra les P.D.G.  
 It-is us that we will-be the C.E.O  
 'It's us that will be CEOs.'

Another argument comes from the fact that the frequent omission of the last segment of the expletive pronoun *il* has lead some speakers to re-analyse the string *qu'il* (Comp + expletive) into *qui*. This is illustrated in the subsequent example<sup>3</sup>:

- (10) (..) qui disent bien tout ce **qui** faut faire.  
 who say well all dem que + il is necessary to do

In other words, we take the view that the subject position within the relative-like clause of a ‘subject’ cleft-sentence is not empty but overtly filled by an expletive *-i*, which attaches to the Comp *que* and yields the form *qui*.

To sum up: In the context provided by subject constituent questions of the type *qui/qu’ est-ce qui*, the most common way to answer in French is by means of a cleft-sentence, whereas in non-subject questions of the same wh-word + *est-ce que* type, cleft-sentences are inappropriate and canonical sentences preferred. We now turn to another language which exhibits the same behaviour with respect to answering constituent questions.

## 2.2. Northern Sotho

The subject/non-subject asymmetry observed in French has been observed in other languages and more particularly in some Bantu languages<sup>4</sup>. Northern Sotho (henceforth NS), a SVO language spoken in South Africa, is among them. In her study of this language, Zerbian (2006, 2007) describes at length the contexts in which cleft-sentences are either the only or among the least marked alternative(s) in some discourse contexts. For reasons of lack of space and time, we will only concentrate on informational focus in the present work, and we leave the other areas mentioned by this author for future research.

There are several ways to question subjects in NS, however the one described by Zerbian as the most common is by means of a cleft-sentence<sup>5</sup>. Alternative structures are described as pragmatically more marked.

- (11) A: Ké mang a-nyaka-ng ngaka?  
 COP who CL1-look.for-REL CL9-doctor  
 ‘Who is looking for the doctor?’  
 B: Ké mo-kglabje a-nyaka-ng ngaka.  
 COP CL1-old.man CL1-look.for-REL CL9-doctor  
 ‘It is the old man who is looking for the doctor.’

The syntactic structure assumed in Zerbian (2006) for a sentence such as the one in (11A) or (11B) follows:

- (12) [<sub>CP</sub> Ke mang<sub>i</sub> [<sub>IP</sub> t<sub>i</sub> a-nyaka-ng ngaka]]

In NS, the cleft-sentence is characterized by the presence of the copula *ké*, which appears right before the subject. A relative affix, *-ng*, is attached to the final vowel of the verb and there is a change in the verbal morphology, as the subject marker *a* is used instead of the class marker *o*. The syntactic analysis adopted by Zerbian for NS is different in several respects from the one assumed for French and illustrated in (6). The structure in (12) is a mono-clausal structure in which the clefted constituent, here the

wh-word *mang* - considered as inherently focused - is assumed to move from its argument position within IP to a higher (specifier?) position in the CP domain.

Contrary to subjects, objects and adjuncts are both questioned and focused in-situ, as illustrated in the following question-answer pairs.

- (13) A: Mokgalabje ó-nyaka mang?  
 CL1-old.man 3rd.CL1-look.for who  
 ‘Who is the old man looking for?’  
 B: Mokgalabje ó-nyaka ngaka.  
 CL1-old.man 3rd.CL1-look.for CL9-doctor  
 ‘The old man is looking for the doctor.’
- (14) A: Mokgalabje ó-jwala mo-hlare neng?  
 CL1-old.man 3rd.CL1-plant CL3-tree when  
 ‘When is the old man planting a tree?’  
 B: Mokgalabje ó-jwala mo-hlare lehono.  
 CL1-old.man 3rd.CL1-plant CL3-tree today  
 ‘The old man is planting a tree today.’

NS’s asymmetry in subject/non-subject focusing has traditionally been accounted for by the claim that in this language the subject position is a topic position and, as a consequence non-topical elements cannot surface there. Zerbian’s (2007) (and references therein) optimal theoretic account is in the same line as traditional analyses. The hierarchical ranking of constraints proposed by this author is the following:

- (15) Northern Sotho: SUBJECT = TOPIC >> SUBJECT >> STAY >> FOC-SPEC >> \*STR

As mentioned above, NS’s canonical order is Subject-Verb-Object. As in English or French, the subject is assumed to move from a position inside VP to the specifier of a I-related head. This movement is taken to indicate that in this language the constraint Subject outranks the constraint Stay. Both constraints appear below.

- (16) SUBJECT: Sentences have overt subjects in SpecIP.

- (17) STAY: Don’t move constituents.

The constraint SUBJECT (Grimshaw 1997), also referred to as EPP (‘Clauses have an overt subject’), corresponds to Chomsky’s (1982) Extended Projection Principle. There are (at least) two trends with respect to the evaluation of this constraint. On the one hand, Zerbian (2007, and references therein) considers that SUBJECT is violated whenever the logical subject is not located in the subject position. For instance, the following example displaying an impersonal construction violates this constraint.

- (18) a. Go-fihla ba-eti. (from Zerbian 2006)  
 CL17-arrive CL2-guest  
 ‘There are guests arriving’

On the other hand, in Samek-Lodovici (2005) this constraint is violated whenever the ‘highest A-specifier -- or the specifier of I-related heads such as T<sup>o</sup>, Agr<sup>o</sup>, Neg<sup>o</sup>-- is not overtly filled’. Our own proposal (section 3) is in the same line as the latter approach, in

considering that impersonal constructions displaying an expletive in the preverbal subject position satisfy SUBJECT/EPP. As for the constraint STAY in (17), it has the effect of favouring absence of movement over movement and is violated by every trace (or copy) present in the derivation.

In order to account for the fact that a cleft-sentence is preferred to its canonical counterpart in subject focusing contexts, Zerbian proposes that the following interface constraint ranks above all the other constraints in NS:

(19) SUBJECT = TOPIC: The grammatical subject of the sentence must not be F-marked.

The interface constraint SUBJECT = TOPIC is violated whenever the subject position hosts a focused constituent. This constraint is reminiscent of Zerbian's (2006) constraint \*SUBJ/F-MARKED, and revolves around the notion of harmony. The view advocated in Zerbian (2006) is slightly different from the one defended in Zerbian (2007). \*SUBJ/F-MARKED was aimed at capturing the generalization that subjects do not have to be topics in order to appear in the preverbal subject position, but they have to be non-focused. The two constraints are equivalent, and they are derived through the harmonic alignment of two scales: the grammatical function scale (Subject > Non-subject) and the focus scale (Non-Focus-marked > Focus-marked). The idea is that the subject position attracts non-F-marked constituents over F-marked ones: the presence of a narrowly focused subject in the preverbal position is therefore "unharmonic" and the constraint \*SUBJ/F-MARKED is violated whenever this configuration occurs. The fact that in NS focused subjects never appear in the preverbal position leads Zerbian to conclude that SUBJECT = TOPIC outranks SUBJECT and STAY.

All else being equal, the constraint \*STRUCTURE (\*STR) favours less complex structures over more complex ones in terms of functional layers. Every additional functional layer incurs one violation of this constraint. The fact that cleft-sentences emerge in NS is taken to indicate that the constraint in (20) is not high-ranked in this language.

(20) \*STRUCTURE: Avoid structure.

Finally, the interplay of STAY with FOC-SPEC in (21) ensures that, in NS, object and adjuncts are focused in-situ.

(21) FOC-SPEC: Focused constituents must be in a specifier position.

Zerbian's FOC-SPEC is also an interface constraint. It maps an information structure category, namely focus, with a position in the syntactic structure. FOC-SPEC is parallel to the constraint OP-SPEC (Grimshaw 1997), which requires that operators such as wh-words be in a specifier position. This is the case in languages such as German and English, in which obligatory wh-movement in wh-questions can be accounted for by the

high-ranking of such a constraint. As *wh*-structure and focus-structure exhibit the same behaviour in NS, Zerbian proposes a reformulation of OP-SPEC into FOC-SPEC. This constraint is violated whenever a focused constituent is not located in a specifier position, as is the case in object and adjunct focusing in NS. Zerbian derives the in-situ focusing of these constituents through the ranking of STAY above FOC-SPEC.

To sum up, French and NS seem to share the same subject/non-subject asymmetry in the use of cleft-sentences in answers to constituent questions. As was illustrated above, in NS this asymmetry has been tied to the relation between syntax and information structure. This analysis is reminiscent of the one suggested by Lambrecht (2001:492) for French: “(...) *the relevant constraint operates at the level of the mapping of syntax and information structure, prohibiting the occurrence of focus elements in preverbal subject position*”. In the following subsection, we propose an alternative approach to the subject/non-subject asymmetry observed in informational focusing contexts, where the observed pattern is a consequence of the interaction of prosodic and syntactic constraints and relates the French data to what has been observed in English and Italian subject focusing.

### **3. A prosodic approach to French informational and contrastive focus**

#### *3.1. Towards an analysis of the French subject/non-subject asymmetry*

##### *3.1.1. Italian and English subject focusing*

We adopt an alternative path and propose an account of French in the spirit of the analyses which have recently been proposed for Italian and English subject focusing within OT (a.o. Szendrői 2001; Samek-Lodovici 2005). Contrary to the approaches previously cited, in which discourse influences syntax, in the present account the asymmetry is derived through the interplay of prosodic and syntactic constraints. Our account is based on the claim that, contrary to what has long been assumed, pitch accent is not the main correlate of focus but main stress is (a.o. Féry & Samek-Lodovici 2004, Samek-Lodovici 2005, Büring 2008). Although pitch accents are not banned from the preverbal subject position in French, we argue that leftmost main stress has a marked status in French and is avoided whenever another structure is available in the language that satisfies the same syntactic, semantic and discursive requirements and at the same time enables satisfying Hi.

Before going through the details of our own analysis, we will briefly outline Samek-Lodovici's (henceforth SL) analysis of English and Italian focusing. Italian and English are both SVO head-initial languages and have in common that they are rightward oriented with respect to main stress: in the neutral case (all-focus sentences) the main prosodic prominence is aligned with the right-edge of the clause. This is illustrated in the subsequent examples, where capitals indicate the position of main stress.

- (22) A: What happened?  
B: A woman brought the FLOWERS.  
B': Una donna ha portato i FIORI.  
'A woman has brought the flowers.'

Within the OT approach proposed by SL, the link between prosodic prominence and focus has been implemented under the form of the STRESS-FOCUS constraint.

(23) STRESS-FOCUS (SF): A focused phrase has the highest prosodic prominence in its focus domain.

STRESS-FOCUS ensures that no candidate can emerge that assigns more prominence to a non-focused item than to a focused one.

In English and Italian, phonological constraints push the main stress towards the right-edge of the clause.

(24) HP: Align the right boundary of every P-phrase with its head(s).

(25) HI: Align the right boundary of every I-phrase with its head(s).

HP and HI, adapted from McCarthy & Prince (1993) and Truckenbrodt (1995, 1999) (see SL 2005 and references therein), require that prosodic heads (phrasal stress) be aligned with the right boundary of the corresponding phonological and intonation phrases (Selkirk's 1984 prosodic hierarchy: prosodic word < phonological phrase ( $\phi$ /P) < intonation phrase (I) < utterance phrase (U)), where phonological phrases correspond to lexical XPs (NPs, VP and APs) with the functional items on their recursive side, and intonation phrases to syntactic clauses.

What's crucial is that in the languages considered here, the subject position does not match the position where main stress is neutrally assigned. The fact that focused items must bear the highest prosodic prominence in their domain makes subject focusing in languages such as Italian and English an area of the grammar where the respective demands of prosody and syntax clash: on the one hand, prosody requires from the main stress of the clause to be aligned with its right-edge, and on the other hand, syntax requires that the preverbal subject position be filled. English and Italian both show their own strategy in order to solve this conflict. English favours syntax over prosody in keeping the canonical SVO order and shifting the main stress to the subject. This is illustrated in the following example.

- (26) A: Who bought a cake?  
 B: JOHN bought a cake.  
 B': JOHN did.

Italian adopts the reverse strategy in favouring prosody over syntax: main stress keeps its rightward position while the subject occupies a position located at the right-edge of the sentence, as illustrated in example (1) and repeated below for convenience.

- (27) A: Chi ha portato questi fiori?  
 'Who brought these flowers?'  
 B: Ha portato i fiori una DONNA.  
 has brought the flowers a woman

In other words, when the respective requirements of syntax and prosody clash, syntax gets the upper hand in English that is, the canonical SVO order is preserved, whereas in Italian prosody does and the canonical SVO order is simply discarded.

In his extensive study of different focusing paradigms, SL proposes that the following hierarchical rankings of constraints are responsible for the above facts:

- (28) English: SF >> EPP >> STAY >> HP >> HI  
 (29) Italian: SF >> HI >> HP >> EPP >> STAY

In both languages, SF is the highest-ranked constraint. In English, the hierarchical ranking of the syntactic constraints EPP and STAY above the prosodic constraints HP and HI allows for the emergence of a candidate such as (26B), in which the main prominence is not aligned with the right-edge of the clause. The reversed ranking of these constraints, in Italian, is responsible for the emergence of the candidate (27B), in which the subject position is empty.

### 3.1.2. French subject focusing

Let now finally turn to our French subject/non-subject asymmetry. French is similar to Italian and English in that it is a SVO language whose main stress is neutrally assigned to the right-edge of the clause. As illustrated below, in all-focus sentences, main stress falls on the rightmost item.

- (30) A: What happened?  
 B': Une femme a apporté des FLEURS.  
 a woman has brought some flowers  
 'A woman brought flowers.'

Our proposal is that the asymmetry described in section 2.1 follows from the subsequent hierarchical ranking of constraints (we leave the ranking of HP open for further research):

- (31) French: SF >> EPP,HI >> \*STR

As in English, Italian and NS, we take the French SVO canonical order to indicate that

EPP is ranked above STAY in this language. However, as was mentioned in section 2.1 and contrary to Zerbian’s syntactic assumptions about cleft-sentences in NS, the analysis adopted for French cleft-sentences does not involve a movement of the focused constituent. As a consequence, the constraint STAY is not crucial in order to account for the distribution of cleft-sentences in information focusing contexts. We propose that the preference for cleft-sentences over canonical sentences in subject focusing follows from the interplay of the four constraints SF, EPP, HI and \*STR.

The constraint SF outranks all the other constraints, as no candidate can emerge in French which assigns more prosodic prominence to a non-focused constituent than to a focused one. The crucial constraints here are the syntactic EPP constraint and the prosodic HI constraint. We have seen that the ranking of EPP above HI is responsible for the leftmost stress displayed in English subject focusing, whereas the ranking of HI above EPP is responsible for the empty subject position and the final subject configuration witnessed in Italian. These two languages favour one constraint over the other and are in this respect different from French, which resorts to a configuration, namely a cleft-sentence, that satisfies both EPP and HI, to the prejudice of \*STR.

The proposed ranking for French subject focusing is illustrated in the tableau 1 in (32). Candidate *a*, the winning candidate, is a cleft-sentence. From a syntactic perspective, this candidate contains more layers than candidates *b* to *d* and therefore fares worse on the constraint \*STR.

(32) Tableau 1: Subject focusing in French

	Context: Who is eating a cookie?	SF	EPP	HI	*STR
☞ a.	[ <sub>IP</sub> [ <sub>IP</sub> c’[ <sub>I</sub> est MONA]] [ <sub>CP</sub> qu [ <sub>IP</sub> -i mange un biscuit]]] [ <sub>U</sub> [ <sub>I</sub> { <sub>φ</sub> C’est MONA} } [ <sub>I</sub> { <sub>φ</sub> qui mange un biscuit}]]]				*
b.	[ <sub>IP</sub> MONA [ <sub>I</sub> mange un biscuit]] [ <sub>U</sub> [ <sub>I</sub> { <sub>φ</sub> MONA} } { <sub>φ</sub> mange un BISCUIT}]]]	* !			
c.	[ <sub>IP</sub> MONA [ <sub>I</sub> mange un biscuit]] [ <sub>U</sub> [ <sub>I</sub> { <sub>φ</sub> MONA} } { <sub>φ</sub> mange un biscuit}]]]			* !	
d.	[ <sub>IP</sub> [ <sub>I</sub> mange un biscuit MONA]] [ <sub>U</sub> [ <sub>I</sub> { <sub>φ</sub> mange un biscuit} } { <sub>φ</sub> MONA}]]]		* !		

Candidate *a*, as candidates *c* and *d*, however satisfies SF, as the most prominent item within a cleft-sentence is notoriously the clefted constituent.

From a prosodic perspective, we have represented the cleft-sentence as split into two intonation phrases, one encompassing the identificational TP and the other the relative-like clause. In other words, in the type of cleft-sentences investigated in this work, each clause is wrapped within a separate intonation phrase. In the prosodic structure offered in tableau 3, the focused item, which is here the head of the intonation phrase, is aligned with the right-edge of this prosodic constituent, thus satisfying HI. The phono-

logical structure proposed here is easily derivable from the syntactic structure proposed by CR&R by applying standard syntax-phonology mapping rules (Nespor & Vogel 1986). This structure is supported by their acoustic data and consistent with their observations. The former authors give the following ‘classical’ pattern of the type of cleft-sentences considered in this section that is, declarative subject-narrow-focus cleft-sentences:

- (33) [C'est Jean-Pierre] [qui est sorti]  
           |      |                  |      |  
           H     L%                  L     L%
- ‘It’s J.-P. who’s gone out.’

The tones are only noted on the secondary (*Jean* and *est*) and the main (*Pierre* and *sorti*) stressed positions. The relative clause is characterized by a flat intonation. They observe that a terminal low boundary tone (L%) is present once at the end of the focused phrase and again at the end of the relative-like clause. They further note that this “duplication of what is otherwise identified as typical ‘terminal intonation’ may also involve other features typical of the end of utterances, such as final lengthening”. We take this as evidence for the presence of two separate intonation phrases.

The fact that French is not a null subject language also seems to point towards the relatively high ranking of EPP. As mentioned above, EPP is only violated when the subject position is not overtly filled. This is not the case in the matrix clause of cleft-sentences in French, as the demonstrative pronoun *c’*, be it expletive or not, occupies this position. EPP is also satisfied in the relative clause, as the Comp *qui* simultaneously heads CP and fills the subject position. In tableau 1, only candidate *d*, the counterpart of the Italian verb-subject inversion, violates EPP, which constitutes a fatal violation and leads to the elimination of this candidate. The cleft-sentence alone does not allow determining whether HI dominates EPP in French or whether it is EPP that dominates HI, as this construction enables satisfying both constraints. For the time being, we propose that neither constraint dominates the other in French. As for Italian and English, we propose that the ranking of \*STR above EPP and HI prevents the cleft-sentence candidate from emerging in (non-contrastive) subject focusing contexts in these languages.

The proposed ranking of constraints also enables to account for the non-emergence of cleft-sentences in object and adjunct focusing. Objects and adjuncts are distinct from subjects in that their canonical position is closer to the right-edge of the clause. As shown in the following tableau, \*STR prevents the cleft-sentence from emerging when the canonical sentence satisfies SF and HI.

(34) Tableau 2: object focusing in French

		Context: What is Mona eating?	SF	EPP	HI	*STR
☞	a.	[ <sub>IP</sub> Mona [ <sub>I</sub> mange un biscuit]] [ <sub>I</sub> { <sub>φ</sub> Mona } { <sub>φ</sub> mange un BISCUIT }]				
	b.	[ <sub>IP</sub> [ <sub>IP</sub> c' [ <sub>I</sub> est un biscuit] [ <sub>CP</sub> que [ <sub>IP</sub> Mona mange]]] [ <sub>I</sub> { <sub>φ</sub> C'est un BISCUIT }] [ <sub>I</sub> { <sub>φ</sub> que Mona mange }]				* !

What about the ranking of STAY? In his study, SL uses object focusing in bi-transitive constructions in order to determine whether STAY dominates HI or whether HI dominates STAY. In French bi-transitive constructions, the canonical order is S-V-DO-IO. However, French also resorts to heavy NP-shift when necessary, therefore the ordering of the object with respect to the indirect object can be flexible in French. In our investigation of the preferred strategy in order to put narrow focus on the object in a context such as the one provided below in (35A), we could obtain no categorical judgment from the French speakers investigated. Based on the following type of “marginally acceptable” (35B), in which the direct object is stranded in clause final position, SL concludes that French is similar to Italian in ranking HI above STAY.

- (35) A: Qu' est-ce qu' tu vends à Mona?  
 what is-it that you sell to Mona  
 ‘What are you selling to Mona?’  
 B: Je vends à Mona un LIVRE.  
 ‘I’m selling to Mona a book.’  
 C: Je vends un LIVRE à Mona.  
 ‘I’m selling a book to Mona.’

French shares with NS the possibility of leaving wh-phrases in-situ in wh-questions. Therefore, (36) below constitutes a perfectly well-formed alternative to (35A).

- (36) Tu vends quoi à Mona?  
 You sell what to Mona  
 ‘What are you selling to Mona?’

(36) however does not allow to conclude that French is similar to English in that the main stress can simply shift from the indirect object to the in-situ direct object, as (36) is preferably interpreted as involving a multiple focus: one on the wh-phrase and the other on the indirect object. It is worth noting that the interrogative counterpart to (35B) is undoubtedly ungrammatical.

- (37) \* Tu vends à Mona quoi?  
 you sell to Mona what  
 ‘What are you selling to Mona?’

For the time being, and as it is not crucial in the account of the subject/non-subject asymmetry in the distribution of cleft-sentences, we leave the issue of STAY’s ranking open for further research.

### 3.1.3. Summary and discussion

In sum, we have proposed that cleft-sentences satisfy SF, EPP and HI in that they simultaneously assign the highest prominence to the focused item, they permit to align this main stress with the right-edge of an intonation phrase and their two subject positions are overtly filled. They fare worse than canonical sentences on \*STR, but this violation is only fatal in non-subject focusing due to the low ranking of this constraint in the language. Cleft-sentences have long been associated with the notion of extraction of the focused item and as a consequence with movement. We have departed from this view in claiming that the constraint STAY is not crucial in an account of the competition between canonical sentences and clefts. How to prevent cleft-sentences from emerging in English and Italian subject focusing? The ranking of \*STR is crucial here: we propose that this constraint is ranked above HI and EPP in these languages.

Our account captures Jespersen's (1937) view that cleft-sentences can be considered one of the ways "by which the disadvantages of having a comparatively rigid grammatical word-order (SVO) can be obviated" and Lambrecht's (2001:488) principle 1, stating that "the occurrence of cleft constructions in a language correlates with the degree of positional freedom of prosodic accents and syntactic constituents in that language". In addition to that, we hope to have shown that the prosodic prominence of the clefted constituent directly follows from the grammar and is perfectly consistent with the phonology of the language. From a theoretical perspective, our account crucially reduces the number of constraints used in order to account for the phenomenon under investigation, as we have postulated no extra (interface) constraint. Does our account extend to NS? One of Zerbian's (2005, 2006) main claims is that there is no prosodic expression of focus in Northern Sotho and that this language more generally lacks grammatical focus marking. From a prosodic perspective, Northern Sotho is distinct from French, English and Italian, as it is a tone language. However, as shown by Zerbian (2006, Chapter 3), it also has accentual properties of the type observed in the above cited European languages and several phonetic cues speak in favour of rightmost prominence in this language. Zerbian (2005) admits that "phono-syntactic processes like deletion, morphosyntactic operations like pronominalization, and syntactic movement like dislocation and inversion conspire in order to place the focused constituent in clause-final position". In our view, these facts added to the striking resemblance with French speak in favour of a reconsideration of the null-hypothesis, that is, that Northern Sotho has some means of grammatical (prosodic?) focus marking.

### 3.2. French contrastive cleft-sentences

#### 3.2.1. Non-corrective contrastive cleft-sentences

In section 3.1, we have provided an account to the preference for cleft-sentences over canonical sentences in the type of information focusing context set by a *wh*-question. We have concluded that this preference follows from the ranking in (31). The proposed ranking predicts that adjunct and object cleft-sentences do not surface as optimal candidates in information focusing contexts, but we now have to account for the fact that they do surface, along with subject cleft-sentences, in contrastive contexts. This is the case in the following examples:

- (38) A: ‘Why do you suspect me?’  
B: C'est vos EMPREINTES qu' on a trouvées sur le coffre.  
It-is your fingerprints that we have found on the safe  
‘It is your fingerprints that they found on the safe.’
- (39) A: Things have changed at the Miller family (Adapted from Umbach 2004)  
B: (Ce soir) c'est RONALD qui est allé faire les courses  
This evening it-is Ronald that is gone do the grocery

The above cleft-sentences are so-called « informative-presupposition it-clefts » in Prince's (1978) terminology. They are characterized by (i) the exhaustive identification (contrastiveness) of the clefted constituent, (ii) by the non-given status of the (presupposed) relative-clause and (iii) the obligatory presence of a prosodic accent on the relative clause (Lambrecht 2001: 483). In Umbach's (2004:164) terminology, the above examples are cases “which come close to a correction, although the proposition to be corrected is not expressed explicitly”. What is noticeable is that the informative status of the relative clause does not prevent main stress from being assigned to the clefted constituent. This is reminiscent of so-called Superman-sentences in example (42) (Neeleman & Szendrői 2004, F&SL 2006). Superman sentences are cases of nested foci. They are among the sentences displaying the configuration in (40), where “SF requires both foci to bear the highest prosodic prominence and can be satisfied by assigning local prominence to the innermost focus”.

- (40) [ ... [XP]<sub>f</sub> ... YP]<sub>f</sub>

This configuration is illustrated in the following example:

- (41) Father: What happened?  
Mother: You know how I think our children should read decent books.  
Well, when I came home, rather than doing his homework, Johnny was reading SUPERMAN to some kid.
- (42) [Johnny [was reading SUPERMAN<sub>f3</sub> to some kid]<sub>f2</sub>]<sub>f1</sub>

The above example contains three foci: the entire sentence (f1) is a new information fo-

cus, as it is part of the answer to the father's question, *reading superman to some kid* (f2) is contrastively focused against *doing his homework* and finally, *Superman* (f3) is contrastively focused against *decent books*, « and appears to take the entire VP as its focus domain. As mentioned in (23), SF requires that a focused constituent be most prominent in its focus domain. F&SL adopt Truckenbrodt's (1995) definition of focus domain, which makes SF sensitive to the extension of the focus domain: “the focus domain always contains the focused phrase and identifies the background information relevant to the semantic denotation of focus; it is thus defined in semantic terms and does not necessarily coincide with a single prosodic constituent”.

In the cleft-sentences in section 2, the focus was constituted of one constituent (for instance *Thomas* in example (2B)) and the focus domain of the entire sentence. However, as the relative clause was given, and typically deaccented (and easily omitted), we could have easily accounted for the non-rightmost stress at the Utterance level by resorting to the constraint DESTRESSGIVEN (F&SL and references therein).

(43) DESTRESSGIVEN: A given phrase is prosodically non-prominent.

The Superman sentence in (42) and the examples in (38) and (39) have in common that the non-rightmost stress cannot be explained through the given status of the items separating the main stress from the right-edge of the sentence. F&SL propose that the ranking of SF above HI correctly predicts the non-rightmost stress in example (42). Placing main stress on *Superman* is the only way to simultaneously satisfy SF with respect to f1, f2 and f3. The rightmost position of main stress that would follow from the ranking of HI above SF would satisfy SF with respect to f1 and f2, but would fail SF with respect to f3. The ranking of SF above HI is not sufficient in order to account for the clefting strategy adopted in French in such cases of contrastive foci. The requirement that main stress be aligned with the right-edge of an intonation phrase appears stronger in French. HI is satisfied in the examples (38) and (39), as the right boundary of each I-phrase is aligned with its head. We propose that these data can be accounted for by the ranking of SF above HEAD-U (Samek-Lodovici 2005).

(44) HEAD-U (HU): Align the right-boundary of every utterance phrase with its head. Example (42) only involves a single intonation phrase and as a consequence the head of this phrase is also the head of the utterance phrase (U). This is not the case in the above cleft-sentences, which involve two separate intonation phrases and require that the utterance level be considered separately.

We propose that the pattern observed in contrastive cleft-sentences follows from the following constraint ranking: SF<sub>Constrast</sub> >> SF<sub>New</sub> >> HI(, EPP) >> HU >> \*STR

For more accuracy, we distinguish between SF<sub>Constrast</sub> (SF<sub>C</sub>) and SF<sub>New</sub> (SF<sub>N</sub>) (F&SL). In-



well as HU), because the right boundary of the intonation phrase (as well as the utterance phrase) is misaligned relative to the head on *vos empreintes*. Finally, candidate *e* is an equivalent to the English example in (42), only it involves two foci instead of three. In French, this candidate is the optimal candidate under a discourse-given reading of *sur le coffre*. However, under the investigated reading, this candidate fatally violates HI and HU.

In sum, the cleft-sentences from (38) and (39) exhibit a contrastively focused item in clefted position and a discourse-novel relative clause which (i) cannot be omitted and (ii) is accented although it does not receive main stress. Another way to look at these so-called cases of “informative-presupposition” cleft-sentences is, as we have proposed, that they constitute cases of nested foci reminiscent of so-called *Superman* sentences, as the pattern [C'est [XP]<sub>f</sub> qui YP]<sub>f</sub> is similar to the configuration in (40). We have maintained that in French, the conflict observed in English between SF and HI is transposed into a SF and HU conflict.

### 3.2.2. Corrective contrastive cleft-sentences

Finally, we would like to turn to corrective contrastive cleft-sentences. In Umbach's (2004) terminology, the following examples are cases of “exclusion by substitution”: the clefted constituent aims at correcting a previously mistaken belief.

- (46) A: ‘Mona is eating a plum.’  
 B: Enfin, c'est Daniel qui mange une prune.  
 ‘Well, it's Daniel who is eating a plum.’
- (47) A: ‘He is eating a plum.’  
 B: Non, c'est un biscuit qu' il mange.  
 ‘No, it's a cookie that he is eating.’
- (48) A: ‘He is talking to Mary.’  
 B: Enfin, c'est à Mona qu' il parle.  
 ‘Well, it's to Mona that he is talking.’
- (49) A: ‘He is going home.’  
 B: Non, c'est à l' école qu' il va.  
 ‘No, it's to school that he is going.’

What is noticeable is that although the relative clause is discourse-given, speakers have the strong intuition that it generally needs to be produced in corrective contrastive contexts. In our view, this is not surprising considering that corrective contexts are distinct from wh-questions contexts in that no gap is waiting for an item/value to fill it. The expression of the relative clause is necessary in order to understand which value is corrected / replaced, in other words which gap is filled. There seems to be a requirement on the spelling-out of the predicate that holds for the (correct) focused item. The overall

sentence itself unexpectedly replaces an all-focus sentence expressing a mistaken belief. Although this needs more investigation, we would like to propose that in corrective contrastive contexts the overall cleft-sentence is a case of free second occurrence focus (Büring 2008) embedding a contrastive focus in the clefted position. If this is correct, the analysis proposed above for informative-presupposition cleft-sentences would extend to this type of cleft-sentences as well.

#### 4. Conclusion

The data from both Northern Sotho (Zerbian 2006) and French suggest that the distribution of cleft-sentences does not only follow from the exhaustivity of the focused item. We have claimed that in French constituent questions contexts, subject clefts aim at satisfying STRESS-FOCUS in a way that satisfies both HI and EPP: a constituent which is otherwise leftmost (preverbal) occurs in a position which is aligned with the right-edge of an intonation phrase and the preverbal subject position is overtly filled by a pronoun. We have proposed to view non-subject clefts (as well as subject clefts) in [-corrective] contrastive contexts (so-called “informative-presupposition” cleft-sentences) as cases of nested foci reminiscent of so-called *Superman* sentences and we have provided an analysis in the same line as the one offered by Féry & Samek-Lodovici (2006) except that the SF/HI conflict witnessed in English is transposed in French into a SF/HU conflict. Finally, we have proposed to extend this analysis to [+corrective] contrastive cleft-sentences and suggested that in corrective contexts, the entire cleft-sentence constitutes an instance of free second occurrence focus.

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<sup>1</sup>Some French speakers seem to accept in-situ subject focusing (J.M. Marandin, *p.c.*). Do they have a different French grammar than the one accounted for here, or is it that what seems to be in-situ focusing is in fact right dislocation of the elements following the subject? We leave this open for future research.

<sup>2</sup>« Quand les cigares » in *Tout est calme*, 2006, U10

<sup>3</sup>« Les contes du grime » in *Libération*, 09/27/2008.

<sup>4</sup>I would like to thank Prof. Manfred Krifka for drawing my attention to this fact.

<sup>5</sup>It is worth noting that questioning a subject by means of a cleft-sentence is not as common in

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French as in NS. Cleft subject wh-questions are grammatical and productive, however they are highly stigmatized by prescriptive grammars and as a consequence children are often corrected when they produce such sentences.

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# Topic-focus and focus-topic: the first and foremost motivation of Ancient Greek word order

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## Abstract

D. Matic' (2003) has suggested that Ancient Greek (AG) word order is motivated by pragmatic construal: argument-focus and predicate-focus sentences are determined by two different word order patterns. Contrary to this, I aim to show that AG word order is completely indifferent to such a syntax-based classification of pragmatic construal, being by no means affected by whether focus is represented by a VP or an NP, or whether topic is an NP or a VP. I argue that all AG sentences show a topic-focus dichotomy at any syntactic level, and that such a dichotomy can have two configurations: there exists a functional contrast between topic-focus and focus-topic order, which is iconically motivated by the prominence given by the speaker to either topic or focus.

**Keywords:** Ancient Greek, word order, topic-focus, focus-topic.

## 1. Introduction

In the most recent study on the topic,<sup>1</sup> Matic' (2003) argues that Ancient Greek (AG) word order can be accounted for by the distinction between argument-focus and predicate-focus construal. Look at models (1) and (2):

Matic's Major Model<sup>2</sup>:

- (1) AG sentences with narrow focus:

ECTop – FSTop<sub>1-n</sub> – Narrow Focus – Verb – ConTop<sub>1-n</sub> – Presupposed Material

- (2) AG sentences with broad focus:

FSTop<sub>1-n</sub> – Verb – ConTop<sub>1-n</sub> – Focal Material (Verb + Focal Material = Broad Focus)

In its simplest form, when AG sentences receive argument-focus construal, the word order would be Main Topic-Narrow Focus-Presupposed Verb-Presupposed Material; on

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<sup>1</sup> H. Dik (2007) has recently repropounded her theory that every AG word order can fit the scheme Topic-Focus-Verb-Remainder (Dik 2005). However, I fully agree with Matic's criticism of this model, and hence, in my analysis, I start with his article.

<sup>2</sup> The minor model accounts only for about 9 % of AG sentences (Matic' 2003: 615). I refer the reader to Celano (forthcoming) for a full analysis of Matic's models.

the contrary, when predicate-focus construal is to be triggered, word order would be different, i.e., Main Topic-Focal Verb-Focal Constituents. (In both models, the main topic may also be placed immediately after the verb, but this, as well as the difference between ECTops, FSTops, and ConTops, is not relevant here.) The models are illustrated in (3) and (4):

- (3) TOP[Ho dè<sup>3</sup> dè: Kûros] FOC[epì taúte:s tê:s gunaikòs tòn paída]  
 the PTC PTC Cyrus against this the woman the son  
 PRES[estrateúeto].  
 marched  
 ‘Cyrus then marched against the son of this woman.’ (Hdt. 1.188.1 = Dik 1995: 54)
- (4) (The other Thracians have the following custom:)  
 FOC[Po:léousi tà tékna ep’ eksago:gê:].  
 sell.3PL the children for export  
 ‘They sell the children for export.’ (Hdt. 5.6.1 = Matic’ 2003: 582)

According to Matic’, example (3) shows one preverbal focal constituent (*epì taúte:s tê:s gunaikòs tòn paída*) because it is an argument-focus sentence (hence, the verb is presupposed). On the other hand, example (4) has two postverbal focal constituents (*tà tékna* and *ep’ eksago:gê:*) because the verb, too, is focal, the sentence receiving predicate-focus construal. In Celano (forthcoming), however, it is extensively argued that such an account needs revision. The models identified by Matic’ are better understandable with reference to the position of the main sentence accent. The slots *Narrow Focus* in model (1) and *Focal Material* in model (2) should be simply regarded as the place of the main sentence accent. This can fall on either side of the verb and, according to Lambrecht’s (1998) principle of accent projection, determine argument-focus or predicate-focus construal only on the basis of context. See example (5):

- (5) Tò mè: kalò:s légein ou mónon eis AUTÒ<sup>4</sup> toúto ple:mmelés,  
 the PTC well to.say not only to itself this improper  
 allà kai FOC[KAKÓN ti empoieî taïs PSUCHAÎS].  
 but also bad something does the souls  
 ‘To say something not good is not only improper in ITSELF, but is also BAD for the SOULS.’ (Pl. *Phd.* 115e)

Here *empoieî* is focal but, contrary to Matic’’s model (2), it follows and does not precede the focus *kakón* (note that *psuchaîs* may also be topical). Likewise, consider example (6):

- (6) A: Hoíon tí légeis, ô: Só:krates?  
 for.example what say.2SG oh Socrates  
 ‘For example, what do you say, Socrates?’

<sup>3</sup> Note that this paper is confined to lexical words; appositives appearing within square brackets are not to be regarded as belonging to the constituent.

<sup>4</sup> Small capitals are used to indicate where the main sentence accent is most likely to fall.

B: Hoïon kaì He:síodos peri hamákse:s PRES[légei] FOC[“tò  
 for.example also Hesiod about cart says the  
 hekatòn dé te DOÚRATH’ hamákse:s”].  
 hundred PTC and pieces.of.wood of.cart  
 ‘For example, about a cart Hesiod too says “a hundred pieces of WOOD in a  
 cart”.’ (Pl. *Tht.* 207a)

Here the verb *légei* is presupposed via the preceding question, but again, contrary to model (1), it does not follow the focal constituent but precedes it. Another important reason for revising Matic’s model is the fact that model (1) is amply attested but, in most cases, the verb’s presupposition is possible only if pragmatic accommodation is postulated, which is tantamount to just making pragmatic accommodation vacuous. Then, contrary to the case of Hungarian, from which Matic takes inspiration, model (1) does not generally receive an exhaustive interpretation, as the translation of example (3) shows, for the sentence cannot be rendered as ‘then, it is against the son of this woman that Cyrus marched’. These reasons, among others, have led me to propose the provisional model in (7-9),<sup>5</sup> which essentially coincides with Weil’s (1879) account:<sup>6</sup>

- (7) Setting Topic<sub>1-n</sub> – (Topic)<sup>7</sup> – Accented Focal Constituent<sub>1-n</sub> – Verb – (Topic) – Unaccented Constituent<sub>1-n</sub>
- (8) Setting Topic<sub>1-n</sub> – (Topic) – Unaccented Constituent<sub>1-n</sub> – Verb – (Topic) – Accented Focal Constituent<sub>1-n</sub>
- (9) Accented Focal Constituent<sub>1-n(?)</sub> – Verb – (Topic) – Accented Focal Constituent<sub>1-n(?)</sub>

To put it simply, I agree that the main topic (Topic) may be in first position or immediately after the verb, but where Matic hypothesizes the position of focus, I suggest the position of the main sentence accent, which hence may be on the right or the left of the verb without any regard to the pragmatic status of the verb itself. In other words, the verb may be presupposed or, more often, focal, but this information is not conveyed by word order but only by context.

<sup>5</sup> According to Lambrecht’s theory (1994), unaccented constituents are topics when they are lexical words. By contrast, focal verbs and adjectives do not usually bear any accent. Thus, in my scheme, *Unaccented Constituent* can refer to either a topic or a focus.

<sup>6</sup> Weil’s (1879) is the first modern account on AG word order (which then influenced Kühner-Blass-Gerth 1890–1904: 592–594 and Loepfe 1940: 42). It is impressive how clearly he writes about not only AG word order but also what we now call *information structure*. In a strictly scientific perspective, however, it is difficult to derive benefit from Weil’s study, because he approaches the issue not as one who is trying to prove a theory, but as a near-native speaker of AG who is describing his own language (he even adduces self-composed AG examples) without formalization. Nonetheless, it is clear from his examples that the two types of accentuation he proposes for AG (*accentuation ascendante* and *accentuation descendante*) essentially agree with my model.

<sup>7</sup> The parentheses indicate that the main topic can be on the right or the left of the verb. “1-n” means that more than one constituent can be found in that position.

## 2. The topic-focus and focus-topic contrast

The models in (7-9) raise the crucial question of their respective difference, which I set out to explain here. See examples (10) and (11) below:

(10) ALE:THÊ: légeis.  
truth say.2SG  
'You are right.' (Pl. *Tht.* 190b)

(11) Légeis ALE:THÊ:.  
say.2SG truth  
'You are right.' (Pl. *Tht.* 169e)

The context and the meaning of examples (10) and (11) are exactly the same. There are two interlocutors. The former claims something, and the latter replies *ALE:THÊ: légeis* or *légeis ALE:THÊ:* that is, literally, 'you tell the truth'. I explain this difference in word order by postulating the existence of a binary contrast between two configurations: focus-topic and topic-focus. *ALE:THÊ: légeis* shows the configuration focus-topic (*ale:thê: = focus, légeis = topic*), while *légeis ALE:THÊ:* shows the configuration topic-focus (*légeis = topic, ale:thê: = focus*).<sup>8</sup> The difference in meaning is strictly iconic. When the sentence starts with the focus, the focus is given precedence over the topic, and hence – if, in very general terms, we define focus as 'the sentence's purpose' – the configuration focus-topic is meant to meet the speaker's wish to let the hearer *immediately* know 'the point of his sentence' (i.e., the focus). On the contrary, if the sentence starts with the topic, as in (11), the sentence is thought of as connected to what precedes: in this case, the sentence's connection with the discourse has precedence over the *immediate* expression of the focus. Note that when focus precedes topic, as in example (10), the sentence does not necessarily receive a contrastive reading, as occurs in English and Italian. Consider example (12):

(12) a. THE TRUTH you told.  
b. LA VERITÀ hai detto.

The sentences in (12) can only have a contrastive interpretation in English and Italian, but this does not hold true for AG for two key reasons. First, preverbal focal constituents are very common in AG, and no translator has ever perceived any contrastiveness in such word order (although it may be present in the right context). Secondly, Old Italian and Modern Italian poetry, which are genetically related to AG, attest to the possibility of such an interpretation, in that they allow for the same word order phenomena as AG (preverbal and postverbal accented focal constituents) without generally any difference in contrastiveness (Celano, forthcoming).

The difference between the topic-focus and focus-topic configuration is also well illustrated in the following pair of questions:

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<sup>8</sup> Note the position of the main sentence accent that is supposed to be always on *ale:thê:*. Such a supposition is also supported by the fact that Modern Greek, as well as a number of Indo-European languages, usually place focal accents on nouns, not verbs or adjectives (although this is possible).

(13) FOC[Tí] oûn TOP[ê:n toûto]?  
 what PTC was that  
 ‘What was that?’ (Pl. *Phd.* 58a5)

(14) TOP[Toûto] dè dè: FOC[tí esti]?  
 that PTC PTC what is  
 ‘That, what is it?’ (Pl. *Phd.* 58a9)

The questions in (13) and (14) are essentially the same (any difference in the tense or particles is irrelevant here). In this pair, the same principle suggested above is operative. In (13) there is the usual word order for questions: the interrogative pronoun, which is the focus, is in first position, followed by the rest of the sentence, i.e., the topic. This focus-topic configuration is typical for questions because questions are just posed to know something, and hence are naturally focus-oriented. However, it is also possible to express a question in a topic-focus configuration, as shown in (14). In this case, the question is tied to the preceding discourse: the questioner starts with the pronoun *toûto*, whose referent is known to the interlocutor, and goes on with the focus *what is*. While questions and answers are typically formed with the focus-topic configuration, declaratives within narrations generally show just the opposite configuration (i.e., topic-focus). Within narrations, the author tends to connect sentences to create a coherent discourse, as in (15):

(15) TOP[Árti] gàr FOC[TOP[enthénde] FOC[OÍKADE oíchetai]], TOP[oikeî]  
 just PTC from.here home has.gone lives  
 dè FOC[EGGÛS] FOC[en MELÍte:].  
 PTC close in Melite  
 ‘He has just gone HOME from here, and he lives CLOSE by in MELITE.’ (Pl. *Prm.* 126c) (transl. H. N. Fowler: 1914)

Here the former clause starts with the temporal adverb *árti*, which ties the sentence to the preceding discourse; the latter clause starts with the verb *oikeî*, which is clearly presupposed via the preceding *oíkade*. In both cases, the configuration is topic-focus. However, nothing prevents the author from using a focus-topic configuration also in the middle of a narration, as in (16):

(16) FOC[Polù mentàn HÔ:DE mállon], ho:s légo:, TOP[agastheíe:n] [...]  
 much PTC.PTC thus more as say.1SG would.wonder.1SG  
 ‘As I say, I would be much more amazed by THIS [...]’ (Pl. *Prm.* 129e)

Here the verb *agastheíe:n* is clearly presupposed via context because it has been mentioned a little before in the *Parmenides* (*agaíme:n àn égo:g’, éphe:, thaumastô:s*); nonetheless, the author starts the sentence with the focus, since he is interested here in giving it prominence. Another example which illustrates the point very well is the following:

(17) A: TOP[Étuchon] dé, ô: Phaído:n, FOC[tínes paragenómenoi]?  
 happened PTC oh Phaidon who being.there

‘Who was there?’

B: FOC[HOÛTÓS te dè: ho Apollódo:ros tô:n epicho:rió:n]  
this and PTC the Apollodorus the native.Athenians  
TOP[parê:n]FOC[kai KRITÓBOULOS kai ho PATÈ:R autoû  
there.was and Critobulus and the father his  
kai éti HERMOGÉNE:S kai EPIGÉNE:S kai AISCHÍNE:S  
and moreover Hermogenes and Epigenes and Aeschines  
kai ANTISTHÉNE:S]; TOP[ê:n] dè FOC[kai KTÉ:SIPPOS  
and Antisthenes; there.was PTC and Ctesippus  
ho PAIANIEÛS kai MENÉKSE: NOS kai álloi tinès  
the Paeonian and Menexenus and others some  
tô:n EPICHO:RÍO:N].  
of.the native

‘There was THIS Apollodorus, a native Athenian, and CRITOBULUS and his FATHER and HERMOGENES and EPIGENES and AESCHINES and ANTISTHENES; Ctesippus the PAEANIAN and MENEXENUS were there too, and some other native ATHENIANS.’ (Pl. *Phd.* 59b)

Example (17) shows clearly how the binary contrast topic-focus and focus-topic works. The question has the topic-focus configuration: it is not an abrupt question, but it is tied to the preceding discourse. The word order of the question is even more instructive. As expected, it starts with the focus *houtós te dè: Apollódo:ros tôn epicho:rió:n* followed by the topic *parê:n*, which is in turn followed by the remaining part of the focus. The following clause, on the contrary, starts with the topic *ên* followed by *kai Kté:sippos* and the rest of the focus. The two clauses are the same in terms of meaning: *parê:n* and *ên* are synonymous, and the fact that the proper names change is not relevant for our purposes. Pragmatic context is apparently the same as well: both clauses answer the question and seem to receive sentence-focus construal.<sup>9</sup> However, the word order is exactly the opposite: the former clause shows the focus-topic configuration, while the latter shows the topic-focus configuration. The explanation for such a difference is the same as above: the former clause starts with the focus because it meets the questioner’s need to know who was with Socrates, thus causing the focus to take precedence over the topic. The latter clause, on the contrary, is thought of as being connected to the preceding one; it is certainly an answer to the question like the former clause, but coming second, it is its *connection* with the discourse that the author wishes to show, and therefore the configuration is topic-focus. Incidentally, note that example (17) supports the description of AG word order that I gave at the outset: that is, although both clauses seem to receive sentence-focus construal, they show the opposite word order. This is in accordance with the proposal above that pragmatic construal is not determined by word order, because the same pragmatic construal can be regularly expressed by different (even opposite) word orders.

<sup>9</sup> This claim presupposes Lambrecht’s information structure theory. But in truth (see also below) sentence-focus as well as argument-focus structures turn out to be analyzable as a sort of predicate-focus (i.e., topic-comment) sentences: for in all the structures, the topic-focus or focus-topic dichotomy is always detectable, regardless of which constituent the focus is (i.e., the predicate or one of its arguments or adjuncts).

### 3. What is topic and focus?

Thus far I have tried to show the binary contrast of topic-focus and focus-topic, all the while taking for granted the definitions of topic and focus. From my analysis of AG word order, topic and focus turn out to be definable as (the main) semantic categories for the structuring of word order. They represent the way in which AG speakers process linguistic data: AG sentences are formed via consecutive merger operations that combine words together *binarily* according to the *iconic contrast* shown so far (i.e., topic-focus and focus-topic) to form consecutive larger constituents, which I shall call ‘pragmatic constituents’.<sup>10</sup> See examples (18) and (19) below:

- (18) TOP[TOP[Prós] te FOC[TOP[toùs] FOC[Thessaloùs]]] FOC[TOP[élege]  
           to and the Thessalians said  
       FOC[TÁDE]].  
           this  
       ‘He told Thessalians THIS.’ (Hdt. 9.89.12 = Matic 2003: 616)

- (19) TOP[Kléarchos] dè FOC[FOC[TÁDE] TOP[eîpen]].  
       Clearchus PTC this said  
       ‘Clearchus said THIS.’ (X. An. 2.1.4 = Matic 2003: 616)

In example (18), there are two major constituents that are *prós toùs Thessaloùs* and *élege táde*: the former is the topic, and the latter is the focus (as context suggests); hence, the sentence has the configuration topic-focus. This means that the topic has precedence over the focus, because the author wants the sentence to be thought of as connected to the preceding discourse. But this is not all. Within these two major pragmatic constituents, we can identify further constituents. Within *prós toùs Thessaloùs*, there are *prós* and *toùs Thessaloùs*, the former being topical and the latter focal. Likewise, within *élege táde*, we can distinguish the topic *élege* and the focus *táde*. I suggest that all these constituents too are arranged in their order *according to the iconic contrast topic-focus and focus-topic*. This also holds true for the structure of example (19), where we can see two constituents, the latter of which presents the binary opposition between topic and focus in the configuration focus-topic. If we compare (18) and (19), we can see that they both present the same major configuration topic-focus. The difference, however, is *within* the major focus constituents:<sup>11</sup> in *élege TÁDE*, the configuration is topic-focus but, in *TÁDE eîpen*, it is focus-topic. Therefore, in the constituent *élege TÁDE* (i.e., topic-focus), the topic has precedence over the focus but, in *TÁDE eîpen*, the focus has precedence over the topic. Within the major constituents, the contrast between the configurations topic-focus and focus-topic is in a way less noticeable than it is when concerning the order of the major constituents; however, such a contrast must have been detectable by AG speakers, and this is just *what I suggest determines the difference in AG word order*. For English speakers and most speakers of modern languages, it is

<sup>10</sup> This term is introduced because, as will be seen below, the topic-focus and focus-topic contrast pinpoint constituents which do not always correspond to the *canonical* syntactic ones (e.g., the subject cannot always be separated by the VP).

<sup>11</sup> Note that the word order within the major topic constituent in (18) is blocked by syntax: for articles can only precede nouns. (But rarely can prepositions follow nouns in anastrophe.)

difficult to capture the difference between examples (18) and (19) because, in most modern languages, the binary contrast topic-focus and focus-topic *openly* operates almost exclusively at the level of the major constituents. Consider (20) and (21):

(Where did you go yesterday?)  
 (20) TOP[Yesterday] FOC[I went to the BEACH].

(21) FOC[I went to the BEACH] TOP[yesterday].

In examples (20) and (21), I suggest that the same principle shown for AG word order operates in English. The difference between the sentences is that (20) shows the topic-focus configuration, the sentence being connected to the preceding discourse via the topic in first position. On the other hand, the focus in (21) has precedence over the topic, the author being interested in immediately stating ‘the point of his sentence’. Of course, also in English the principle of topic-focus and focus-topic contrast is likely to be operative *within* these constituents, just as happens in AG. The only difference between AG and English is that AG can *more often* show it through word order changes, while in English the contrast is often *blocked* by syntax, because word order is usually fixed, with the exception of, generally, the major constituents. For this reason, in English we cannot translate example (19) as ‘Clearchus THIS said’ but only as ‘Clearchus said THIS’. In cases such as this, English syntax does not allow one to convey within the major focus constituent ‘the shade of meaning’ that the contrast between topic-focus and focus-topic can express in AG examples (18) and (19). However, I suggest that this same opposition operating in (18) and (19) can be found in English examples like (22) and (23):

(22) TOP[This] FOC[TOP[was] FOC[FOC[FORMALLY] TOP[said]]].

(23) TOP[This] FOC[TOP[was] FOC[TOP[said] FOC[FORMALLY]]].

The difference in adverb position can be explained by configurational contrast: in (22) the constituent *FORMALLY said* shows the focus-topic configuration, while in (23) *said FORMALLY* shows the topic-focus configuration. Note that I have introduced the term ‘pragmatic constituent’ because the constituents with which we are dealing seriously challenge the concept of syntactic constituent (as generally conceived by traditional grammar). Consider examples (24) and (25):

(For about midway of this day's march there was a deep trench, five fathoms in width and three fathoms in depth.)  
 (24) TOP[Paretétato dè he: táphros] FOC[áno: dià toû PEDÍOU]  
       was.carried PTC the trench up through the plain  
 FOC[epì DÓ:DEKA parasággas] FOC[méchri toû ME:DÍAS teíchous].  
       on twelve parasangs to the Media wall  
 ‘This trench extended up through the PLAIN for a distance of TWELVE parasangs, reaching to the wall of MEDIA.’ (X. An. 1.7.15) (transl. W. Heinemann: 1980)

(25) FOC[ORTHÔ:S toi] TOP[légei So:kráte:s].  
 rightly PTC says Socrates  
 ‘Socrates is just RIGHT.’ (Pl. *Phlb.* 28b)

In my reading, the subject *he: táphros* in (24) forms a syntactically unorthodox constituent with the verb in first position: they constitute the major topic with respect to the major focus constituent that follows. The verb turns out to be a ‘second-level’ focus, since it is first contrasted with the topical subject; the verb is focal with respect to the subject, but is only topical *with respect to the major focus constituent*. Likewise, in (25) the focus is contrasted with the topic *légei So:kráte:s*, in which another second-level contrast can be identified: that between the focus *légei* and the topic *So:kráte:s*. I rely on phonetics to detect pragmatic constituents when more than two constituents are present in a sentence: for example, the enclitic *toi* in (25) seems to clearly divide *orthô:s* from the rest of the sentence, forming with *orthô:s* a phonetic-semantic constituent. In (24), two main phonetic pauses are likely to occur: the former after *dé* and the latter after *táphros*. It seems plausible from the perspective of semantics that *táphros* is first to be connected with the verb and only then with the following constituent: that is, word order (i.e., syntax) and phonetics serve to pinpoint binary (pragmatic) constituents based on the topic-focus and focus-topic contrast. I admit that the precise rules according to which one identifies the single pragmatic constituents need extensive treatment, which cannot be outlined in the limited space available here. However, I hope that examples (10), (11), (18), and (19) have persuasively demonstrated that the contrast between the two configurations topic-focus and focus-topic play the central role in determining word order in AG, and that this contrast is operative at any level of the sentence (very presumably in a binary way).<sup>12</sup> I conclude with the definition of the principles so far illustrated, which, though formulated for AG, I suggest also operate in English and presumably in any other language:

THE PRINCIPLE OF THE FUNCTIONAL CONTRAST BETWEEN TOPIC AND FOCUS (PFCTF): the structural categories ‘topic’ and ‘focus’ can identify two configurations: topic-focus and focus-topic. The former is used to tie the sentence to the preceding discourse, while the latter expresses the speaker’s wish to immediately know something (as in questions), or let someone know something (as in answers). When being within the major pragmatic constituents, the contrast is more generally definable thus: the focus is iconically more prominent when it is in first position.

THE FIRST AND FOREMOST PRINCIPLE OF ANCIENT GREEK WORD ORDER (FPAGWO): words in AG are primarily arranged to identify the contrast topic-focus and focus-topic according to PFCTF. PFCTF operates binarily at any syntactic level of AG, from the morphemic to sentence level.

<sup>12</sup> It is to be noted that multiple focuses, such as *EGGÛS* and *en MELÍte:* in (15) and *kai KRITÓBOULOS kai ho PATÈ:R autoû kai éti HERMOGÉNE:S kai EPIGÉNE:S kai AISCHÍNE:S kai ANTISTHÉNE:S* in (17), do not violate the binary principle; rather, they can be regarded as forming new pragmatic/syntactic domains. In my parenthesization, some focuses may have been joined together for simplicity’s sake.

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# Language Policy in Germany and Beyond

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## Abstract

In Germany and Switzerland the world-dominion of English was already predicted in the 19th century. While today the impact of English on German has alarming consequences for many, English lexemes often fill a welcome gap in the language. The role German politicians play in the German vs. English debate can at best be called ambivalent. The part they played in the discussions about the reform of the orthography of German, on the other hand, is strongly negative. The paper concludes with remarks on the language policy of the European Union.

**Keywords:** English in German; Konrad Duden, the Nazis, today's politicians and the orthographic reform of German; Globalisation and languages; European Union language policy.

## 1.0. English in German

Remarks on language policy in many countries today must necessarily also include comments on the impact of English on those languages. This was also the case in the past. Jacob and Wilhelm Grimm as well as Jacob Burckhardt were great names in the intellectual world of 19th century Germany and Switzerland respectively; the first two were philologists and the second a historian. As early as in 1874, Burckhardt had already predicted the coming world-dominion of English with the alarming consequence: "The only way to rescue books written in German is to translate them into English" (translated from German). 135 years later, statistics prove the dominance of English also in book production. In 2000 German-speaking people translated 5,519 books from English, whereas English-speaking people translated only 248 books from German. Although due to the general decrease of book titles translated into German the number of books translated from English also decreased, namely to 3,611 in 2005, but with 65% the translations from English were far ahead of other languages, such as French with only 10%.

Even a quarter century before Burckhardt, Jacob and Wilhelm Grimm expressed a specific misgiving about German in Chapter 6 of their *Deutsches Wörterbuch*: "It is the duty of linguistic research and, specifically, of a German dictionary to oppose the immoderate and unfounded penetration of the foreign word" (Grimm & Grimm 1854-1971, translated from German). A philologist called Grimm's dictionary a Pyrrhic victory of Germanistics. By opposing the foreign word, it was argued, words such as *Kultur* were missing in the dictionary. Such reproach, however, must be modified: The volume that was to contain the word *Kultur* only appeared in 1873, that is ten years after Jacob Grimm's death and fourteen years after the death of Wilhelm Grimm. It was for linguistic reasons that Jacob Grimm called English a world language (1864: 293).

I shall not deal here with the influence of English on German from a historical perspective (on these aspects see Viereck 2004). Indeed, since the Second World War the impact of English on German has assumed such dimensions that every attempt to record it fully becomes futile. As one might expect, mostly Americanisms occur and particularly in those areas that are connected with technical innovations, such as information technology or new technology, which is abbreviated as IT or NT in German publications (and of course, refers to the world of computers). Other fields include telecommunication from whence we get *Handy*, a pseudo-loan for English *mobile (phone) or cell(ular) phone*, youth culture (pop music), economics, fashion, science, politics and advertising. Of course, the English influence must not only be seen negatively. Anglicisms often fill lexical or semantic gaps in German and there are numerous cases where they are to be preferred for stylistic purposes as they convey American or British colour, precision, brevity, vividness, tone or simply variation of expression.

When a German equivalent cannot be found soon afterwards to replace it, then the English word will stay. Often the English word is shorter. Small wonder with a language where such linguistic monstrosities exist as *Steuervergünstigungsabbaugesetz* ‘law on the abolition of tax rebates’, or *Eierschalensollbruchstellenverursacher* ‘a device used to create breaking points in egg shells in order to allow one to easily remove the top part of an egg without causing the shell to splinter’ (Limbach 2005: 157), a matter of amazement or ridicule at least since Mark Twain (1880). Such recent English additions as *Mobbing*, *Dialler*, *Skimming* or *Phishing*, an artificial word created from *password fishing*, will no doubt not be translated into German. Yet in very many cases the use of English words in present-day spoken and written German is excessive, unfounded and thoughtless and it is quite natural that this meets strong opposition especially from those people who do not know (enough) English. A number of language societies exist in German-speaking countries today which publish lists from time to time of unnecessary Anglicisms with their German equivalents. The following table reproduces excerpts of such a list, which altogether comprises 2,000 words put together by members of the association “Muttersprache” in Vienna:

Loanword	Suggestion for rendering in German	Number of Synonyms
<i>Bar</i>	Schantisch, Schankstube, Schank, Tresen, Schenke, Alma mater alcoholica*	6
<i>Box</i>	Schachtel, Pferdestand, Montageplatz (car)	3
<i>Boom</i>	Hochkonjunktur, Blütezeit (economy)	2
<i>boomen</i>	blühen, wuchern	2
<i>Camping</i>	Zelten, Fahrt-	2
<i>clever</i>	klug, schlau, gewitzt, gerissen	4
<i>Container</i>	(Groß-)Behälter	1
<i>Diskette</i>	Speicherscheibe, Merkring*	2
<i>Dock</i>	Werft, Schiffsbaustelle	2
<i>Dress</i>	(Be-)Kleidung, Gewand	2
<i>Drink</i>	Trank, Trunk, Getränk	3
<i>Fair</i>	gerecht, ausgewogen, unparteiisch	3
<i>Festival</i>	Fest(spiel), Feier(spiel), Film-, Musik-,	

	Theaterfest	5
<i>fit sein</i>	in Form, gesund sein	2
<i>Fitness</i>	Gesundheit, Kraft, Ausdauer	3

(Muhr 2004: 41)

Several comments must be made with regard to this table. First, the number of German lexical equivalents for the 15 English words is 2.8 on an average. That means about three German words are necessary to render the content of an English loanword. This certainly cannot be called a facilitation of communication. Second, words marked with an asterisk (*Alma mater alcoholica* for *Bar* and *Merkling* for *Diskette*) are new creations, and are simply ridiculous. And finally, Muhr (2004: 41f.) shows that some of the German equivalents are inaccurate (those for *Dock*, *Boom*, *Drink*), as they do not render the content of the English word correctly and some are simply wrong (those for *Dress* and *Container*), as their range of meaning is too general. As becomes evident, some of these language societies do themselves a disservice. They “care” about the German language in such a way that they feel obliged to translate or render almost every Anglicism into German with sometimes ridiculous or inaccurate results. Cases in point are *Hingehet* for *Event*, *Klapprechner* for *Laptop*, *Prallkissen* for *Airbag*, *Denkrunde* for *Brainstorming* or *Nachsteller* for *Stalker*. Yet there are also cases where the suggestions should be supported, especially by journalists propagating them in their daily work. Of course, these puristic procedures have a long tradition in German-speaking countries. As is the case today, they have always found their staunch supporters and their fierce opponents.

## 2.0. The Role of the Politicians in Linguistic Matters

Only since very recently have German politicians taken a more active part in discussions about linguistic matters than they had done in the past. Unfortunately, some of their remarks are simply outrageous. In late 2005, the Prime Minister of Baden-Württemberg, one of the 16 states of the Federal Republic of Germany, pleaded on German TV for English to become the working language in Germany, whereas German should remain the language of the family, of leisure time and of the private sphere in general (Paulwitz 2006: 7). In this regard, he was “his master’s voice” and simply reiterated the views of the dominant big industry that strongly favours globalisation.

The politicians’ disregard for their mother tongue is also noticeable in Germany’s cultural policy. Up to last year the annual budget of German cultural institutions had been curtailed every year. In 2003 alone this led to the closing down of five cultural institutions abroad. Ironically, at the same rate as the globalisation folly grew, the German government cut down the financial means to teach German abroad. Whereas the government did not care enough – at least until 2007 - to maintain German abroad and to push the status of the language in international organizations, it showed an abstruse interest in the reform of its orthography with equally abstruse consequences to which I would like to turn now.

### 3.0. Duden, the Nazis, today's Politicians and the Orthographic Reform of German

In 1880 Konrad Duden, then director of a secondary school, published a slim volume entitled *Vollständiges Orthographisches Wörterbuch der deutschen Sprache* [Complete orthographic dictionary of the German language]. He accomplished something that has not been accomplished ever since, namely uniformity of spelling. Duden was very careful with standardizing the orthography; in 1901 he only abolished the *Th*, for instance, in *Thür* 'door' following the Prussian model, that has since been written without *h* and he noted in 1902: 6 "If one had wanted to introduce a thorough reform, one would have lost the ground under one's feet" (translated from German). The vision of so-called German thoroughness, however, remained. Linguistic societies, philologists and poets alike developed systems of their own – often with the use of small initial letters.<sup>1</sup> In 1920, a committee even advocated a "thorough phonetic reform". However, nothing happened until the Nazis came to power. Their plan, far beyond reforming the orthography of German, had a perfidious logic: In order to enslave a people one only had to shatter its cultural pride. The most effective way to do this was to disturb the people's linguistic self-confidence. A complete change of the orthographic system would lead to the downright upsetting of historical consciousness and to the devaluation of the writings of earlier times. Georg Schmidt-Rohr, a linguist who was head of the department of the sociology of language of the SS - the so-called "Schutzstaffel" of the Nazi party (Simon 1986) - , to whom we owe these "insights" was probably thinking of Turkey which had changed to the Latin alphabet in 1928. In any case, he thought something similar could be introduced in occupied eastern Europe. A new orthography for Ukrainian would set in motion a linguistic splitting up of the Russian empire, while in Poland, he thought, a new orthography could break up the Polish people's strong sense of history (on these aspects see Birken-Bertsch & Markner 2004).

However, the linguist's thoughts were not able to win over the Nazi bureaucrats – as some of them pursued similar aims, ironically for German itself. Of course, it was not called a breach with tradition which it actually was, but rather a "national awakening". The new, quite radical rules for the orthography of German were only published in 1944, fortunately too late to have any impact. At Hitler's request thousands of booklets had to be pulped. Yet the same people who worked out the rules for the Nazis continued their work after the war. In 1954 they published demands that were almost identical with those of 1944. For these people, as for some linguists today, orthography is the visible expression of language – if words are pronounced the same, they ought to be written the same. A present-day Swiss linguist formulated: "When someone reads something written, then (s)he transforms it to sound" (Saltzwedel 2004: 162, translated from German). However, if reading were to proceed like this, weeks would be needed to get through a daily paper. All these arguments are nothing but a justification for interfering with a well-established orthographical system and for prescribing new rules.

In 1996 a new attempt was made at reforming the orthography of German. The Ministers of Culture of the 16 German states decreed that the new rules should become compulsory for German schools and for those working in the civil service by August 1, 2005. However, it soon became clear that this was not likely to happen

without many changes. Millions of euros have been invested since 1996 in producing new dictionaries and school books. The Ministries of Culture exerted intense pressure on school book publishers threatening that if publishers remained critical of the orthographical reform no school books would be ordered from them any more. This threat did not remain without effect. In 2004, the new *Duden Rechtschreibung* appeared in its 23rd, completely revised and extended edition. It was reviewed in a leading German daily, the *Frankfurter Allgemeine Zeitung*, under the title “Das unmögliche Wörterbuch” [The impossible dictionary] (Ickler 2004). Some of the strangest rules were abolished there and new ones introduced following a decision of the Ministers of Culture taken in June 2004. The 24th edition of the *Duden Rechtschreibung* followed only two years later. It is quite clear that these changes made all the dictionaries worthless that had appeared between 1996 and - at least - 2004. Authors of literary works never followed the new rules, the daily paper just mentioned, soon reverted to the old spelling and punctuation again and two of Germany’s largest press publishers followed suit. In an opinion poll carried out in September 2004 only 11% of the population were in favour of the reform, 60% were against and 29% were undecided (*DER SPIEGEL* 43, 18 October 2004: 50).

When the politicians installed a Council of German Orthography in October 2004 they saw to it that the opponents of the reform were in the minority. The work of this Council remained patchwork, also because the ministers had decided beforehand what should be dealt with. Aspects of the reform that in their view were not controversial were banned from any discussion. Thus many shortcomings remain, which I cannot deal with here. Problems mainly concern the use of the hyphen, capitalisation, punctuation and the tricky area whether words are written together or separately. Ickler (2006) documents many strange results. I would, however, like to mention one example from the section on how words should be divided: according to the *Duden Fremdwörterbuch* of 2001 *Teenager* can be divided not only as *Teen-ager* ‘a boy or a girl between the age of about 13 and 19’, but also as *Tee-nager* which, taken literally, means ‘a gnawing animal which lives on tea leaves’! This nonsensical division was rectified in the subsequent eighth and ninth editions of the *Duden Fremdwörterbuch* that followed each other in an exceptionally short interval of only one year. All this shows how wise Konrad Duden was over one hundred years ago when he introduced only very few changes in order to preserve uniformity of spelling. The majority of the members of the speech community must find new rules sensible, otherwise they are not prepared to follow them. Decrees alone do not work any more. In the area of German orthography, at least, we find today a “collective disobedience”. There are now two ways of spelling: one of the ministers of culture and one of the people beyond school age and outside the civil service. Almost all German publishing houses today have their list of orthographic exceptions, an altogether impossible situation. This is what happens when politicians meddle in matters in which they are not experts. Rominte van Thiel draws our attention to another unbelievable consequence of the orthographic reform, namely the destruction of culture in German school libraries. She sums up the current situation by saying: “I do not know whether apart from the burning of the books by the Nazi 75 years ago there has been another ‘sorting out’ of books from libraries in Germany to the extent as is happening now” (2008: 4, translated from German).

#### 4.0. Globalisation and Languages

I have already mentioned the globalisation folly. *Globalisation* is a fairly new word. According to the *Oxford English Dictionary* (1989) it was coined in 1961; in the early 1990s it appeared as *Globalisierung* in German. Languages belong to the most important victims of globalisation. The unity of the market, the uniformity of its actors and the monotony of its language form the “survival-kit” with which its survival is ensured. It is, thus, in an unfortunate way consequential that with the increasing globalisation process the interest of the German government in maintaining German abroad diminished. The linguistic norm is English: *one world one language*. This linguistic unitarism is part of an ideology that reduces a complex sociocultural reality to such an extent that a simple “rational” action becomes possible with quick decisions. The only concern of the present-day global players is: How can the unitary language English be imparted to the new generation as early as possible and with the least possible expense? As already noted above, the people for whom this trend is so advantageous have the power to enforce such developments.

#### 5.0. European Union Language Policy

As an option for Europe and as a perspective for the world, multilingualism opens new ways and offers possibilities other than a world-wide uniformity. Let me continue and conclude with some remarks on the language policy of the European Union. On a supranational level, the preservation of European multilingualism has in principle been the aim of the European language policy ever since the 1950s; it is part of the European peace policy. After all, linguistic rights are human rights. The European Union quite consciously propagates a policy of multilingualism, not of bilingualism, because the preservation of many languages means the promotion of individual multilingualism and not of individual bilingualism. Those who are “only” bilingual, who know their mother tongue and English as a second language, tend to enforce the one foreign language they know as the only valid one; in the end they push forward a leading language policy. On the other hand, multilingual speakers who speak more than one foreign language attribute importance also to other languages, not just to one lingua franca. That is why the white book of the European Union postulated that every citizen should master three languages of the Community. That was also the demand made for the “European Year of Languages 2001”. This is the theory, which is nothing but a blue-eyed illusion. According to an opinion poll published in 2001, 47% of the population in Europe spoke no foreign language at all. However behind this average value enormous national differences are hidden ranging from 66% in the United Kingdom over Austria with 48% to Luxembourg with only 2%. In the Scandinavian countries the percentages are relatively low and in southern Europe relatively high.

Also the practice in inter- and supranational communication alone shows that reality differs widely from these self-imposed ideals. The European Council which propagates multilingualism uses only English and French as working languages and largely ignores German which with almost 100 million native speakers comes in first place in the European Union.<sup>2</sup> The same is true of other institutions, for example, the

WEU (Western European Union) in London, the EFTA (European Free Trade Association) in Geneva, the ESA (European Space Agency) in Paris and the broadcasting stations in Geneva.

Thirty-eight percent of the population of the European Union are of the opinion that it will be inevitable to have a common language for the internal communication of the European Union, especially after the enlargement of 2004 – as of January 2007, the European Union counts 27 member states -, but 47% are against that. How the 38% would react should they no longer use their own language, remains to be seen. According to these and other results the single leading language model does not seem to be feasible at present, not even for the internal communication of the European Union.<sup>3</sup> A policy of multilingualism, on the other hand, can only succeed with a conscious language policy and language planning. A laissez-faire policy that leaves the linguistic development to the laws of the so-called free market will in the long run lead to the monopoly of a single lingua franca, namely English. For the British government and the British Council this situation will, no doubt, have a most welcome economic effect, as has been the case up to now. The language issue in Europe is politically so sensitive that the politicians prefer to agree only on bland and fine-sounding platitudes in their policy white papers – statements which Phillipson (2003) dismisses as “EU rhetoric”. Regrettably the European Union has failed to consult the experts. What happens when language issues are left to the politicians on a national level has already been pointed out above. What is badly needed is a neutral European language policy. This debate should also include a discussion of the pros and cons of the use of the neutral planned language Internacia Lingvo, commonly known as Esperanto. Esperanto, for instance, facilitated the communication of the reconciliation talks between Korea and Japan. Also, the fairly new field of eurolinguistics is called upon here to work out a concept of multilingualism that by strengthening communication within and beyond single language families relativizes the absolute dominance of English. Such alternatives deserve to be seriously pursued.

## Notes

<sup>1</sup> See, for instance, an advertisement of Eomund (1907), in Waas (1967: 18), claiming that as soon as a child can pronounce the sounds of German clearly and is able to read, he/she will master orthography perfectly.

<sup>2</sup> In 2003 55% of the documents were published in English, 44% in French and only 1% was published in German. Consequently efforts are now being made on the German governmental level to introduce German as a third working language of the European Union and to place German on the same footing with the other two languages as a language of publication. The German daily *DIE WELT* noted that the German Parliament threatened to deal with European Union documents only when they reach Parliament in German (21 April 2006: 4). Two years later the Commission in Brussels refused to have these documents translated into German (*DER SPIEGEL* 12, 17 March 2008: 20). German politicians ignored far too long to put the status of their language on a par with both English and French on the European level and now it seems to be too late for that.

<sup>3</sup> According to a current opinion poll carried out in Germany only 13% of the Germans favour a common language in the European Union.

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# **Crafting multilingual and intercultural identities in talk: I know a little about your language<sup>1</sup>**

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## **Abstract**

This article examines how the participants indicate multilingual memberships when engaged in talk about Korean language use. Talk about language use occurs when participants engage in talk that indicates that they are teaching/learning about a specific form and/or telling about how language is used. Typically, the introduction of Korean into a conversation involved the participants engaging in metalinguistic talk to make comparisons about the differences between the Japanese and Korean languages. Through this process, the participants construct identities, such as engaging in expert-novice roles and constructing multilingual speaker identity. The analysis will show that the participants are making comparisons about languages which construct various intercultural identities and show when and where the talk led to those occasions.

**Keywords:** Interculturality, Korean learners of Japanese, Identity, Conversation Analysis

## **1. Introduction**

This article will examine how the participants indicate multilingual memberships when engaged in talk about Korean language use. Talk about language use occurs when participants engage in talk that indicates that they are teaching/learning about a specific form and/or telling about how language is used. This was a fairly common subject among the participants and their interlocutors for both Japanese and Korean in this study. While there were occurrences of talk about language that focused purely on the use of Japanese by the participants in this study, this article will focus on occurrences where the use of Korean language was the main topic. The main reason for this is that these forms of talk about language also tended to invoke the participants' intercultural memberships.

Typically, the introduction of Korean into a conversation involved the participants engaging in metalinguistic talk to make comparisons about the differences between the Japanese and Korean languages. The participants then engaged in making comparisons, which led to the construction of mutual understanding about the language form in question. Through the process of making a comparison, the participants constructed various identities, such as engaging in expert-novice roles and constructing multilingual speaker identity. The analysis will show that in this case, the participants are making comparisons about the languages and in one case, indexes the stances of "I know a little about your language." The co-construction of their identities in talk as expert-novices led to indicating the participants' multilingual memberships as well. This article will explore when and where the talk led to those occasions to discover how the participants managed these intercultural moments.

## 2. Language expertise in interaction

One way to construct the identity of multilingual speaker is through orienting to expert-novice roles in conversations. The terms “expert and novice roles” originates from a reaction to the use of the classifications of native speaker and non-native speaker (Cook 1999; Firth & Wagner 1997; Kachru & Nelson 1996; Kasper 1997, 2004a; Rampton 1990; Schegloff, Koshik, Jacoby, & Olsher 2002). These researchers highlight that the field of second language acquisition imported the terms native and non-native speaker from Chomsky’s terminology as a way to categorize participants. Many researchers do not question the use of the categories native and non-native speaker; rather they accept these categories as unproblematic. However, Cook (1999) argues that the terms of native speaker, non-native speaker, and L2 learner are problematic because many researchers have essentialized their meaning, by assuming that the native speaker norm is the goal for L2 competence. In addition, many researchers do not account for the variables in a learners’ competence such as native speakers of one language having the ability to use another.

To avoid essentializing and assuming a speaker’s identity as a native or non-native speaker, Rampton (1990) suggests that researchers utilize the term expertise for categorizing participants. Expertise implies that the expert’s knowledge is not innate; rather participants can acquire or demonstrate his/her expertise through interactions with others. However, the demonstration of expertise in conversation is not symbolic of a speaker’s social group identity (Rampton 1990). This definition avoids the stereotypical understanding of what it is to be a native speaker.

In response to this debate, Conversation Analysis (hereafter CA) researchers’ main criticisms are that any category assigned to the participants prior to examining the talk, rather than seeing how the participants construct identity in conversation is problematic. That is, many non-CA researchers assume that, because the speaker is a non-native speaker, s/he will behave in interactions in a certain way such as making grammatical and pragmatic errors. Recent CA studies have addressed this issue of the categorization of participants as native/non-native identities versus expert/novice in the analysis of discourse (Carroll 2000; Hauser 2003; Hosoda 2002, 2004, 2006; Ikeda 2005; Kasper 2004a, 2004b, 2006; Koshik 1999; Mori 2002, 2004; Wong 2000a, 2000b, 2000c). These studies show that, on occasion, participants orient to their differential linguistic and cultural expertise. However, CA researchers tend to differ in the categories utilized for describing this identity work. Some have categorized the participants in the native-non-native speaker dichotomy (Hauser 2003<sup>2</sup>; Hosoda 2002, 2004; Ikeda 2005; Wong 2000a, 2000b, 2000c). Still others have used the terms expert-novice (Carroll 2000; Hosoda 2006; Kasper 2004a, 2004b). These later studies avoid the terms native and non-native speaker, because they believe that it is not the participants’ social identity as native or non-native speaker that is being orientated to. Rather, the participants are demonstrating differential language expertise (Kasper 2004a).

Hosoda (2006) exemplifies this form of analysis for Japanese with her study on repair in conversations among users of Japanese. She argues for the use of the terms target language expert and target language novice over native and non-native speaker, by demonstrating how language expertise is achieved as a part of the ongoing interaction. To arrive at mutual understanding, participants in conversation will engage in repair sequences when necessary. In segment 1, the participants engage in repair work for

*shigoto kankei no ryokou* ('work related travel').

**(1) Segment 1. From Hosoda (2006, p.20-21)**

**[Dean: L2 Japanese; Toku: L1 Japanese]**

1. Dean: *ano:: sigoto kankei no ryokou wa?*  
uhmm work relation Gen travel Top  
  
'Uhhh, how about work related travel?'
2. Toku: *nn? kankei?*  
Huh relation  
  
'Huh? Relation?'
3. Dean: *a:: sigoto kankei ryoukou a a ano (.) ryoukou zya*  
uhmm work relation travel uh uh uhm travel COP
4. *naku te ano tch e:: nihongo de wa wakan nai kedo*  
Neg and well tch uhm Japanese in Top know Neg but
5. *((cough)) (.) ano::: Osaka: e:: [ka Nagoya e::]*  
uhmm Osaka to or Nagoya to  
  
'Uhhh, work relation travel, uh, uh, uhm, not travel  
but well, tch, uhhh, I don't know {the word} in  
Japanese but uhhh, to Osaka or to Nagoya.'
6. Toku: *[ah syuttyou]*  
oh business trip
7. *desu ne.*  
COP:POL IP  
  
'Oh, you mean a business trip.'
8. Dean: *syuttyou aa SYUTTYOU.=*  
business trip oh business trip  
  
'Business trip, oh, business trip.'
9. Toku: *=syuttyou.=*  
Business trip  
  
'Business trip.'
10. Dean: *=hai. [°syuttyou°]*  
Yes business trip  
  
'Yes, business trip.'
11. Toku: *[u:::~:~:n] syuttyou wa desu nee,*

Hmmmmmmm business trip Top COP:POL IP  
*imanotokoro yotei nai desu ne.*  
for the time being plan NEG COP:POL IP

‘Hmmmmmmm, as for a business trip, for the time being, there is no plan.’

In segment 1, the roles of expert and novice are demonstrated through the repair sequence. Toku has trouble understanding Dean’s question which is signaled by the other- initiated repair in line 2. Dean attempts to self-repair in line 3 and elicits help, which is followed by Toku’s other-initiated repair in line 6. Dean accepts the other-initiated repair (line 8), and eventually the participants return to their original discussion (line 11). This sequence displays that the participants are seeking mutual understanding of Dean’s question.

Segment 1 is a typical example of an expert-novice interaction. This study will adopt the terminology of expert-novice when the participants orient to differential language expertise and will show that the multilingual identity can also be constructed. The use of the categories of target language expert and novice avoid the stereotyping that arises with the terms native and non-native speakers. That is, non-native speakers are always deficient in their language production.

As the analysis will show, there are many places in conversations where the participants are not concerned with linguistic errors. Previous expert-novice studies (Carroll 2000; Hauser 2003; Hosoda 2000, 2004, 2006; Wong 2000a) have typically focused **only** on the repair sequences as a demonstration of the roles of language expert and novice. This article will show that the expert-novice roles are just part of the complex identity constructions that occurred in my data when there is “talk about language.” This article will include more of the interaction than is typically provided in similar studies. This will allow for an analysis of the additional identity work that occurs in the interaction, such as a multilingual speaker identity and the interculturality of the participants.

This article will answer the following questions:

1. How does talk about language play a role in the participants’ negotiation of their identities?
2. Does this provide an opportunity for an orientation to interculturality, and if so, what occurs?

The analysis examines two areas: code shift and non-code shift events. The first example will demonstrate when the participants code-shift to engage in talk about language and indicate the identities of expert-novice and multilingual speaker. The participants accomplish the construction of the stance of “I know a little about your language.” The second example will demonstrate that the participants are engaging in talk about the Korean language without using a code-shift. Despite the lack of a code-switch, one of the participant’s indicates her orientation to her intercultural statuses. However, the participants’ sequential moves shift the talk away from further engagement in talk about language use. For both of the segments, the analysis will demonstrate how the participants’ orient to the category of multilingual speaker and on occasion the formation of intercultural understanding.

### 3. Data and Methodology

This article examined two segments from 45 hours of data, produced by two of the participants, Ji Eun Han and Mi Ran Na. The data was recorded in the Chubu area of Japan with other speakers of Japanese. The participants used mini disk recorders and the researcher was not present. These two segments are just two of many similar segments where the participants engaged in talk about language.

This study used a Conversation Analysis informed perspective for analyzing the data for the construction of identity following the seminal works of Sacks (1972, 1979, and 1992) and the collection of works in Antaki and Widdicombe (1998). Identity is defined as how participants display their orientations toward others in the talk to indicate their relationships and identities (Antaki and Widdicombe 1998). The basis for analysis is the use of Membership Categorization Analysis (MCA). MCA is the examination of the process of organizing and reorganizing people into categories or groups in conversation (Sacks 1992). Antaki and Widdicombe’s (1998) work propose three analytical practices in which identity can be examined. E. Zimmerman (2007) designated these practices as labeling (explicit categorization), description (formulating a category) and “doing” identity. The analysis for this study focuses more on how the participants are accomplishing the identities of expert-novice and multilingual speakers in the talk.

### 4. Code-shift in “talk about language:” Pronunciation comparisons: It sounds like...

This section will show when the participants are working together to work out the use of a Korean language form. This leads to the participants indicating their understanding of how this form works and engaging to “teach/learn” about a Korean phrase. The participants create a space for negotiating language similarities and differences to indicate that they want to know a little about another’s language. The analysis will demonstrate that, in addition to the roles of expert-novice, the participants accomplish further identity work for that of multilingual speakers.

Segment 2 involves a phonological comparison of what a language form sounds like to one of the participants. Ji Eun Han is a main participant, and she is talking with her friend. They are at a Korean restaurant and have just received their order. In the 25 seconds before the beginning of the talk in line 499, a song that contains the phrase *EMMA YA*<sup>3</sup> begins. We can hear clicking of silverware on the plate and chewing throughout the segment.

#### (2) Segment 2. Ji Eun Han MD 7 Track 2 (JH=Ji Eun Han A=a female friend)

498	(25.6) ((song starts in this pause and can hear sounds of them eating and serving up food))	(25.6) ((song starts in this pause and can hear sounds of them eating and serving up food))
499	JH: <i>EMMA YA tte wakaruu?</i>	‘do ((you)) know the ((phrase)) other((in Korean))?’ ((said while mouth full))
500	(1.7)	(1.7)

501-502	A:	<i>honto da tte kikoeru, ha ha ha: honma ya tte kankokugo no honto da tte imi. a:, kankokugo ja nai ya.</i>	'((I) hear it as "really," ((honto da, Standard Japanese)) ha ha ha: it is "really" ((honma ya, Osaka dialect)) in Korean it means "really".((honto da)) a:, not in Korean'
503		(1.3)	(1.3)
504	A:	<i>o:sakaben↑</i>	'O:saka dialect↑'
505		(1.2)	(1.2)
506	JH:	<i>EMMA YA tte iu no?</i>	'((you)) say EMMA YA'
507		(0.5)	(0.5)
508	A:	<i>un, E[MMA YA.</i>	'uh-huh, E[MMA YA.'
509	JH:	<i>[EMMA YA, honma ya. [un un un.</i>	'[EMMA YA, honma ya. [uh-huh uh-huh uh-huh.'
510	A:	<i>[sonna fuu ni kikoeru EMMA YA okaa no</i>	'[(I) hear it that way "EMMA YA" ((means)) mother?'
511	JH:	<i>soo soo. [okaasan?</i>	yes yes. [mother?'
512	A:	<i>[soo yatte itton chau?</i>	'[((you)) say it that way right?'
513		(0.3)	(0.3)
514	JH:	<i>un.</i>	'uh-huh.'
515		(0.3)	(0.3)
516-517	A:	<i>honma: ya tte kikoeru no? hehehe (0.6) honto da to iu.</i>	'I hear it as really ((honma ya, Osaka dialect)) hehehe (0.6) to say really ((honto da, Standard Japanese))'
518	JH:	<i>un.</i>	'uh-huh.'
519		(2.2) ((during this pause, the singer of the song says EMMA YA again.))	(2.2) ((during this pause, the singer of the song says EMMA YA again.))
520	JH:	<i>EMMA YA.</i>	'EMMA YA ((Korean))'
521	A:	<i>un un.</i>	'uh-huh uh-huh.'
522		(9.4)	(9.4)

Segment 2 demonstrates one strategy for making pronunciation comparisons between two languages or dialects. Ji Eun Han and participant A orient to participant A's status of knowing about Korean, the Japanese Standard dialect and the Japanese Osaka dialect. In this segment, Ji Eun Han poses a question in response to a phrase of a song that is being played in background at the Korean restaurant they are eating at.

The segment begins in line 499 with Ji Eun Han directly questions participant A's knowledge of the Korean term EMMA YA ('mother'). Participant A's response in line 501-502, is a pronunciation comparison between EMMA YA ('mother') and *honma ya* ('really,' Osaka dialect). She provides the standard Japanese pronunciation for really (*honto da*) and then the Osaka dialect version. She then claims that the *honto da* is Korean. A 1.3 second pause occurs between this and the next line of talk. This pause is significant in that it indicates that something is not quite right. What follows shows this. Participant A provides a self-initiated self-repair that it is not Korean and then further clarification that it is Osaka dialect. However, this is not enough to fix the possible confusion as indicated by Ji Eun Han's response, which is a second question in line 506 as to whether in Osaka dialect they say EMMA YA. This question is a move for further clarification and denotes Ji Eun Han's confusion with participant A's previous utterance. In line 510, participant A reiterates that she hears EMMA YA as *honma ya* clarifying her position. It is immediately following this that there is an indication that participants finally arrive at a

shared understanding of the meaning in lines 510 and 511 when A suggests that EMMA means *okaa* ('mother') in Japanese and this is confirmed by Ji Eun Han.

The identity construction in this segment is complicated because the identities of expert-novice and multilingual speakers are happening simultaneously. As far as the expert-novice roles are concerned, the two participants share this role. Participant A attempts to show her expertise in lines 501-502 by providing a comparison between the two languages. However, she had to self-repair when she made a mistake in the language she was referencing. The role of expert shifts to Ji Eun Han in line 511 after a question from participant A requests confirmation of the meaning of *EMMA YA* with *okaa*. In this example, it is not a matter of a non-native linguistic disfluency that leads to repair. The repair occurs with the "native speaker." Thus, the expertise constructed here is for comparing language forms in two languages.

In regard to the other identity constructions that occur in this segment, participant A constructs the identity of multilingual speaker for Ji Eun Han by asking for confirmation about the meaning of *EMMA YA* in line 510. Participant A is demonstrating that this is how she hears Korean and therefore Ji Eun Han's language. The identity of participant A is also constructed as a multilingual speaker of two dialects. She not only compares Osaka dialect and standard Japanese despite the repair that occurs in line 502, but she also provides her perspective as to how she hears *EMMA YA*. Through this exchange, the two participants are sharing their respective languages indicating their intercultural memberships. The comparisons of the languages indicate the participants' orientation to arriving at an understanding of the words under discussion. The participants' multilingual speaker identities are made relevant as a part of the comparison making process. In the end, the participants construct the moment as intercultural by showing that "I know little about your language."

## 5. Comparing Japanese and Korean without a code-shift: Talk to move away from talk about language

In the previous section, the analysis explored ways in which a code shift and pronunciation comparisons between Japanese Osaka dialect and the Korean language became the focus of the interaction as a means to discover more about Korean. In turn, various identity constructions evolved from that talk, such as multilingual speaker and expert-novice. This section will also focus on how comparisons are made, but this time, there is no code-shift to a Korean word that occurs. The analysis shows that while one participant wants to move to talk about linguistic practices, the other participant avoids this by indicating his lack of interest. In segment 3, Mi Ran Na and her male friend are driving in her friend's car. Participant B, the male friend, is driving and Mi Ran Na is the passenger. The two participants start to talk about snow after seeing the freshly fallen snow on the ground outside the car window.

### (3) Segment 3. Mi Ran Na MD 11 Track 2 (MN=Mi Ran Na, A=Male friend)

55	MN:	<i>sooka: (0.9) sonna ni tookunaka- [tta</i>	'I see: (0.9) it wasn't that fa[r]
56	B:	<i>[(soo-) yuki ga</i>	'[(yeah-) snow'

57	MN:	<i>oo sugoi:</i>	‘oo wow.’
58		(1.0)	(1.0)
59	B:	<i>yukidaruma tsukureru na:</i>	‘((you/we)) could make snowmen.’
60	MN:	<i>heheh</i>	<i>heheh</i>
61	B:	<i>hehe</i>	<i>hehe</i>
62		(1.0) ((sound of the engine))	(1.0) ((sound of the engine))
63	MN:	<i>yukidaruma da kke?</i>	‘it is snowmen?’
64	B:	<i>un.</i>	‘uh-huh.’
65	MN:	<i>un.</i>	‘uh-huh.’
66	B:	<i>yukigassen mo dekiru.</i>	‘((we)) could have a snow battle ((snowball fight))’
67		(0.7) ((sound of plastic bag rustling))	(0.7) ((sound of plastic bag rustling))
68	MN:	<i>yukigassen (ko)</i>	‘snow battle (ko)’
69	B:	<i>soo soo</i>	‘yes yes’
70		(0.8)	(0.8)
71	MN:	<i>hehehe (0.4) nande yuk- yuki genka to iwanai no?</i>	‘hehehe (0.4) why don't you say sno- snow fight?’
72		(1.6) ((sound of engine))	(1.6) ((sound of engine))
73	B:	<i>(yukigenka?) ((sound of engine))</i>	‘(snow fight?)(sound of engine)’
74	MN:	<i>un. uh-huh</i>	‘uh-huh.’
75		(4.0) ((sound of plastic bag rustling))	(4.0) ((sound of plastic bag rustling))
76	MN:	<i>nande yukigassen desu ka. (0.5) yukigenka janakute,</i>	‘why is it snow battle. (0.5) ((and)) not snow fight,’
77	B:	<i>yukigenka ( )</i>	‘snow fight ( )’
78		(0.3)	(0.3)
79	MN:	<i>datte kankoku:go: de suru [to yuki genka da mon.</i>	‘well if say ((it)) in Korean [it is snow fight.’
80	B:	<i>[u:n↑</i>	‘[uh-hu:h↑’
81		(0.4)	(0.4)
82	B:	<i>a soo na no?</i>	‘a is that so?’
83	MN:	<i>hai.</i>	‘yes.’
84		(2.2) ((sound of plastic bag rustling))	(2.2) ((sound of plastic bag rustling))
85	B:	<i>kassen de,</i>	‘battle,’
86		(1.1)	(1.1)
87	MN:	<i>chigatte yukigenka dat(h)te(h).</i>	‘not ((that)) ((it is)) snow fi(h)gh(h)t.’
88	B:	<i>un. docchi demo ii janai?</i>	‘yes. either is ok right?’
89	MN:	<i>hehe [he .hhh sonna docchi mo ii tte sonna koto.</i>	‘hehe[he .hhh what ((you)) say both are okay what's that.’
90	B:	<i>[hehe</i>	<i>[hehe</i>
91	B:	<i>un. anmari kodawari wa nai yo.</i>	‘yes. ((I)) won't dwell on ((it)).’
92-93	MN:	<i>heheheheheh .hh Hiro san ni kodau- kodawaru kedo sonna koto ni kodawaranai no?</i>	‘heheheheheh .hh Hiro would dwell on such a thing. ((you)) won't dwell on it?’
94	B:	<i>iya ano: he[heh</i>	‘no well: he[heh’
95	MN:	<i>[hehehehe (0.9) .hhh</i>	<i>[hehehehe (0.9) .hhh</i>
96		(2.1)	(2.1)
97	MN:	<i>nani?= =hoka ni kodawaru kana:.</i>	‘what?= =I wonder if ((I)) dwell on: ((things)).’
98	B:	<i>=hoka ni kodawaru kana:.</i>	‘=I wonder if ((I)) dwell on: ((things)).’
99	MN:	<i>kodawatteru: mitai.</i>	‘it seems that((you are)) dwelling.’

100		(0.4)	(0.4)
101	B:	<i>un. kodawaru. (0.2) onaji mono demo yasui mono demo</i>	‘yes. dwelling. (0.29 even similar things or cheap things’
102	MN:	<i>sore wa soo [da kedo ne.</i>	‘that is [true.’
103	B:	<i>[heheh</i>	<i>[heheh</i>
104		(0.7) <sup>4</sup>	(0.7)

Before getting into the analysis of what the participants accomplish here, an explanation of the differences that Mi Ran Na brings to the floor is necessary. Both Japanese and Korean have borrowed Chinese characters (Kanji for Japanese and Hanja for Korean) and a Chinese-like pronunciation for some words. The original Chinese pronunciation in both Korean and Japanese was adjusted to fit the respective languages. South Koreans have for the most part stopped using the Chinese characters except for a few instances such as the print media and names, but the pronunciations remain a part of the language. In Japanese, the word for snowball fight is *yukigassen* (雪合戦) which means in English snow war or battle. Mi Ran Na provides the non-existent word of *yukigenka*, (‘snow fight’) which is the Japanese pronunciation of what she proposes would be the Korean way of constructing the word with Chinese characters. If this were a word, it would be the following characters: 雪喧嘩. The Figure 1 shows a representation of these words.

<b>Snowball Fight</b>	
雪合戦	雪喧嘩
<i>yukigassen</i>	* <i>yukigenka</i>
snow battle	snow fight
(Japanese word)	(Non-existent word in Japanese)
	눈싸움
	<i>nwun ssa wum</i>
	Snow fight
	(Korean word)

Figure 1. Snowball fight

The talk about language here stems from what was seen outside the window of the car (fallen snow). Participant B suggests that they could make snowmen (*yukidaruma*) in line 59 to which Mi Ran Na seeks confirmation of what she had heard in line 63. This exchange is an example of novice seeking confirmation from an expert about a word. From here, participant B proposes another possible snow activity, *yukigassen* (‘a snowball fight’). At first, it appears that Mi Ran Na, as the novice, is seeking confirmation of that word too as seen by participant B’s interpretation and response of *soo soo* (‘yes yes’) in line 69. However, this is where the participants transition from a confirmation check to an instance of a clarification check. Min Ran Na indicates she needs further clarification by asking a question that seeks out why the term is not formed in another way in lines 71-79. She tries to create another opening for an expert-novice exchange about language in line 79 with her reference to Korean’s use of a word that means snow fight. While participant B at first shows interest with his response of *a soo na no?* (‘is that

so?') in line 82, participant B makes clear his indifference about engaging in these roles with a disaffiliative move in line 88 with *docchi demo ii janai?* ('either is okay right?'). In response, Mi Ran Na questions this indifference in line 89. He responds however in line 91 with *anmari kodawari wa nai yo.* ('I won't dwell on it.'). This disaffiliative move thus, shifts the topic from the debate over terminology to things participant B will dwell on.

Thus, the two participants engage for a brief moment in metalinguistic talk when Mi Ran Na brings up the differences between the conceptualization for the compound for snowball fight in Japanese and Korean. Her suggestion for how the word is said in Korean brings to the forefront of the conversation her identity as a Korean speaker. Participant B in response provides a disaffiliative move indicating his indifference and shifts the topic. Mi Ran Na does not challenge this shift in topic and complies by engaging in this new topic. The identity constructions in this segment differ from the previous segment where the two participants mutually engaged in the exchange to discover about the other's language. In this case, Mi Ran Na constructs herself as a multilingual speaker who is trying to find out the differences between Korean and Japanese. However, participant B sequential indicates his unwillingness to engage in the topic and does not work to further explore her identity as this multilingual speaker. Participant B avoids engagement in talk about lexical conceptual differences. While participant B does not work to construct his own interculturality, Mi Ran Na constructs their intercultural differences through this comparison. Participant B's shift to another topic avoids further development of this potential intercultural topical talk.

## 6. Conclusions

These two segments, while both involving talk about language, resulted in different outcomes. Ji Eun Han and her interlocutor arrived at a shared understanding for the term they were discussing. Mi Ran Na and her interlocutor did not pursue finding an answer for her question. There could be a couple of reasons for this. In segment 2, the word in question is a real word that is compared to another real word. In segment 3, however, Mi Ran Na is asking her participant to engage in talk about word that does not exist in Japanese. For him, this is not a matter for pondering because the words are just different. Thus, their talk ends up being redirected to a more concrete topic which is the act of dwelling on something. This is an area that participant B can comment or is willing to comment about because Mi Ran Na is remarking about his personality. Thus, one possible reason for the different results here is the type of word that is being compared. In both segments, the participants construct their expertise and multilingual identities. The outcome of the talk however is shaped by the participants' uptake of the topic.

This analysis demonstrates that more than just expert-novice identities can be constructed in topical talk about Korean language pronunciation and usage. In segment 2, the participants created a space for a pronunciation comparison between Japanese and Korean constructing the multilingual identity as a salient aspect of the talk. The participants' conversational activities for talk about language indicated an exchange of intercultural information and provided an opportunity for the speakers to have an intercultural moment. The talk indicates that the participants are engaging in discussions that broaden their understandings of the language, their cultures, and each other. However, as shown in segment 3, the Japanese participants did not always take up the topic of talk

about language and display interest in the other's language. Instead, the participant B successfully redirects the talk to a topic he will engage in. While the main participant's identity as a multilingual speaker is made salient for a moment, the two speakers do not pursue the topical talk that could develop further intercultural understanding.

The analysis shows that for Ji Eun Han and Mi Ran Na, it was not the non-native status that was relevant for these interactions. Instead, the participants construct, through various conversational practices, the identities of expert-novice, multilingual speaker, topic avoider, and intercultural identities. The talk about language in these two segments indicates that the participants engaged or attempted to engage in discussions that could broaden their understandings of the Korean language. As segment 3 showed, this activity can be sometimes redirected to avoid the topic altogether.

The implication of this study reinforces that researchers must look carefully at the participants' joint productions of identities as produced within the sequential moves of the talk. These findings also suggest that the process of constructing one's identity does not stop at the repair sequence. If the analysis had stopped there, the complex identities that followed would not have been discovered. It also demonstrated that there are various agendas for the talk (segment 2, an intercultural moment, segment 3 avoiding further engagement in intercultural talk). In addition, it also shows that the assumption of identity as found in many identity studies, especially in intercultural situations, could lead to stereotyping and misdiagnosis of the identities constructed by the participants.

Further research is needed in the area of language expertise to discover other ways in which the expert-novice roles can be activated. In this case, the talk about language was one avenue which led to indicating the participants' intercultural memberships. The participants can work to discover more about each other and the target language under discussion through talk about language.

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## Appendix: Transcription Conventions

.	Falling intonation, declarative intonation
,	Falling-rising, continuing intonation
?	Rising intonation, question intonation
-	False start
:	Elongated vowel
=	Latched turn with no gap or overlap, or continuation by same speaker from non-adjacent line
[	Overlap
(0.5)	Length of pause
(difficulty)	Unsure hearings
( )	Unclear speech
(( ))	Comments: laugh, breath out.
°e::tto°	Quieter than rest of speech
ha	Laughter token
(h)	Laughter token within a word
h	Audible outbreath, more letters indicate longer outbreath
.h	Audible inbreath, more letters indicate longer inbreath
↑↓	A shift to a higher or lower pitch

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### Notes

<sup>1</sup> This project was reviewed for the use of human subjects. IRB #12278 University of Hawai'i at Manoa

<sup>2</sup> While Hauser (2003) uses the native/non-native speaker dichotomy for discussing his participants, he does so with the analytical intent of showing these categories are omnirelevant when other correction appears.

<sup>3</sup> *EMMA* means “mommy” while *ya* is a marker used typically with names to indicate familiarity.

<sup>4</sup> The passage continues with the participants discussing things that participant B will dwell on.

# A Compositional Approach to the Topic-Comment Articulation in Japanese

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## Abstract

This paper<sup>1</sup> argues that information-packaging in Japanese is induced by the lexical property of the topic particle WA. Assuming that the information packaging derives the tripartite structure comprising the topic operator, restriction and nuclear-scope, I show how the syntactic parse translates topicalized sentences into tripartite semantic structures in a strictly compositional way. I also argue against the topic-as-entity theory because the topic particle can mark a wide range of expressions which are assumed by a speaker to be familiar to hearers.

**Keywords:** information-packaging, topic-comment articulation, categorical grammar, compositional semantics.

## Introduction

The purpose of this paper is to present how to partition sentences into the topic and comment parts in terms of the syntax-semantics interface. We will use one syntactic property of the discourse particle WA to map topicalized sentences into the tripartite structure proposed in Partee (1991), Hajicova et al. (1998). We will not go into the detail about the semantic characterization of what the topic marked expressions denote. We will show the function of the topic marker cannot be explained by the file card metaphor as in Portner & Yabushita (1989), for instance, because WA can follow a wide variety of expressions including nouns, postpositional phrases, nominalized open propositions. This fact force a challenge to any theory employing a simple file-card metaphor. There is a crucial difference in WA-GA and definite-indefinite counterparts.

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<sup>1</sup> Variants of this material have been presented in whole or in part at LENLS 2007, PACLIC 20, and the Workshop on Dynamic Syntax (the Tohoku University 21st Century COE Program in Language, Brain and Cognition). I'd like to thank the audiences at those presentations, and especially Key Yoshimoto, Norry Ogata, and Ruth Kempson for their helpful comments.

It has been noticed that topic phrases must be definite, referring to familiar entities or those which can be inferable from contexts. First, let us observe a typical context in which the subject-marked and topic-marked nominals show up.

- (1) Mukasi, mukasi, ... kappa-to yobarer-u osorosii ikimono-ga sunde-orimasita.

Kappa-wa iro-ga kimidori-de, karada-ni ke-ga nai doobutu-de, sakana-to kame-to saru-ga mazatta-youna sugta-o siteimas-u.

*Once upon a time, there lived a terrifying creature called a kappa. The kappa was a yellow-green, hairless creature that looked like a cross between a fish, a turtle and monkey.*

It has often been argued that the subjects of kind- or individual level predicates are marked with the topic marker WA, while the subject of stage-level predicates with the nominative marker GA, when they introduce new discourse referents into context, as illustrated in (2) and (3). However, even in sentences stating inherent or enduring properties of individuals, if the referents of the subjects are unfamiliar to hearers, they must be marked with the nominative GA as shown in (1).

- (2) a. *Uma-wa ninjin-o taber-u.*

horse-Top carrots-Acc eat-Pres

'Horses eat carrots.'

- b. *Uma-ga ninjin-o tabete-ir-u.*

horse-NOM carrots-Acc eat-Prog-Pres

'Horses are eating carrots.'

- (3) a. *Uma-ga ninjin-o tabar-u.*

- b. *Uma-wa ninjin-o tabete-ir-u.*

(2a) is a typical kind-level sentence, and (2b) a stage-level sentence with the progressive verb form. If the subject of a kind-level/individual predicate is marked with the nominative marker, as in (3a), it must receive an exhaustive listing interpretation, so (3a) means only horses eat carrots. If the speaker assumes the subject of a stage-level predicate is given/familiar to a hearer, it can be marked with WA, as shown in (3b), or often can be omitted because Japanese is a pro-drop language.

But we should not jump to the hasty conclusion, along the lines just sketched, on the relation between genericity and topic-marking because we can easily find many examples in which the subjects of individual/kind-level predicates are marked with nominative marker.

- (4) a. *Syogakusei-desae* [<sup>?</sup>*uma-wa/uma-ga* *ninjin-o taberu*]-koto-o *sitte-iru.*

school child-Even [horses-Top/horses-Nom carrots-Acc eat]-Comp-Acc know-Pres

'Even elementary school children know that horses eat carrots.'

- b.\* *Nani-wa/Nani-ga ninjin-o tabemasu-ka.*  
 What-Top/What-Nom carrots-Acc eat-Pres-Q  
 'What eat carrots?'
- c. *Dono doobutu-wa/doobutu-ga ninjin-o tabe-masu-ka?*  
 Which animal-Top/ -Nom carrots-Acc eat-Pres-Q  
 'Which animals eat carrots?'
- Dore-mo tabe-masen.*  
 'None.'

In embedding clauses, the subjects has a strong tendency to be marked with nominative case. In interrogative sentences, we never say *\*dare-wa* 'who-Top', *\*nani-wa* 'what-Top', *\*doko-wa* 'where-Top', etc. regardless of the predicate types. Only presuppositional complex question forms comprising *which* plus common nouns can be marked with WA, often with contrastive connotation, which imply that speakers assumes the hearers should have known the set of individuals among which they should choose one as an answer. The point is that even if the subjects are marked with nominative in (4a) and (4b), the whole sentences are taken to be generic, expressing an enduring properties of the subjects. In questions introduced by the complex *which*-forms as in (4c), the existence of the referents is presupposed. Therefore, the negative response to (4c), *Dore-mo tabe-masen*, sounds a bit odd because it conflicts with this presupposition.

It is often assumed that the topic marked expressions are outside the scope of negation.

- (5) a. *Uma-wa ninjin-o tabe-nai.*  
 Horses-Top carrots-Acc eat-Neg-Pres  
 'Horses don't eat carrots.'
- b. *Uma-ga ninjin-o tabe-te-inai.*  
 eat-Prog-Neg-Pres  
 'Horses are not eating carrots.'
- c. *Uma-wa ninjin-o tabe-te-inai.*  
 'The horses are not eating carrots.'

(5a), still maintaining the existential presupposition of horses, asserts that horses have a property of not eating carrots' while (5b) means that there is no horse which is eating carrots now. In (5c), the existence of some specific is taken for granted from the context. Given the data so far, it seems that we have two possibilities concerning the GA-WA alternation for subject marking. One possibility is that the topic-comment structure is default in Japanese, so originally WA-marked expressions may be marked

with nominative when they are focused, but this speculation seems simply wrong. We will defend another possibility, suggesting that topic marking has nothing to do with case marking, and that topicalization is a defocusing process, as assumed in Japanese linguistics.

There is another important property of the topic marker WA, as repeatedly pointed out by the Japanese traditional grammarians. Though the case marker GA never marks constituents other than subjects regardless of its meaning, WA can follow a wide variety of expressions, such as common nouns, postpositional phrases, nominalized open propositions, etc.

(6) a. *Kyoto-ni-wa takusan-no gaikokujin-ga yatte-kur-u.*  
 Kyoto-to-Top a lot of foreigner-NOM come-Pres  
 'To Kyoto, a lot of foreigners come.'

b. \**Kyoto-ni-ga takusan-no gaikokujin-ga yatte-kuru.*  
 Kyoto-to-Nom

(7) a. *Are-ni mieru-wa tyatsumi-ja naika*  
 Over there can-see-Top tea-plucking-BE-Neg-Q  
 'Lit.: Is what we can see over there tea-plucking?'

b. *Boku-ga itta-toki-wa dare-mo inakat-ta.*  
 I-Nom went-when-Top anyone be-Neg-Past  
 'When I went there, no one was found.'

c. \* *Boku-ga itta-toki-ga dare-mo inakat-ta.*  
 I-Nom went-when-Nom anyone be-Neg-Past

The possibilities of topic-marking of various expressions force a challenge to any explanation of the topic marker WA based on a simple file-card metaphor. In principle, there is no need to associate the notion of topic with individuals. Instead, if the notion of topic has something to do with presuppositions, it should denote a kind of proposition. In the next section, let us develop this idea.

## 1. Formulation of the Notion of Topic

### 1.1. Topic and Existential Presupposition

Following Partee (1991) and Hajicova et al. (1998), we assume here that the topicalization can be connected with quantification, according to which sentences with topics are translated into the tripartite structure comprising the topic operator, restrictive

clause and nuclear scope. In some traditional approaches, WA is often argued to have historically been developed from the particle introducing conditional clauses, so we will use the implication relation to express the interpretation of topic. Peregrin (1996) defines the meaning of topic as follows: || indicates presuppositions:

- (8)  $|X| = ||X||$  if X is a sentence.  
 $= ||\exists y.y=X||$  if X is a term.  
 $= ||\exists y.X(y)||$  if X is an unary predicate.

If a common noun is followed by the topic marker WA, as in (2a), we have a translation like  $||\exists x.Horse'(x)||$ . The definition as in (8) allows a wide variety of expressions to be interpreted as topics, exactly as seen in the examples given so far. As for the truth condition of sentences with topics, therefore, a topicalized sentence should be taken as a kind of implication, but since its restriction part denotes a (existential) presupposition, it should not be canceled by negation. Let us assume therefore that if the topic, mapped into a restrictor, is false, the whole sentence has no meaning at all. Only if the meaning of topic is true, the topicalized sentence has the value.

- (9)  $Top\ x[P(x) \rightarrow Q(x)] = T$  iff  $P(x) = T \ \& \ Q(x) = T$   
 $= F$  iff  $P(x) = T \ \& \ Q(x) = F$   
 $= 0$  iff  $P(x) = F$

We do not need to go into the detailed meaning of topicalized phrases including so called contrastiveness further here, because our concern is to parse topicalized sentences and translate them into rough semantic interpretations with the tripartite structure, assuming that the speaker thinks that the referents of WA marked expressions are explicitly given in discourse or inferable using the hearer's knowledge.

An example of translation is shown in (10b) we get from generic sentence (2a), ignoring genericity here:

- (10) a.  $Top\ x[Horse'(x) \rightarrow Eat'(Carrots', x)]$   
b.  $Be\_eating'(Horse',Carrot')$   
c.  $\exists x[Horse'(x) \ \& \ \forall y[y=x \rightarrow Eat'(y, Carrot')]]$   
d.  $Top\ x[Horse'(x) \rightarrow Be\_eating'(x, Carrot')]$

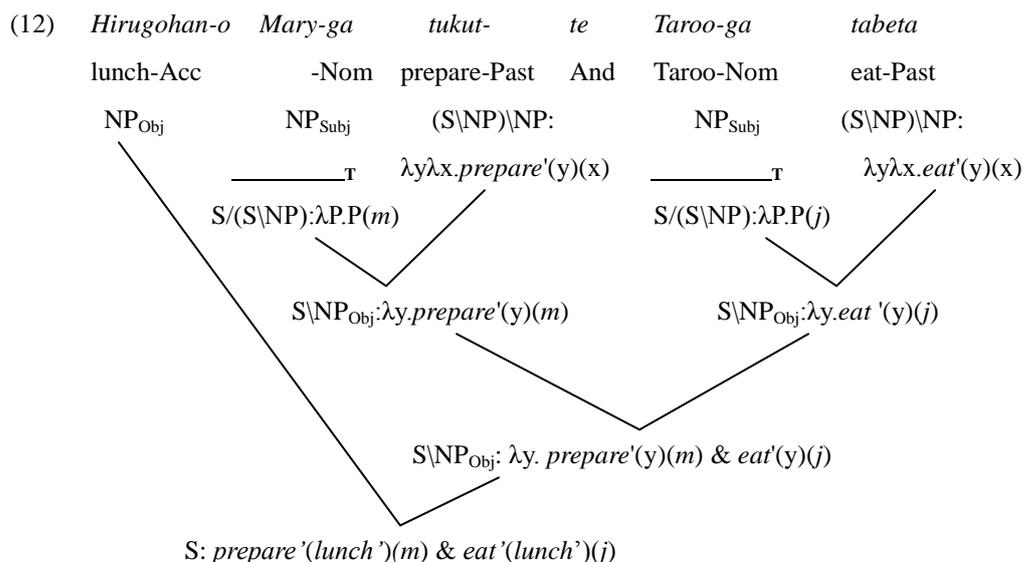
Based on the data given so far, I reject the idea that WA-marking vs. GA-marking simply reflects the distinction between kind/individual-level vs. stage-level predicates, or categorical vs.thetic judgments. Now I introduce some syntactic parsing mechanism using a version of categorial grammars.

## 1. 2. *Combinatory Categorial Grammar*

To set up the syntax-semantics interface, let us adopt a version of Categorical Grammars called Combinatory Categorical Grammar (hereafter, CCG), developed by Steedman and his followers. Each connector is defined using a directional slash ‘/’.

- (11)a.  $X/Y:f \quad Y:a \Rightarrow X:fa$                        $Y:a \quad X\backslash Y:f \Rightarrow X:fa$   
 b.  $X/Y:g \quad Y/Z:f \Rightarrow_B X/Z:gf$                        $Y\backslash Z:f \quad X\backslash Y:g \Rightarrow_B X\backslash Z:gf$   
 c.  $X:a \Rightarrow_T T\backslash(T/X)$                       or                       $T/(T\backslash X): \lambda f.f a$

(11a) is the rule of function application. An expression of functional category  $X/Y$  combines with an adjacent argument of category  $Y$  to yield an expression of category  $X$  and interpretation  $fa$ , the result of applying  $f$  to  $a$ . This rule, for example, combines a transitive verb with an object to yield the verb phrase, and then, combines the verb phrase with a subject to produce the sentence. The rule of function composition (11b) allows a higher functor of category  $X/Y$  to combine with a subordinate function of category  $Y/Z$  to yield a new function of category  $X/Z$ . (11c) is the rule of type-raising, and in what follows, we suppose that type-raising is triggered by a lexical property of the particle *WA*. We will devise a version of type-raising rule to deal with a wide range of topicalization phenomena. This operation can be invoked to convert a subject NP, which would normally be an argument to a verb phrase of category  $NP\backslash S$ , into a function looking forward for a verb phrase to produce a sentence,  $S/(SNP)$ . In order to see how the rules in (11b) and (11c) interact, consider (12), the case of scrambling in Japanese:



In (12), the verbs *tukur* ‘prepare’ and *taber* ‘eat’ of category  $(S\backslash NP)\backslash NP$  cannot combine with the object at first because the object *Mary* is preposed. Thus, they have

to combine with the subjects *Mary* and *John* by function composition first, which are type-raised into the functions taking the verb phrases as argument. The resulting expression *Mary-ga tukur-te Taroo-ga tabeta* of category  $S \setminus NP_{Obj}$  finally combines with the dislocated object *Mary*.

In English, prosody or dislocation of constituents to the left is used to mark topicalized elements (we ignore intonation here), while topics in Japanese are morphologically marked with the topic marker *WA*, which invokes a special (lexical) type-shift in (13):

(13) Type Shift rule for Topicalization

$$\begin{array}{c}
 -WA \quad := \quad (S_{Top}/(S \setminus X)) \setminus X \quad \text{where } X = NP, PP, \dots \\
 \quad \quad \quad \swarrow \quad \searrow \\
 \quad \quad \text{restrictor } (X) \quad \text{nuclear scope } (S \setminus X)
 \end{array}$$

$$X_{WA} \quad := \quad S_{Top}/(S \setminus X): \text{TOPIC } x[P(x) \Rightarrow Q(x)]$$

In (13), the category of a topicalized expression is a functor which takes an open proposition, yielding a (matrix) sentence with the topic-comment structure. A topicalized expression of category  $X$  corresponds to the domain restriction and an expression (remaining part of the sentence) of category  $S \setminus X$  denotes the nuclear scope. The former refers to the context and the latter updates or adds information to the context given by the former (plus the preceding context). The function of category (9) for *WA* is twofold: one is to divide a sentence into two predicates, one represents a restrictor which is the locus of update and the remainder (open proposition) updating the information state, resulting in a tripartite information structure including the TOPIC operator. The second function of (9) is to make a gap in a open proposition (i.e. a nuclear scope) which is underspecified with respect to its category and position so that an expression of any category can be marked with the topic marker *WA*.

## 2. Derivation of Topicalized Sentences

Some important characteristics of the topic particle *WA* has been proposed by many Japanese traditional grammarians, who claim to carefully distinguish the topic particle from other case particles including *GA*. We already noted that the topic does not follow question words with the exception of *which* + noun form. The former also marks expressions of various categories including postpositional phrases, subordinate



the topic particle is required to express coherence with matrix verbs, following the traditional grammarians, we can see the difference in grammaticality between (17a) and (17b):

- (17) a. *Uma-ga taber-u mono-o osiete-kudasai.*  
 horse-NOM eat-Pres things-Acc teach-Pres.  
 'Please tell me what horses eat.'  
 b.\* *Uma-wa taber-u mono-o osiete-kudasai.*

The embedded clause states a permanent, inherent property of horses, but the subject can never be marked with the topic particle, because horses cannot be in concord with osiete-kudasai, a polite imperative form addressing the hearer, as seen in (18):

- (18) \* *Uma-wa taber-u mono-o osiete-kudasai.*  
 horse-TOP eat-REL.CL things -ACC teach-PRES  
 S<sub>Topic</sub>/(S\NP) (N/N)\(S\NP) N NP\N S\NP<sub>Acc</sub>
- 
- \*

Japanese traditional grammar, as in Oono (1991), classifies sentences into two types: topicalized, which present topics and add statements about topics, and presentational, or thetic (presentationa) sentences. They have treated the topic particle and case markers like GA in a quite different manner, but since Kuno's work, the contrastive study between WA and GA has ruined this tradition.

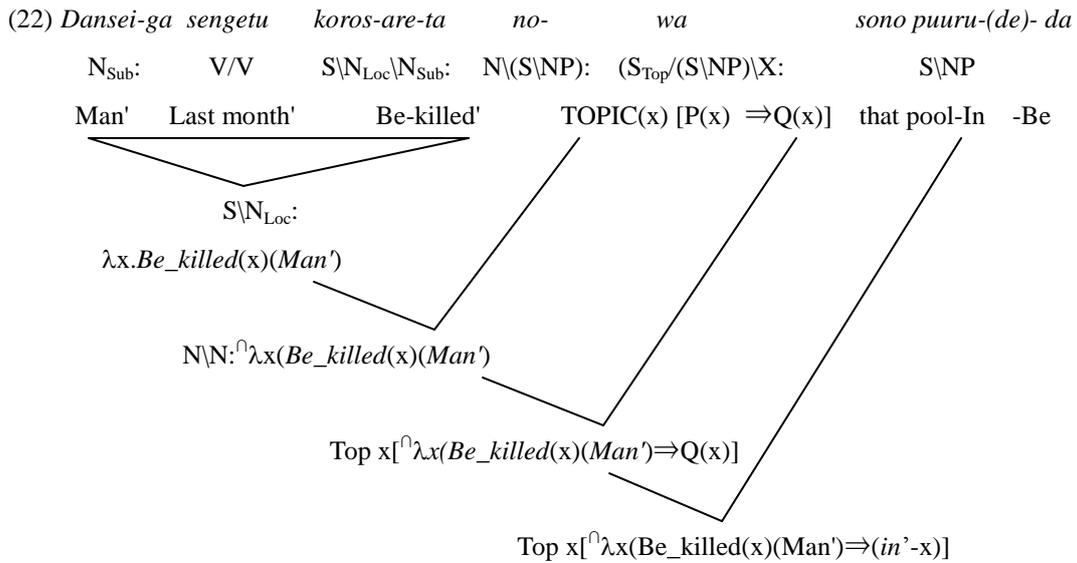
I am also suspicious about the topic-as-entities theory using the file-card metaphor because WA follows a wide variety of expressions, as we have seen above. In Japanese cleft constructions, the focus-frames can be marked with the particle WA. In the case of (17), which has a focus on Kyoto, the speaker assumes interlocutors are familiar with the fact that a man was killed last year somewhere.

- (19) a. *Dansei-ga kyonen SONO PUURU-de koros-are-ta.*  
 man-Nom last year that pool-in kill-Pass-Past  
 'A man was killed in the pool last year.'  
 b. *Dansei-ga kyonen koros-are-ta-no-wa sono puuru-(de)-da.*  
 man-Nom last year killed-Past-Nom-Top that pool-(In)-Past  
 'It is in this pool that a man was killed last year.'

In old Japanese, WA often directly attaches to sentences, as in (7a). But In

modern Japanese, the nominalization operator is necessary to convert propositions or open propositions to nominals.

- (21) Nominalization Operator *NO*  
 $no := N \setminus (S \setminus NP) : \lambda x \lambda P \wedge [P(x)]$



The topicalized expression is an open proposition in (20), which denotes an event, not an entity/entities. Our definition of the topic marker *WA* allows not only entity-denoting expressions but also property-denoting, event-denoting expressions to be presented as topic in Japanese sentences. On the other hand, the topic-as-entities theory may have much difficulties in dealing with such various topic expressions in a unified manner.

### 3. Some Consequences from the Proposed Analysis

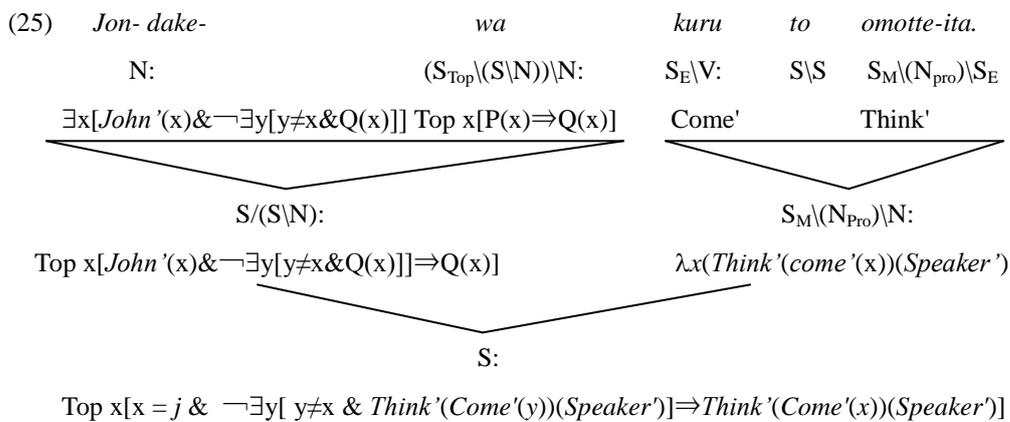
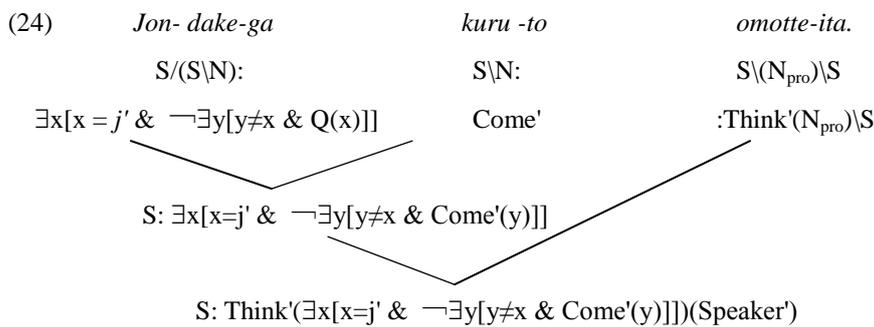
So far, we have argued that *WA* induces a kind of concord/coherence with a sentence final predicate, presenting some expression as topic, and assembling the remaining parts of the sentence as comment. Let us consider another example, which seems to support our definition of the topic particle. Portner & Yabushita (1998: 140, (38)) note the following contrast:

- (23) a. *Jon-dake-ga kuru to omotte-ita.*  
 John-only-Nom come Comp thought  
 'I thought that only John would come.'

- b. *Jon-dake-wa kuru to omotte-ita.*  
 John-only-Top come Comp thought  
 'John is the only one who I thought would come.'

They say that the subject of a clause embedded under an attitude verb *omotte-ita* 'thought' behaves in a semantically differently manner, depending on whether it is topic-marked or nominative-marked. In the case of (23a), with a nominative subordinate subject, *Jon-dake* 'only John' gets narrow scope with respect to the attitude verb. In contrast, in (23b), with a topic-marked embedded subject, it gets wide scope. It is clear, therefore, that the presence of a topic marker can have a semantic effect. They try to the difference purely in terms of the semantics of topic.

We can give a different account to the contrast observed in (21) from a compositional point of view. In our, and traditional Japanese grammarians' account, only the nominative case is assigned to the embedded subject. On the other hand, once it is followed by the topic-marker, it assembles all elements following it including the sentence final attitude verb, as the comment. The derivations of (23a) and (23b) are shown in (24) and (24) respectively, positing very simple meaning of *dake* 'only' here, ignoring its own presupposition.



Let us ignore the phonologically null matrix subject here. Using the combinatorial rule function composition allows all the elements following the topic

phrase to be assembled and result in a non-standard constituent *kuru-to-omotteita* '(I though *x* would come'. I think there should be more to be said about the interpretation of the WA-phrase in (23b)(which seems to convey contrastive implicature, like 'at least John'). All that I want to show here is that the topic particle induces concord/coherence with the matrix predicate.

So far we have examined only topic phrases appearing at the sentence-initial position. We have attempted to develop a mechanism with incremental parsing, in which once a parser encounters a topic phrase, it automatically assembles the remaining part of the sentence as a non-standard constituent, which is triggered by the concord/coherence property of the topic marker itself. We do not need to know where is a gap which corresponds to the topic within this constituent. Let us note here another property of the Japanese topic marker here. So far we have dealt with constructions in which topicalized expressions appear sentence-initially, which are in harmony with the standard process of information update. The topic particle, however, can also mark sentence-internal expressions, which should be problematic for a simple tree structure analysis like (4). Let us take (26) as an example.

- (26) Context: A minister is questioned at the congress about the bribes he allegedly received. An article in the newspaper reports:

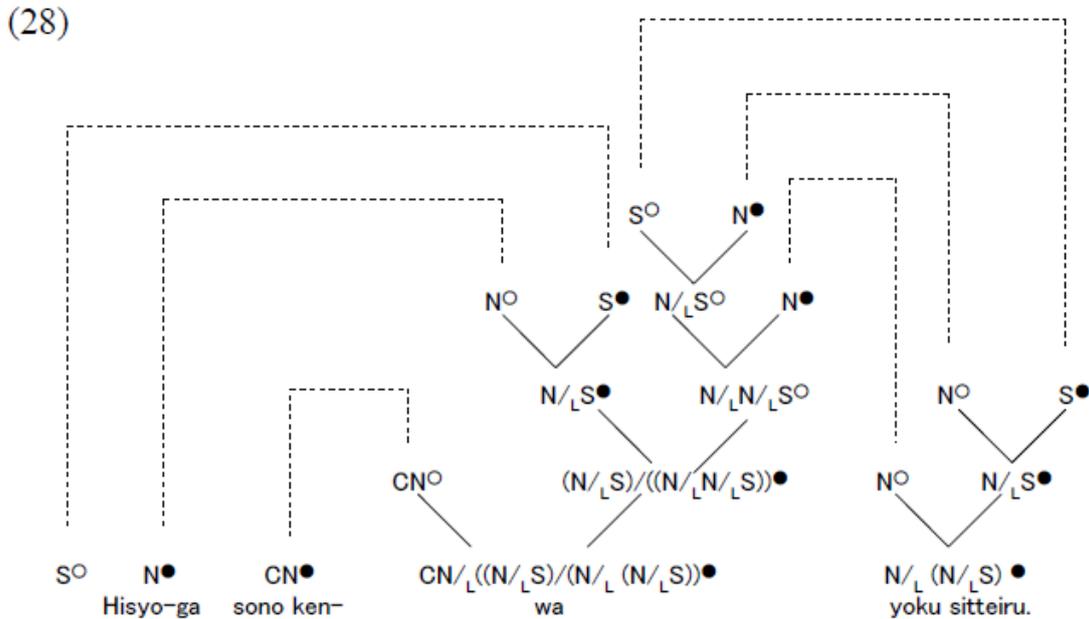
*Daijin-wa hisyo-ga sono\_ken-wa yoku sitteiru-to itta.*  
 minister-TOP secretary that issue-TOP well know said

'The minister said that his secretary knows that issue well (better than he).'

Because the old/familiar information includes the law-maker and that issue (bribery), and the other elements constitute new information in (26), the expressions conveying old and new information are intermixed with each other, which appears to make information packaging at surface structure level extremely difficult. The sentence-internal topic *sono ken-wa* does not seem to convey contrastive meaning which implies the existence other pieces of information he does not know. I just claim that given the flexible type raising and composition rules assumed in categorial grammars, we can derive an expected interpretation from parsing of this sentence. Due to the limit of space, I only present the derivation of the embedded clause.

In old Japanese, the accusative case marker was followed by the topic marker, yielding the complex form *-o-ba*, though the accusative marker is omitted in modern Japanese. Given the flexible use of type shifting in recent CCG, suppose that the accusative topic is raised to the functor taking two-place predicates as input to return one-place predicate as result. We show the derivation in a bit different presentation, hiring a proof-net approach recently developed by Morrill.

(27) *hisyo-ga sono ken-(o)-wa yoku sir-teiru-to ...*  
 N: (S\N)/((S\N)\N: V\*/V\* (S\N<sub>Sub</sub>)\N<sub>Obj</sub>  
 Secretary' that issue well know-Pres ...



Top x[*issue'*(x) → *knows'*(x)(*secretary'*)]

The proof net in (28) is automatically translated into its meaning indicated under the net, via semantic trip, which is omitted due to space limitations.

Actually, the topic-marked object must be in concord (or coherence) with the sentence-final matrix verb. Because the matrix subject and embedded object are marked as topic in (26), the derivation of the sentence with multiple topics is complicated, but from the semantic trip, we can get the semantic derivation like (29):

(29) TOP x[*minister'*(x) ⇒ (TOP y[*that\_issue'*(y) ⇒ *said'*(*knew\_well'*(y)(*secretary'*))(x)]]

Topic segment
Comment segment

In this section, we have dealt with the syntactic structures and semantic interpretations of a wide range of topicalized sentences in a parallel fashion maintaining the principle of (strong) compositionality by using the flexible combinatory operations. We argue that, even if the topic-comment segmentation is not manifested in surface strings, it should be encoded as the tripartite semantic structure automatically derivable from syntactic parsing if the proper category and type are assigned to the topic

expressions.

#### 4. Conclusion

In this paper, I attempted to show how sentences with topics of various categories can be translated into the meaning, in terms of the syntax-semantics interface. Following the standard assumption that topic phrases are associated with presupposition, we argued against the account based on the file-card metaphor, and the topic-as-entity theory, because Japanese topic-particle WA can follow a wide variety of expressions. Also we dismissed the comparative approach to the topic particle and case particles including the nominative marker, which has been the overwhelmingly dominant paradigm in the study of information structure in Japanese since Kuno (1973).

We adopted the hypothesis proposed in Japanese traditional grammar that the topic particle shows a kind of concord/coherence with sentence final predicates. Japanese traditional grammarians implicitly have argued for a version of information packaging, which we have explicitly formalized in this study, using a version of categorial grammar.

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# On Information Packaging of Topicalized and Scrambled Sentences in Japanese\*

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## Abstract

This paper attempts to demonstrate that scrambling in Japanese affects the interpretation of a sentence in an intricate way. Although, as widely held, scrambling does not affect truth conditions of a sentence or create an operator-variable construction (Saito 1989), it creates FOCUS. On the other hand, Japanese is endowed with a specific particle for topicalization, i.e., *-wa*, which creates LINK. Vallduví's (1992, 1995) thesis that information packaging of a sentence is represented at information structure (IS), independent of LF or SS, is adopted. However, his information packaging strategy is revised so that the mapping from syntactic constituent structure to IS will be consistent. Furthermore, some evidence from prosody reinforces the argument that scrambling is FOCUS-creating.

**Keywords:** scrambling, topicalization, information structure, downstep

## 1. Introduction

It has been widely held since Saito (1989) that scrambling in Japanese is "semantically vacuous" in the sense that it does not create an operator-variable construction unlike *wh*-movement in English because it exhibits total reconstruction at LF. It is rather obvious that scrambling is not the type of operation that affects truth conditions of a sentence. Hence, when (1a) in the base SOV order is true (1b) in the scrambled OSV order is also true, and vice versa.

- (1) a. John-ga banana-o tabe-ta (SOV: base order)  
      -nom       -acc eat-past  
      'John ate a/the banana.'  
      b. banana-o John-ga tabe-ta (OSV: scrambled order)  
          -acc       -nom eat-past

Furthermore, *banana* in (1b) can be topicalized with *-wa* as in (1c).<sup>i</sup>

- (1) c. banana-wa John-ga tabe-ta (O<sub>T</sub>SV: object topicalized)  
      -top       -nom eat-past  
      'As for the banana, John ate it.'

As long as *banana* in (1c) is taken as a thematic topic, not a contrastive topic, it must be

given in the discourse. Since Kuroda (1965) and Kuno (1973) a lot of Japanese grammatical literature has discussed discourse-functional differences between topicalized sentences with a *wa*-phrase and untopicalized sentences with a nominative *ga*-phrase. However, as far as we know, not much attention has been paid to the discourse-functional effect of scrambled sentences like (1b). As we will make clear shortly, although (1b) may be truth-conditionally indistinguishable from (1a) or (1c), it is still different from the others discourse-functionally.

The organization of this paper is as follows. Section 2 discusses discourse-functional effects of scrambling and topicalization in Japanese. We will show that the two operations, both being potentially word order changing, are in complete division of labor in information packaging in the sense of Vallduví (1992, 1995). Specifically, while topicalization is LINK-creating, scrambling is FOCUS-creating. In Section 3, we will point out some problems of Vallduví's information packaging strategy. Section 4 proposes an alternative set of strategies so that the mapping from syntactic structure (i.e. s-structure) and information structure (IS) will be transparent. Section 5 provides additional evidence from prosody that scrambling creates FOCUS. Finally, section 6 concludes the paper.

## 2. Scrambling, Topicalization and Information Structure

### 2.1 Discourse effects of scrambling and topicalization

As far as we know, Akizuki (1994) was the first to make it explicit that scrambling in Japanese has a discourse-functional effect. (2) is a *wh*-question where the subject is *wh*-interrogated in the SOV base order. Among the potentially possible answers to (2) in (3a~c), only (3a) and (3c) are felicitous.<sup>ii</sup>

- (2) dare-ga sono piza-o tabe-ta no? (SOV: base order)  
 who-nom that pizza-acc eat-past Q  
 'Who ate that pizza?'
- (3) a. Taro-ga sono piza-o tabe-masi-ta. (SOV: base order)  
       -nom that pizza-acc eat-pol-past  
       'John ate that pizza.'
- b. #sono piza-o Taro-ga t tabe-masi-ta. (OSV: object scrambled)  
           that pizza-acc -nom eat-pol-past  
           'That pizza, Taro ate t.'
- c. sono piza-wa Taro-ga e tabe-masi-ta. (O<sub>T</sub>SV: object topicalized)  
           that pizza-top -nom eat-pol-past  
           'That pizza, Taro ate (it).'

Among the three potential answers, (3a), which has the same SOV order as (2), is the most straightforward answer. Since the object *sono piza* 'that pizza' is given in (2), it can be topicalized as in (3c), and it is still felicitous. However, if the object is scrambled as in (3b), the result is not a felicitous answer to (2). This calls for a principled account.<sup>iii</sup>

## 2.2 Information packaging (Vallduví 1992, 1995)

Traditionally, the discourse-functional structure of a sentence like (4b) as an answer to (4a), where the object *the car* is focused, has been represented by binary partition of the sentence, that is, topic-comment (Li & Thompson 1976, Kuno 1980, Reinhart 1982, among others) or focus-presupposition (Chosmky 1971, Jackendoff 1972, Prince 1981, among others) as in table (5).

- (4) a. What did John fix?  
b. John fixed [<sub>F</sub> the CAR].

(5)

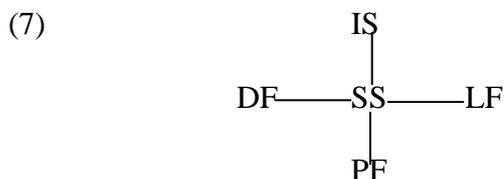
John	fixed	[ <sub>F</sub> the CAR]
topic	comment	
presupposition		focus

However, the information status of the verb *fixed* in (4b) is not clear under either way of binary representation in (5). Instead, Vallduví (1992, 1995) proposes that information packaging of a sentence undergoes ternary partition as shown in (6).

- (6) a. S = {FOCUS, GROUND}  
b. GROUND = {LINK, TAIL}  
(GROUND=presupposition, LINK=topic, TAIL=GROUND-LINK(=topic))

According to Vallduví, the information packaging of a sentence (=S) is implemented as indicated in (6a, b); S is first divided into FOCUS and GROUND, the latter of which corresponds to presupposition of focus-presupposition partition; GROUND is further divided into LINK and TAIL, the former of which corresponds to topic of topic-comment partition.

Vallduví further argues that information packaging of a sentence is represented at Information Structure (IS), which is independent of PF or LF, as schematized in (7).



In Vallduví's terms, (4b) is represented as in (8) at IS.<sup>iv</sup>

- (8) [<sub>G</sub> [<sub>L</sub> John] [<sub>T</sub> fixed]] [<sub>F</sub> the CAR]. (for (4b), G = S+V)

In (8), the verb *fixed* is given its information status as TAIL, which is part of GROUND. Note, however, that Vallduví's brace notion in (6) allows for GROUND in (8) to be a syntactic non-constituent. It should be a potential problem because such a non-constituency makes the mapping between SS and IS opaque. We will come back to this

issue in section 4.

### 2.3 Topic *-wa*, obligatory focus *-ga*, and information packaging

It has been generally agreed since Kuno (1973) that while the thematic topic with *-wa* as in (9b) is a given piece of information in the context, the nominative subject with a stative predicate as in (10b) is an obligatory focus (or "exhaustive listing" in Kuno's terms).

- (9) a. (Asking about Taro's occupation)  
Taro-wa nan(i) desu ka? / nani-o si-te-i-masu ka?  
-top what cop Q what-acc doing.pol Q  
'What is Taro?' or 'What is Taro doing?'
- b. Taro-wa KASYU desu. (Taro = topic)  
-top singer cop  
'Speaking about Taro, he is [F A SINGER].'
- (10) a. (Among the relevant set of individuals)  
dare-ga kasyu desu ka?  
who-nom singer cop Q  
'Who is a singer?'
- b. TARO-ga kasyu desu. (TARO = obligatory focus)  
-nom singer cop  
'It is [F TARO] who is a singer.'

Following Vallduví, we will take it that the information structures of (9b) and (10b) are represented as in (11a) and (11b), respectively.

- (11) a. [<sub>G=L</sub> Taro-wa] [<sub>F</sub> SINGER] (IS for (10b))  
b. [<sub>F</sub> TARO-ga] [<sub>G</sub> singer] (IS for (11b))

## 3. Scrambling and IS

### 3.1 Scrambling, topicalization and discourse felicity

As we have seen at the end of section 1, although scrambling does not alter truth conditions of a sentence, it has a discourse-functional effect. The question in (2), reproduced as (12), can be appropriately answered by (13a) and (13c), but not by (13b) where scrambling preposes part of the background information of the question, that is, the object *sono piza-o* 'that pizza-acc' in (12).

- (12) dare-ga sono piza-o tabe-ta no? (= (2), SOV: base order)  
who-nom that pizza-acc eat-past Q  
'Who ate that pizza?'

- (13) a. Taro-ga sono piza-o tabe-masi-ta. (= (3a), SOV: base order)  
 -nom that pizza-acc eat-pol-past  
 'John ate that pizza.'
- b. #sono piza-o Taro-ga t tabe-masi-ta. (= (3b), OSV: object scrambled)  
 that pizza-acc -nom eat-pol-past  
 'That pizza, Taro ate t.'
- c. sono piza-wa Taro-ga e tabe-masi-ta. (= (3c), O<sub>T</sub>SV: object topicalized)  
 that pizza-top -nom eat-pol-past  
 'That pizza, Taro ate (it).'

On the other hand, if the *wh*-interrogative phrase is scrambled as in (14), the answer in (15a), which has the same constituent order as in (13b), becomes felicitous.

- (14) nani-o Taro-ga t tabe-ta no? (OSV: object scrambled)  
 what-acc -nom eat-past Q  
 'What did John eat?'
- (15) a. sono piza-o Taro-(?)ga/wa t tabe-masi-ta. (OS<sub>(T)</sub>V: object scrambled)  
 that pizza-acc -nom/top eat-pol-past  
 'That pizza, Taro ate t.'
- b. #sono piza-wa Taro-ga e tabe-masi-ta. (O<sub>T</sub>SV: object topicalized)  
 that pizza-top -nom eat-pol-past  
 'That pizza, Taro ate (it).'
- c. Taro-wa sono piza-o tabe-masi-ta. (S<sub>T</sub>OV: subject topicalized)  
 -top that pizza-acc eat-pol-past  
 'Taro ate that pizza.'

Due to its givenness, the subject *Taro* can be topicalized as in (15c). As the infelicity of (15b) indicates, *sono piza* 'that pizza,' which should constitute focus, may not be topicalized.

### 3.2 Information packaging in Japanese

As for information packaging in Japanese, we will propose (16a, b).

- (16) Proposals
- a. Topicalization  
 A phrase suffixed with *-wa* that is base-generated in the sentence-initial position constitutes LINK.
- b. Scrambling  
 A phrase that is scrambled to the sentence-initial position constitutes FOCUS.

Under the proposals in (16), (13a~c) and (15a~c) can be represented as (17a~c) and (18a~c), respectively.

- (17) a. [<sub>F</sub> Taro-ga] [<sub>G</sub> sono piza-o tabe-masi-ta]. (for (13a))  
 -nom that pizza-acc eat-pol-past

- b. [<sub>F</sub>\* sono piza-o] [<sub>F</sub> Taro-ga] [<sub>G</sub> (t) tabe-masi-ta]. (for (13b))  
     that pizza-acc       -nom       eat-pol-past
- c. [<sub>L</sub> sono piza-wa] [<sub>F</sub> Taro-ga] [<sub>T</sub> tabe-masi-ta]. (for (13c))  
     that pizza-top       -nom       eat-pol-past
- (18) a. [<sub>F</sub> sono piza-o] [<sub>G</sub> [<sub>L</sub> Taro-wa] [<sub>T</sub> tabe-masi-ta]]. (for (15a))  
        that pizza-acc                   -top       eat-pol-past
- b. [<sub>L</sub>\* sono piza-wa] [<sub>G</sub> Taro-ga (pro) tabe-masi-ta]. (for (15b))  
     that pizza-top       -nom       eat-pol-past
- c. [<sub>L</sub> Taro-wa] [<sub>F</sub> sono piza-o] [<sub>T</sub> tabe-masi-ta]. (for (15c))  
     -top   that pizza-acc   eat-pol-past

As shown in (17b), *sono piza-o* 'that pizza-acc' in (13b), which should constitute part of GROUND, is focused by scrambling, hence, an infelicitous answer to (12). Conversely, as shown in (18b), *sono piza* in (15b) should be construed as FOCUS, but it is made to be LINK by topicalization. Thus, the infelicity of (13b) and (15b) can be explained away.

#### 4. The Mapping Relation between SS and IS

##### 4.1 Syntactic constituency and information packaging

Vallduvís (1992, 1995) information packaging of a sentence in (6), reproduced as (19), allows GROUND to be a syntactic non-constituent.

- (19) a. S = {FOCUS, GROUND}  
        b. GROUND = {LINK, TAIL}

In (20b) as an answer to the question in (20a), GROUND is composed of the subject and the verb, a non-constituent. (21b) as an answer to the question in (21a) has its GROUND composed of the subject and the object, again, a non-constituent.

- (20) a. What did John fix? (=(4a))  
        b. [<sub>G</sub> [<sub>L</sub> John] [<sub>T</sub> fixed]] [<sub>F</sub> the CAR]. (=(4b), G=S+V)
- (21) a. What did John do to the car?  
        b. [<sub>L</sub> John] [<sub>F</sub> FIXED] [<sub>T</sub> the car]. (G=S+O)

##### 4.2 Toward a solution

Before providing a solution to potentially problematic cases in English like (20b) and (21b), we must point out that Japanese has similar problematic cases. To begin with, we will make a set of assumptions in (22).

- (22) Assumptions (about Japanese) 1  
        a. A nominative subject stays *in situ*, i.e. [Spec, vP] (Kuroda 1988, Fukui &

Takano 1998).

- b. A topicalized phrases with *-wa* is base-generated in [Spec, TP], and it binds/controls *pro* within *vP* (Hoji 1985).
- c. The event argument functions as a default LINK in a sentence without a topic with *-wa* (Tomioka 2001, 2007).

With the set of assumptions in (22), our earlier examples in (13a~c) and (15a~c) can be given their syntactic and IS representations in a and b in (23)–(28), respectively. The infelicity of (13b) results from the fact that what should be part of GROUND is focused by scrambling as shown in (24b). On the other hand, the infelicity of (15b) comes from the fact that what should be focused is topicalized with *-wa* as shown in (27); as a result, (15b) is not informative at all without any focus.

- (23) a. [TP [vP Taro-ga [vP sono piza-o tabe-masi-ta]]]. (= (13a))  
           -nom that pizza-acc eat-pol-past  
       b. [L e] [F Taro-ga] [T sono piza-o tabe-masi-ta] (G=non-constituent)
- (24) a. [TP sono piza-o<sub>i</sub> [vP Taro-ga [vP t<sub>i</sub> tabe-masi-ta]]]. (= # (13b))  
           that pizza-acc -nom eat-pol-past  
       b. [F sono piza-o] [G Taro-ga tabe-masi-ta]
- (25) a. [TP sono piza<sub>i</sub>-wa [vP Taro-ga [vP pro<sub>i</sub> tabe-masi-ta]]]. (= (13c))  
           that pizza-top -nom eat-pol-past  
       b. [L sono piza-wa] [F Taro-ga] [T tabe-masi-ta] (G=non-constituent)
- (26) a. [TP sono piza-o<sub>i</sub> [vP Taro-ga [vP t<sub>i</sub> tabe-masi-ta]]]. (= (15a))  
           that pizza-acc -nom eat-pol-past  
       b. [F sono piza-o] [G Taro-ga tabe-masi-ta]
- (27) a. [TP sono piza<sub>i</sub>-wa [vP Taro-ga [vP pro<sub>i</sub> tabe-masi-ta]]]. (= # (15b))  
           that pizza-top -nom eat-pol-past  
       b. \*[G [L sono piza-wa] [T Taro-ga tabe-masi-ta]] (no focus)
- (28) a. [TP Taro-wa] [vP pro] [vP sono piza-o tabe-masi-ta]]. (= (15c))  
           -top that pizza-acc eat-pol-past  
       b. [L Taro-wa] [F sono piza-o] [T tabe-masi-ta]. (G=non-constituent)

Note, here, that even in the felicitous IS representations in (23b), (25b), and (28b), LINK and TAIL, subcomponents of GROUND, are not even string adjacent, let alone syntactic constituency.

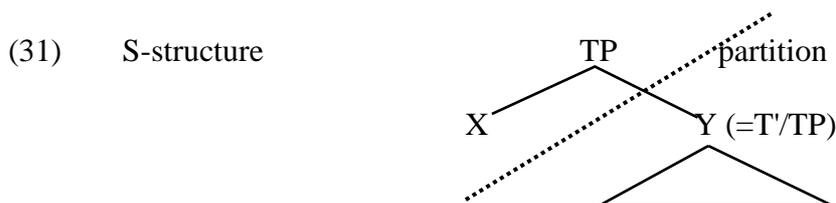
#### 4.3 A modification on Vallduvís information packaging

In order to overcome this potential problem, we propose a parenthetical notation (a, b) where a and b are in constituent with each other (linear order irrelevant, though), instead of Vallduvís set-theoretical brace notation {a, b}, as in (29) and (30).

- (29) a. S = (FOCUS, GROUND)  
 b. GROUND = (LINK, TAIL)

- (30) a. S = (LINK, COMMENT)  
 b. COMMENT = (FOCUS, TAIL)

Our proposal amounts to saying that TAIL can form an IS-constituent with FOCUS as well as LINK. Furthermore, we claim that the left-edge element is detached from the rest (a la Diesing 1992) during the mapping from SS to IS. If the detached element is FOCUS (e.g. a scrambled element in Japanese), the SS is mapped to the IS in (32a), but if it is LINK (e.g. a topic with *-wa* in Japanese), the IS will take the form in (32b).



- (32) Information packaging at IS  
 a. [F X] [G Y] (focus-prominent information packaging)  
 b. [L X] [C Y] (topic-prominent information packaging)

#### 4.4 Potentially problematic cases revisited

Given (29) and (30), all the potentially problematic cases in Japanese as well as in English that we have seen earlier may have an alternative IS representation.

- (33) a. SS: [TP sono piza<sub>i</sub>-wa [T [VP Taro-ga [VP pro<sub>i</sub> tabe-masi-ta]]]]. (= (13c))  
           that pizza-top                   -nom                   eat-pol-past  
 b. IS: [L sono piza-wa] [C [F Taro-ga] [T tabe-masi-ta]] (cf. (25b))
- (34) a. SS: [TP Taro-wa] [T [VP pro [VP sono piza-o tabe-masi-ta]]]]. (= (15c))  
           -top                                   that pizza-acc eat-pol-past  
 b. IS: [L Taro-wa] [C [F sono piza-o] [T tabe-masi-ta]] (cf. (28b))
- (35) a. SS: [TP John [T [VP fixed the CAR]]]. (= (20b))  
 b. IS: [L John] [C [T fixed] [F the CAR]]
- (36) a. SS: [TP John [T [VP FIXED the car]]]. (= (21b))  
 b. IS: [L John] [C [F FIXED] [T the car]]

As shown in each b- in (33)–(36), the noted potentially problematic cases can be taken for those in which FOCUS and TAIL form an IS-constituent, COMMENT, so that the mapping between SS and IS becomes transparent.

#### 4.5 WH-questions in Japanese and information packaging

It is widely observed (Tomioka 2007, among others) that wh-questions in

Japanese must have a topic unless the wh-interrogative itself is the subject as in our earlier example in (2=12). Consider (37a~c).

- (37) a. Taro-wa nani-o tabe-ta no?  
           -top what-acc eat-past Q  
           'What did Taro eat?'  
       b. #Taro-ga nani-o tabe-ta no?                   (as a non-echo question)  
           -nom what-acc eat-past Q  
       c. nani-o Taro-ga t tabe-ta no?  
           what-acc -nom eat-past Q

Since (37a) has a topic *Taro-wa*, it is a felicitous wh-question. On the other hand, since (37b) does not have a topic, it is not a felicitous non-echo wh-question. However, if the object wh-interrogative is scrambled across the nominative subject as in (37c), the sentence becomes a felicitous wh-question without a topic.

To account for the fact exhibited in (37a~c), we will make another set of assumptions in (38), both of which we believe to be innocuous.

- (38) Assumptions (about Japanese) 2  
       a. WH interrogatives constitute FOCUS at IS.  
       b. Only phrases with *-wa* may constitute LINK at IS.

(37a) and (37c) can be mapped to the felicitous ISs in (39a) and (39b) by information packaging in (30) and (29), respectively.

- (39) a. [L Taro-wa] [C [F nani-o] [T tabe-ta]] no?   (for (37a) by (30))  
           -top     what-acc eat-past Q  
           'What did Taro eat?'  
       b. [F nani-o] [G Taro-ga (t) tabe-ta] no?   (for (37c) by (29))

However, neither (29) nor (30) can derive a well-formed IS for (37b). Consider the two alternative ISs derived from (37b) in (40a, b).

- (40) a. \*[L Taro-ga] [C [F nani-o] [T tabe-ta]] no?   (for (37b) by (30))  
           -nom     what-acc eat-past Q  
           '(int.) What did Taro eat?'  
       b. \*[F Taro-ga] [G [F nani-o] [T tabe-ta]] no?   (for (37b) by (29))

(40a) is ruled out because a phrase without *-wa* (but with *-ga* 'nom' instead) constitutes LINK at IS. In (40b) a wh-phrase that should count as FOCUS is embedded in GROUND, which is not allowed.<sup>v vi</sup>

## 5. Evidence from prosody

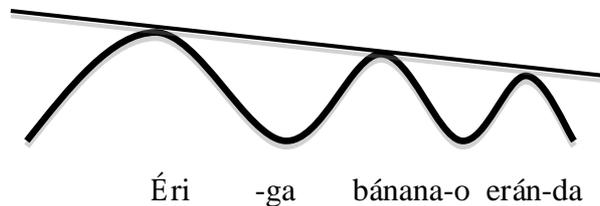
In this section, we will provide some prosodic evidence for our claim that scrambling creates FOCUS in terms of information packaging of a sentence in Japanese.

### 5.1 Downstep and thematic topic with *-wa* in Japanese

It has been widely known that Japanese exhibits downstep (DS), “a change in pitch register which is manifested as a marked lowering in the stretch of an utterance following an accented syllable” (Selkirk and Tateishi 1991: 519). Hence, (41a), all three major constituents of which are accented, has a schematic pitch contour as indicated in (42).

- (41) Éri-ga bánana-o erán-da.  
 -nom banana-acc choose-past  
 ‘Eri chose a banana.’

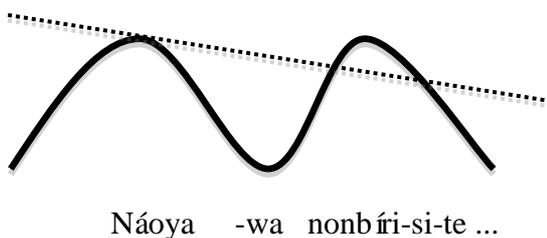
- (42) DS



However, based on her own experiment, Nakanishi (2002, 2006) reports that DS does not take place after thematic topic. The result of the experiment that Nakanishi has conducted shows that her example sentence in (43) has the schematic pitch contour in (44).

- (43) Náoya-wa nonb íri-si-te i-más-u                      (Nakanishi 2002: 439)  
 -top    relax-do-prog-pol-pres  
 ‘Naoya is relaxing.’

- (44) No DS



According to Nakanishi, this is because thematic topic with *-wa* is separated from the rest of the sentence by a major (prosodic) phrase (MPP) boundary, where a MPP is the domain to which DS applies.

Nakanishi’s (2002, 2006) claim can be interpreted in the way exhibited in (45).

- (45) a. step 1: [MPP Naoya-wa] nonbiri-si-te ...  
 b. step 2: [MPP Naoya-wa] [MPP nonbiri-si-te ...]

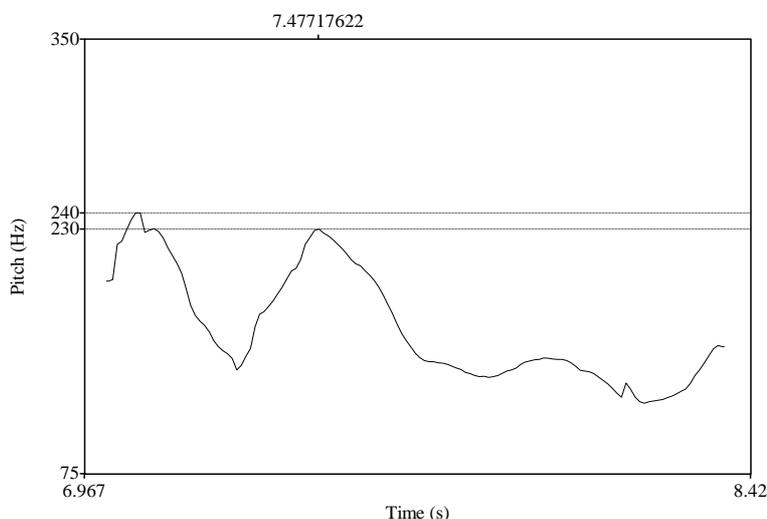
Since *Naoya-wa* is a thematic topic, it constitutes a MPP on its own (step 1). As a result, the rest of the sentence constitutes another MPP (step 2). Because a MPP is the domain to which DS applies, no DS effect is observed after *Naoya-wa*.<sup>vii</sup>

## 5.2 Our experiment and its results

Since we are more concerned with discourse-functional effect of scrambling, we have conducted our own experimental study on prosody in which we have compared scrambled and unscrambled sentences. In this study, each of the four subjects (all of whom are non-linguist speakers of Tokyo dialect) was given a set of wh-questions as cues and asked to read their answers. In (46)–(50), each a-sentence is given as a cue, the corresponding b-sentence is its answer, and the pitch contours of the b-utterances are given in Charts 1–5.<sup>viii</sup>

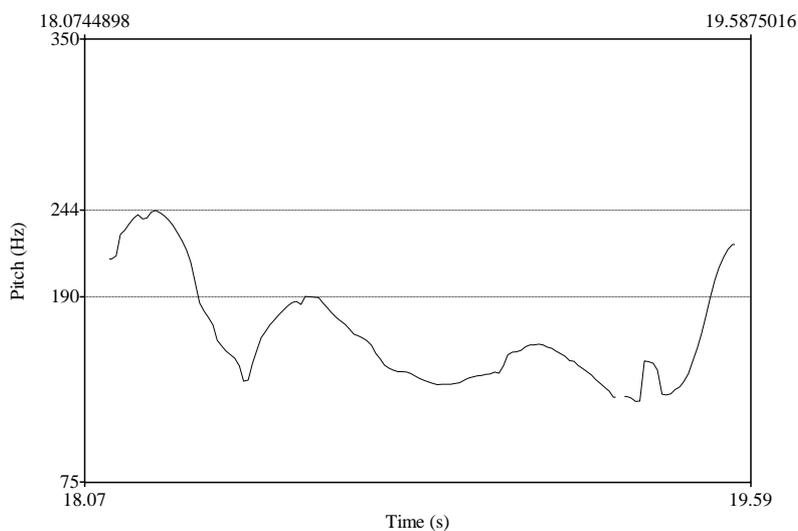
- (46) a. Eri-wa nani-o eran-da no? (S<sub>T</sub>OV: S topicalized)  
 -top what-acc choose-past Q  
 ‘What did Eri choose?’  
 b. Éri-wa bánana-o erán-da yo (S<sub>T</sub>OV: S topicalized)  
 -top banana-acc choose-past SFP (SFP=sentence-final particle)  
 ‘Eri chose [F A BANANA].’

Chart 1 (YM’s utterance of (46b)): No DS observed



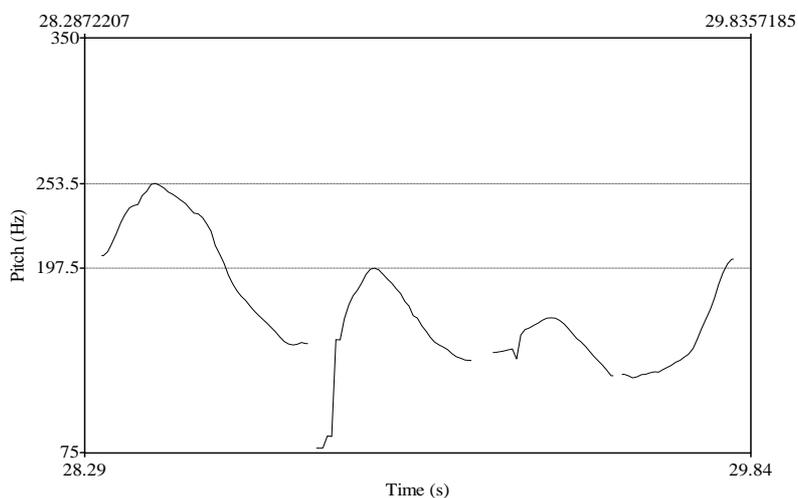
- (47) a. Dare-ga banana-o eran-da no? (SOV: base order)  
 who-nom banana-acc choose-past Q  
 ‘Who chose a banana?’  
 b. [F ÉRI-ga] bánana-o erán-da yo (SOV: base order)  
 -nom banana-acc choose-past SFP  
 ‘[F Eri] chose a banana.’

Chart 2 (YM's utterance of (47b)): DS observed



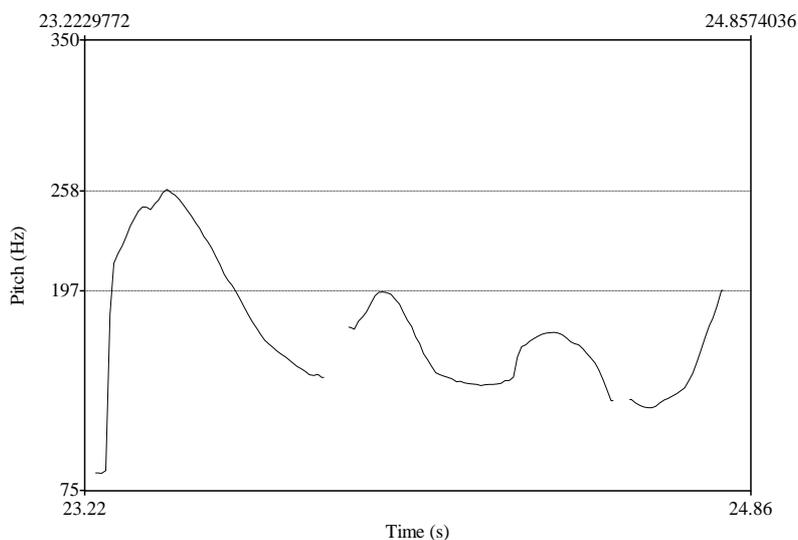
- (48) a. Eri-wa nani-o eran-da no? (S<sub>T</sub>OV: S topicalized)  
 -top what-acc choose-past Q  
 ‘What did Eri choose?’  
 b. bánana-o Éri-wa erán-da yo (OS<sub>T</sub>V: O scrambled)  
 banana-acc -top choose-past SFP  
 ‘[F A BANANA] Eri chose.’

Chart 3 (YM's utterance of (48b)): DS observed



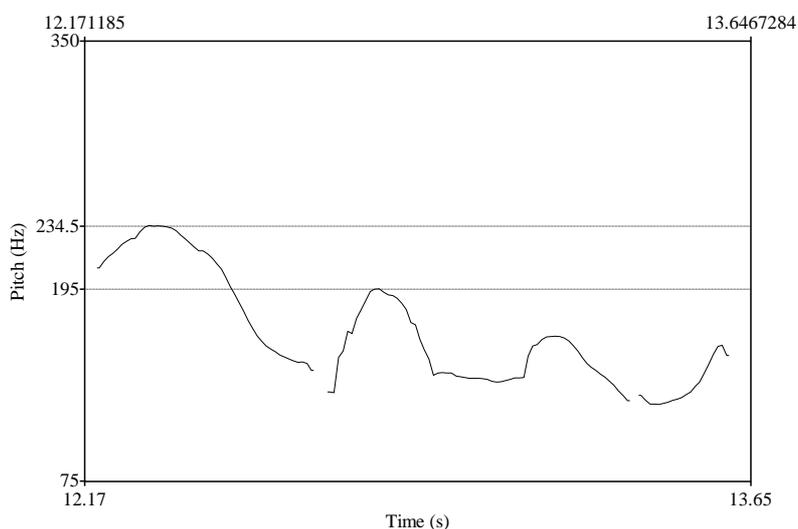
- (49) a. nani-o Eri-wa eran-da no? (OS<sub>T</sub>V: O scrambled,  
 what-acc -top choose-past Q S topicalized)  
 ‘What did Eri choose?’  
 b. bánana-o Éri-wa erán-da yo (OS<sub>T</sub>V: O scrambled,  
 banana-acc -top choose-past SFP S topicalized)  
 ‘[F A BANANA] Eri chose.’

Chart 4 (YM's utterance of (49b)): DS observed



- (50) a. nani-o Eri-ga eran-da no? (OSV: O scrambled)  
 what-acc -nom choose-past Q  
 ‘What did Eri choose?’
- b. b nana-o  ri-ga er n-da yo (OSV: O scrambled)  
 banana-acc -nom choose-past SFP  
 ‘[F A BANANA] Eri chose.’

Chart 5 (YM's utterance of (46b)): DS observed



As for the sentence-initial thematic topic in (46b), our result is similar to Nakanishi's (2002, 2006); namely, no remarkable DS effect is observed after the topic (see Chart 1); (46b) shows a sharp contrast, in that an obvious DS effect is observed after the sentence-initial nominative (focused) phrase (see Chart 2). However, (48b) and (49b), where the object is scrambled across a thematic topic (i.e., OS<sub>T</sub>V), exhibit a DS effect after the topic as well as after the scrambled object (see Charts 3 and 4). Furthermore,

the pitch contour of (50b), where the object is scrambled across the nominative subject (i.e., OSV), looks similar to those of (48b) and (49b) (compare Chart 5 with Charts 3 and 4).

What is noteworthy of the test results above is the fact that the sentence-initial scrambled phrase always exhibits the highest pitch peak, and DS applies towards the end of the sentence, as shown in Charts 3–5.<sup>ix</sup> Furthermore, this tendency is not altered whether scrambling takes place across a topic or a nominative phrase. Note further that this pattern is not affected whether the cue sentence is given in the base SOV order as in (48) or in the scrambled OSV order as in (49). Now we are concerned with how to interpret these facts.

According to Nagahara (2003), focus is one major factor that defines a MPP (which corresponds to Nagahara’s “Intermediate Phrase”) to which DS applies, and a focused element always appears on the left edge of a MPP. Given this, there are potentially two alternative explanations for the absence of DS in the case of (46b), repeated as (51) below (also see Chart 1 above).

- (51) [L Éri-wa] [F b nana-o] er n-da yo (=46b)  
           -top      banana-acc choose-past SFP  
           ‘Eri chose [F A BANANA].’

One way is to go with Nakanishi (2002, 2006) in the following way.

- (52) a. step 1: [MPP [L Eri-wa]] banana-o eran-da yo  
        b. step 2: [MPP [L Eri-wa]] [MPP banana-o eran-da yo]

Since the thematic topic *Eri-wa* constitutes a MPP on its own, it is set off from the rest of the sentence (step 1 in (52a)), and as a result, the rest of the sentence counts as another MPP (step 2 in (52b)). Another possibility, which we would like to pursue, is that, first, the focus *banana-o* defines a MPP so that it will appear on its left edge (step 1 in (53a)), and resultantly, the sentence-initial thematic topic constitutes another MPP (step 2 in (53b)).

- (53) a. step 1: Eri-wa [MPP [F banana-o] eran-da yo]  
        b. step 2: [MPP Eri-wa] [MPP [F banana-o] eran-da yo]

As far as (51) is concerned, the choice between the two is immaterial. However, cases like (48b) and (49b), repeated as (54) below, seem to provide a touch stone.

- (54) [F b nana-o] [L  ri-wa] er n-da yo (=48b)/(49b)  
           banana-acc      -top choose-past SFP  
           ‘[F A BANANA] Eri chose.’

If the thematic topic *Eri-wa* constitutes a MPP alone, as suggested by Nakanishi (2002, 2006), there will be three independent MPPs, as indicated in (55).

- (55) a. step 1: banana-o [MPP [L  ri-wa]] er n-da yo  
        b. step 2: [MPP banana-o] [MPP [L Eri-wa]] [MPP eran-da yo]

As indicated in (55a), the thematic topic *Eri-wa* constitutes a MPP on its own, and consequently, as indicated in (55b), each of the scrambled object and the predicate part of the sentence will independently constitute a MPP. Since the three major constituents are separated by a MPP boundary from each other, no DS effect should be expected, contrary to fact (see Charts 3 and 4). Contrarily, if the sentence-initial scrambled phrase defines a MPP but the thematic topic does not, the whole sentence counts as one MPP, as indicated in (56).

(56) step 1: [MPP [F banana-o] Eri-wa eran-da yo]  
no step 2

This provides the correct result. This is because a DS effect is remarkable in (50b) as well as in (48b) and (49b) (compare Chart 5 with Charts 3 and 4). In other words, whether the subject, across which the object is scrambled, is topicalized or not does not count.

Now we can provide an alternative account for Nakanishi's (2002, 2006) test sentence in (43), repeated as (57) below.

(57) [L Náoya-wa] [F nonb íri-si-te] i-más-u (=43)  
-top relax-do-prog-pol-pres  
'Naoya is relaxing.'

In our terms, focus, but not thematic topic, defines a MPP on its own. In (57), *nonbiri-si-te* 'be relaxing' is most naturally interpreted as focus. Hence, this part of the predicate defines a MPP so that it will appear on its left edge as indicated in step 1 in (58a).

(58) a. step 1: Náoya-wa [MPP [F nonb íri-si-te] i-más-u]  
b. step 2: [MPP Náoya-wa] [MPP [F nonb íri-si-te] i-más-u]

Consequently, the rest of the sentence (i.e., the sentence-initial topic) is made to constitute another MPP as shown in step 2 in (58b). Hence, no DS effect arises across the two MPPs.<sup>x</sup>

In this section, we have provided some evidence from prosody that scrambling creates FOCUS. As suggested by Nagahara (2003), FOCUS defines a MPP, to which DS applies, and it always appears on the left edge of a MPP. Given this, the fact that a scrambled sentence (i.e., OSV) constitutes only one MPP provides a support for our contention that scrambling is FOCUS-creating.

## 6. Concluding Remarks

In this paper, we have argued that scrambling is discourse-functionally non-vacuous in the sense that it creates FOCUS. Assuming with Vallduví (1992, 1995) that information packaging (IP) of a sentence is represented at IS, which is independent of LF, we have revised his IP strategy so that the mapping from the syntactic constituent structure to IS will be transparent. Furthermore, we have drawn a piece of evidence

from prosody to the effect that since scrambling creates FOCUS, the sentence-initial scrambled phrase makes the whole sentence one MPP, to which DS applies.

We have not been able to discuss other intriguing features of scrambling due to space limitation. One of such features is the definiteness/specificity effect, as pointed out in the literature.<sup>xi</sup> However, FOCUS can be either definite/specific or indefinite/non-specific. We must leave it for future research to scrutinize whether those properties of scrambling are correlated, and if so, how.

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## Notes

\* This is a revised version of the paper presented at the Workshop on Information Structure of CIL18 at Korea University on July 22, 2008. We would like to thank the audience there. Especially, we have benefited from questions and comments provided by Minori Kurahashi, Chungmin Lee, Shigeru Miyagawa, Seungho Nam, Satoshi Tomioka, and Reiko Vermeulen. The usual disclaimer applies. The research reported here has been partially supported by Pache Research Grant I-A-2 from Nanzan University.

<sup>i</sup> In what follows, the subject and object topicalized with *-wa* is indicated by  $S_T$  and  $O_T$ , respectively.

<sup>ii</sup> Henceforth, while ungrammaticality will be indicated by the common star notion \*, discourse infelicity by #.

<sup>iii</sup> Since Japanese tends to keep the given/backgrounded information silent, the following (ia, b) are even more natural answers to (2).

- (i) a. Taro des-u.  
cop-pres  
'It is Taro (who ate a banana).'
- b. Taro-ga pro tabe-masi-ta.  
-nom eat-pol-past  
'Taro ate (it).'

However, Japanese speakers can unanimously tell that while (3a) and (3c), though a bit wordy, are felicitous answers to (2), (3b) is not.

<sup>iv</sup> Henceforth, F = FOCUS, G = GROUND, L = LINK, and T = TAIL.

<sup>v</sup> In fact it is a matter of controversy whether the awkwardness of (37b) results from a violation of a core grammatical (i.e., either syntactic or semantic) principle or from a pragmatic/IS factor. In the text we are pursuing the latter possibility mainly because it is after all a root phenomenon. Contrast (37b) with (i), where the whole sentence is embedded under a verb of saying, which is perfectly grammatical/felicitous.

- (i) [Taro-ga nani-o tabe-ta ka] osiete  
-nom what-acc eat-past Q tell.me  
'Tell me what Taro ate.'

Tomikoka (2007), independently, assuming that the nominative subject in the root clause as in (37b) is obligatory focus, makes a claim that such a nominative subject renders an intervention effect that blocks the Q-marker from being associated with the *wh*-interrogative phrase in object position. Although a full evaluation of Tomioka's claim is beyond the scope of the present paper, it must be noted that the nominative subject with an episodic predicate (or a stage-level predicate in the sense of Kratzer 1989) like *tabe-ta* 'eat-past' need not be obligatory focus, and it can be neutral description in the sense of Kuno (1973); hence, it can be part of FOCUS. This is confirmed by the fact that (ii), an all-focus sentence, can be uttered in an out-of-the-blue context.

- (ii) Hora, Taro-ga banana-o tabe-ta!

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look            -nom            -acc eat-past  
'Look, Taro has eaten a banana!'

For Tomioka, a question remains as to why *Taro* in (37b) must be taken as obligatory focus but that in (ii) need not.

<sup>vi</sup> Despite the revision of Vallduvi's information packaging, there remain problematic cases. For instance, consider the following question-answer pairs from English and Japanese, respectively.

- (i) a. What happens to the dishes? (Erteschik-Shir 2007: 28)  
b. John washed the dishes.
- (ii) a. Taro-wa Hanako-ni nani-o age-ta no?  
-top -dat what-acc give-past Q  
'What did Taro give to Hanako?'  
b. Taro-wa Hanako-ni banana-o age-ta.  
-top -dat -acc give-past  
'Taro gave a banana to Hanako.'

The IS of (ib) and (iib) should look like (iiia) and (iiib), respectively.

- (iii) a. [<sub>F</sub> John washed] [<sub>L</sub> the dishes]  
b. [<sub>L</sub> Taro-wa] [<sub>G</sub> Hanako-ni [<sub>F</sub> banana-o] age-ta]

Neither seems to conform to the revised information packaging strategies in (29) and (30).

Although a disheseful scrutiny is necessary for such cases, we tentatively suggest the possibility that the object in (ib) is right-node raised, and the direct object in (iib) remains in the lower VP-shell after V raises to the higher V position, as indicated in (iva, b), respectively.

- (iv) a. [<sub>S</sub> [<sub>S</sub> John washed t] the dishes]  
b. [<sub>S</sub> Taro-wa [<sub>VP</sub> Hanako-ni [<sub>VP</sub> banana-o t] age+V<sub>ø</sub>] ta]

If these analyses are tenable, the following IS representations will be possible.

- (v) a. [<sub>C=F</sub> John washed (t)] [<sub>L</sub> the dishes]  
b. [<sub>L</sub> Taro-wa] [<sub>C</sub> Hanako-ni [<sub>F</sub> banana-o (t)] age-ta]

In the mapping from (iva) to (va), the right-node raised (i.e. S-adjoined) constituent, *the dishes*, constitutes LINK, and the rest of the sentence COMMENT. In (vb) mapped from (ivb), the lower VP shell with the trace of the raised V constitutes FOCUS. We would like to thank Satoshi Tomioka for drawing our attention to cases like (ii).

<sup>vii</sup> Based on our own experiment, we will propose an alternative account of the absence of DS after thematic topic in the following subsection.

<sup>viii</sup> For the sake of consistency, we will present the pitch contours of one subject (i.e. YM) throughout. However, the other subjects have shown the same tendency.

<sup>ix</sup> This result is orthogonal to Ishihara's (2000).

<sup>x</sup> For the sake of fairness, it should be noted that Nakanishi (2002, 2006) is concerned with the discrepancy in prosody between thematic topic and contrastive topic, not with scrambling.

<sup>xi</sup> See Kishimoto (2000) and Aoyagi (2006) among others.

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# Contrastive topic marking in Gbe

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## Abstract

The paper investigates the marking of contrastive topics in Gbe (Kwa). Gbe languages dispose of a marked topic construction which is used to mark different types of topics, such as new and inactive topics as well as contrastive topics. This marked topic construction is characterized by the left-dislocation of the topic constituent, the pronominal resumption of it in the comment part of the sentence and the optional use of a morphological marker. It will be shown that contrastive topics are marked differently from other topics in Gbe and that the contrastive reading is not only an effect of the context.

**Keywords:** contrastive topic, left-dislocation, pronominal resumption, additive particle

## 0. Introduction

This paper aims at presenting the various possibilities of expressing contrastive sentence topics in Gbe languages. In particular, we want to examine whether contrastive topics in Gbe are distinguished from aboutness topics by any overt grammatical marking.

We adopt the definition of topic in the sense of pragmatic aboutness: the topic of a sentence represents that “expression whose referent the sentence is about.” (Reinhardt 1982: 5). Cross-linguistically, this function is by default taken over by the grammatical subject of categorical sentences (cf. Givón 2001, Sasse 2006, Lambrecht 1994, *inter alia*). Contrastive topics are understood as a special kind of these aboutness topics (cf. Krifka 1999, 2007). In addition to the property of pragmatic aboutness, they imply a contrastive relation between the entity they represent and another item on a scalar set of alternatives. From this follows that contrastive topics are often regarded as a combination of topic and focus (Krifka 2007, Molnár 1998), or, as Krifka points out: “They consist of an aboutness topic that contains a focus.” (Krifka 2007: 44), compare the following example:

- (1) A: What do your siblings do?  
B: [My [SISter]<sub>Focus</sub>]<sub>Topic</sub> [studies MEDicine]<sub>Focus</sub>,  
and [my [BROther]<sub>Focus</sub>]<sub>Topic</sub> is [working on a FREIGHT ship]<sub>Focus</sub>  
(English, Krifka 2007: 44)

Different from this assumption, Molnár (2002) distinguishes the notion of contrast clearly from the notions of focus and topic, and considers it as a “linguistically relevant phenomenon” (2002: 147). She discusses as main criteria for the classification of contrast the existence of highlighting, (or, as Bolinger has described it, “every semantic peak is linked to contrastiveness”, Bolinger 1961) and the necessity of a membership in a set, which is often restricted to a closed set of alternatives (Halliday 1967, Chafe 1976, among others). The last point corresponds to the one mentioned by Krifka (2007) and is sometimes further strengthened in demanding “that the candidates excluded must be explicitly mentioned in the context” (Jacobs 1988: 113, in Molnár 2002: 149).

Resting on this claim that contrast is an independent phenomenon of information structure, Molnár (2002) argues “(i) that contrast in many languages can be optionally marked or even *must* be marked by grammatical means, and (ii) that certain formal (syntactic, morphological and phonological) phenomena can only be explained with recourse to the notion of contrast.” (Molnár 2002: 150f.).

Whether this statement can be maintained cross-linguistically, we will investigate in this paper. In general, contrastive topics are often correlated with special constructions like left-dislocation, Y-movement and others (cf. the notion of marked topic constructions in Givón 2001: 253 ff.). These marked topic constructions share, among other things, the following features:

1. The topic takes clause-initial position, thus responding to the cognitively-based principle of word order that demands that “The more important referent is placed first.” (Givón 2001: 270) and
2. The constructions often display a special prosodic pattern which distinguishes them from other kinds of topics. In English, contrastive topics are characterized by the so-called B-accent, and in German, they trigger a rising contour (*hat pattern*) of sentence intonation (Féry 1993). The B-accent in English is exemplified by the well-known Jackendoff example in (2). Here, the accent on *Fred* implies that there were other people at the party who ate other food. The A-accent on *beans* in the answer, on the other hand, represents the focal information.

- (2) A: Well, what about FRED? What did HE eat?  
B: FRED<sub>B</sub> ate the BEANS<sub>A</sub>.

(English, Jackendoff 1972)

In Korean, too, prosodic means are used to highlight contrastive topic constructions: they are marked by an especially high pitch on the topic marker (Lee 2007).

That prosody is a necessary requirement to distinguish Japanese contrastive topics from other noun phrases marked by *wa* was shown by Vermeulen (2007). According to her, contrastive topics in Japanese are characterized, besides occupying the left-

peripheral position in a sentence and being marked by *wa*, by a heavy stress (2007: 186f.).

- (3) A: What did John eat at the party yesterday?  
B: Well, I don't know about John, but  
*BILL-WA 8-zi-goro MAME-O tabeteita (yo)*  
Bill-nom 8 o'clock beans-acc eating particle  
'As for Bill, he was eating beans around 8 o'clock.'  
(Japanese, Vermeulen 2007: 187)

That means that there is no one-to-one relation between the marking of the noun phrase with the so-called topic marker *wa* and a contrastive reading (cf. Molnár 1998). Only when additionally stressed, the interpretation as contrastive topic is justified. Similarly, for other languages it was described that marked topic constructions fulfill a number of different functions: they mark aboutness topics, they are used to activate a formerly unused topic (topic promotion), with these construction a new or unexpected topic is introduced (topic shift) and they also identify contrastive topics (cf. Reinhart 1982: 10, Lambrecht 1994, Givón 2001).

The paper will therefore investigate the question whether there exist syntactic and/or morphological devices in Gbe that turn marked topic constructions into contrastive topics, as Molnár argues, or whether it is only the context, i.e. the explicit mentioning of alternatives in the linguistic context, what allows for an interpretation as contrastive topic. Gbe as a tone language does not use intonation to the same extent for the structuring of information as intonation languages do. Rather, it uses special syntactic as well as morphological devices for expressing marked topic constructions, as will be shown.

The paper is structured as follows: in the first section, the general characteristics of marked topic constructions (MTC) in Gbe will be presented, including their functions. The second section deals with special features of MTC with respect to their contribution to a contrastive reading. It will be argued that contrastive topics are indeed marked differently from other topics, namely by the use of a special resumptive pronoun, at least for the third person singular, and by the marking via the additive particle.

## **1. Marked topic constructions in Gbe**

### *1.1 Formal characteristics of marked topic constructions*

Before presenting the characteristics of marked topic constructions in Gbe, the languages under discussion shall be introduced. Gbe is the name for a group of closely related Kwa languages, or dialects, spoken in the coastal part of Nigeria, Benin, Togo

and Ghana<sup>1</sup>. Gbe languages are tone languages with two distinctive tones which serve mainly to express contrast on the lexical meaning of words. The word order in Gbe is relatively strict, insofar as the subject always precedes the verb. Object and adjunct follow the verb in canonical sentences; in marked topic or focus constructions, they take clause-initial position. There is no case marking.

Marked topic constructions in Gbe constitute a special syntactic configuration where the topic referent, in most of the cases a full noun phrase, is left-dislocated, i.e. it occupies an autonomous position left to the of the clause. The semantic role and the syntactic status of the referent are indicated within the comment by a resumptive pronoun. Additionally, it is possible to further mark the left-dislocated element, be it a noun phrase or an adverbial phrase, by a morphological marker. We assume that apart from phrasing effects indicated by a pause after the left-dislocated phrase, no further intonational features accompany this construction.

Example (4) illustrates the different strategies Gbe languages use to mark topics, here exemplified for Aja. The context is given by a picture set of three young men labelled with their proper names <<Thomas, William, Samuel>>. One of them is supposed to have a pet, therefore the question: *Does Thomas have a cat?* The speaker decided to give a complete answer, thus contrasting the three young men already introduced in the common ground. In the first part of the answer (4a), *Thomas* as the grammatical subject of the clause is understood as unmarked aboutness topic, as it was Thomas it was asked about. (4b) and (4c) represent instances of marked topic constructions: in both, the topical noun phrase is in sentence-initial position. Furthermore, they are marked by means of special morphemes, i.e. by *ɔ* in (4b), and by the particle *cán* in (4c), which follow the topic constituent. Additionally, the two topic constituents are resumed by the absolute pronoun *yè* in their canonical subject position since the clitic pronoun *é* is not allowed in this context.

(4) Context: Does Thomas have a cat?

a. *óò, tòmá dọ zìnbàtó,*

no, Thomas have hare  
'No, Thomas has a hare,

b. *wilyám ɔ kpó yé dé dọ nídé ò,*  
William TP NEG 3sg.emph NEG have thing.INDEF NEG  
William, he has nothing,

c. *Sámùél cán kpó yé dé dọ nídé ò.*  
Samuel also NEG 3sg.emph NEG have thing.INDEF NEG  
and Samuel has nothing, either.'

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<sup>1</sup> Most of the data presented here represent Aja as spoken in Lalo, Benin, and were elicited during field research within the last years.

It is possible that marked topic constructions come together with marked focus constructions in one and the same sentence, as exemplified in (5) in the order topic before focus. On the other hand, multiple foci, i.e. structures implying the focus marker, and multiple marked topic constructions are not allowed to occur in Gbe.

- (5) *Sétù yà àkwékwè wè é d̀̀.*  
 Setu TP banana FM 3sg eat  
 ‘As for Setu, he ate BANANA.’

(Gun, Aboh 2003: 5)

For Ewe, Ameka (to appear) even described the combination of a frame topic, a focused element and a contrastive topic in a sentence, only possible in this order.

- (6) *le nyatef́e me lá, dzódagbe-é nye ya me-vá.*  
 LOC truth.contain.region TP, Monday-FOC 1sg as.for 1sg-come  
 ‘In truth, MONDAY I (in contrast to some others) came.’

(Ewe, Ameka, to appear: 3)

As the two examples have shown, Gbe languages differ with respect to the linear order of the marked topic and focus constructions in a sentence. It is still a matter of future research to investigate the exact conditions for the ordering of these elements in the clause. What is obvious is the fact that each marked construction is only attested once in the sentence, with the exception of frame setting topics.

## 1.2 Functions of marked topic constructions

In Gbe languages as well, the range of uses of marked topic constructions is not restricted to contrastive topics. Rather, they serve to mark non-prototypical or unactive topics as such (topic promotion).

### 1.2.1 Marking of the object as topic

First, these structures are used to mark non-subjects, even when they are referential, as topic. As mentioned before, in a categorical utterance the topic function is by default taken over by the grammatical subject, whereas the object holds the default focus position and is therefore interpreted as focal information. To avoid this default interpretation of the object as focal, it is fronted to the left periphery of the sentence. Additionally, the subject can be marked as focal, as demonstrated in example (7). Please note that the object is resumed as clitic pronoun *̀̀* cliticized to the verb. In this sentence, no contrast is involved; ‘that dish’ refers to the same referent in the real world as ‘lamb curry’ and no other dishes are mentioned.

(7) What about the lamb curry?

*nùdùdù cé mámányè yí dĕ. [dà-i]*  
 meal DEM grandmother.1sg FM prepare.3sg  
 ‘That dish was cooked by my grandmother.’

### 1.2.2 Introduction of new topics

We find marked topic constructions also at the beginning of a fairy tale, as in (8), in order to introduce the two main protagonists, the dog and the duck. With this sentence, the existence of the two referents is uttered and at the same time it is stated, that they were close friends. Both referents are represented by bare nouns because they were not yet active in the discourse, i.e. they have to be interpreted as indefinite. In the comment part of the sentence ‘they were good friends’, they are represented by the pronoun *wo* which is used as clitic as well as as emphatic pronoun (cf. Tchitchi 1984). There are no other animals active in the discourse, i.e. there is no overt contrast with other elements.

(8) *wō vá lí kékékéké,*  
 3pl PRT exist longtime  
*àvù kóqó kpàkpàxú ó, èxlò wó nyí.*  
 dog and duck TP, friend 3pl be  
 ‘In former time, as for a dog and a duck, they were good friends.’

### 1.2.3 Expression of contrastive topics

Example (9) is settled in the context of a narration about the preparations concerning the wedding of the speaker. All children of the speaker were active in the preparations and are now in a sort of parallel listing presented with their activity. The definite article in the third sentence part is not referring to the proper name, but to the noun ‘boy’.

(9) Context: All children have participated in the preparation of the wedding ceremony.

- a. *Àsíbá ó, yě wà yòyòwèmá,*  
 A. TP 3sg.emph do call.REDUPL.letter
- b. *Kósúá ó, yě dā ènú,*  
 K. TP 3sg.emph cook thing,
- c. *yí òsúvì, Kòkú, ló ó, yě drá téxwē ló dó.*  
 CNJ boy Koku DEF TP 3sg.emph repair place DEF repair



When an object referent is marked as topic in such a construction, the same distribution of clitic and emphatic pronoun can be observed, cf. example (7), where the topical object was resumed by a clitic pronoun with example (12). In the latter, we come across both types of pronouns: the clitic one occurs in the first contrastive part (b), whereas in the second and final contrastive part (c) the emphatic one has to be used obligatorily for expressing the contrast with the alternatives mentioned previously.

(12) Context: We have visited Paris. There, a lot of nice houses can be found.

a. *Mìwó ñkónótó drê nó mì mó*  
 1pl.poss guide explain for 1pl que

b. *àxwé cé ó, Le Corbusier yí cúì,*  
 house DEM TP, Le Corbusier FM build.3sg

c. *ècē ó, Jean Nouvel yí cú yě.*  
 DEM TP, Jean Nouvel FM build 3sg

‘Notre guide explained us that this house was built by Le Corbusier and that one by Jean Nouvel.’

Therefore it seems that in Aja, contrast is expressed by the use of the emphatic pronoun which indicates contrast to an entity mentioned earlier in the discourse.

Example (13) introduces a sentence where the emphatic pronoun is present on the site of the external topic expression, too, together with a noun phrase referring to the same entity. It is even possible to find the emphatic pronoun alone as left-dislocated topic expression. From this could follow that the emphatic pronoun was first used as external topic expression and was only later on introduced in the comment part of the utterance in order to express contrast unambiguously.

(13) (after watching half of a film) What do you think will happen?

*kpáví dèkà tó yí jī ó sá,*  
 fish one sort CNJ do PROG walk

*èlán dèkà yé ó shivé cí kó yē, ...*  
 animal one 3sg TP, hunger disturb PROG 3sg

‘A fish is going for a walk. And an animal is hungry. ...’

However, as example (14) documents the use of the pronoun in conjunction with topical objects is also related to the feature +/-human, i.e. it is grammatically determined. Whereas a human topic has to be always resumed pronominal, this is not obligatory with non-human topical objects. We assume that in case of contrastive topics, this hierarchy is overridden by the demand to mark the contrastive topic explicitly.

- (14) *kòkú*      ð, *Ámá* *kpóè*      \**kòkú*      ð, *Ámá* *kpó*  
*àglà*      ð, *Ámá* *kpóè*      *àglà*      ð, *Ámá* *kpó*  
 Koku/crab TP, Ama see.3sg      Koku/crabe TP, Ama see  
 ‘Koku/the crab, Ama has seen him/it.’

## 2.2 Morphological marking

As was evident from the examples, it is possible to mark the left-dislocated element further by means of morphological marker. As could be seen in example (4), two different markers are optionally present in the construction: (i) the marker *ɔ*, and (ii) the additive particle *can*.

### 2.2.1 Topicmarker *ɔ*

The first marker we will present is the topic marker *ɔ*. It is clearly related to the definiteness marker *lɔ* which expresses referentiality. The definiteness marker appears with a noun in case the referent of the noun phrase was already mentioned or is in a part-whole relation to an entity already mentioned. From this semantics follows the use as marker of topics (in morphologically reduced shape) because it mainly functions as marker of identifiability, one of the characteristics of aboutness topics. But it also acts as general background marker (Ameka 1990) in dependent clauses.

Nevertheless, its use is neither in marked topic constructions nor in dependent clauses obligatory. As we can deduce from examples (11) and (14), this morpheme does not contribute to a contrastive reading of a marked topic construction, i.e. there is no closed set of alternatives inferable. A set of alternatives can be build even in these cases, such as a set of persons or animals, but this set would be an open one.

The use of *ɔ* as background marker is exemplified in (15) where it stands at the end of a subject relative clause. In this environment, too, *ɔ* must not be used as can be seen in (15b). But other than in marked topic constructions, the pronominal resumption is not obligatory. If the subject relative clause ends with the marker, on one hand, than the subject has to be resumed pronominal – in this case with the clitic, and not with the emphatic pronoun as no overt contrast is involved. If the subject relative clause does not end with *ɔ*, on the other hand, no pronominal resumption is allowed. The reason for this asymmetry has to be left open for the moment.

(15) (concerning the wedding preparations)

- a. *èxwédùxú ló cí kòkú drá dó ó, é gàngán.*  
 fairground DEF REL Koku repair TP, 3sg be\_big
- b. *èxwédùxú ló cí kòkú drá dó gàngán.*  
 fairground DEF REL Koku repair be\_big
- ‘The fairground which Koku has prepared is big.’

To sum up, the exact conditions which trigger the use of this morphological marker are not clear. But it seems to be evident that contrast is not part of its semantics.

### 2.2.2 Additive particle *cán* ‘also’

The second marker present in the examples, *cán*, is homophone to the additive particle *cán* ‘also’. But comparable to the use of ‘auch’ in German (cf. Krifka 1999), this particle can only fulfill the function of contrastive topic marking when used with the marked topic construction as shown in (4c), repeated here for the sake of convenience as (16).

- (16) *Sámùél cán, kpó yé dé dó ndé ò.*  
 Samuel also NEG 3sg NEG have thing.INDEF NEG  
 ‘and Samuel has nothing, too.’

Example (17) shows the same construction for Ewe. Here, the contrastive topic, marked by the additive particle *há*, follows a fronted focus constituent.

- (17) *vegbe-tó-wó-é nye há me-nyé.*  
 Ewe-NOM-PL-aFOC 1sg also 1sg-COP  
 ‘An Ewe I too I am.’

(Ewe, Ameka to appear: 34)

As example (18) demonstrates for Aja, the two properties of marked topic constructions, i.e. left-dislocation and pronominal resumption, are not present if the additive particle *cán* ‘also’ is used in its proper sense to indicate that besides the dog there is another entity performing the activity of ‘running’, namely the man. This sentence has to be interpreted rather as making an assertion concerning the action than concerning the man.

(18) Context: The dog is running and chasing the man (in the forest).

- ǰsú ó cán lè jū shí kó.*  
 man DEF also PROG course run PROG

‘The man is running, too.’

Ameka (1992) pointed out that “Emphatic intensifier phrase preposing” (i.e. a marked topic construction including the additive particle) “seems to be restricted to subjects” in Ewe (Ameka 1992: 17). This analysis is interesting insofar as in its use as focus particle *cán* ‘also’ is restricted to sentence-initial position in Aja, it occurs only with subjects. Non-subjects are marked for inclusion by another particle in their canonical position (cf. Fiedler 2007 for a more extensive discussion of the two additive particles in Aja). In marked topic constructions, the condition of the sentence-initial position is maintained, but not the restriction on subjects, as example (19) demonstrates.

(19) Maria has invited some friends for dinner. For this, she has prepared different dishes.

a. *ègbłén ɔ, nyísɔ d̩iyí yí é tɔ yé d̩àd̩á.*  
akassa TP, yesterday since? FM 3sg begin 3sg cook.REDUPL

b. *èlán ɔ, é t̩ò yê èsɔ,*  
meat TP 3sg grill 3sg yesterday,

c. *ntónú cán, égbé é xó yě ké.*  
sauce TP, today 3sg hit 3sg PRED

‘As for the akassa, she already started to cook it three days before, as for the meat, she grilled it yesterday and as for the sauce, she prepared it today.’

In this example, different dishes are contrasted with each other. Whereas in the first two cases, marker *ɔ* is used, the last one represents an instance with the additive particle. All three topic expressions are resumed by the emphatic pronoun. Following this observation, it is not clear whether the additive particle as such is responsible for the contrastive interpretation, as was proposed by Krifka (1998) for German, or whether it is the pronoun which triggers this interpretation. But on the other hand, its occurrence only in the last part of the sentence for topical objects (19) as well as for topical subjects (4) suggest that with the additive particle only a contrast to a before mentioned entity can be established (cf. Jacobs 1988).

As the last example demonstrates, adverbial frames can be marked with *cán* too; however, they cannot be resumed. As Krifka (2007: 46) points out, explicit adverbial frames are in contrast with other alternatives which could set the frame in which the following utterance is to be understood. In example (20), the additive particle *cán* follows a left-dislocated adverbial phrase indicating the time frame for the event expressed in the sentence. Usually, this would be done by the background particle *ɔ* which was shown not to imply contrast. The use of the additive particle seems to contribute to a contrastive meaning, contrasting the period after the event narrated in the

story with the one before, even though the contrasting alternatives were not overtly mentioned in the context.

(20) Context: End of a fairy tale about jealousy of a woman and why chicken are given as donation for the oracle

só hwénōnù ló cán, ...

since time.DEM DEF TP

‘From this time on, (women never finish to be jealous.)’

### 3. Conclusion

The present paper has shown that contrastive topics are treated differently from aboutness topics in Gbe. Whereas the prototypical aboutness topic is represented by the subject which occurs without further marking, non-prototypical topics, such as new or inactive topics, the object as topic and contrastive topics are expressed by a special syntactically marked topic construction. This construction is mainly characterized by the left-dislocation of the topic constituent and the pronominal resumption of it in the comment part of the sentence. Optionally, the topic constituent can be marked by a particle, preferably by the background marker *ɔ*.

The contrastive reading of such a construction is, at least in Aja, not only triggered by the context, but is mirrored in three features of the construction:

1. The most important feature which indicates contrast is the use of the emphatic pronoun instead of the clitic one.
2. It seems that the additive particle also fulfills this function even though its concrete semantics is disguised by the use of the pronoun.
3. In case of contrastive topics, the additional marking of the topic by the background marker *ɔ* or the additive particle is obligatory and cannot be omitted.

On the basis of these observations, we argue that contrast is in fact expressed by special morpho-syntactic means in Gbe, thus supporting the assumption made by Molnár (2002).

## Abbreviations

aFOC – argument focus marker, CNJ – conjunction, COP – copula, DEF – definiteness marker, DEM – demonstrative pronoun, emph – emphatic, FM – focus marker, INDEF – indefiniteness marker, NEG – negation marker, NOM – nominaliser, LOC – locative preposition, PL/pl – plural, PRED – predicator, PROG – progressive, PRT – particle, Q – question marker, REDUPL – reduplication, REL – relative pronoun, sg – singular, TP – topic marker

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# Deriving the properties of structural focus

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## Abstract

The paper has proposed a theory of structural focus which analyzes focus movement as the establishment of a syntactic predicate-subject structure, expressing specificational predication. The subject of the specificational construction, an open sentence, determines a set, which the predicate (the focus-moved constituent) identifies referentially. The subject of predication is associated with an existential presupposition (only an existing set can be referentially identified). The referential identification of a set consists in the exhaustive listing of its members – hence the exhaustivity of focus. It is claimed that this analysis also accounts for properties of focus movement constructions that current alternative theories cannot explain.

**Keywords:** focus, focus movement, exhaustivity, existential presupposition, specificational predication

## 1. Goal

This paper proposes a theory of structural focus derived via focus movement which can account for all the focus-related facts attested in Hungarian, among them facts which other current theories cannot explain. It will claim that focus movement serves the purpose of creating a predicate–subject structure, in which the focus-moved constituent functions as a specificational predicate. The properties of both the focus and the background follow from the independently established properties of specificational predication constructions.

Section 2 of the paper briefly introduces two recent theories of focus movement: the 'movement for stress' theory of Szendrői (2003), and the 'movement for the checking of the exhaustive identification feature' theory of Horvath (2005), pointing out the problems which they cannot handle. Section 3 presents the proposal argued for. Section 4 demonstrates how the problems observed in section 2 receive a natural solution in the proposed framework. Section 5 discusses a further consequence of the proposed theory, involving the definiteness effect attested in presentational constructions.

## 2. Some current theories of structural focus

### 2.1. Structural focus as a phonological phenomenon

Szendrői's (2003) influential theory of structural focus aims to provide a unified analysis of English-type prosodic focus and Hungarian-type structural focus: both are claimed to be motivated by the stress–focus correspondence principle (Reinhart 1995, and Zubizarreta 1998), according to which

- (1) The focus of a clause is a(ny) constituent containing the main stress of the intonational phrase, as determined by the stress rule.

Whereas in an English-type language the stress–focus correspondence is usually attained by stress shift, in a Hungarian type language it is claimed to be achieved by the movement of focus into the position of main stress, at the left edge of the verbal projection. (Szendrői analyzes the Hungarian sentence as a VP. Topic constituents are claimed to be extrametrical adjuncts, which are skipped by the stress rule.) The V movement accompanying Hungarian focus movement serves the purpose of establishing a functional projection the specifier of which provides a landing site for focus movement.

Szendrői's 'movement for stress' theory of focusing raises several problems, namely:

- (i) The structural focus in Hungarian does not necessarily bear main stress. If it is preceded by a universal quantifier (preposed to the left edge of the VP via overt Q-raising), or certain types of adverbs, it can lack primary stress – as pointed out by Horvath (2005). In the following examples, the initial quantifier and adverb bear primary stresses, whereas the focus (spelled in capital letters) can be unstressed:

- (2) a. **'Mindenkit** [<sub>FocP</sub> JÁ NOS hívott meg]  
everybody-ACC John invited PRT  
'JOHN invited everybody. [For everybody, it was John who invited him.]'
- b. **'Valóban** [<sub>FocP</sub> JÁ NOS késett el]  
indeed John was.late PRT  
'Indeed it was John who was late.'

The focus is unstressed if it is given; e.g. (2b) would be felicitous in a context of the following type:

- (3) a. Azt gyanítom, hogy [<sub>FocP</sub> JÁ NOS késett el].  
'I suspect that it was John who was late.'

b. **'Valóban** [<sub>FocP</sub> JÁ NOS késett el]

'Indeed it was John who was late.'

The intuition is that (3b) involves a second occurrence prosodic focus, with the first focus given, hence destressed – however, Szendői does not give any hint regarding how such an analysis could be executed in the framework outlined by her.

(ii) A more severe problem is that the uniform treatment of the English-type prosodic focus and the Hungarian-type structural focus hides their interpretational difference. It remains unaccounted for why structural focus – and only structural focus – has exhaustive interpretation; why (2a), unlike its English counterpart, is true if and only if everybody was invited only by John.

The exhaustivity of structural focus was first demonstrated by Szabolcsi (1981), on the basis of solid evidence often quoted in the literature ever since.<sup>1</sup> Here let me only present two little known arguments.

According to Horn (1972), Levinson (2000), Kadmon (2001), and others, the basic meaning of a numerical modifier *n* in natural language is 'at least *n*'. Indeed, this is the meaning a Hungarian numerical modifier is associated with whether the modified expression is in postverbal argument position (4a) or in pre-focus topic position (4b). (Pragmatic factors can impose an upper limit on *n* – however, the upper limit is always a mere implicature which can be easily cancelled.) In the preverbal focus position, however, the numeral *n* can only mean 'exactly *n*' (4c), no matter what the pragmatic conditions are – which is derived from the [+exhaustive] feature of focus, i.e., the exclusion of all alternatives but the one denoted by the focused constituent in É. Kiss (to appear).

- (4) a. János [<sub>PredP</sub> meg keres **egy milliót** havonta]  
John PRT earns one million-ACC monthly  
'John earns a/one million a month.' (one million or more)
- b. [<sub>TopP</sub> **Egy milliót** [<sub>PredP</sub> meg keres János havonta]]  
'A/one million, John earns a month.' (one million or more)
- c. János [<sub>FocP</sub> EGY MILLIÓ T keres meg havonta]  
'It is one million that John earns a month.' (exactly one million)

As shown by Szabolcsi (1981), *ha* 'if' clauses are also interpreted differently in and out of focus. Conditionals, like other types of embedded clauses in Hungarian, have a pronominal head. When focused, the embedded clause is obligatorily extraposed, leaving only the

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<sup>1</sup> See also É. Kiss (1998; to appear), and Horvath (2005, 2006). For a somewhat different view, treating the exhaustivity of focus as an implicature, see Wedgwood (2005).

pronominal head in the focus position of the matrix clause (5c). Whereas a *ha*-clause functions as a simple conditional both in postverbal position and in topic position, it is a biconditional (an *if and only if* clause) in focus position, which is again derived from the exhaustivity of focus by Szabolcsi (1981).

- (5) a. Fel-hívlak [(**akkor**<sub>i</sub>) [ha János megérkezett]<sub>i</sub>]  
 up call-I-you then if John arrived  
 ‘I will call you **if** John has arrived.’
- b. [(**Akkor**<sub>i</sub>) [ha János megérkezett]<sub>i</sub>], fel-hívlak.  
 ‘I will call you **if** John has arrived.’
- c. [<sub>FocP</sub> AKKOR<sub>i</sub> hívlak fel, [ha János megérkezett]<sub>i</sub>]  
 then call-I-you up if John arrived  
 ‘I call you **if and only if** John has arrived.’

If focusing is merely movement for stress, as claimed by Szendrői (2003), the interpretational differences between (4a,b) and (4c), and between (5a,b) and (5c) cannot be predicted.

(iii) Szendrői’s theory cannot handle the acceptability difference between (6b) and (6c). Both sentences intend to answer the question *What happened?*, i.e., both are all-new sentences. In the English equivalents, the object bears primary stress in both cases. If focusing is movement for stress, the object should be focusable in both sentences. In (6c), however, the focus-movement of the object is unacceptable.

- (6) a. Mi történt? ‘What happened?’
- b. McCAINT választották elnökjelöltnek a republikánusok az USA -ban.  
 McCain-ACC elected candidate the republicans the USA-in  
 ‘Republicans elected McCain presidential candidate in the USA.’
- c. %BENAZIR BHUTTÓ T gyilkolták meg a fanatikusok Pakisztánban.  
 Benazir Bhutto-ACC murdered PRT the fanatics in Pakistan  
 ‘Fanatics murdered Benazir Bhutto in Pakistan.’

This example is also problematic for the focus theory of Fanselow (2006), according to whom focus movement is nothing but the movement of an accented constituent, and the focus position is not associated with any special semantic or pragmatic function.

(iv) According to Szendrői (2003: 37) the focus of an answer is the constituent that is questioned. In question-answer pairs like that in (7), however, it is the other way round: it is the familiar, non-questioned constituent of the question that has to undergo focus movement in the answer – contrary to prediction:

- (7) a. Ki volt Fleming?/Mit tudsz Flemingről?  
 ‘Who was Fleming?/What do you know about Fleming?’  
 b. Ő/FLEMING fedezte fel a penicillint.  
 he/Fleming discovered PRT the penicillin  
 ‘It was him/it was Fleming who discovered penicillin.’

A proper theory of structural focus should also account for examples of this type.

## 2.2. Structural focus as a constituent with an exhaustive identification operator

In reaction to Szendrői’s theory of focus, Horvath (2005, 2006) has developed an alternative theory intended to account for the exhaustivity of the Hungarian focus, while maintaining the unified treatment of English and Hungarian focus. She claims that structural focus is an XP with an invisible Exhaustive Identification operator (EIOp) in its specifier, attracted to the specifier of an Exhaustive Identification Phrase in order to check the Exhaustive Identification features of its head. The EIOp requires association with focus.

This theory only eliminates problem (ii) of the stress-driven theory of focus movement, and also raises new problems, among them:

(v) The theory – correctly – acknowledges the structural difference between sentences of type (8a) and those of type (9a), which becomes transparent under negation. In (8a), *orvos* ‘doctor’ occupies the specifier of EIP, where it precedes the verb also when negated:

- (8) a. Az apám [EIP ORVOS [volt]].  
 my father doctor was  
 ‘My father was a doctor.’  
 b. Az apám [NegP nem [EIP ORVOS [volt]]]  
 my father not doctor was  
 ‘My father wasn’t a doctor.’

In (9a), on the other hand, *jó orvos* ‘good doctor’ occupies the position of the verbal modifier (identified here as Spec,PredP), where it is preceded by the V, undergoing head movement, in negative sentences:

- (9) a. Az apám [PredP jó orvos [Pred' volt]].  
 my father good doctor was  
 ‘My father was a good doctor.’  
 b. Az apám [NegP nem [volt [PredP jó orvos]]]

my father not was good doctor

‘My father wasn’t a good doctor.’

What Horvath’s theory leaves unexplained is why *orvos* – as opposed to *jó orvos* – is to be focused in the unmarked case.

(vi) In the framework of the EIOp theory, the object in (10) is associated with an EI operator, the effect of which is cancelled by the expression *többek között* ‘among others’. It seems uneconomical to introduce an operator and immediately neutralize it.

(10) *Többek között JÁ NOST hívtam meg. / JÁ NOST hívtam meg többek között.*

among others John-acc invited-I PRT

‘It was John, among others, that I invited.’

(vii) Hungarians tend to move to focus position also constituents whose interpretation is inherently exhaustive.

(11) *Andrásnak [FocP DECEMBER 13-ÁN van a születésnapja]*

Andrew December 13th-on has the birthday-his

‘It is on December 13th that Andrew has his birthday.’

December 13th exhausts the set of days of Andrew’s birth. It seems redundant, hence uneconomical, to mark its exhaustivity also with an EI operator.

(viii) It does not follow from the theory why universal quantifiers cannot be focussed:

(12)\**MINDEN FIÚ T hívtam meg.*

every boy-ACC invited-I PRT

‘I invited everybody.’

(ix) It is unexplained why a bare nominal, ungrammatical in argument position, becomes perfectly acceptable if focussed:

(13) a. *\*Évát fel-kérte szőke fiú.*

Eve-ACC PRT asked[for a dance] blond boy-NOM

b. *Évát SZŐKE FIÚ kérte fel.*

‘It was a blond boy that asked Eve for a dance.’

### 3. The proposal: focus as a specificational predicate

The present proposal adopts Higgins's (1973) analysis of the English pseudo-cleft focus, and Huber's (2000) analysis of the Swedish and German cleft focus to Hungarian structural focus.<sup>2</sup> In the theory developed by Higgins and Huber, pseudo-cleft and cleft sentences instantiate a type of predication structure called specificational predication. The *wh*-clause represents the subject of predication, and the (pseudo-)cleft constituent, identified as the focus, represents the predicate. In specificational predication constructions, neither the subject, nor the predicate is claimed to be referential.<sup>3</sup> In the formulation of Huber (2000), the subject determines a set, and the predicate referentially identifies it, by listing its members. The predicate, i.e., the (pseudo-)cleft focus, is exhaustive because the referential identification of a set consists in the exhaustive listing of its members. The subject is associated with an existential presupposition because only an existing set can be referentially identified.

I claim that focus movement in Hungarian – and presumably in other languages, as well – serves the purpose of establishing a predicate–subject articulation to be interpreted as a specificational predication construction. The focus-moved constituent functions as the specificational predicate, and the post-focus sentence part (the background) functions as the subject of predication.<sup>4</sup> The subject of predication, an open sentence, determines a set, which the focus identifies referentially. The referential identification of the set determined by the background is predicted to entail the exhaustive listing of its members. Furthermore, the background is predicted to be associated with an existential presupposition.

#### **4. The facts explained**

From the proposed analysis, all the properties of the Hungarian focus construction fall out, including the problematic facts enlisted under (i)-(ix) above.

Focus movement is triggered by the need of creating a predicate–subject structure, with the predicate and the subject mutually *c*-commanding (or *m*-commanding) each other.

The fact that focus-movement goes together with *V*-movement seems to be independently motivated, as focusless negated sentences and e.g. imperatives also involve *V*-movement. Apparently, a neutral predicate, with its preverbal position occupied by the

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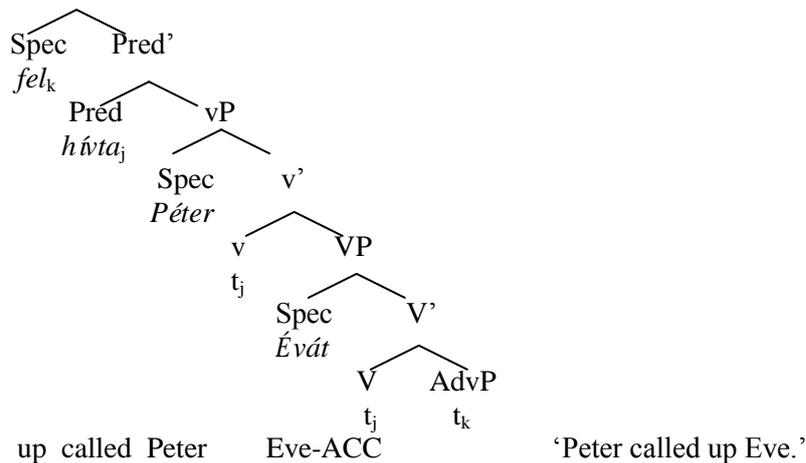
<sup>2</sup> For previous formulations of this proposal, see É. Kiss (2006a,b). For an extension of Higgins' (1973) analysis to English truncated clefts, see Mikkelsen (2004).

<sup>3</sup> Mikkelsen (2004) argues that the predicate of a specificational construction is, nevertheless, more referential than its subject.

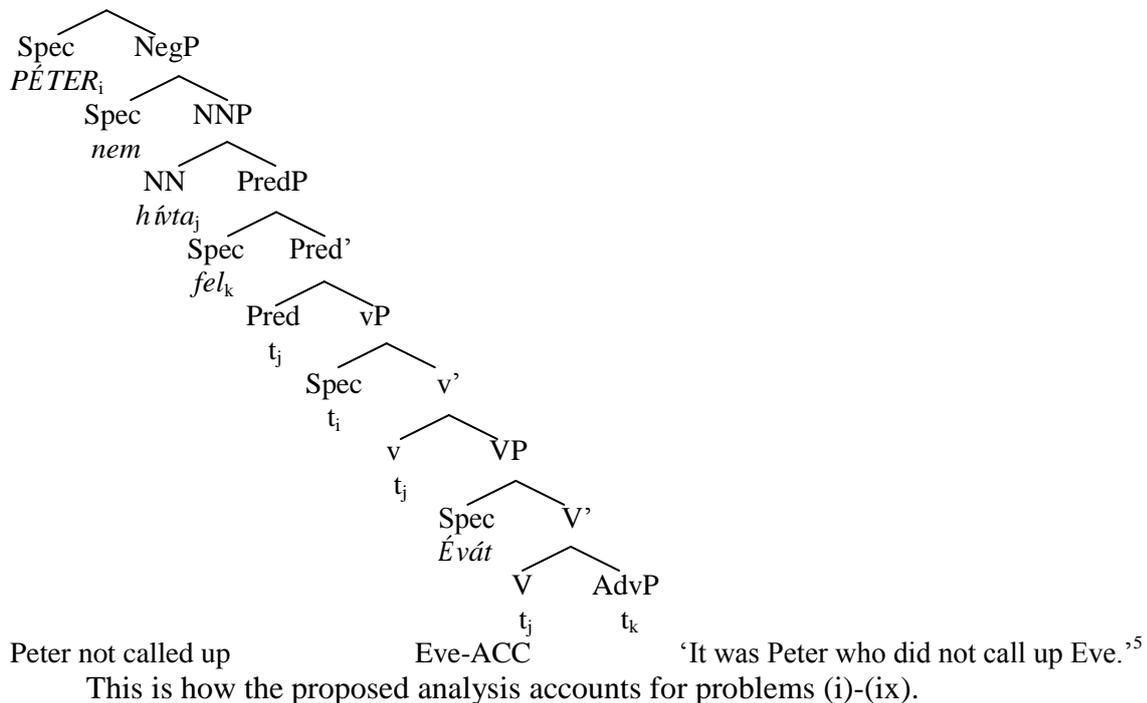
<sup>4</sup> Although in subsequent stages of the derivation, *Q*-raising and topicalization can remove certain constituents of the post-focus unit (the subject of predication), they remain represented by their copies in postverbal position.

secondary predicate: a verbal particle, a predicative NP or a predicative AdvP (see, e.g., (14)) cannot be further extended by an operator; it can merely be merged with Q-raised quantifiers, adverbials, and topics. The neutral predicate can only be combined with a further operator if it becomes V-initial, i.e., if it undergoes V-movement (see, e.g., (15)). Thus V-movement signals a kind of type-shift: the predicate phrase becoming the argument of a higher predicate.

(14) PredP



(15) FocP



Problem (i), illustrated by examples (1a,b), concerns the question why the structural focus of the Hungarian sentence does not always bear main stress. In the proposed framework, there is

<sup>5</sup> The postverbal section of the Hungarian sentence, i.e., the vP in (14), and the PredP in (15), can be freely linearized. The optimal postverbal order is that observing Behaghel's (1932) Law of Growing Constituents - see É. Kiss (2008).

no direct relation between structural focus and stress. In Hungarian, Nuclear Stress is assigned to the leftmost constituent in a phrase. There is also a stress-reduction rule which destresses given (anaphoric) constituents. If the filler of Spec,FocP is preceded by quantifiers and/or adverbials adjoined to FocP, they are also assigned Nuclear Stresses, as shown in (1a) and (1b). Any of the constituents marked as 'strong' by the Nuclear Stress Rule can also be destressed, if it is anaphorically given. This is what happens to the focus in both (1a) and (1b).

Problems (ii), (vi) and (vii), related to the exhaustivity of structural focus, are explained by the specificational predicate function of focus. Specification means the referential identification of a set by listing its members, hence it is understood to be exhaustive, as illustrated by examples (4) and (5). However, exhaustivity is not asserted in focus constructions; it is merely entailed. That is why focusing is not redundant even when exhaustivity appears to be neutralized right away by the overt expression *többek közt* 'among others' (cf. (10)), and when it is also lexically entailed, as in (11). Sentences (10) and (11) are not formulated as specificational constructions in order to mark the exhaustivity of focus. (11) serves the purpose of identifying the day when Andrew has his birthday, whereas (10) serves the purpose of specifying the set of those I invited. This set is specified in part by an R-expression (*János*), in part by a kind of pronominal expression (*többek (közt)* '(among) others').

Examples (6) and (8)-(9), illustrating problems (iii) and (v), show that specificational predication is licensed if the background is associated with an existential presupposition.<sup>6</sup> Although both (6b) and (6c) are all new sentences answering the question *What happened*, in the case of (6b) it is part of the knowledge base of the speaker and the listener that there is someone that the Republicans will elect, or have already elected, presidential candidate in the USA.<sup>7</sup> In the case of (6c), the focus-background articulation is impossible because the background lacks an existential presupposition: When Benazir Bhutto was murdered, it was not shared knowledge that there was someone that fanatics would murder or had already murdered in Pakistan.

The minimal pair in (8) and (9) illustrate the same point. In the case of a grown-up person it is presumed that he has an occupation; when asking (8a) we are merely interested in

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<sup>6</sup> According to Geurts and van der Sandt (2004), the background is associated with an existential presupposition in all types of focus constructions. They call the following rule 'the null hypothesis':

(i) The Background-Presupposition Rule

Whenever focusing gives rise to a background  $\lambda x.\varphi(x)$ , there is a presupposition to the effect that  $\lambda x.\varphi(x)$  holds of some individual.

<sup>7</sup> Delin & Oberlander (1995) make a similar claim about the subordinate clause of cleft sentences: they count as presuppositional also when they convey information that is expected to be known.

the specification of this occupation. Thus (8a) amounts to asking 'is it true that the profession that your grandfather had is the profession *doctor*?' Being a good doctor, on the other hand, is not the specification of a generally held assumption.

Problem (iv) is also related to problems (iii) and (v). The question is why we have to focus *Fleming/he* in (7b), when *Fleming/he* represents the only given element in the sentence.

Observe another question–answer pair illustrating the same point:<sup>8</sup>

(16) a. Who was Jack Ruby?

b. [<sub>FocP</sub> Ö [<sub>NNP</sub> löttte le Lee Harvey Oswaldot]]

he shot PRT Lee Harvey Oswald

'It was him who shot Lee Harvey Oswald.'

Both (7b) and (16b) are clear instances of specificational predication: their backgrounds determine a set associated with an existential presupposition (the set 'who invented penicillin', and the set 'who shot Lee Harvey Oswald', respectively), which the focus referentially identifies. It is not a requirement that the set to be specified must be given information, and the listing of its member(s) must be new; it can just as well be the other way round, as happens in (7) and (16).

The focus–background articulation of the answer is not licensed if the background is not associated with an existential presupposition; thus the discourse in (17) is unacceptable – unless there has already been discussion about a certain man who shot his wife.

(17) Who was John Smith?

% [<sub>FocP</sub> Ö [<sub>NNP</sub> löttte le a feleségét]]

he shot PRT his wife

'%It was him who shot his wife.'

Problem (viii) was the question why a universal quantifier cannot be focussed. Giannakidou and Quer (1995) have shown that universal quantifiers cannot be used as predicate nominals, in other words, as nominal predicates. If the focus functions as a predicate, the impossibility of focussing a universal quantifier is predicted.<sup>9</sup>

<sup>8</sup> The English equivalents of (7b) and (16b) are called comment-clause clefts by Delin and Oberlander (1995).

<sup>9</sup> Puskas 2000:342) claims that this does not hold in Hungarian, on the basis of examples like

(i) Emőke (volt) minden örömöm.

Emőke (was) all joy-my

'Emőke is/was all my joy.'

According to Surányi (2002), the constraint formulated by Giannakidou and Quer (1995) does not apply to *all*-type universal quantifiers. However, in Hungarian, *every* and *all*-type quantifiers do not seem to differ in the relevant respect (neither of them can be focussed). In my analysis, *Emőke* is the predicate nominal in (i), and

Problem (ix), illustrated by example (13), also represents a consequence of the predicate status of focus. A bare NP, which cannot function as an argument,<sup>10</sup> is grammatical as a predicate in Hungarian:

- (18) a. Éva vőlegénye szőke fiú (volt).  
 Eve's fiancé blond boy (was)  
 'Eve's fiancé is/was a blond boy.'
- b. A tettest szőke fiúnak hitték.  
 the offender-ACC blond boy-DAT saw-they  
 'The offender was seen to be a blond boy.'

In (13b), the bare nominal subject is grammatical because the focus position it occupies is associated with a (specificational) predicate interpretation.

## 5. A further consequence of the proposal

The proposed analysis is further supported by the fact that it has good consequences in other areas of grammar, as well. For example, it can explain a curious correlation between focusing and definiteness effect.

As is well-known from the literature (Szabolcsi 1986, É. Kiss 1995, Piñón 2006a,b, Peredy 2008, and the references therein), verbs of (coming into) being and creation require a non-specific theme. Compare:

- (19) a. Született egy baba.                      b.\*A baba született.  
 was.born a baby                              the baby was.born  
 'A baby was born.'                              'The baby was born.'
- (20) a. János szerzett egy autót.              b.\*János minden autót szerzett.<sup>11</sup>

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*minden örömem* is the subject. If *minden örömem* were a predicate nominal, it ought to be able to precede the verb *volt* (occupying first Spec,PredP, and then Q-raised into a PredP-adjoined position). Furthermore, if *Emőke* were the subject, it ought to be able to undergo topicalization, i.e., to occupy an unstressed clause-initial position. Both of these moves are impossible:

- (ii)\*Emőke 'minden öröömöm volt.  
 Emőke all joy-my was  
 'Emőke was all my joy.'

Cf.

- (iii) Minden öröömöm Emőke volt.  
 'All my joy was Emőke.'

<sup>10</sup> In fact, a semantically incorporated theme or goal argument, occupying Spec,PredP, the position of secondary predicates, can be represented by a bare nominal.

John obtained a car                      John every car obtained

Interestingly, the focusing of an adjunct, or the focusing of the agent neutralizes the 'definiteness effect', i.e., the non-specificity requirement on the theme; the focusing of the theme, on the other hand, has no such neutralizing effect:

(21) a. A baba TEGNAP született.

the baby yesterday was.born

'The baby was born YESTERDAY.'

b.\*A KISLÁNY született.

the little.girl was.born

'THE LITTLE GIRL was born.'

(22) a. Minden autót JÁNOS szerzett.

every car-ACC JOHN obtained

'Every car was obtained by JOHN.'

b. János minden autót ILLEGÁLISAN szerzett.

John every car illegally obtained

'John obtained the car from a relative of his.'

Szabolcsi (1986) derived the (in)definiteness effect illustrated in (19) and (20) from the meaning of the verbal predicates: they assert the (coming into) being of their theme argument; hence the existence of their theme cannot be presupposed; that is why they cannot be associated with a determiner eliciting a [+specific] reading. In (21) and (22), both the verb expressing coming into being and the theme whose coming into being it denotes constitute (part of) the background of a focus-background construction, in other words, (part of) the subject in a specificational predication structure. (More precisely, in (22) it is the variable bound by the Q-raised universal quantifier that represents the theme argument in the background/subject of predication.) Recall that the subject of a specificational predication construction is associated with an existential presupposition, i.e., the event of the theme's

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<sup>11</sup> Hungarian verbs of (coming into) being and creation also have particle verb counterparts, which denote the change of their theme, the existence of which is presupposed. These particle verbs, as opposed to their bare V equivalents, select a [+specific] theme:

(i)a. A gyerekek meg-születtek.

the children PRT-were.born

'The children were born.'

b.\*Gyerekek meg-születtek.

(ii)a. János meg-szerelte az autókat.

John PRT obtained the cars

'John obtained the cars.'

b.\*János meg-szerzett autókat.

coming into being is presupposed in both cases; that is why also a [+specific] theme is licensed. However, if the theme is the focus/specificational predicate, no existential presupposition is assigned to it, hence the (in)definiteness effect is not neutralized.

## 6. Conclusion

The paper has proposed a theory of structural focus which analyzes focus movement as the establishment of a syntactic predicate-subject structure, expressing specificational predication in the sense of Higgins (1973) and Huber (2000). It is claimed that this analysis also accounts for properties of focus movement constructions that current alternative theories cannot explain. The subject of a specificational construction, an open sentence, determines a set, which the predicate (the focus-moved constituent) identifies referentially. The crucial properties of a specificational predication construction are the existential presupposition associated with the subject of predication (only an existing set can be referentially identified), and the exhaustivity of the focus (the referential identification of a set consists in the exhaustive listing of its members). Hence the [+exhaustive] feature of the focus is not asserted, but is always present as an entailment. The specificational predicate–subject of predication (in other words, the focus–background) articulation of the sentence does not correlate with either the new–given division of the information conveyed (the open sentence determining the set to be identified (i.e., the background) can also be new, and the listing of the members of the set (i.e., the focus) can also be given). There is no direct correlation between the focus–background articulation and the stress pattern of the sentence, either (e.g., a given focus can be destressed).

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**Focus and the Typology of Questions:  
a non-derivational approach to inter- and intra-language variation**

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**Abstract**

The role of Information Structure, and specifically the discourse function focus, in the formation of constituent ('wh') questions has to date only partially been explored. For the most part, analyses of typological variation in constituent question (CQ) formation strategies have ignored crucial aspects of linguistic structure, most notably their intonation. In this paper, I explore Questioning Focus, its syntactic and prosodic correlates, and its relevance to inter- and intra-language variation in the strategies used to form CQs. A preliminary survey of the typological range of CQ formation strategies, which considers not only the syntactic and prosodic correlates of Questioning Focus but also the expression of Sorting Key status, forms the basis for a unified, non-derivational analysis.<sup>1</sup>

## 1 Introduction

Constituent ('wh') questions satisfy an important communicative need: they highlight a gap (1a) or gaps (1b) in the speaker's knowledge.<sup>2</sup>

(1) a. SINGLE CONSTITUENT QUESTION

Q: *What* did Charlie eat?

A: Charlie ate chocolate.

b. MULTIPLE CONSTITUENT QUESTION

Q: *Who* ate *what*?

A: Dave ate chocolate, Charlie ate crisps, and Lily ate sweets.

The role of Information Structure, and in particular the discourse function focus, in the formation of constituent questions (CQs) is an important issue which has been explored by a number of researchers over the years (e.g. Erteschik-Shir 1986). While the standard test for identifying focus in a declarative is to examine the relationship between a CQ-answer pair, the information-structural status of question phrases themselves is more controversial. It has been assumed, by analogy with the status of its 'answer constituent', that a question word is the focus of a CQ. Evidence to support this claim has largely come from written data: a correlation between the syntactic position of a question word and that of a non-interrogative focused constituent has been noted in a number of languages. For example, in a

Hungarian CQ, a question word appears in the same immediately preverbal position associated with focusing in a declarative.

(2) HUNGARIAN<sup>3</sup>

Q: János [ki-nek]<sub>FOCUS</sub> mutat-t-a be

John.NOM who-DAT introduce-PAST-DEF.3SG VM

Mari-t?

Mary-ACC

‘Who did John introduce Mary to?’

A: János [Anná-nak]<sub>FOCUS</sub> mutat-t-a be

John.NOM Anna-DAT introduce-PAST-DEF.3SG VM

Mari-t.

Mary-ACC

‘John introduced Mary to ANNA.’

To date, the majority of analyses have concentrated overwhelmingly on the syntax of CQs, defining their formation in terms of one underlying syntactic strategy involving movement of a question phrase or phrases. The notion of movement, which is internal to derivational theories of linguistic structure, is central to the traditional tripartite typology of CQ formation strategies. According to this type of approach (see, e.g., Cheng 1997; Richards 2001), the fundamental difference between languages is whether the CQ formation strategy which they employ necessarily involves (overt) ‘displacement’ of

no question phrase (3), one question phrase (4), or all question phrases (5) in comparison to their non-interrogative equivalents in declarative sentences (in italics).

(3) JAPANESE

a. Mari-ga *doko-ni nani-o* okimashita ka.

Mari-NOM where-LOC what-ACC put.PAST Q-PART

‘What did Mary put where?’

b. Mari-ga *tēburu-ni ringo-o* okimashita.

Mari-NOM table-LOC apple-ACC put.PAST

‘Mary put the apple on the table.’

(4) ENGLISH

a. *What* did Mary put *where*?

b. Mary put *the apple on the table*.

(5) SLOVENE

a. *Kdo koga komu* hvali?

who.NOM who.ACC who.DAT praise.PRES.3SG

‘Who praises who to who?’

b. *Roman*      *Heleni*      *hvali*      *Marjano.*  
Roman.NOM   Helena.DAT   praise.PRES.3SG   Marjana.ACC  
'Roman praises Marjana to Helena.'

The aim of this paper is to move away from a conception of CQ formation in terms of syntax alone, and instead present a typology of the strategies used to form CQs which is based on empirically identifiable features of the expression of Information Structure at the level of syntax and/or prosody.<sup>4</sup> In Section 2, I introduce the sub-function of focus relevant to CQ formation (Questioning Focus) and discuss how this may be expressed, as well as the notion of the Sorting Key in a multiple CQ. The relationship between focus and the syntax (Section 3) and prosody (Section 4) of CQs in three case-study languages is then discussed. On the basis of the variables identified, I propose a non-derivational analysis (Section 5), and show how this captures facts about inter- and intra-language variation in CQ formation (Section 6).

## **2      CQs and Information Structure**

### *2.1      Focus types and realization*

Dik (1997) identifies different types of focus on the basis of their communicative purpose. Dik's (1997: 331) primary division is between

Information Gap Focus and Contrastive Focus. Information Gap Focus is further divided into Questioning (i.e. the information gap signified by the question phrase) and Completive (i.e. the filler of the information gap, the ‘answer constituent’). This distinction is supported by evidence from, for example, Hungarian. In this language, multiple question phrases may occupy immediately preverbal ‘focus position’, but the same is not true of multiple non-interrogative phrases or a combination of interrogative and non-interrogative focused constituents (Puskás 2000: 227), i.e. multiple Questioning Foci are permitted in ‘focus position’, but multiple Completive Foci, or a combination of the two, are not.

As well as focus type, focus may vary with regards to its expression. Setting aside for a moment the precise sub-type of focus involved, examples show that a number of different strategies may mark a focused constituent – in the most general sense of focus – at one or more levels of linguistic structure (prosodic (6a), syntactic (6b), morphological).

(6) a. PROSODIC FOCUSING

Mark bought FLOWERS for Fiona.

b. SYNTACTIC FOCUSING – CLEFTING

It was flowers that Mark bought for Fiona.

Different focusing strategies may correlate with different types of focus. For instance, as Hajičová (1983) observes, Questioning Focus in a regular CQ such as (7a) is expressed via fronting of the single question word, so it appears in clause-initial position (syntactic focusing). In (7b), prosodic focusing marks the question word as also being contrastively focused.<sup>5</sup>

(7) a. QUESTIONING FOCUS: FRONTING (SYNTACTIC FOCUSING)

What did he buy?

b. QUESTIONING FOCUS (SYNTACTIC FOCUSING) + CONTRASTIVE

FOCUS (PROSODIC FOCUSING)

WHAT did he buy?

One type of focus does not necessarily preclude another and the same is true of types of focusing strategy.

## 2.2 *Sorting Key*

As (3)–(5) indicate, the formation of multiple CQs is central to the typology of CQs. It is therefore worth noting that one question phrase in a multiple CQ appears to be distinct in terms of its precise information-structural status, i.e. it appears to belong to a category which other question phrases do not. This question phrase is identified as belonging to the category ‘Sorting Key’ by Kuno & Takami (1993: 112).<sup>6</sup> The Sorting Key is the question

phrase that a multiple CQ is ‘about’; it communicates how the questioner expects information to be organized in the answer, and therefore is a crucial factor in determining the (in)felicity of an answer. Compare the acceptability of (8b) and (8b') as answers to the multiple CQ (8a).

(8) ENGLISH

- a. *Which of these climatic conditions occurs in which countries?*
- b. *Typhoons occur in Japan, Korea and China; hurricanes occur in ...*
- b'. *#In Japan, typhoons and early summer rain spells occur; in Thailand, they have monsoons and tornadoes; ...*

(Kuno 1982: 144)

Kuno (1982) claims that sentence (8b') is judged to be a less acceptable answer than (8b) by many speakers because the multiple CQ in (8a) is about climatic conditions (the Sorting Key is *which of these climatic conditions*), whereas (8b') is a statement about countries.

On the basis of English and Japanese data, Kuno & Takami (1993) formulate a hypothesis concerning the realization of the Sorting Key in terms of a single criterion: linear order. Kuno & Takami (1993: 112) claim that the leftmost question phrase in a CQ is the Sorting Key. However, in Hungarian the Sorting Key is the rightmost, immediately preverbal question

word. Kuno & Takami's (1993) generalization about Sorting Key realization therefore does not apply cross-linguistically.

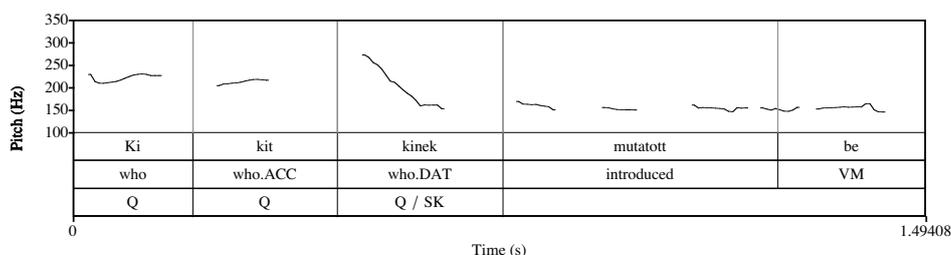
As in the case of focus, it seems that Sorting Key status can be marked in a variety of (not necessarily syntactic) ways cross-linguistically. Mycock (2006) shows that the Hungarian Sorting Key is distinct from other (syntactically) focused question words because it is simultaneously focused at the level of prosody. In (9), the Sorting Key is *kinek* 'who'; all question words appear immediately preverbally and thus are focused at the level of syntax, but the Sorting Key (SK) alone bears the sharp falling pitch contour, realized within an expanded pitch range and followed by a low plateau, that is associated with prosodic focusing in this language (see, e.g., Mycock 2006).

(9) HUNGARIAN

*Ki*            *ki-t*            *ki-nek*            mutat-ott            be?

who.NOM    who-ACC    who-DAT    introduce-PAST.DEF.3SG VM

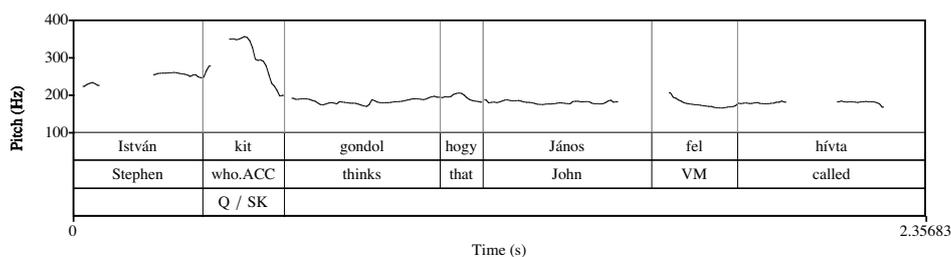
'Who introduced who to who?'



The period of pitch range variation initiated by the Sorting Key correlates with the scope of interrogativity in a matrix CQ which involves a long-distance dependency because, as (10) shows, pitch range variation continues to the end of the sentence, i.e. affects the scaling of tones in the subordinate clause as well.<sup>7</sup>

(10) MATRIX CQ (LONG-DISTANCE DEPENDENCY)

István *ki-t* gondol, [hogy János  
 Stephen.NOM who-ACC think.PRES.3SG that John.NOM  
 fel-hív-t-a]?  
 VM-call-PAST-DEF.3SG  
 ‘Who does Stephen think John called?’



I therefore hypothesize that the Sorting Key in a CQ is distinct at some level of linguistic structure; it has Questioning Focus status just as other non-Sorting Key question words do, but it is also crucially part of a configuration which indicates the extent of interrogativity. Given this, the

realization of Sorting Key status represents another parameter along which CQ formation strategies may vary.

In order to assess more fully how Questioning Focus and the notion of Sorting Key relate to CQ formation cross-linguistically, I seek to separate empirical observations from the theory-internal formal assumptions and categories with which they have often been associated. To this end, in the next two sections, I consider the syntactic and prosodic correlates of Questioning Focus and Sorting Key status in three case-study languages.

### **3 Focus and the syntax of CQs**

#### *3.1 Japanese*

Japanese is a language with a rich morphological system and relatively free word order, though typically it is SOV.<sup>8</sup> It is an ‘in-situ’ language, meaning that CQ formation does not result in any change in the order of constituents and therefore Questioning Focus is not signalled syntactically, cf. (11) and (12). A final question particle may be added to a question, but this is obligatory only in written Japanese (Hinds 1986: 7).

(11) Mari-ga depāto-de Gorō-ni ranpu-o eranda.  
 Mari-NOM dept.store-LOC Gorō-DAT lamp-ACC choose.PAST  
 ‘Mari chose a lamp for Gorō at the department store.’

(12) *Dare-ga* depāto-de *dare-ni* ranpu-o eranda  
 who-NOM dept.store-LOC who-DAT lamp-ACC choose.PAST  
 ka.  
 Q-PART  
 ‘Who chose a lamp for who at the department store?’

As mentioned in Section 2, the leftmost question phrase in a CQ acts as the Sorting Key (Kuno & Takami 1993: 116).

### 3.2 Slovene

Slovene is a language with highly flexible word order, facilitated by its rich system of inflectional morphology which serves to signal the grammatical functions of constituents. The ordering of constituents is governed largely by discourse principles: the unmarked order adheres to the basic principle that ‘older’ recoverable information precedes newer information (Priestly (1993: 427; *inter alia*). However, for extra emphasis, a constituent order which does not conform to the usual old > new information order may be employed. This syntactic focusing strategy is part of multiple CQ formation:

question phrases appear together clause initially (Golden 1997).

Questioning Focus is thus signalled by multiple syntactic focusing.

- (13) Roman        je        Heleni        hvalil        Marjano.  
Roman.NOM    AUX.3SG    Helena.DAT    praise.PRT.3SG    Marjana.ACC  
'Roman praised Marjana to Helena.'

- (14) *Kdo*        je        *koga*        *komu*        hvalil?  
who.NOM    AUX.3SG    who.ACC    who.DAT    praise.PRT.3SG  
'Who praised who to who?'

There are clear parallels with the Hungarian CQ formation strategy described in Section 2. In contrast to Hungarian though, the clause-initial question phrase group is divisible. In (14), the auxiliary verb clitic *je* separates one question word *kdo* 'who' from the rest, thus indicating that the first question phrase occupies a syntactic position distinct from the others.

The clause-initial question word has Sorting Key status and its presence marks that clause as interrogative, cf. (15) and (16), in which underlining indicates the extent of interrogativity.

(15) EMBEDDED CQ

Miha je vprašal, [*koga* je \_\_\_\_\_

Mike.NOM AUX.3SG ask.PRT.3SG who.ACC AUX.3SG

Roman hvalil Heleni].

Roman.NOM praise.PRT.3SG Helena.DAT

‘Mike asked who Roman praised to Helena.’

(16) MATRIX CQ (LONG-DISTANCE DEPENDENCY)

*Koga* misli Miha, [da je \_\_\_\_\_ Roman \_\_\_\_\_

who.ACC think.PRES.3SG Mike.NOM that AUX.3SG Roman.NOM

hvalil Heleni]?

praise.PRT.3SG Helena.DAT

‘Who does Mike think Roman praised to Helena?’

The Sorting Key alone is thus crucially part of the syntactic configuration which indicates the extent of interrogativity, in line with the hypothesis in Section 2.

### 3.3 *English*

English on the whole lacks the means to mark grammatical functions morphologically. Rather, it is a language in which grammatical functions are

associated principally with specific phrasal configurations, which explains its relatively rigid SVO order.

Multiple CQs are characterized by the presence of one and only one clause-initial question phrase, which acts as the Sorting Key (Kuno & Takami 1993).

- (17) a. Alan introduced Bill to Sue.  
b. *Who* did Alan introduce to *who*?  
c. I wonder [*who* Alan introduced to *who*].  
d. *Who* do you think [introduced *who* to *who*]?

The clause-initial Sorting Key phrase occupies a syntactic position associated with the discourse function focus; all other question phrases appear ‘in situ’. Hence, the Sorting Key and only the Sorting Key is (i) syntactically focused, and (ii) crucial to delimiting the extent of interrogativity in the syntax. English multiple CQ therefore involves a single instance of syntactic focusing.

### 3.4 Data summary

The generalizations which can be made about the role of syntactic focusing in CQ formation, as exemplified by the three case-study languages, are summarized in Table 1.

TABLE 1. The relationship between syntactic focusing and the strategies used to form multiple CQs in the three case-study languages.

SYNTACTICALLY FOCUSED QUESTION PHRASE(S)	CASE-STUDY LANGUAGE
none	Japanese
Sorting Key only	English
multiple	Slovene

While the syntactic marking of Questioning Focus is a part of the CQ formation strategies employed in English and Slovene respectively, this is not true for an ‘in-situ’ language such as Japanese.

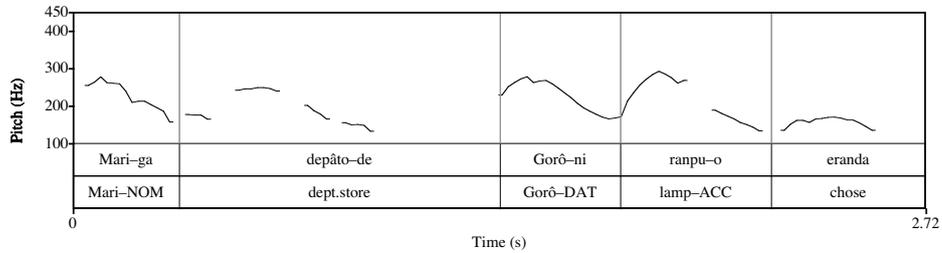
## 4 Focus and the prosody of CQs

### 4.1 *Japanese*

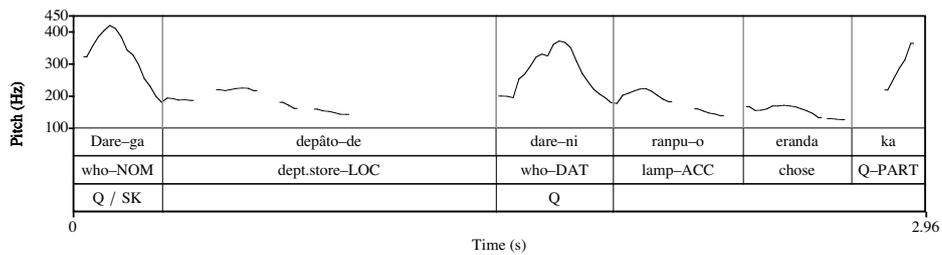
Pierrehumbert & Beckman (1988: 99) note that pitch range variation has been identified as an acoustic correlate of relative discourse salience in a number of languages. Pitch range is the set of values in the vertical dimensions of the Fundamental Frequency ( $F_0$ ) space within which all tones are scaled for a specific prosodic domain and speaker, i.e. pitch range is the difference between the minimum and maximum pitch values recorded. A speaker's pitch range may be expanded (indicating greater discourse salience) or compressed (indicating lesser discourse salience) relative to its usual value.

Researchers including Ishihara (2002) have identified pitch range variation as indicating relative discourse salience at the post-lexical level in Tokyo Japanese: the tones of a (prosodically) focused constituent are scaled within an expanded pitch range which is then followed by a low plateau that is the result of pitch range compression. This distinctive pattern of pitch range variation is also found in CQs (e.g. Ishihara 2002), i.e. it seems that Questioning and Contrastive Foci can be expressed using the same prosodic means in Tokyo Japanese. Compare the pitch-track for the declarative sentence in (11) with that of the multiple CQ in (12).

(11') DECLARATIVE



(12') MULTIPLE CQ



Note that the tones of the question words in (12') are scaled within a wider pitch range than those of their non-interrogative equivalents in (11'), and pitch range compression, which manifests itself as a low plateau, intervenes between the question words in (12') and follows *dare-ni* 'who' before the final sharp rise, realized on the question particle *ka*. This final sharp rise is an obligatory feature of CQs in spoken Japanese,<sup>9</sup> and indicates the cessation of pitch range variation.

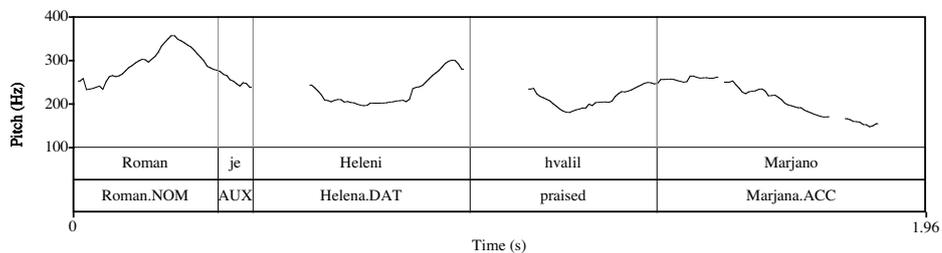
Data such as (11') and (12') support the hypothesis that CQ formation necessarily involves Questioning Focus. Rather than being expressed syntactically though, Questioning Focus is associated with a specific pattern of prosody in Japanese, i.e. Japanese CQ formation involves multiple prosodic focusing.

The Sorting Key *dare-ga* 'who' is the question word which initiates the period of pitch range variation in (12'). According to Ishihara (2004), amongst others, pitch range variation correlates with the scope of interrogativity in regular CQs in Tokyo Japanese. Once again, in line with the hypothesis concerning its realization presented in Section 2.2, the Sorting Key is a crucial element of a configuration which indicates the extent of interrogativity in a CQ. This configuration is prosodic rather than syntactic in Tokyo Japanese, and the Sorting Key marks its left edge.

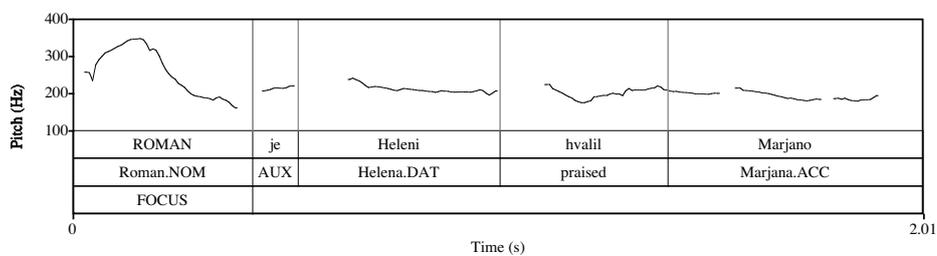
#### 4.2 *Slovene*

In Slovene, Contrastive Focus expressed prosodically involves a scaling of tones within an expanded pitch range, followed by a low plateau, much like that identified in Hungarian and Japanese. Compare the pitch-track for (13) with a version of the same sentence in which the Contrastive Focus status of the clause-initial subject *Roman* is indicated by prosody alone (18).

(13') DECLARATIVE

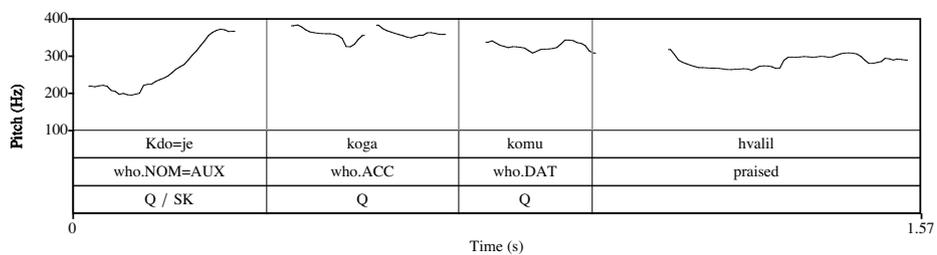


(18) DECLARATIVE WITH CONTRASTIVE FOCUS (PROSODIC)



Next, compare the pitch-tracks in (13') and (18) with that of the multiple CQ (14'), which includes multiple Questioning Foci.

(14') MULTIPLE CQ

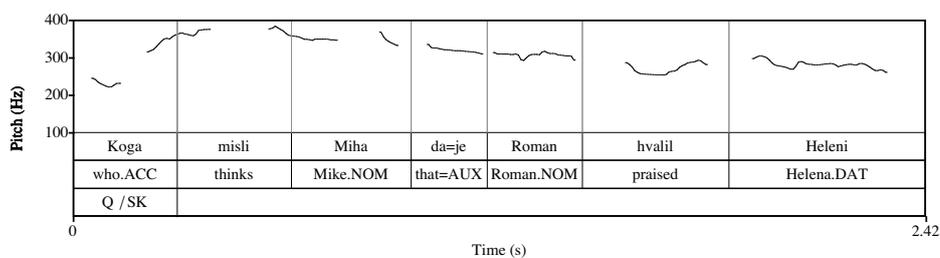


In a multiple CQ such as (14'), Questioning Focus is realized syntactically via fronting in all cases (Section 3.2). However, the question words involved are not identical in prosodic terms: the first question word, which also has Sorting Key status, is prosodically prominent. Thus, the Sorting Key is marked by prosodic and syntactic means in this language.

These data also show that the prosodic prominence of the Sorting Key in a CQ need not manifest itself in the same way as Contrastive Focus (18). Though each prominent constituent in (14') and (18) is followed by a plateau, in the CQ (14') the plateau is high, while in the declarative (18) the plateau is low. In both cases, relative discourse salience (i.e. focus/non-focus status) appears to correlate with the relative size of the pitch range, but the height of the plateau may differ.

As in Hungarian, the period of pitch range variation initiated by the Sorting Key correlates with the scope of interrogativity in a matrix CQ such as (16').

(16') MATRIX CQ (LONG-DISTANCE DEPENDENCY)



To summarize, in a multiple CQ such as (14'), Questioning Focus is expressed by syntactic means, while simultaneous prosodic focusing indicates Sorting Key status.

#### 4.3 *English*

The clause-initial question word in a multiple CQ like (17b) is not prosodically prominent (Bartels 1999; Culicover & Rochemont 1983: 130; Zubizarreta 1998; inter alia). This has been presented as a surprising fact, given the assumption that a question word should be the focus of a CQ (e.g. Ladd 1996: 170-1).

However, it seems that in the case of English CQ formation there is a division of labour with respect to marking Questioning Focus status. In Section 3.3, it was noted that the clause-initial question word occupies a position consistent with syntactic focusing, thus it is marked as an instance of Questioning Focus in the syntax. This contrasts with the other, 'in-situ' question words in a multiple CQ which show no such evidence of syntactic focusing, but which are prosodically prominent to some degree (Bartels 1999; Zubizarreta 1998; inter alia). English CQ formation thus involves non-simultaneous Questioning Focus at the levels of syntax and prosody.

#### 4.4 Data summary

The generalizations which can be made about the role of prosodic focusing in CQ formation, as exemplified by the three case-study languages, are summarized in Table 2.

TABLE 2. The relationship between prosodic focusing and the strategies used to form multiple CQs in the three case-study languages.

PROSODICALLY FOCUSED QUESTION PHRASE(S)	CASE-STUDY LANGUAGE
Sorting Key only	Slovene
multiple, excluding Sorting Key	English
multiple	Japanese

It is interesting to note that even in a language such as Slovene, which employs a CQ formation strategy involving syntactic marking of Questioning Foci, prosody makes a unique contribution, viz., the marking of Sorting Key status. Such data reinforce the point that the interface between prosody and Information Structure should not be overlooked, even when a language appears to employ morphology and/or syntax extensively to mark the discourse status of constituents.

## **5 A non-derivational approach to CQ formation**

In order to capture the descriptive generalizations discussed in Sections 3 and 4, I adopt a parallel constraint-based architecture. The levels of representation each express a different type of linguistic information with its own primitives and rules. Under a parallel architecture approach, such as that outlined in Figure 1, the semantic/pragmatic property of being focused is distinguished from its realization at other levels of linguistic structure, the relevant levels being interfaced by mappings between the different modules (e.g. Jackendoff 2002).

FIGURE 1. Extract of a parallel architecture of language, including only those levels of linguistic structure, primitives and mappings which are relevant to the proposed analysis of CQ formation.

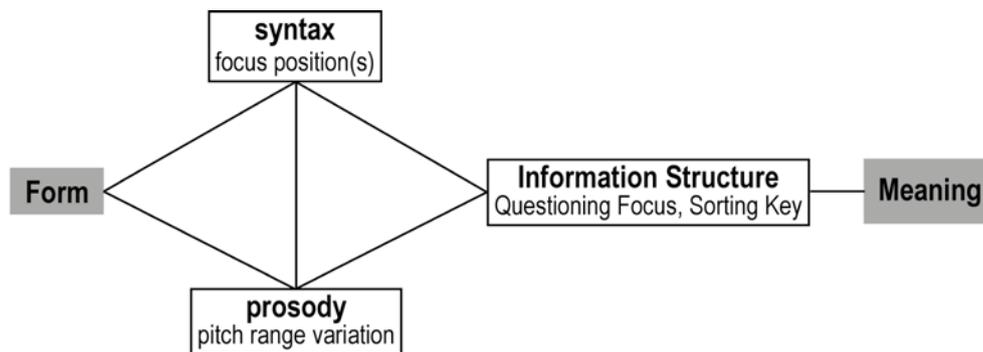


Figure 1 also includes the features of linguistic structure (Questioning Focus, Sorting Key status, pitch range variation, syntactic ‘focus’ position(s)) which are relevant to CQ formation as described in Sections 3 and 4. Through the interfaces which exist between each independent level of linguistic structure, the requirements for marking of Questioning Focus and Sorting Key status may be satisfied in a number of different ways.

## **6 Focus and the typology of CQ formation strategies: inter- and intra-language variation**

Given the syntactic and/or prosodic correlates of Questioning Focus and Sorting Key status, and the type of parallel architecture described in Section 5, it is possible to define the typological space relevant to CQ formation strategies. Under such an approach, strategies are treated as equivalent but not identical and therefore inter- and intra-language variation is expected.

In Sections 3 and 4, data revealed that CQ formation in the case-study languages crucially varies along two parameters with empirically observable correlates: marking of (i) Questioning Focus and (ii) Sorting Key status at some level(s) of linguistic structure. (Note that the latter is dependent on the former: for instance, in a MSF language all Question Foci will be syntactically focused, hence the Sorting Key could not be subject to prosodic focusing alone.)

Each of the case-study languages exemplifies one of the types of CQ formation strategies, defined in terms of Variable 1, in Table 3.

TABLE 3. The typological space for CQ formation strategies defined in terms of Variable 1: the type of strategy/strategies used to mark the focus status of question words.

	SYNTACTIC	PROSODIC
SYNTACTIC	Multiple syntactic focusing (MSF): Slovene	Single syntactic focusing (SSF): English
PROSODIC	Single prosodic focusing (SPF): ?	Multiple prosodic focusing (MPF): Japanese

I have not yet identified a SPF language. It may be that the relative markedness of focusing strategies precludes such languages. Syntactic focusing establishes at least one long-distance dependency and thus involves greater processing complexity than prosodic focusing, making it an unlikely ‘secondary’ focusing strategy (i.e. of non-Sorting Key question phrases).

If the definition of the typological space relevant to CQ formation strategies provided in Table 3 is enriched by adding details of how Sorting Key status is marked, a more fine-grained picture of possible variation is obtained (Table 4).

TABLE 4. The typological space for CQ formation strategies defined in terms of Variable 1 (marking of Questioning Focus; see Table 3) and dependent Variable 2 (marking of Sorting Key status).

VARIABLE 1	VARIABLE 2	EXAMPLE LANGUAGE(S)
MSF	SK: SYNTAX	Imbabura Quechua (Cole 1982)*
	SK: SYNTAX & PROSODY	Hungarian, Slovene
MPF	SK: PROSODY	Japanese
SSF	SK: SYNTAX	English (Ginzburg & Sag 2000)*
	SK: SYNTAX & PROSODY	Rapanui (Du Feu 1996)*

\*Author provides only impressionistic account of prosody

A striking consequence of this approach is that, rather than the core case, the type of CQ formation strategy used in English emerges as a hybrid of MSF and MPF, involving as it does elements of both. The SSF CQ formation strategy is situated at the intersection of two logically independent but complementary strategies. In no sense is SSF – or syntactic focusing – the only or even the primary means by which Question Focus

status (or indeed Sorting Key status) can be expressed. Information Structure primitives, which are key to CQ formation, may be marked by different but equivalent means cross-linguistically.

This approach to inter-language variation extends straightforwardly to cases of intra-language variation, such as that found in Persian. Lotfi's (2003) examples indicate that the three types of CQ formation strategies discussed above are legitimate in Persian. This is expected under the proposed analysis, as CQ formation strategies do not represent 'optional' versions of each other. Each strategy represents a fundamentally equivalent, but not identical, means of meeting the same ends.

## **7 Conclusion**

Analysis of spoken and written data reveal two key, empirically observable variables which account for some of the similarities and differences in CQ formation strategies employed cross-linguistically.

Assuming a parallel architecture of grammar, the relevant typological space can be defined in terms of the expression of Questioning Focus status (prosodic, syntactic, prosodic and/or syntactic) and Sorting Key status (prosodic, syntactic, prosodic and syntactic). Inter- and intra-language

variation is expected, as each CQ formation strategy represents a different means to the same ends.

The proposed non-derivational, typologically-informed approach to CQ formation not only provides a new perspective on CQs in natural language, it simultaneously sheds light on focus, its expression, and its relevance to linguistic theory.

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<sup>2</sup> I confine discussion and analysis to matrix CQs which contain one or more non-adjunct question words, and multiple CQs with regular pair-list answers.

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<sup>33</sup> Unless stated otherwise, data were collected by the author. Each pitch-track represents one utterance produced by a single speaker, but that pitch-track exemplifies the general pattern identified. Informants read all CQs from a script. The Japanese informant is a native speaker of Tokyo Japanese; the four Hungarian informants were born and raised in Budapest; the four Slovene informants were born and raised in Ljubljana.

<sup>4</sup> Though I do not examine morphology in this paper, the proposed approach to the typology of CQs extends straightforwardly to include those languages in which question phrases are morphologically marked as focused.

<sup>5</sup> Dik's (1997: 331) taxonomy subdivides focus on the basis of a binary [ $\pm$ CONTRAST] feature. Information Gap Focus cannot be [-CONTRAST] though as this would rule out, for example, contrastive focusing of question words (i.e. Questioning Focus) in a sentence such as (7b). The distinction between Information Gap and Contrastive Focus should not, therefore, be conceived of as involving mutually exclusive alternatives.

<sup>6</sup> As well as the Sorting Key, this question phrase has also been identified as a topic (Bolinger 1978: 133) and First Focus (Jackendoff 2002: 414).

<sup>7</sup> As Sorting Key status is marked even in a single CQ like (10), it may ultimately be preferable to subsume this notion under a more general definition of interrogative scope marking. See Mycock (2006).

<sup>8</sup> The Japanese referred to in this paper is the standard variety, based on the Tokyo dialect.

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<sup>9</sup> Contrast this with the presence of the question particle itself, which is not obligatory (Hinds 1986: 7).

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# The Given-New Distinction: Insights from Inferrables

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## Abstract

This paper presents a series of psycholinguistic experiments on the given-new contrast that indicate that givenness and newness are not two sides of the same coin, but represent two rather distinct information structural processes. The paper introduces two separate processes: *Dependency and coherence* (which is primarily related to notions of givenness) and *IS complexity* (which reflects facets of newness). These two processes are tied to two dissociable event-related brain potentials, an N400 and a late positivity respectively. The data further indicate that *Dependency and coherence* relies on lexical-semantic and discourse-level factors, but is also affected by structural accessibility and prominence features. Similarly, *IS complexity* depends on a variety of linguistic factors, such as morphological features and argument structure.

**Keywords:** given-new contrast, referential processing, ERPs, N400, late positivity.

## 1. Givenness and newness: Two dissociable mechanisms

One of the central notions of information structure research is the given-new contrast that distinguishes referential entities on the basis of their salience / discourse status within a given situation (cf. Halliday 1967; Chafe 1976; Prince 1981). This informational status impacts the way information is packaged, which is for instance reflected in word order variations (given-before-new preference) or the use of certain referential forms (e.g. pronoun vs. definite description) (cf. e.g. Lambrecht 1994; Birner and Ward 1998).

The given-new contrast has been viewed as a one-dimensional continuum (sometimes even a dichotomy) on the basis of givenness. For example in Chafe (1976), given information is information that is already present in the addressee's consciousness, while new information must be introduced into his/her consciousness (and into information structure (IS)). Givenness thus indicates that the discourse referent of an

expression is somehow accessible in IS. However, givenness is a gradual dimension, comprised of many degrees of salience, for instance an entity can be maximally known in a given discourse, be inferred from world knowledge, or represent an inherently given concept (such as *the earth* or *the time*) (see for instance the typologies of Prince 1981 or Gundel, Hedberg and Zacharski 1993). In addition, it is suggested in the following that newness should not be situated at one end of this continuum (i.e. 'not givenness'), but rather be considered a qualitatively different notion of IS. This paper presents experimental evidence from electrophysiology that indicates that the notion of givenness can be dissociated from newness and that this contrast gives rise to two distinct processes: an integrative process that seeks to establish links with information already available in the IS representation ("Coherence & dependency"), and a process that enriches and reorganizes the information in IS ("IS complexity"). These two processes are briefly outlined immediately below.

### *1.1. Coherence and dependency*

This stage of integration adheres to an early processing stage during which incoming information is related to knowledge already available in IS. Driven by *IS Minimality* (i.e. "Keep the information structure minimal and simple.") and the general desire to construct coherent interpretations, the processing system attempts to establish links and to bind incoming information to currently available or activated information.<sup>1</sup> The investigations discussed below reveal that computational cost arising from difficulties during the formation of a dependency or the establishment of coherence is reflected in amplitudinal modulations of the N400, a negative potential peaking around 400 ms after the onset of a critical stimulus event (see section 3 for an overview of electrophysiological experimentation).

### *1.2. IS complexity*

In a distinct processing phase, IS complexity arises from the introduction of new IS units (i.e. new discourse referents or event representations) or the modification of previously established information on the basis of semantic-thematic mapping or

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<sup>1</sup> For present purposes, I do not distinguish between categories such as activated, accessible, familiar, etc. (cf. e.g. Prince 1981; Ariel 1990; Gundel et al., 1993). Future research has to determine the principle concepts that govern givenness.

pragmatically motivated restructuring. The computational burden associated with these processes engenders a late positivity with an onset latency around 600 ms after stimulus onset (see section 3 for further details).

## **2. Inferrables: Window into the given-new distinction**

In addition to the obvious examination of given (repeated) Determiner Phrases (DPs) and discourse-new DPs, inferrables are investigated, because entities that invite an inference are hypothesized to share properties with both given and new information: they demand a dependency with previously given information (by virtue of definiteness marking, but possibly also due to general coherence requirements – see the experiment discussed in section 3.2 for the role of definiteness features) - e.g. *the pilot* in (1) below is considered *the pilot of the sightseeing flight*. Nevertheless, an inferrable also represents a new discourse referent that requires its own, independent IS representation, thereby inducing processing demands on what I call IS complexity.

- (1) Nina went on a sightseeing flight. *The pilot* was almost deaf.

Inferrables hence represent a promising starting point to identify the processes underlying the integration of given and new aspects of information.

Previous psycholinguistic research has demonstrated that inferrables exert processing cost relative to the establishment of a coreferential relationship (cf e.g. Haviland and Clark 1974). However, from these reaction time measures, it is not clear whether the observed processing demands are caused by the need to draw an inference (vs. the availability of an identity relation) or by the need to introduce a new discourse referent. This can be addressed by time-sensitive event-related brain potential (ERP) measures.

## **3. Information Structure & Electrophysiology**

ERPs represent voltage fluctuations that reflect the brain's spontaneous electrical activity, which occurs in response to a sensory or cognitive stimulus event and is measured non-invasively by electrodes applied to the scalp. ERPs provide a high resolution of the time course of processing and are further characterized by their

polarity (negative or positive voltage fluctuations), amplitude (magnitude of response), and topography (maximum activity relative to scalp position). Importantly, ERPs are *relative* measures, i.e. an ERP response is interpreted relative to the response to a minimally differing baseline condition. See Kutas, van Petten, and Kluender (2006) for detailed explications of the ERP methodology and language-related findings.

The following two ERP signatures are predicted for the two processes introduced above: The difficulty of processes associated with *Coherence and dependency* should be reflected in a negative-going deflection peaking in amplitude around 400 ms after stimulus onset that shows a broad centro-parietal distribution across the scalp (N400). This ERP signature generally surfaces in connection with semantic processing. The more difficult the establishment of a dependency relation or association is, the more enhanced is the amplitude of the N400 component. This has been shown extensively for lexical-semantic processing where the N400-amplitude is inversely related to the degree of plausibility and coherence (for an overview see Kutas and Federmeier 2000; Kutas et al. 2006). With respect to referential processing, the amplitude of the N400 has also been correlated with the ease/difficulty of referent identification (see e.g. Streb, Rösler and Hennighausen 1999; Burkhardt 2005, 2008). Processing cost arising from increasing *IS complexity* is expected to show up as a positivity with an onset latency around 600 ms post stimulus-onset. This is supported by findings from the establishment of new information units (cf. Kaan, Harris, Gibson and Holcomb 2000; Burkhardt 2005; Kaan, Dallas and Barkley 2007). I use the label ‘late positivity’ – rather than P600 – for this component to dissociate myself from the inaccurate belief that the underlying source of the P600 is exclusively syntactic in nature (but see Burkhardt 2007 for an extensive discussion of this matter).

In the following sections, four event-related brain potential experiments will be reviewed that were part of a systematic investigation of information structural processing (carried out at the Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig, Germany and at the University of Marburg, Germany, and in part supported by the German Research Foundation (Deutsche Forschungs-gemeinschaft)). These studies investigated the processing of the given-new contrast and they i) provide evidence for a qualitative distinction between given and new integration processes and ii) reveal that varying sources of information influence the integration of given and new information.

### 3.1. Given – inferred – new

Initial evidence for distinct neural correlates of the given-new contrast was presented in Burkhardt (2006), which investigated the processing of given (2a), inferred (2b) and new DPs (2c) as a function of the information provided by a context sentence.<sup>2</sup> While the processing of the critical DP in (2a) should yield a coreferential relation, (2b) requires the drawing of an inference (that we are talking about the conductor of the previously mentioned concert), and (2c) does not provide an anchor for a linking relationship.

- (2) a. Tobias visited a conductor in Berlin. He said that *the conductor* was very nice.
- (2) b. Tobias visited a concert in Berlin. He said that *the conductor* was very nice.
- (2) c. Tobias chatted with Nina. He said that *the conductor* was very nice.

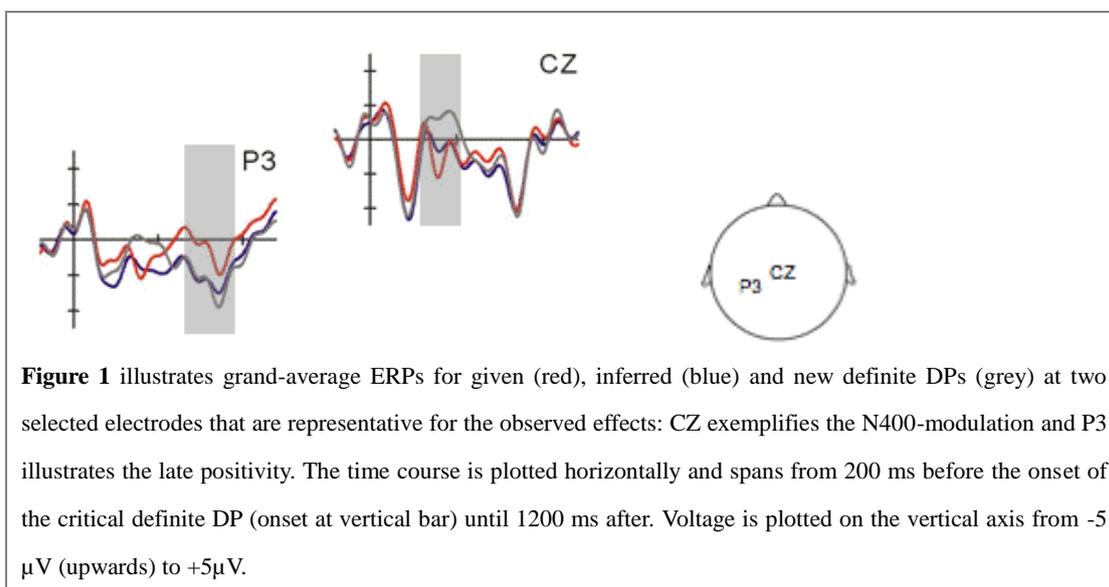
The ERP analysis revealed differences in the N400-signature, a negative-going potential between 350-550 ms after the onset of the critical DP: The less given an entity was, i.e. the more difficult the establishment of a dependency was, the more pronounced was the amplitude of the N400 (2c>2b>2a). In addition, a late positivity between 600-900 ms was observed for inferrables and new DPs, which – in the absence of a matching referent – require the introduction of an independent IS representation (2b/2c>2a). Note that acceptability judgments cannot account for the observed contrasts. Inferrables occur frequently in everyday conversation (cf. e.g. Fraurud 1990 and Poesio and Vieira 1998 for corpus data from written texts) and stimuli with inferrables were rated more felicitous than texts with repeated DPs. In fact, passages with inferrables represent ideal means of information flow since they allow for thematic continuation while at the same time they contribute to the progression of the text by introducing new information. Figure 1 illustrates the two ERP signatures at two selected electrode sites, which are

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<sup>2</sup> For reasons of space, all examples are given in English. Note however that the experiments discussed here were conducted in German and that the critical regions - to which ERPs were time-locked - are italicized. In all experiments, participants were required to read the passages for comprehension (presented word-wise (3.2) or phrase-wise (3.1, 3.3, 3.4) with a fixed presentation rate). Further experimental details can be found in Burkhardt (2006, 2007) and Burkhardt and Roehm (2007).

representative for the observed effects: CZ, an electrode placed at the center of the scalp (see the head on the right side for a schematic position of the electrode), demonstrates the three-way contrast in the N400 signature (which generally shows a broad centro-parietal distribution across the scalp) and P3 demonstrates the late positive effect (which emerged over left posterior electrode sites).

The N400-modulation supports the claim that givenness is a gradual dimension, which here ranged from a (highly given) coreference relation to an indirect inference-based relation to no potential relation at all. Furthermore, the late positivity for inferred and new DPs indicates that processes subserving givenness - or more precisely, the ease of coherence and dependency formation - must be dissociated from those resulting in increasing IS complexity (newness).



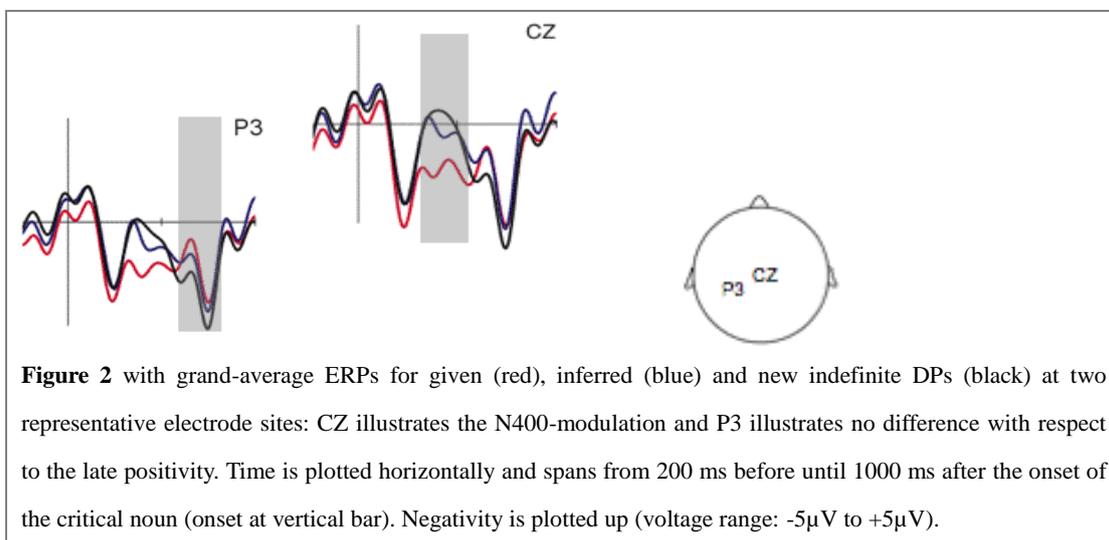
### 3.2. Definite - indefinite

Givenness is often discussed with respect to definiteness, in as far as definiteness marking is taken to imply that the corresponding discourse referent is identifiable or that its existence must be presupposed. While there is a long tradition of characterizing definiteness with respect to truth conditions and linking it to the notion of referential uniqueness (e.g. Russell 1905; Strawson 1950), the focus lies on salience, discourse prominence and familiarity as crucial characteristics of definiteness within an information structural perspective (e.g. Lewis 1979; Prince 1981; Heim 1982). To shed light on the contribution of definite and indefinite determiners, a follow-up study investigated the processing of definite (2a-c) and indefinite DPs (3a-c). Based on a strict

correspondence between indefiniteness and newness, the prediction was that irrespective of the preceding context sentence, indefinite DPs should be identified as new discourse referents and processed accordingly.

- (3) a. Tobias visited a conductor in Berlin. He said that a *conductor* was very nice.
- (3) b. Tobias visited a concert in Berlin. He said that a *conductor* was very nice.
- (3) c. Tobias chatted with Nina. He said that a *conductor* was very nice.

ERPs time-locked to the onset of the noun revealed a reliable effect of givenness in the N400-window, which was reflected in an increasing N400-modulation for (2/3a<2/3b<2/3c). Thus the amplitudinal modulations of the N400 component occurred irrespective of definiteness marking. In addition, a significant effect was observed in the late positivity window, where all conditions except for (2a) registered a positive-going deflection – which becomes evident when all six conditions are compared with each other. The effects for definite DPs resembled those presented in Figure 1 and the ERP effects for indefinite DPs are exemplified in Figure 2.



First, the finding that increases in the amplitude of the N400 correlate with decreasing associative power of the noun is somewhat surprising for classical theories of definiteness, but not necessarily for (discourse-)semantic processing accounts. The data indicate that there is no clear 1-1-mapping between the given-new dichotomy and the definite-indefinite distinction (contra e.g. Heim 1982). Rather, the parser considers

previous IS information regardless of a DP's definiteness features and seeks to establish links with information already available in the information structure in order to achieve a coherent interpretation. Yet, the exact nature of this process of coherence and dependency formation cannot be decided upon on the basis of these data. On the one hand, the N400-modulations (given<inferred<new) for both definite and indefinite DPs might be guided by discourse-pragmatic factors (i.e. reflecting different degrees of difficulty during dependency formation), but on the other hand they could also be mere reflections of lexico-semantic processing (i.e. facilitation through priming). This issue will be addressed in section 3.3 and 3.4.

Second, a late positivity emerged for indefinite DPs (3a/3b/3c) and in the absence of an identity relation (2b/2c), suggesting that information structural complexity is heightened by the need to establish an independent representation. It also insinuates that indefiniteness marking affects processing decisions after semantic networks have been activated (reflected by the N400-modulations) and crucially cannot suppress or block these latter processes. As an aside, acceptability ratings again cannot explain the late positive ERP effect. Although the conditions in (3) represent the least acceptable mini-discourses discussed in this paper, a consistent explanation of the data on the basis of offline measures – that show clear differences between the three indefinite conditions - cannot be reached.

Finally, with respect to the time-course of the given-new distinction, the results of this and the previous investigation reveal that access to lexical-semantic and/or information structural knowledge impacts interpretive processes prior to the creation of an independent referent representation in IS. Most importantly, (in)definiteness does not influence early processing phases, indicating that there is no automatic correspondence between the given-new contrast and the definite-indefinite distinction.

### *3.3. Structural accessibility*

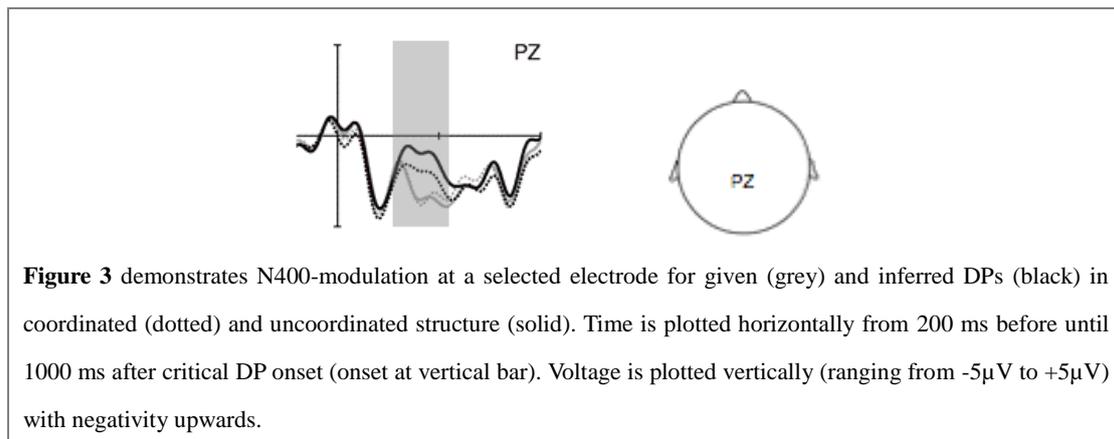
The issue of the underlying source of the N400 differences has been addressed by a study that investigated the accessibility of a referent via coordinated and uncoordinated context sentences (Burkhardt and Roehm 2007). Such an experimental manipulation may provide an answer to the question whether the N400 modulation observed for given and inferred entities is triggered by processes of dependency formation or whether it reflects mere lexical-semantic facilitation. To this end, the study asked how information is accessed in IS and which factors may facilitate or block this access by comparing stimuli as in (2a-b) (repeated below) with those in (4a-b) where the

antecedent/anchor expression is embedded in a coordinated structure:

- (2) a. Tobias visited a conductor in Berlin. He said that *the conductor* was very nice.
- (2) b. Tobias visited a concert in Berlin. He said that *the conductor* was very nice.
  
- (4) a. Tobias visited a conductor and a politician. He said that *the conductor* was very nice.
- (4) b. Tobias visited a concert and a horse race. He said that *the conductor* was very nice.

Acceptability ratings improved for the repetition of a given DP when the antecedent expression was embedded in a coordination as in (4a); the fact that the two DPs in the context sentence are of equal salience makes it necessary to use a full DP in the subsequent sentence. Contrary to this, acceptability declines in the case of the inferrables; while (2b) represents a highly acceptable and coherent sequence, it is difficult to establish a formal association between *conductor* and *concert*, since the potential anchor forms a higher-order constituent with the second conjunct. These behavioral findings are only partly reflected in the ERP data. In Burkhardt and Roehm (2007), we found no differences between the two given variants (2a=4a), which indicates that the described differences in offline judgments are not reflected in the ERP signal elicited during the establishment of coreference relations. In contrast, differences in the accessibility of the anchor for inferential dependencies are reflected in the N400-amplitude, with an enhanced N400 for less accessible (coordinated) structures (4b>2b). This negativity is illustrated in Figure 3 at a representative electrode position.

These data reveal that inferential integration is more resource-consuming when the anchor is part of a complex coordination structure than a simple DP, while given DPs are unaffected by the degree of accessibility of their antecedent. The data demonstrate further that both the type of dependency and factors associated with the antecedent expression impact IS integration, i.e. salience or prominence information influences information structural processes in different ways. This observation thus represents an initial indication that the previously reported N400-modulations are triggered by IS processes and go beyond lexical-semantic facilitation.

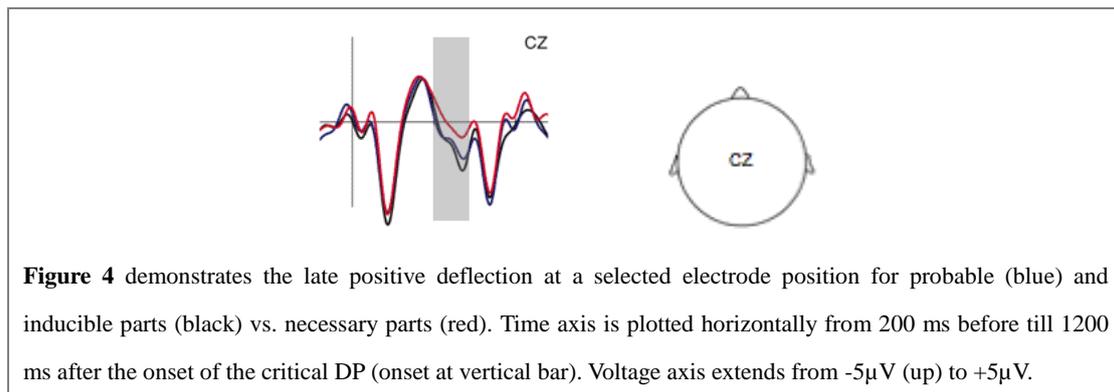


### 3.4. Thematic accessibility

Further corroborating support for an information structural account of the N400 comes from an investigation of the semantic-thematic accessibility of the antecedent expression. In Burkhardt 2007, I reported on an investigation that varied the strength of the required inference – based on Clark’s (1975) distinction between necessary (5a), probable (5b), and inducible parts (5c). The idea is that the amount of computational effort needed to construct a coherent interpretation rises successively; while for example a pistol is a necessary part in a shooting event (5a), killing can also be carried out with a rope, a knife, one’s hands (5b), and establishing a link between a finding-dead event and a pistol involves drawing the inference that the death was inflicted upon the Ph.D. student (5c).

- (5) a. Yesterday a Ph.D. student was shot downtown. The press reported that *the pistol* was probably from army stocks.
- (5) b. Yesterday a Ph.D. student was killed downtown. The press reported that *the pistol* was probably from army stocks.
- (5) c. Yesterday a Ph.D. student was found dead downtown. The press reported that *the pistol* was probably from army stocks.

The ERP analysis registered no N400-differences, but yielded a reliable effect in the late positivity window, which was reflected in a more pronounced positivity for (5b/c). This is illustrated in Figure 4 at a selected electrode site.



First, the absence of distinct N400 effects suggests that lexico-semantic networks are initially activated in all conditions alike, although behavioral data from a rating study indicate a three-way plausibility contrast ( $5a > 5b > 5c$ ). The discrepancy between offline and online data therefore indicates that the two-way contrast in the ERP study cannot be exclusively attributed to the fit of sentence pairs and strength of lexico-semantic association and plausibility. Instead, it insinuates that the N400 taps into processes of dependency formation, where the type of dependency modulates amplitudinal variation along the following continuum: identity < inference < no dependency.

Second, the late positivity for probable and inducible parts over necessary parts strengthens the view that this component is evoked by increases in IS complexity. Here, IS complexity is not merely affected by the creation of an independent IS representation of the instrument role (as e.g. discussed in section 3.1 and 3.2), which is required in all three conditions alike. Rather, the critical DPs in (5b/c) force the modification of a previously established event representation, i.e. the finding-dead event in (5c) must be reinterpreted as a shooting event and/or an additional IS representation for the instrument role must be created. In contrast, one can argue that the critical DP in (5a) represents an implicit instrument role in the shooting event. Following this line of reasoning, the late positivity can thus be interpreted as enhanced semantic-thematic integration cost.

#### **4. Coherence and dependency vs. IS complexity: Two dissociable mechanisms**

The electrophysiological data presented in the previous section indicate that givenness and newness are not two sides of the same coin, but rather represent

dissociable processes during discourse comprehension. While givenness is affected by factors such as coherence, accessibility, and the type of dependency available, newness is not just an opposing notion, but instead triggers an independent process that results in an increase in information structural complexity and is guided by morphological marking (indefiniteness), semantic-thematic demands and pragmatic enrichment (the latter is supported by recent research on reference transfer as in the famous ‘ham sandwich’ example (see Schumacher 2009 for further details)). Processes associated with the establishment of *Dependency and coherence* are reflected in N400-modulations, whereas a late positivity emerges for *IS complexity*. This distinction converges with previous ERP findings that showed that the N400 reveals difficulty of lexical-semantic and referential integration (cf. e.g. Streb et al. 1999; Kutas and Federmeier 2000) and that enhanced processing demands during integration and storage of new IS units are reflected in a late positivity (e.g. Burkhardt 2005; Kaan et al. 2007). Yet, the present paper shows in a systematic manner how given and new information is computed in real time. It proposes a comprehensive account of IS processing and reveals that information from distinct linguistic domains facilitates and constrains IS processes.

The data demonstrate that *Dependency and coherence* relies on lexico-semantic support, but is also contingent on the type of the dependency since this notion emerges as a stronger indicator for the amplitude of the N400 than lexical-semantic facilitation – as evidenced by the absence of N400 differences in section 3.4 and the fact that prominence yields dependency-specific effects in section 3.3. Note that type of dependency is viewed as an information structural notion because it has clear consequences for IS representation. The findings further reveal that *Dependency and coherence* is also constrained by prominence features such that the structural prominence of an antecedent/anchor determines the ease of integration in certain cases. Future research should further specify which other types of prominence features have an impact on referential processing (cf. e.g. Gordon, Grosz and Gilliom 1993 or Almor 1999 for evidence from other experimental paradigms).

Processing cost from *IS complexity* in turn arises whenever information units are created or modified in IS. This is not only caused by the introduction of new discourse referents, but also when already established IS units must be enriched. As the data indicate, the introduction of a new referent is triggered by indefiniteness marking, but also takes place when no coreferential unit is available in IS. In addition, the findings discussed in section 3.4 reveal that initial mismatches in the semantic-thematic mapping between incoming information and previous IS representations result in *IS complexity* cost, i.e. unexpected thematic roles require the restructuring of IS representations

thereby exerting processing demands. Moreover, an alternative explanation of the late positivity with respect to plausibility judgments cannot account for the observed patterns in a consistent manner, which is briefly discussed in each subsection above. This claim is for instance guided by the observation that the basic inferable condition (e.g. (2b)) represents the most felicitous mini-discourse, yet shows a clear positive deflection compared to the coreference condition (2a). Furthermore, the indefinite new condition (3c) represents a plausible mini-discourse, yet it does not differ from the other two indefinite conditions with respect to the late positivity.

Overall, these investigations of inferences demonstrate that processes that are associated with linking incoming information with previously established information precede those processes that involve adding or updating information in IS, supporting the widely assumed sequencing of given-before-new. Thus the information transfer is optimized by the parser by first attempting to enter into dependencies with known information before creating or altering already existing IS units. Finally, I want to suggest that the process *Dependency and coherence* is guided by the general IS principle of *IS Minimality* (“Keep the information structure minimal and simple.”) whereby coreference relations are highly preferred and coherence is aspired for (cf. e.g. Asher and Lascarides 1983’s principles *Use Identity* and *Maximize Discourse Coherence*). Moreover, *IS complexity* generally results from conflicting information types such as mismatches between lexical-semantically possible dependencies and referential features (indefinites) or mismatches in argument structure.

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# Second Occurrence Focus in German

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## Abstract

In a production study on read German, we investigate the tonal, durational and articulatory parameters used in the marking of three different focus structures. Special attention is paid to target words in Second Occurrence Focus (SOF). Such words are both focussed and contextually given. Prominence in SOF items is compared to prominence in items which are focussed and new (First Occurrence Focus, FOF) and those which are in the Background. Results confirm previous findings that SOF is not marked by a pitch accent. However, we observe gradient but systematic adjustments of acoustic and articulatory parameters (word durations and temporal and spacial modifications of opening and closing gestures) leading to an increase in prominence from Background through SOF to FOF. The extent to which single speakers employ different strategies varies. Phonologically, we propose an analysis of SOF prominences as phrase accents.

**Keywords:** Second Occurrence Focus, articulatory gesture, prominence, sonority expansion, prosody.

## 1. Introduction

Recent production studies on the prosodic marking of different types of focus (contrastive vs. non-contrastive) as well as different sizes of focus domain (broad vs. narrow) in German revealed that speakers make use of a wide variety of prominence-lending cues for encoding differences in information structure (e.g. Baumann et al. 2007). Results suggest that an increase in prominence – from broad through narrow to contrastive focus – is achieved by tonal means such as rising nuclear pitch accents and higher and later accent peaks, as well as by an increase in acoustic duration and, at least for the difference between broad and narrow focus, by increased articulatory effort (localised hyperarticulation, sonority expansion) in the accented vowel.

In the study reported on here, we investigate the tonal and articulatory marking of

a specific type of focus, namely ‘Second Occurrence Focus’ (SOF). SOF is indicated morpho-syntactically by a focus sensitive operator like *only* or *even*, and is contextually given (in contrast to ‘First Occurrence Focus’ (FOF), which is contextually new). A famous example by Partee (1999: 215) is given in (1), where *vegetables* occurs as an FOF element (a) and as an SOF element (b).<sup>1</sup>

- (1) a. Everyone knew that Mary only eats [VEgetables]<sub>FOF</sub>.  
b. If even [PAUL]<sub>FOF</sub> knew that Mary only eats [vegetables]<sub>SOF</sub>,  
then he should have suggested a different restaurant.

The apparent conflict between the ‘focussedness’ and the ‘givenness’ of SOF elements in terms of their expected prosodic marking has been widely discussed and experimentally investigated in recent years (e.g. Bartels 2004, Krifka 2004, Ishihara & Féry 2006, Beaver et al. 2007, Howell 2007, Rooth 2007, Büring 2008).

The problem can be described as follows: According to *Association with Focus* theories (e.g. Jackendoff 1972), a focus sensitive operator like *only* has to be associated with a focus in its syntactic domain, which is realised by intonational prominence. However, it has been claimed (e.g. by Partee 1999) that SOF – in contrast to FOF – is not necessarily marked by a pitch accent (note the deaccentuation of *vegetables* in (1b) above). The existence of such an ‘inaudible focus’ would violate the *Association with Focus* theory, since it would imply either that focus (at least SOF) is not necessarily marked by intonational prominence OR that operators like *only* do not associate with focus.

It is important to note that the lack of prominence on SOF items cannot be explained by givenness alone, since there are many instances in West-Germanic languages in which contextually given constituents *do* receive focus prominence, as e.g. in (2), adapted from Büring (2008).

- (2) a. Who showed up last at John’s party?  
b. JOHN<sub>F</sub> (showed up last at his party).

In fact – and in contrast to Partee’s claim – several production studies have shown that SOF may be marked by prosodic prominence as well, although not by pitch accents (e.g. Bartels 2004 and Beaver et al. 2007 for American English, Ishihara & Féry 2006 for

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<sup>1</sup> Pitch accents on relevant syllables are indicated by capital letters.

German). Instead, SOF was found to be prosodically marked by increased acoustic duration and intensity of the focussed item. For German, Ishihara & Féry found a significant durational difference between SOF and Background in postnuclear position (SOF items being longer). In prenuclear position, SOF was even marked by pitch accents.

These findings provide empirical evidence in favour of the *Association with Focus* theory. That is, SOF items *can* be considered to be focussed, and they *are* made prominent by prosodic means. However, they are not marked by fully-fledged (primary) pitch accents, but by increased duration and intensity reflecting secondary prominence or stress.

The aims of our study are the following:

- In addition to the tonal and durational marking of SOF in German, we particularly want to find out to what extent SOF is marked in articulation. That is, we investigate the modifications of the opening and closing gestures of the primary constrictors during the production of target words in three different focus structures (Background, SOF, FOF). Previous studies on SOF have not taken articulation into account.
- We want to examine whether the prominence level of SOF items lies ‘in-between’ Background and FOF items, as has been suggested by previous studies. More specifically, we want to test whether the prominence of SOF items differs from Background elements (in postnuclear position).
- Based on the outcome of our examination, we expect to gain insights into the phonological status of the prominence level of SOF elements.

## 2. Method

### 2.1 Reading materials

For our study, we constructed disyllabic target words (fictitious surnames) consisting of a 'CV:CV sequence. The open stressed target syllable contained one of the four phonologically long vowels /a:/, /i:/, /o:/ or /u:/. The structure of the target words is summarised in (3).

- (3)            **C1 V1 C2 V2**  
                  *C1, 2 = bilabial stop [b]*  
                  *V1 = [a:, i:, o:, u:]*

*V2 = open central vowel [ɐ]*

Short discourses of context and target sentences were designed with the test word in FOF, SOF or in the Background, always occurring as the last non-pronominal argument in the sentence). The sequences in (4) served as test material. We also recorded a sequence with the focus operator *sogar* ('even') but limit this report to the *nur* ('only') condition.

(4) **nur ('only') condition**

**Context:** Bei Heuschnupfen wird heutzutage viel zu schnell Cortison verschrieben.

*(Today, in case of hay fever, Cortisone is prescribed much too early.)*

**FOF:** Eine Akupunktur kann nur [Dr. Bieber]<sub>FOF</sub> machen.

*(An acupuncture can only be done by Dr. Bieber.)*

**SOF:** Auch eine Bachblütenkur kann nur [Dr. Bieber]<sub>SOF</sub> machen.

*(Also a cure with bach flowers can only be done by Dr. Bieber.)*

**Context:** Wer hat Dr. Bieber so gut ausgebildet?

*(Who trained Dr. Bieber so well?)*

**Background:** Die beste Klinik der Stadt hat [Dr. Bieber]<sub>Background</sub> so gut ausgebildet.

*(The best hospital in town trained Dr. Bieber so well.)*

## 2.2 Speakers and recordings

We recorded two native speakers of Standard German. One speaker originated from north of the Benrath isogloss (speaker DM: Low Franconian), and one from south of it (speaker WP: Central Franconian). They were aged 38 and 26 years, respectively.

All recordings were carried out at the IfL Phonetics laboratory in Cologne with a 2D Electromagnetic Midsagittal Articulograph (EMMA; Carstens AG100) and a condenser microphone (AKG C420 head set) attached to a Compact-Flash-Card-Recorder (Marantz PMD670/W1B). Articulatory sensors were placed on the vermillion border of the upper and lower lip, on the tongue dorsum (4cm behind the tongue tip) and on the jaw. Two additional sensors were placed on the bridge of the nose and on the gums of the upper incisors for calculating dynamic helmet corrections. The kinematic data were

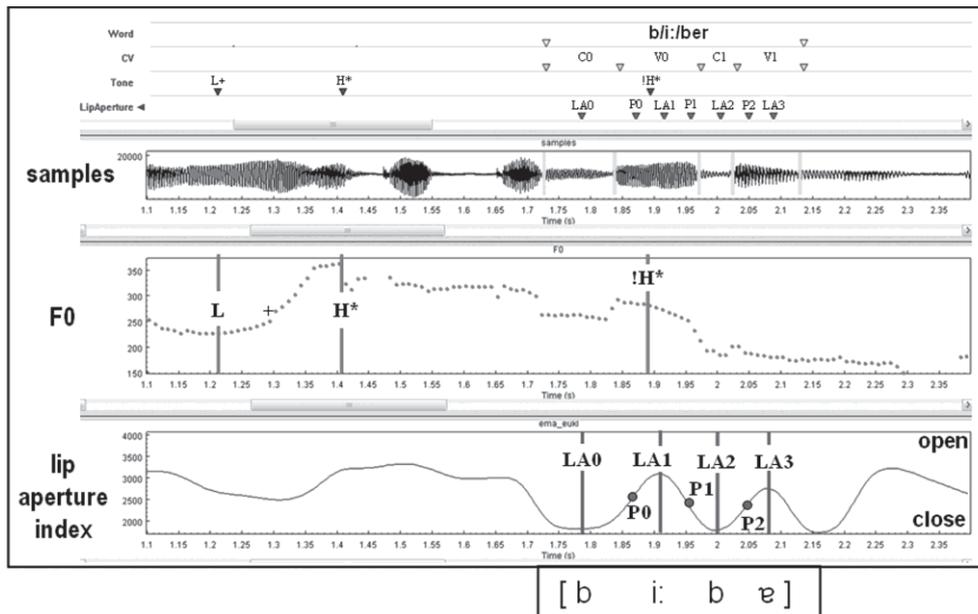
recorded at 500Hz, downsampled to 250Hz and smoothed with a 40Hz low-pass filter. The time-synchronised acoustic data were digitised at 16bit/44.1kHz. For displaying and labelling the utterances, all acoustic and physiological data were converted to SSFF-format, the format needed for the EMU speech database system (Cassidy & Harrington 2001).

A total of 336 sentences were recorded (4 target words x 3 focus structures x 2 focus particles x 7 repetitions x 2 speakers). The subjects were asked to read the speech materials from a computer monitor in a contextually appropriate manner and as naturally as possible. The sentences were presented in two blocks per condition (see (4) above). In the first block, three sentences (context, SOF, FOF) were read by the subject. The second block consisted of a context sentence, which was displayed on the screen and automatically played to the subjects as a pre-recorded audio file. The subject read the answer in this mini-dialogue.

### *2.3 Labelling procedures*

All data were displayed and labelled by hand in EMU. In the acoustic waveform, we identified segments of the target words (C0, V0, C1, V1). In the F0 trace, we annotated pitch accent types (following GToBI; see Grice et al. 2005) for pitch movements on or in the vicinity of the target words. In the kinematic waveform, we labelled vertical movements of the lips and the tongue dorsum corresponding to the 'CV:C production in the 'CV:CV-target words. Therefore, we located maxima and minima of the opening and closing movements at zero-crossings in the respective velocity traces (vertical velocity and tangential velocity), as well as peak velocities at zero-crossings in the respective acceleration trace.

Figure 1 provides an example of measure points for segmental, F0 and kinematic (lip movement) labels. As for lip movements, we calculated the Euclidean distance between the upper and lower lip (lip aperture index, LA; Byrd 2000: 6). Low displacements (LA0, LA2) indicate that lips are closed during the consonant production, while high displacements (LA1, LA3) indicate that lips are open during the vowel (P0, P1, P2 = peak velocities of the respective opening and closing movements).

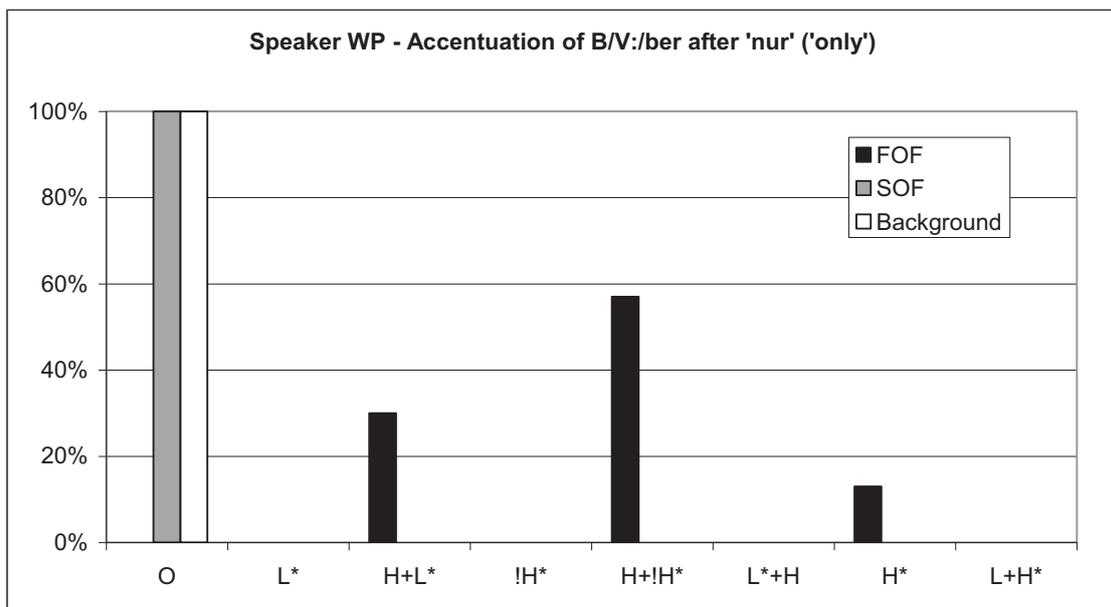
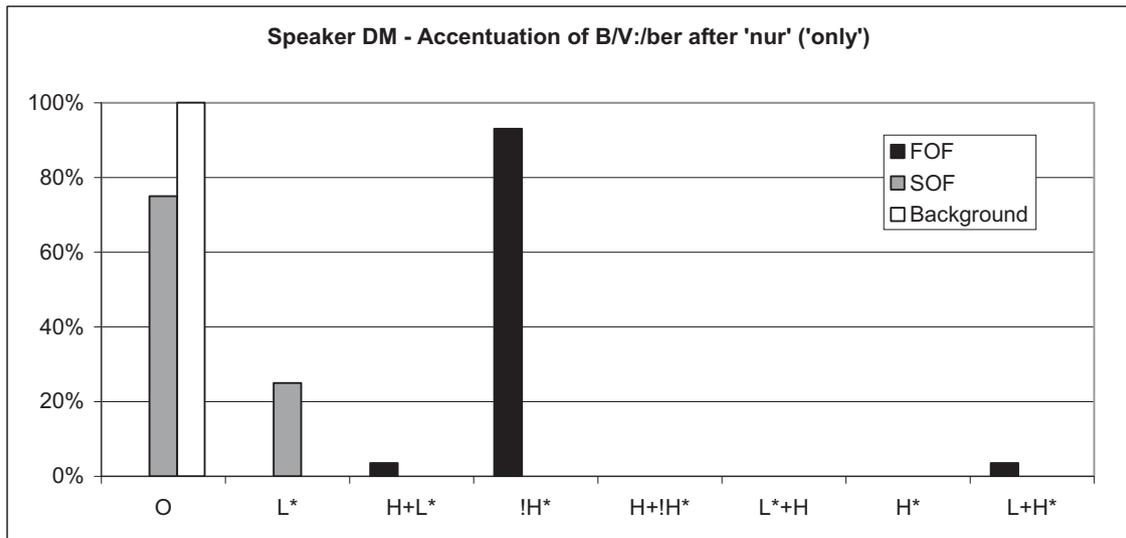


**Figure 1:** Labelling scheme with acoustic waveform, F0 trace and kinematic waveform for the lips in the second part of the test sentence [Eine Akupunktur kann] nur Dr. Bieber machen (‘[An acupuncture can] only be done by Dr. Bieber’)

### 3. Results and Discussion

#### 3.1 Tonal marking

As can be seen in Figure 2, both speakers consistently deaccented Background items. SOF target words were deaccented in 92% of all cases, with speaker DM varying between low pitch accents (7 instances of L\*) and deaccentuation. In contrast, FOF items always received a pitch accent. The choice of pitch accent varied between the speakers. Nevertheless, in 81% of all cases speakers used downstepped pitch accents (!H\* or H+!H\*).



**Figure 2:** Distribution of accent types on the target word B/V:/ber in the three focus structures (in percent), for each speaker separately

These findings support previous studies which observe that SOF items – occurring as the last argument in a sentence – are generally not marked by pitch accents. Somewhat surprising is the large number of downstepped accents on FOF items, since it has often been claimed that focussed elements which are contextually new should be marked by high or rising (i.e. H\* or L+H\*) pitch accents. However, the structure of our test sentence displaying a topicalised NP (*Eine Akupunktur...* ‘An acupuncture...’) triggers a hat pattern with a rising accent on the focus operator *nur* (‘only’) and a down-

stepped nuclear accent on the target word (see the example in Figure 1).

Although downstepped accents (as well as early peak accents) have been shown to be used to mark accessible (i.e. not new) information in German and are thus less prominent than high or rising accents (Baumann & Grice 2006), it is important to note that they are still fully-fledged (prenuclear or nuclear) pitch accents, in contrast to post-nuclear prominences such as phrase accents (Grice et al. 2000), which are secondary in nature.

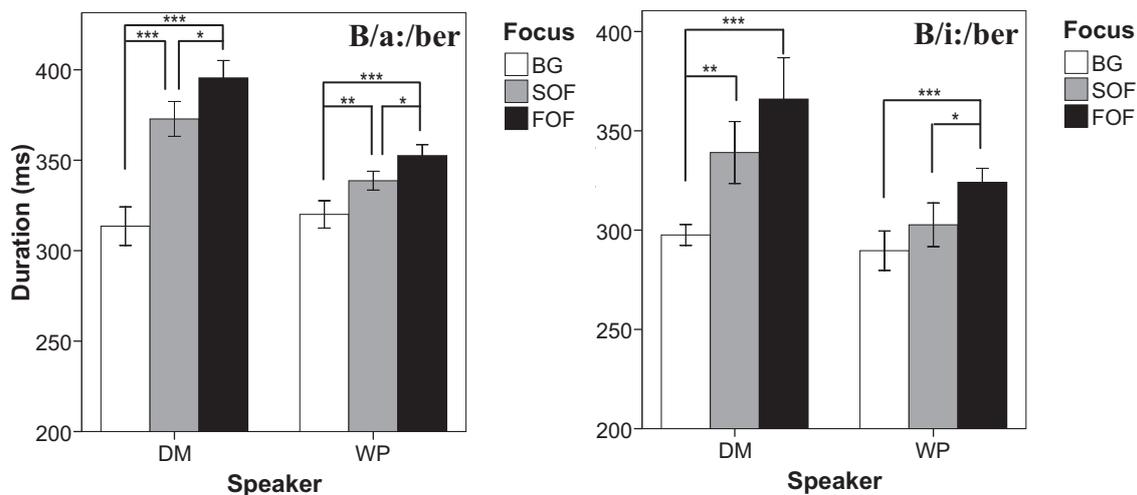
### 3.2 *Durational marking*

We investigate the durational marking of the target words containing the unrounded vowels, B/a:/ber and B/i:/ber. Note that in our study the domain ‘word’ is identical with the domain ‘foot’ since all target words are composed of two syllables with the stress pattern strong-weak. We performed speaker-individual two-way ANOVAs (2 x 3) including the factors VOWEL (B/a:/ber, B/i:/ber) and FOCUS STRUCTURE (Background, SOF, FOF). Since FOCUS STRUCTURE is a three-level factor, we also calculated post-hoc tests.

The main factor VOWEL reached significance for both speakers ( $p < 0.001$ ). We found larger word durations for the open vowels (B/a:/ber) than for the closed vowels (B/i:/ber). Averaged across both speakers those differences amount to  $\Delta = 23$ ms in the Background condition and  $\Delta = 30$ ms in FOF. The differences are probably due to different intrinsic vowel durations of open and closed vowels: since the production of open vowels involves a greater amount of jaw lowering they tend to have larger intrinsic durations than closed vowels (Lehiste 1970).

We found a systematic effect of FOCUS STRUCTURE on the durational measures for speaker DM [ $F(2, 42) = 70.215, p < 0.001$ ] and WP [ $F(2, 42) = 34.501, p < 0.001$ ]. For both speakers we found three separate subgroups (post-hoc: BG < SOF < FOF). There was no significant interaction between FOCUS STRUCTURE and VOWEL.

Figure 3 provides an example of the effect of FOCUS STRUCTURE on the durational measures. The figure shows means and standard errors for word duration, separately for each target word (B/a:/ber, left figure; B/i:/ber, right figure), for each speaker (DM, WP), and focus structure (Background, SOF, FOF). The corresponding values are shown in Table 1.



**Figure 3:** *Acoustic word durations (means and standard errors in ms)*

In the target word B/a:/ber, both speakers produce larger word durations from Background to SOF (DM:  $\Delta=59$ ms; WP:  $\Delta=19$ ms), and from SOF to FOF (DM:  $\Delta=23$ ms; WP:  $\Delta=14$ ms).

In the target word B/i:/ber, speaker DM produces larger word durations from Background to SOF ( $\Delta=41$ ms), and from SOF to FOF ( $\Delta=27$ ms). In contrast, speaker WP produces systematically larger durations only from SOF to FOF ( $\Delta=21$ ms), but not from Background to SOF.

Vowel	Speaker	BG	SOF	FOF
/a:/	DM	314 (14)	373 (13)	396 (13)
	WP	320 (10)	339 (7)	353 (8)
/i:/	DM	298 (7)	339 (21)	366 (28)
	WP	290 (13)	303 (15)	324 (9)

**Table 1:** *Mean acoustic words durations (means and standard deviations in ms)*

To sum up: for both speakers we found larger word durations from Background through SOF to FOF, which is tantamount to a gradient but systematic increase in the prominence level of the three focus structures.

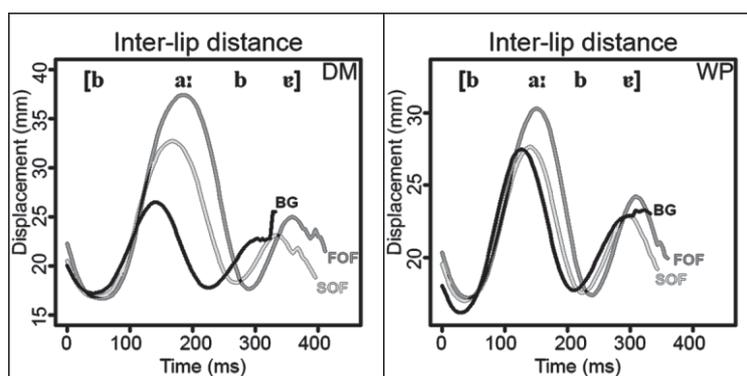
The results were very clear and consistent for target words containing an open vowel, B/a:/ber. However, for the closed vowel /i:/, the results were less clear, at least for speaker WP. We interpret this difference to be due to a different degree of coarticulatory resistance of open versus closed vowels. It has been reported for French that an open vowel (/a/) is highly affected by prosodic structure (boundary strength) showing

lower tongue and jaw positions and therefore longer durations at strong prosodic boundaries compared to weak boundaries (Tabain 2003). In contrast, a closed vowel (/i/) involves a higher degree of articulatory precision and is therefore less variable across prosodic contexts (Tabain et al. 2003). The less clear results for /i:/ in our data can thus be explained. In the following, we discuss the articulatory strategies used for target words containing open vowels.

### 3.3 Articulatory marking

All articulatory measures were analysed with one-way ANOVAs for the individual speakers and with a Tukey post-hoc test for the three-level factor FOCUS STRUCTURE (Background, SOF, FOF).

Figure 4 provides averaged trajectories for the distance between the upper and lower lip (Lip Aperture index) during the production of the target word B/a:/ber. Low displacements indicate that the lips are closed for the production of the stop consonants. Going from Background to FOF, we can see an increase in duration and displacement (corresponding to Lip Aperture, Byrd 2000) for both speakers. Furthermore, when comparing Background and SOF, we can see an increase in *durations* for both speakers. However, an increase in *displacement* from Background to SOF is only observable for speaker DM.



**Figure 4:** Averaged trajectories for lip opening and closing movements during the target word B/a:/ber for each speaker DM and WP and focus condition

Table 2 provides means and standard deviations for the separate articulatory measures in the opening and closing gesture of the lips in 'CV:C-sequences. The opening gesture is defined as the movement of the lips from the maximum closure during the initial

consonant to the maximum opening during the following vowel in the accented syllable. The closing gesture is the movement from the maximum opening during the vowel to the maximum closure during the intervocalic consonant; the intervocalic consonant is the onset of the post-accented syllable. Both gesture types (opening and closing gesture) have been proposed to be controlled differently (Gracco 1994).

In the opening and closing movements, we measured mean durations, maximum displacements, peak velocities (related to the maximum speed) and time-to-peak velocities. While the peak velocity is related to the *absolute* (maximum) speed of the movement, the time-to-peak velocity describes the *relative* speed of movement. Time-to-peak velocity is calculated as the time from the onset to the peak velocity of the opening (or closing) movement. It serves as an indicator for gestural stiffness (which is an abstract, primary control parameter within the framework of a mass-spring model; see Saltzman & Munhall 1989). A gesture with a lower stiffness (= related to an *increase* in time-to-peak velocity) reaches the target later than a gesture with a higher stiffness. We expected to find an increase in durations, displacements, peaks velocities and time-to-peak velocities from Background (unaccented) to FOF (accented) condition in the opening and closing gesture.

OPENING GEST.		BG	SOF	FOF
DM	dur (ms)	99 (6)	121 (8)	130 (7)
	dis (mm)	9.4 (1.3)	16 (2.5)	20.8 (1.8)
	p-vel (mm/s)	167 (17)	251 (36)	312 (26)
	t2p-vel (ms)	58 (3)	63 (3)	65 (5)
WP	dur (ms)	96 (4)	104 (4)	109 (6)
	dis (mm)	11.5 (1)	10.7 (1.3)	13.2 (1.4)
	p-vel (mm/s)	204 (15)	174 (29)	206 (25)
	t2p-vel (ms)	54 (3)	60 (3)	60 (4)

CLOSING GEST.		BG	SOF	FOF
DM	dur (ms)	82 (6)	97 (3)	103 (7)
	dis (mm)	9.1 (1.6)	15.1 (2.2)	20.1 (1.9)
	p-vel (mm/s)	186 (33)	271 (38)	352 (31)
	t2p-vel (ms)	40 (5)	53 (4)	58 (5)
WP	dur (ms)	82 (2)	83 (4)	87 (2)
	dis (mm)	10 (0.9)	10.2 (1.7)	13.2 (1.4)
	p-vel (mm/s)	203 (22)	207 (27)	264 (32)
	t2p-vel (ms)	41 (2)	42 (2)	45 (3)

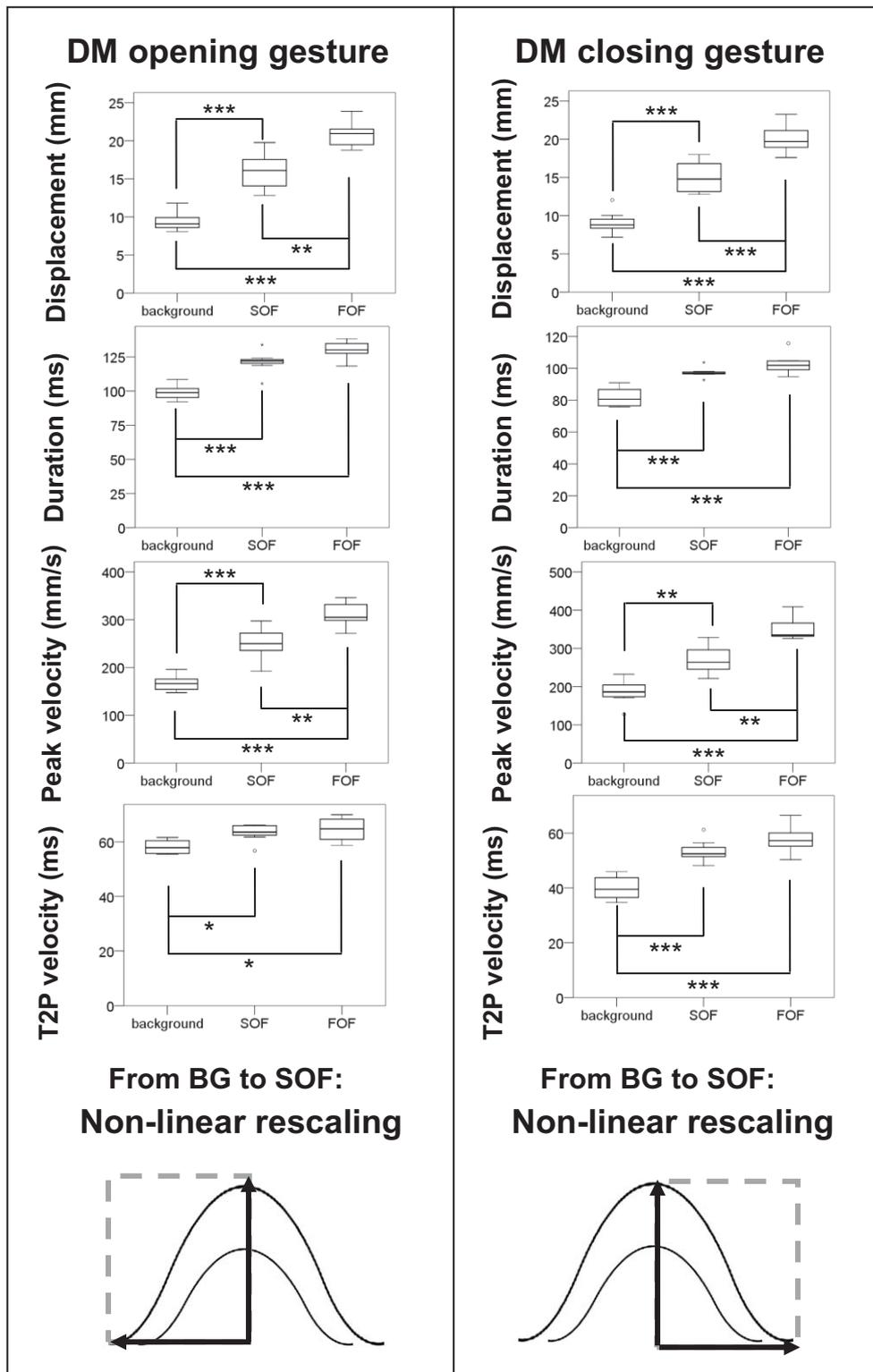
**Table 2:** *Articulatory measures for opening and closing gesture in the CV.:C sequence during B/a:/ber (means and standard deviations in parenthesis) for both speakers*

As can be seen from Table 2, however, the picture is not as clear when comparing Background to SOF. Nevertheless, we found systematic differences ( $p < 0.05$ ) for both speakers in these two focus structures. In the following we discuss the strategies employed by the two speakers separately.

First, we compare the articulatory measurements (opening and closing gesture, lip movement) for speaker DM. Figure 5 provides medians and quartiles for the respective measures. In the opening gesture, all values increase from Background to SOF. The analysis revealed that FOCUS STRUCTURE ( $p < 0.01$ ) induces larger durations ( $\Delta = 22\text{ms}$ ),

larger displacements ( $\Delta=6.6\text{mm}$ ), higher peak velocities ( $\Delta=84\text{mm/s}$ ), as well as higher time-to-peak-velocities ( $\Delta=5\text{ms}$ ). The adjustments in the opening gesture are comparable to the closing gesture. In the closing gesture, all values also systematically increase from Background to SOF ( $p<0.001$ ) with larger durations ( $\Delta=15\text{ms}$ ), larger displacements ( $\Delta=6\text{mm}$ ), higher peak velocities ( $\Delta=85\text{mm/s}$ ), and higher time-to-peak-velocities ( $\Delta=13\text{ms}$ ).

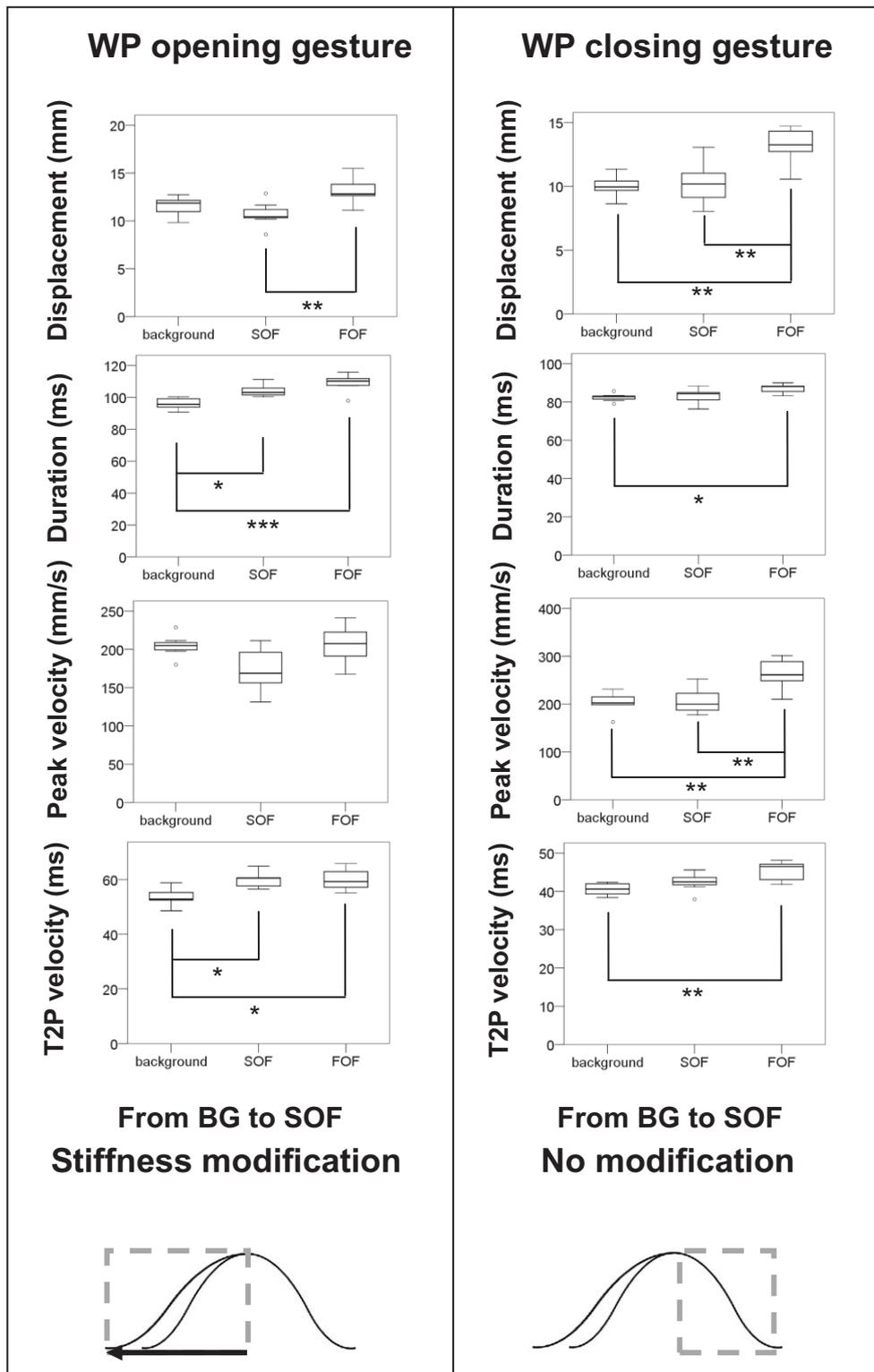
To sum up the results for speaker DM, she adjusted all parameters in the opening and closing gesture. In a mass-spring model, these adjustments can be explained by a non-proportional change of the control parameters *Target* and *Stiffness*. The size of the whole opening gesture is rescaled in a non-linear way. That type of resizing of a movement corresponds to the articulatory strategy of *non-linear rescaling* (schematised at the bottom of Figure 5).



**Figure 5:** *Articulatory measures for speaker DM (all focus conditions) and stylised strategies for distinguishing Background from SOF*

Figure 6 provides medians and quartiles for the opening and closing gesture for speaker WP. In contrast to speaker DM, WP did not adjust all parameters from Background to SOF. In the opening gesture, we found an increase of the temporal measures ( $p < 0.05$ ) with larger durations ( $\Delta = 8\text{ms}$ ) and higher time-to-peak-velocities ( $\Delta = 6\text{ms}$ ). In the closing gesture, focus structure did not reach significance for the respective measures.

Within the framework of a mass-spring model, speaker WP modified the control parameter stiffness in the opening gesture by lowering the stiffness from Background to SOF (=increase of movement duration and time-to peak velocity, see Figure 5). However, in the closing gesture no systematic modifications from Background to SOF could be found.



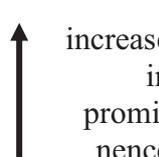
**Figure 6:** Articulatory measures for speaker WP (all focus conditions) and stylised strategies for distinguishing Background from SOF

To sum up the kinematic results for the target word B/a:/ber: both speakers distinguished between Background (unaccented) and FOF (accented) by increasing durations, displacements, peak velocities and time-to-peak velocities. Furthermore, both speakers (DM and WP) distinguished between Background and SOF.

However, when comparing Background and SOF, we found speaker-dependent strategies. Speaker DM modified the opening and closing gestures by adjusting all parameters (non-linear rescaling or resizing of the whole gestures). In contrast, speaker WP only modified the opening gesture and adjusted those parameters related to the stiffness of the movement (lower stiffness from Background to SOF by increasing duration and time-to-peak velocity).

#### 4. Conclusions

We found systematic differences in marking the three focus structures under investigation (Background, SOF, FOF) for both speakers. Table 3 provides an overview of the strategies used.

	Tonal	Durational	Articulatory		
	(nuclear) pitch accent	acoustic word duration	stiffness (related to duration of movements)	target (displacement; related to sonority expansion)	
FOF	yes	larger	lower	higher	
SOF	no				
BG	no	smaller	higher	lower	

  
 strategy speaker-dependent

**Table 3:** Summary of tonal, durational and articulatory adjustments as prominence increases in the marking of target words in three different focus conditions

In terms of *accent placement*, the results were consistent – and involved a discrete difference: Background and SOF elements were generally deaccented (speaker DM

marked a few instances of SOF by low accents, though), whereas FOF elements received pitch accents throughout.

Furthermore, the non-tonal *acoustic parameters* (word duration) considerably increased from Background through SOF to FOF. Those differences in acoustic durations correspond to *articulatory modifications*. We found larger durations of the opening and closing movements in the target 'CV:.C-sequences (stiffness modifications) and higher displacements (resizing of the whole gesture), while opening gestures were more strongly affected than closing gestures (speakers employed different strategies). Within the framework of the H & H theory (Lindblom 1990), we might say that target words are *hypoarticulated* in Background position (unaccented) and *hyperarticulated* in FOF position (accented) with the prominence level of SOF being intermediate between the two. However, since our articulatory investigations are restricted to lip movements, the higher degree of 'hyperarticulation' is related to a higher degree of *sonority expansion* from Background through SOF to FOF (Harrington et al. 2000). Acoustic and articulatory markings turned out to be gradient in nature but still displayed systematic differences. That is, there is an overlap between the phonetic realisations of Background and SOF items as well as between SOF and FOF items. Furthermore, the extent to which single speakers employ the acoustic and articulatory strategies varies.

The intermediate 'degree of prominence' which can be attributed to SOF items raises the question of its phonological status. Previous studies have tried to attribute various concepts to it, such as 'metrical accent' (Rooth 1996), 'metrical prominence/stress' (Büring 2008) or 'phrasal stress' (Beaver et al. 2004). Interestingly, the prominence on SOF constituents resembles the type of prominence Halliday (1967) claimed to be used for marking 'secondary information focus', which he defines as "information that is either new but subsidiary or given but to be noted" (1967: 209). An example is given in (5), in which *costs* is given information but made prominent by an 'extra' tonic (a 'compound tone' in Halliday's terms: a fall on *reasonable* plus a low rise on *costs*).

- (5) It seems perfectly REASONable to take the costs into account.

Prominences like these have been analysed by Grice et al. (2000) as 'phrase accents', which are defined as edge tones with a secondary association to either phrase-final or stressed syllables: "Such secondary associations give rise to tonal configurations that may resemble ordinary pitch accents, but do not signal focus or prominence in the

same way, reflecting their essentially peripheral nature” (2000:180). This ‘peripheral nature’ qualifies phrase accents as markers of ‘secondary information’, which also seems to apply to SOF elements.

However, phrase accents are defined tonally, and tonal movements on SOF items could not be found in our data. Nevertheless, the marking of SOF may have a tonal element after all: in many cases, the F0 minimum was reached on the lexically stressed syllable in an SOF word. More research is needed to explore the status of postnuclear prominences in general, and of SOF prominences in particular.

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# The Effect of Lexical Tone and Focus on the Formation of F0 in Vietnamese

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## Abstract

We investigated the effect of focus on the formation of f0 in the three modal tones in the Hà Nội dialect of Vietnamese. This dialect contrasts six lexical tones, has no tone-sandhi, the language does not have morpho-syntactic focus marking and uses prosody exclusively to express pragmatic contrasts (Jannedy, 2007) by means of intonational emphasis in ways similar to English or German. To tease out the effect of focus on the duration and f0 of the level tone *ngang*, the rising tone *sắ́c*, and the low level tone *huyề̀n*, identical short SVO-type utterances were elicited with a question-answer paradigm under four focus conditions (subject-, verb-, and object focus and in a neutral reading). Results indicate that the tone especially under subject- and verb- but also object focus show differences from the neutral reading, we find an f0-excursion for the *ngang* tone and a scoop and sharp rise for *sắ́c*. Duration of the focused syllable also increases under focus.

**Keywords:** Lexical Tone, Vietnamese, Focus, Intonation.

## 1. Introduction

### 1.1. Vietnamese

In this paper we set out to investigate the behaviour of lexical tones under focus in Vietnamese. Vietnamese is a Mon-Khmer language which are known for the complexity of their tone system: lexical contrasts are marked by tonal (pitch) as well as voice quality features (Yip, 1995). This interaction of voice quality and lexical tone also characterizes Vietnamese (Brunelle, 2003, 2006). Several more recent experimental studies have explored the perception of tone in the northern (Hanoi) and the southern (Saigon) Vietnamese dialect with six and five contrasting tones respectively, and have established that there is a higher and a lower pitch register (Brunelle, 2006; Michaud &

Vu, 2004; Michaud, 2004; Michaud et al., 2006; Nguyễn & Edmondson, 1997; Brunelle & Jannedy, 2007). The f<sub>0</sub>-contours shown in Fig.1 are representative of the standard Hà Nội dialect. The only exception is the rising tone *sắc*, which is realized relatively low, a variant found in some young female Northerners. In the Hà Nội dialect, laryngealization is tone-medial in *ngã* (steeply rising f<sub>0</sub> trajectory marked with “▲”) and tone-final in *hỏi* and *nặng* (glottalization). The three tones with a laryngealized voice quality are represented by a dotted line. The *huyền* tone is partially breathy. The rising tone *sắc* is fully modal and usually rises from the bottom of the pitch range to the top. The three tones in the lower register are *hỏi*, *huyền* and *nặng*. The neutral tone is called *ngang* and remains fairly stable in pitch throughout.

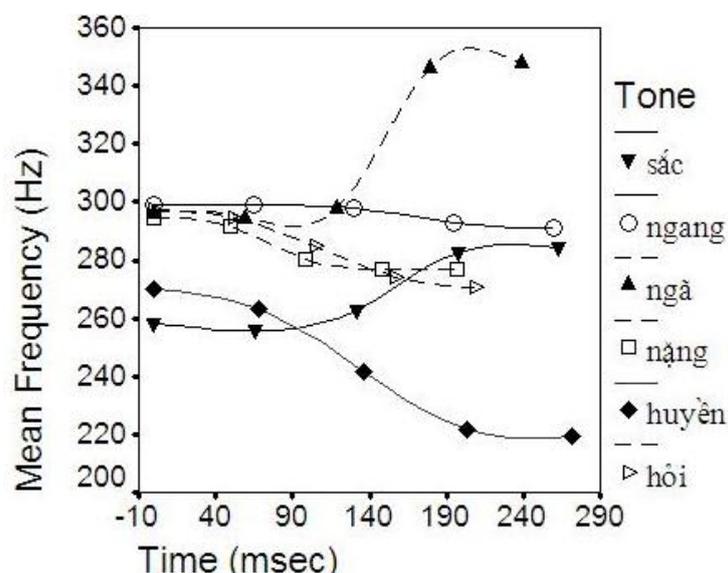


Figure 1: Mean f<sub>0</sub>-contours (over five repetitions) for the six lexical tones of the Hà Nội dialect of Vietnamese as produced by a female speaker (used as stimuli in the experiment described in Brunelle & Jannedy, 2007).

Vietnamese is an isolating language, most words consist of mono-syllables. It is unclear though if syllables are the tone bearing units in Vietnamese (as is the case in Ewe, Hausa, Chicheŵa or Mandarin Chinese) or if moras are (as in Japanese or Thai, see Morén, 2003). Furthermore, it is remarkable that while Vietnamese has strong tonal coarticulation (Han & Kim, 1974; Brunelle, under review), the language does not have tone-sandhi rules as we know them for languages such as Mandarin Chinese, Cantonese or Taiwanese. Tone-Sandhi refers to the changes in the values of lexical tones in the context of other tones. A well-known example from Mandarin Chinese is the change of

a low-tone to a rising tone when it is followed by another low tone. No such consistent rules are known for Vietnamese and none of the standard grammar books on the language (Thompson, 1965; Nguyễn, 1997) make reference to it. There is also no phonological downstep: the successive lowering of high tones often observed in register tone languages. There may be other non-systematic intonational downtrends such as final lowering (the lowering of the pitch towards the end of an utterance or phrase) or declination (a decline of the  $f_0$  over the course of the utterance); however, with the exception of Dung et al. (1998), none of the grammars, offer somewhat systematic descriptions of intonational variation.

Given the tonal complexity of the language and what has been stated in the sporadic reports published on tones, tone implementation and intonational emphasis, the question arises whether or not the language makes use of prosodic cues to signal information structural content or whether it needs to revert to other means such as the usage of particles or specialized syntactic positions to signal focus or topic. Occasional references to the use of prosodic means for emphasis and for phrasing can be found on some of the older, somewhat sparse, literature (Thompson, 1965; 1981; Nguyễn, 1990; Dung et. al. 1998).

Heavy stress singles out the syllable or syllables of each pause group which carry the heaviest burden of conveying information. Weak stress accompanies syllables, which bear the lowest information-conveying load in the pause group. They often refer to things which have been brought up earlier or which are expectable in the general context. Other syllables are accompanied by medium stress.

Thompson (1965:106)

Mai (1967:24) also describes intensity as one of the integral aspects of intonation in Vietnamese. Intonation contours are "superimposed on the basic tone system; they modify the pitch characteristics of the tones, but do not affect the tonemic contrast between them [...] the basic intonation contours are intrinsically linked with the overall intensity patterns." Similarly, Michaud & Vu (2004) state: "Vietnamese also possesses intonational emphasis: as in many languages, the great variability observed in the realization of the lexical tones largely reflects the informational prominence of various syllables in the utterance..." and they conclude "[...] a stable correlate of emphasis is curve amplification, manifested [...] as an increased slope of  $F_0$  curve [...] or as  $F_0$  register raising."

The lack of detailed descriptions of phonetic or phonological properties of structuring or emphasizing information in Vietnamese is apparent. Evidence reported in the literature and our first pilot studies strongly suggest that Vietnamese shows properties that are often associated with intonational phrasing and prosodic prominence in intonation languages: it has pitch range effects of the same sort seen in the intonational marking of emphasis and it also has pausing and other rhythmic effects of the sort associated with intonational phrasing observed in English and German.

In studying prosodic prominences and the resulting pragmatic interpretation of *prosodic focus*, there are two over-arching questions that are more effectively responded to if they are addressed together. One question pertains to the mechanics of how the speaker imparts prominences to some parts of an utterance but not to others, while the other question addresses the listener's interpretation of such prominences - i.e., the function of prosodic focus from the listener's point of view. A fundamental assumption in posing the first question is that the speaker has various methods at his/her disposal to make some part of an utterance prosodically more prominent than other parts. In English and languages like English, for example, one important means of making a particular word more prominent than surrounding words is to align a pitch accent — a prominence lending tonal morpheme — with the syllable in a word that bears primary stress. Most current accounts of prosodic focus in English recognize this mechanism of putting a constituent in prosodic focus, and in one particularly influential account, due to Selkirk (1984, 1995), this is the only mechanism recognized. Other accounts, however, suggest that other aspects of the tune also may play a role in imparting prominence. For example, the accented word that is the last accented material in its phrase is also aligned to another tonal morpheme, the phrase accent, which is simultaneously aligned to the end of the phrase as well. When it is followed immediately by the phrase accent, a pitch accent becomes the 'nuclear accent' in its phrase. In the account of Pierrehumbert (1980) and her colleagues (e.g., Beckman & Pierrehumbert, 1986; Beckman & Edwards, 1994), any nuclear accent is more prominent than all earlier, non-nuclear accents. (This is related to Ladd's (1980, 1996) notion of 'deaccenting', which says that an accented word can be made prominent if all following material is left unaccented, effectively positioning the nuclear accented word early in its phrase). The important point is that if word order remains constant and it can be observed that prosodic emphasis is being shifted from one constituent to another, a structure with an early prosodic prominence is cognitively more salient (due to the unaccented post nuclear tail) than a structure with a prosodic prominence late in the utterance (Beckman, 1996). This is probably due to the probability of distributions of

early prominences versus late prominences in running discourse and the expectations that hearers have.

An equally fundamental assumption underlying the second question is that speakers use prosody and prosodic focus to facilitate and guide the hearer's understanding and comprehension of the message being conveyed at any particular time in a discourse. Thus, one of the uses of intonation is to guide the listener's interpretation of the utterance in relationship to the larger discourse context. Different intonational structures, then, are used to distinguish one discourse purpose, one extension of the current discourse state, from other possible moves in the mutual building of the discourse structure by the speaker and hearer, they are used to manage discourse content (Krifka, 2006). This function of intonation makes it difficult to test claims that two or more intonation patterns differ categorically.

This differs markedly from claims about the number of tones in contrast in languages such as Mandarin Chinese, Cantonese or Vietnamese, which can be tested by seeing whether the tune distinguishes one word from any other word that could have occurred in the same place. Listeners are generally very good at identifying which of two minimally contrasting words they heard. They are generally much less facile at identifying different discourse intentions, unless the differences also trigger a difference in truth conditions. One of the challenges for psycholinguistics, therefore, is to devise tasks that tap the listener's competence in interpreting the intended discourse purpose rather than training listeners to attend to specific aspects of the signal. In studying the functions of prosodic focus, for example, the psycholinguist must find an experimental design that can be used to determine how exactly different prosodic manipulations contribute to the introduction of new entities or highlighting of old entities in the interpretation of the discourse purpose of an utterance.

### *1.2. Focus and Focus in Tone Languages*

Focus is one of the most important information structural categories as it serves the purpose to make some part of an utterance more salient over other parts. Krifka (2006) defines focus to serve the purpose of indicating the presence of alternatives. While in intonation languages such as English and German, modulation in F0 strongly marks the part of the message that is to be most salient, tone languages are characterized by using a modulation in F0 (*tone*) to mark lexical and/or grammatical contrasts. This was taken as an argument as to why one should not (or to a much lesser extent) find variation in F0 to mark information structural content such as focus or utterance finality

(Cruttenden 1997:73). However, by now there is ample evidence from Asian (Xu, 1999: Mandarin Chinese) and African tone languages (Kanerva, 1990; Downing, 2006: Bantu; Fiedler & Jannedy: Ewe) that these also, exclusively or in addition to morpho-syntactic markings, use prosody to indicate information structural content. None of the languages investigated so far though, had six lexically contrasting tone, differing in F0 and voice quality features. While tones with non-modal or breathy components are difficult to investigate with the current phonetic tools available, we only investigated the three modal tones of this system. Vietnamese however provides the perfect testing ground for the interaction of tone and intonation as no grammatical description of this language has indicated morpho-syntactic devices such as particles, morphemes or fronting as possible means for the expression of information structural content.

### *1.3. Perception & Recoverability*

In a previous experiment, we have tested whether simple SVO sentences in Vietnamese that were elicited with a *wh*-question, could be linked back up with the question underlying the statement: the test material was recorded in a *wh*-question-answer paradigm from a male and a female native speaker of the northern dialect of Vietnamese. While the questions and replies were presented in writing, both speakers were present for the recordings and prompted each other with the questions, they were rendered as quasi-spontaneous rather than read. For each focus condition and sentence type, we elicited one through three tokens of which both speakers selected their “best” renditions.

To understand and evaluate the listener's competence in interpreting the intended discourse purpose of an utterance, we wanted to test whether the *wh*-focus alternative question was recoverable from the reply utterance presented out of context. Six native listeners of Vietnamese, naïve as to the purpose of the experiment, aged between 21 and 26, participated in a short forced-choice identification perception task. The test data consisted of three sentence types that were each elicited in five focus conditions and spoken by our two native speakers ( $3 \times 5 \times 2 = 30$  test sentences).

These 30 test sentences were played five times each (in randomized order) to each of the six listeners that participated. The sounds were presented over *Sennheiser* headphones and were called up by a script in Praat. The listeners were asked to match each heard utterance back to one of the five questions that were visually displayed to them on a computer screen.

Thus, we elicited 900 responses in total (30 sentences x 5 repetitions x 6

listeners = 900). That is, a total of 180 responses were collected for each of the five focus conditions tested (900 items in perception test / 5 focus conditions = 180 items per focus condition). A summary of the data and responses is provided in Table 1.

<i>response</i>	<i>Stimulus -Type</i>				
	Sub-Foc	V-Foc	O-Foc	VP-Foc	S-Foc
Subject	142 (78.89)	4 (02.22)	3 (01.67)	7 (03.89)	14 (07.78)
Verb	5 (02.78)	135 (75.00)	10 (05.56)	34 (18.89)	7 (03.89)
Object	11 (06.11)	15 (08.33)	94 (52.22)	34 (18.89)	33 (18.33)
VP Phrase	9 (05.00)	21 (11.67)	33 (18.33)	46 (25.56)	56 (31.11)
Sentence	13 (07.22)	5 (02.78)	40 (22.22)	59 (32.78)	70 (38.89)
Total	180 (100%)	180 (100%)	180 (100%)	180 (100%)	180 (100%)

Table 1: Number of responses in five categories per stimulus type (raw numbers and percentages).

A chi-square test on the raw counts of the observed data was significant ( $\chi^2=998.47$ ,  $df = 16$ ,  $p<.001$ ), indicating that the listeners did not match answer utterances randomly to questions. That is – despite the word order remaining constant in all five focus conditions – the prosody helps to disambiguate and lets listeners correctly match answers to questions. In fact, as Figure 1 shows, listeners identified the subject-focus, verb-focus and object-focus questions that matched the utterances they heard, quite well. There are less reliable patterns in the VP and sentential focus condition. However, results indicate that even in these conditions, listeners responded above chance level (20%).

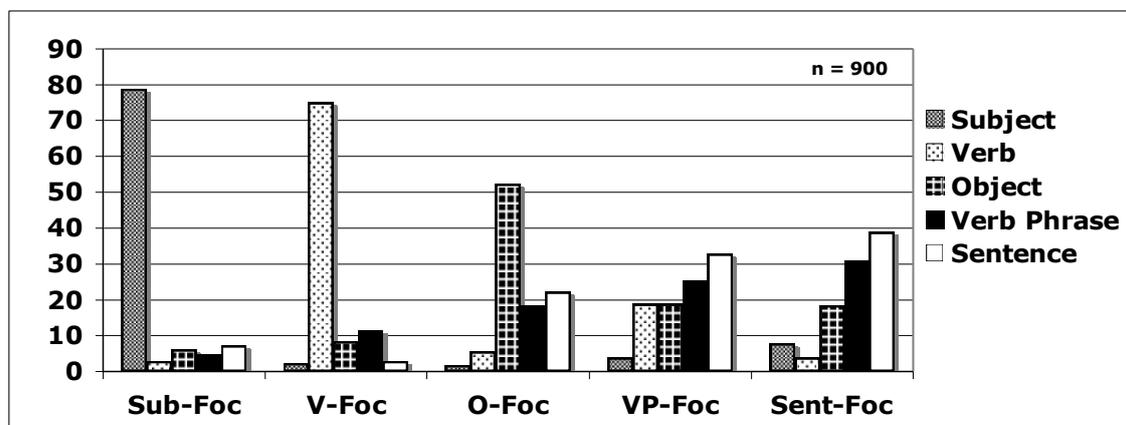


Figure 2: Visualization of the data (in %) presented in Table 1.

Since word order has remained constant, the difference between the focus conditions has to be marked prosodically. However, precisely what parameters (duration, f0, intensity, vocal effort) or what combination thereof are modified is less clear at this point. Considering the VP-Focus and Sentential-Focus conditions, it appears that listeners have a general preference for less marked questions such as those asking for a broader focus constituent such as Sentence focus. Since this study is based on only a relatively small amount of exploratory data, we cannot make further claims about this observation at this stage.

## 2. Experiment

### 2.1. Corpus

We constructed a corpus consisting of 21 simple SVO-sentences, all differing with regard to the lexical tones on the subject, verb and object.

- |     |        |        |          |                   |
|-----|--------|--------|----------|-------------------|
| (1) | S      | V      | O        |                   |
| a.  | Lê     | mua    | nho.     | ngang ngang ngang |
|     | Lê     | buys   | grapes.  |                   |
| b.  | Ngà    | làm    | nhà.     | huyền huyền huyền |
|     | Ngà    | builds | a house. |                   |
| c.  | Má     | lấy    | muối.    | sắc sắc sắc       |
|     | Mother | takes  | salt.    |                   |

Each target sentence was elicited in a question-answer context under laboratory conditions. For an example, see below:

Question	Translation	Answer	Focus
Chuyện gì thế?	What is happening?	[Má lấy muối] <sub>F</sub>	Sentential
Ai lấy muối đây?	Who takes salt?	[Má] <sub>F</sub> lấy muối	Subject
Má lấy gì đây?	What is Ngà taking?	Má lấy [muối] <sub>F</sub>	Object
Má làm gì với muối đây?	What is Mother doing with the salt?	Má [lấy] <sub>F</sub> muối	Verb
Má làm gì đây?	What is Mother doing?	Má [lấy muối] <sub>F</sub>	VP

Table 2: Example of the Question-Answer Paradigm exemplified on sentence (1c).

Only three of these tonal configurations are described in more detail in this paper.

Four native Hà Nội Vietnamese speakers (3 females, 1 male) read the sentences 5 times as a reply to questions although we will only show details for the female speakers.

## 2.2. Subjects

So far, we have analyzed the data for three female speakers and one male speaker. Here, we only report the pooled data for the females. All study participants were native speakers of the northern dialect of Vietnamese and ranged in age between 20 and 22. They were recorded in Berlin (Germany) as all of them lived here. Two of the speakers were students at the university while one speaker was a professional.

## 2.3. Methods

All elicited utterances were constructed to contain three monosyllabic words with either the level tone *ngang* or the rising tone *sắc* and the low level tone *huyền* on each word. The data was phonemically annotated in Praat (Boersma & Weenink, 2007) and the duration and F0-maximum was extracted for each phoneme. Time-normalized F0 contours were created via a script (Xu, 2007) and overlaid for easier visual comparison. We calculated the F0 at five different time points (beginning, 25%, 50%, and 75% into the vowel and at the end) within the tone bearing vowel in the word under focus. For the statistical analysis of the F0, we fitted an *ordinary least squares linear regression* (ols) model to our data as simply extracting the F0-maximum or -minimum value did not capture the dynamic movement of the fundamental frequency. We fitted a *local weighted polynomial regression* (lowess) to the five extracted point in each tbu as the lowess regression is a reliable statistical technique to smooth curves without previous assumptions about their shape (Petroni & D'Imperio, 2008). For the analysis of the duration data, we conducted *wilcoxon rank sum tests* (binary comparisons) that make different assumptions about the distribution of the data than a normal t-test.

## 2.4. Results

For an easier conceptualization, we have color coded the data represented in the graphs for the easier visualization of the duration and F0 (fundamental frequency) measurements. We have selected the colors orange to represent sentence focus, red to represent subject focus, green for verb focus and blue for object focus. (We also collected VP-focus utterances but will not represent them here.) Further, where

applicable we have transcribed the orthography in the corresponding colors within the graphs. As can be seen in the graphs representing the duration data, the vowel of the subject is represented by the red color, verb is represented by green and the object in each sentence is represented by blue. In these cases, we have extracted the duration of the tone bearing unit (the vowel) for each utterance. All F0 graphs and all duration graphs have been plotted on the same scale for easier comparison. Note though that the *huyền*-tone appears to be realized in a rather compressed pitch range so that F0 variation is hardly visible on this scale.

#### 2.4.1. Level Tone (*ngang*)

Time normalized F0 contours for the subject-, verb, object- and sentence focus conditions for an utterance specified with the *ngang* tone throughout are shown in Figure 3. Note that the four different coloured lines represent different focus conditions and that we compared all focus conditions to the sentence focus condition as we assume that this should be the prosodically and informationally least marked structure of all focus conditions. In the following, we are only considering the F0-data within the tone bearing units, that is, the three vowels in the utterances.

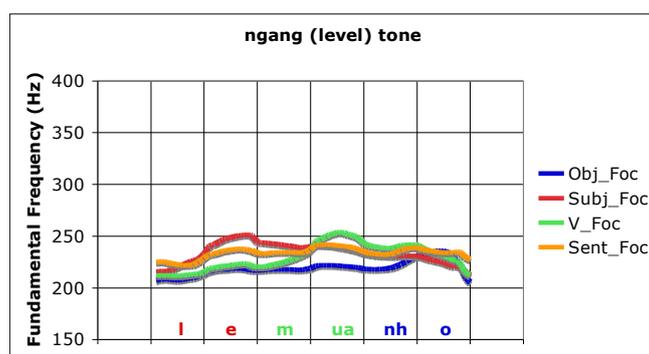


Figure 3: Time-normalized F0-trajectories for four focus conditions, all words are specified with the level tone *ngang*.

The graph in Figure 4 represents the 5 equi-distant measurement points within each tone bearing unit. Here, we show a binary categorization of the data into focused (F) and non-focused (n) points at each of the five time points. The solid line represents the regression line (*lowess*) for the focused and the dashed line for the non-focused cases.

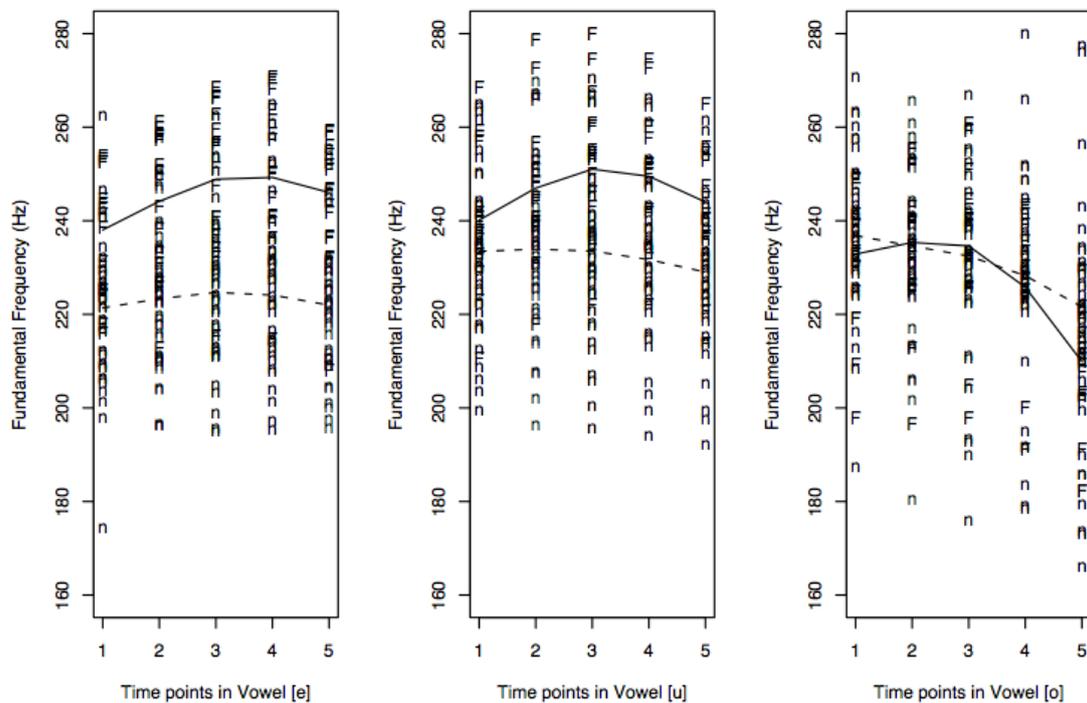


Figure 4: F0-values at five measurement points for the focused vowel (F) in comparison to the unfocused vowels (n) specified with the rising tone *ngang*.

This type of representation makes it possible to explore data visually and compare the tendencies in the data for the *ngang* toned words under focus versus no-focus. While it seems apparent, that focus causes a rise of the level tone for the subject (left panel) and verb (middle panel) focus cases, there appears to be a steeper fall in the f0 in the object focus case. A more detailed statistical exploration of the data is on the way. The ordinary least squares linear regression analysis shows a significant effect for focus ( $df = 5$  [as the analysis also includes VP focus],  $F = 27.78$ ,  $p < .0001$ ) but not for the individual time point at which the F0 was logged ( $df = 8$ ,  $F = 1.83$ ,  $p = .07$ ), showing that throughout the vowel, the F0 of the subject in the subject focus case is increased compared to when the vowel is not focused.

For the second vowel [u] in Figure 4, there is also no effect of the time point at which the F0 was taken. We do however see, that the F0 is increased on the focused verb in comparison to the non-focused conditions which is confirmed by the statistics ( $df = 5$ ,  $F = 11.69$ ,  $p < .0001$ ). For the final vowel [o] in the object, there is an overall effect of the time point at which the F0 was taken, indicating that the F0 changes more dramatically in some points compared to other points ( $df = 8$ ,  $F = 7.45$ ,  $p < .0001$ ). Focus however, does not significantly contribute to the outcome of the model ( $df = 5$ ,  $F$

= 1.46,  $p = .20$ ), suggesting that this factor is not responsible for the differences that we find in the individual time points. At this point, we are left to speculate that a final edge effect may be contributing strongly to the finding of differences in time points. This idea could be supported by the analysis of the duration for each individual vowel in the subject- verb-, object- and sentence focus conditions.

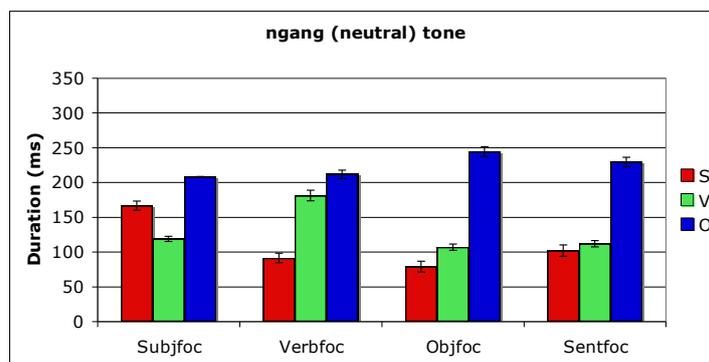


Figure 5: Time-normalized F0-trajectories for four focus conditions, all words are specified with the level tone *ngang*.

The duration of each tone bearing unit (vowel) is plotted for each sentence for each focus condition. We conducted wilcoxon rank sum tests, comparing specifically the duration of the focused vowel with the duration of the corresponding vowel in the sentence focus condition as we used this focus condition as a point of reference. For the first comparison, we find that vowel in the subject in the subject focus conditions (left most red bar), that is, under focus, is significantly elongated compared to the same vowel in the same sentence when not under focus in the sentence focus condition ( $p < .0001$ ). Comparing the duration of the vowel in the verb (second green bar in Fig. 5) in the verb focus condition with the duration of the vowel in the verb in the sentence focus condition (rightmost green bar), we also find a significant difference ( $p < .0001$ ), strongly suggesting, that focus goes hand in hand with elongation of the focused element. This effect however, seems to be obscured for the object focus condition whereby the focused tone bearing unit occurs in utterance final position. Here, a statistical comparison with the vowel of the object in the sentence focus condition is not significant ( $p > .05$ ). We speculate that an overall final lengthening effect is interacting with the elongation of the focused vowel.

#### 2.4.2. Rising Tone (*săc*)

Time normalized F0 contours for the subject-, verb, object- and sentence focus conditions for an utterance specified with the *săc* (rising) tone on subject, verb and

object are shown in Figure 6.

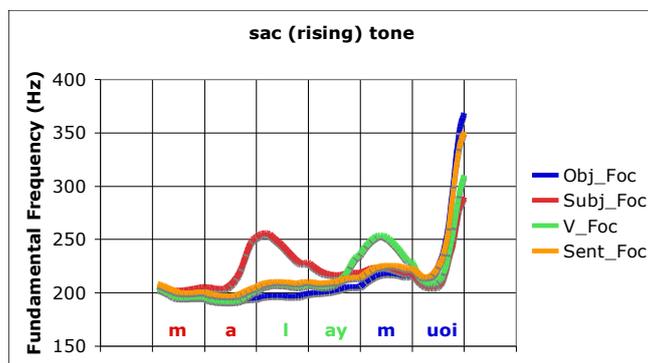


Figure 6: Time-normalized F0-trajectories for four focus conditions, all words are specified with the rising tone *sác*.

From this graph, it is quite apparent why a static measure of the F0-maximum within the tone bearing unit does not adequately capture the observed pattern: the F0 on the vowel of the verb [ay] is just about as high in the subject focus case (red line) as it is for the verb focus case (green line). However, the differences in dynamics are not captured to reflect that in the subject focus case, the F0 is falling while it is rising in the verb focus case. In both the vowels [a] in the subject (left most panel in Figure 7) and the [ay] in the verb (middle panel in Figure 5), we find highly significant effects of the pitch time ( $df = 8, F=8.1, p<.0001$  and  $df = 8, F = 8.05, p<.0001$ ), showing that for the rising tone, the F0 changes more dramatically in some points compared to other points. For the final tone bearing unit (third panel), we also have an effect of time point. Even though it is somewhat weaker ( $df = 8, F = 2.15, p<.05$ ) in comparison to the vowels in the subject and verb, we can reliably conclude that F0 changes more in some points than in others. While we do not find an effect of focus (trajectory of the solid line) on the object vowel in the object focus case ( $df = 5, F = 1, p > .05$ ), we do find strong effects of focus for the vowels in the subject ( $df = 5, F = 26.84, p<.0001$ ) and for the verb ( $df = 5, F = 9.45, p<.0001$ ).

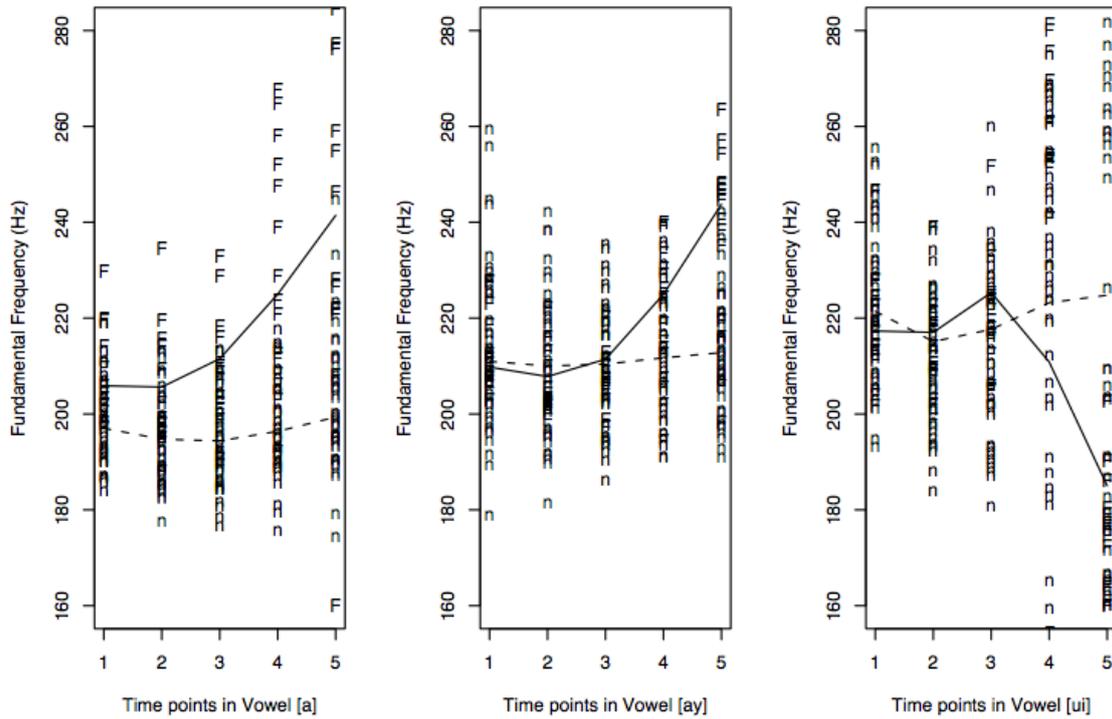


Figure 7: F0-values at five measurement points for the focused vowel (F) in comparison to the unfocused vowels (n) specified with the rising tone *sác*.

These results indicate that focus contributes significantly to the shape of and trajectory of the F0 over time, especially for the subject- and verb focus cases. For the object focus case, this effect may again be obscured by tonal effects happening at the right edge of a major phrase such as an utterance.

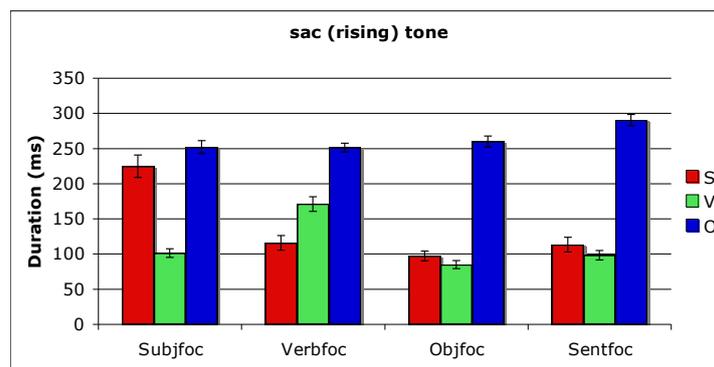


Figure 8: Time-normalized F0-trajectories for four focus conditions, all words are specified with the level tone. *sác*.

Figure 8 shows the data of the duration measurements. A comparison of the vowel

in the subject in the subject focus condition (first red bar) with the vowel of the subject in the sentence focus condition (rightmost red bar) shows a significant difference with the vowel under focus being longer ( $p < .0001$ ). The vowel of the verb in the verb focus condition (second green bar in the graph) is also significantly longer than the vowel of the verb in the sentence focus condition ( $p < .0001$ ). The final object vowel in the object focus condition (third blue bar in the graph) however is shorter than the final vowel of the object in the sentence focus condition. The difference is significant ( $p < .02$ ). This result is somewhat surprising given that we would have expected a compounding effect of focus and finality.

### 2.4.3. Low Level (*huyền*)

The third tone we are investigating is the *huyền*-tone. Time normalized F0 contours for the subject-, verb, object- and sentence focus conditions for an utterance specified throughout with the *huyền* tone are shown in Figure 9 below. While the graph in Figure 8 is intended to ease visual inspection over the overall pattern in the data, note that the *huyền*-tone appears to be realized in a rather compressed pitch range so that F0 variation is hardly visible on this scale. We have however kept the scale constant to allow for visual cross tone comparisons.

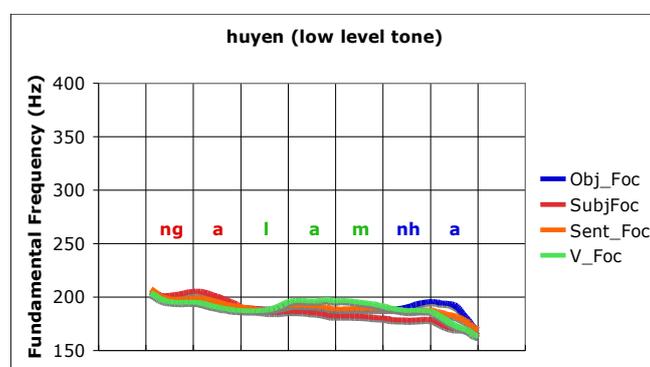


Figure 9: Time-normalized F0-trajectories for four focus conditions, all words are specified with the level tone *huyền*.

All three vowels in the sentence specified with the *huyền* are [a]. We do find significant effects of the measurement time point for the first and last vowel of the utterance (left panel (subject):  $df = 8$ ,  $F = 6.53$ ,  $p < .0001$  and right panel (object):  $df = 8$ ,  $F = 18.41$ ,  $p < .0001$ ), showing again that F0 changes more in some points than in others.

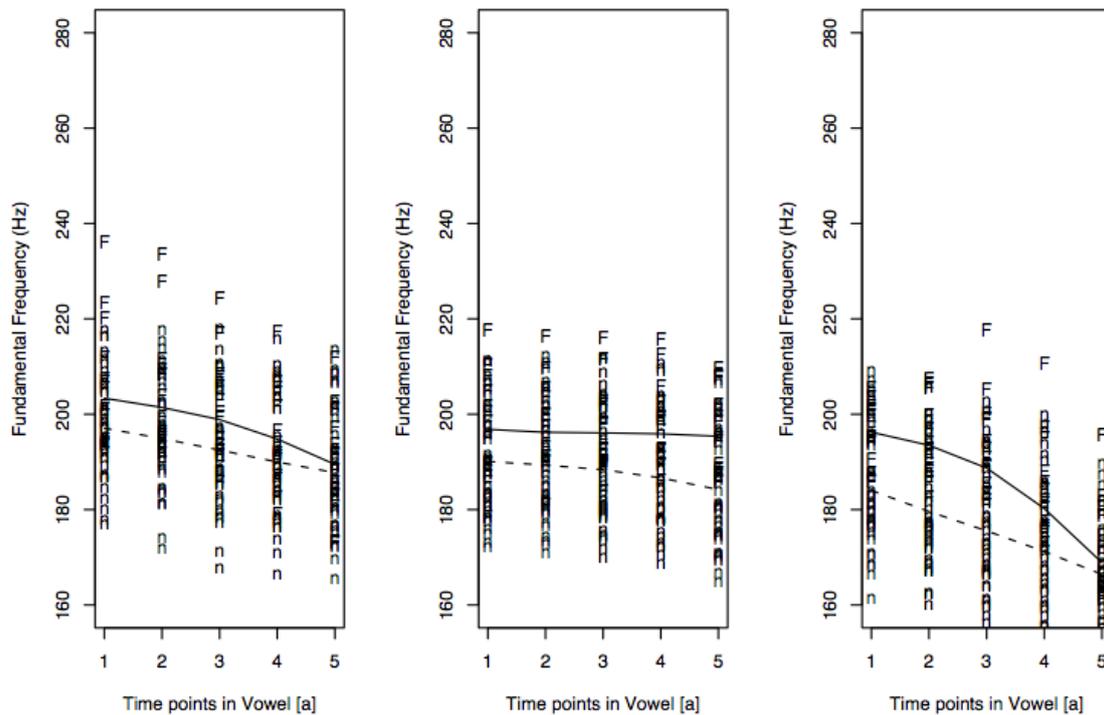


Figure 10: F0-values at five measurement points for the focused vowel (F) in comparison to the unfocused vowels (n) specified with the low level tone *huyền*.

For the medial vowel on the verb, there is no such effect ( $df = 8, F = 1.33, p >.05$ ), meaning that the F0 remains more or less constant over time. The ordinary least squares linear regression analysis shows a significant effect for focus (solid line versus dashed line) for the subject ( $df=5, F=5.92, p<.0001$ ), verb ( $df=5, F=8.05, p<.0001$ ), and object focus ( $df=5, F= 15.38, p<.0001$ ) conditions, showing that the identical tone behaves differently under focus compared to when not under focus.

There appear to be strong reflexes of focus in the duration, too. The vowel in the subject in the subject focus condition (leftmost red bar) is significantly longer ( $p<.001$ ) than the vowel in the subject of the sentence focus condition (rightmost red bar).

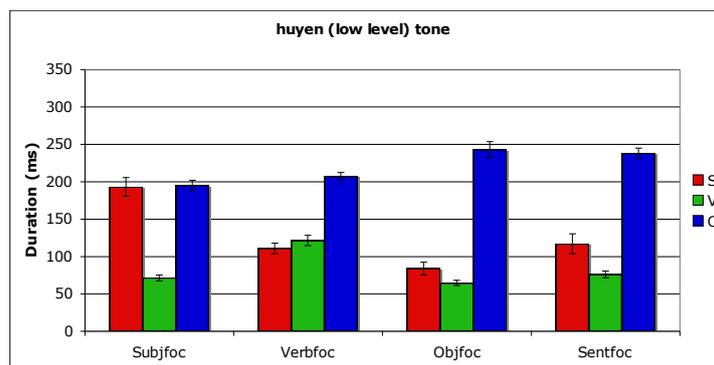


Figure 11: Time-normalized F0-trajectories for four focus conditions, all words are specified with the level tone *huyền*.

The vowel in the verb in the second focus condition also is significantly longer than the medial vowel in the sentence focus case ( $p < .0001$ ). The vowel in the object of the object focus condition (third blue bar from the left) however, is not longer than the utterance final vowel of the object in the sentence focus case ( $< .05$ ). Here, again it seems that utterance finality masks the effect of focus on the sentence final constituent.

## 2.5. Summary & Conclusion

In summary, we have shown in this paper that Vietnamese uses prosody to mark focus and also utterance finality despite the fact that it is a rather densely specified tone language. Focus is expressed tonally but also via an effect of lengthening. While there is no exact predictable shape the F0 takes to mark focus, it appears that under focus, lexical tones are more realized in accordance with their lexical shape compared to when tones are not under focus. For example, we have seen that the F0 in the rising tone *sắc* has remained flat in the subject and verb in the sentence focus cases. To mark finality however, we observed a steep rise on the object. This same final rise which we observed in all focus conditions, we also observed for the object in the object focus case. Thus, focus and the marking of utterance finality not only seem to have in common that lexical tones are more realized in accordance with their lexical shape, but also that focus is obscured more in utterance final position. The marking of utterance finality is the marking of the right edge of a prosodic domain. At this point however, we cannot make predictions as to what phrasal levels of the prosodic hierarchy to assume for Vietnamese as we have (for now) only tested simple SVO sentences to understand the general principles underlying the marking of focus in this densely specified tone language.

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# The marking of given and new information on Mandarin DE construction in mother-child conversation

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## Abstract

This paper explores one longitudinal case of the use of Mandarin pre-nominal DE phrases by a mother-child dyad in their natural conversation. The study focused on how the conversationalists make decisions on marking headed/ headless DE forms in the discourse context. On the basis of a qualitative/quantitative analysis in line with information flow patterns, we show that the choice of headed/headless DE is not an arbitrary one, nor is determined by structural complexity. Instead, the referential forms are regulated by the interactive and cognitive status assumed by the interlocutors. When encountering a newly introduced referent, headed DE must be used. When referring to a given referent, the choice between headed given and headless given observes the information status and the discourse requirements at the point in the conversation.

**Key words:** Reference; Referential choice; Mandarin DE; Mandarin Pre-nominal DE; Information flow

## 1. INTRODUCTION

Languages provide two devices of differentiating ‘given’ and ‘new’ entities in discourse (e.g. Chafe, 1976; Halliday & Hasan, 1976). Local markings on the noun phrase (NP), e.g. the indefinite article, in English, introduce a new referent, and global markings on the entire clause, e.g. word order, can also mark the newness of entities (Hickmann, Hendriks, Roland, & Liang, 1996). For language learners, the acquisition of linguistic competence requires that they acquire the regulation of information flow in well-formed discourse regarding the devices for marking the status of new and given information. However, previous studies primarily focused on how children refer to and/or maintain the referent in its simple form in discourse, and emphasized how

children differentiate new and given referents regarding these simple nominals in local and global devices (e.g. Hickmann *et al.* 1996). These “simple” forms include noun phrases which are either composed of determiners and nouns (e.g. *a dog*) or blanched into pronominal (*she*).

This study intends to extend the aspect of entity reference to a “complex” noun phrase: Mandarin pre-nominal DE phrases, which are rarely considered from the perspective of information status. By exploring the complex pre-nominal DE, children’s use of grammatical morpheme DE and its relation with discourse function can be established. Particularly, the perspective that the discourse function of pre-nominal DE constructions and interlocutors’ cognitive information status may affect the choice of linguistic DE forms will be our major concern.

## 2. BACKGROUND

### 2. 1. Information status in Mandarin discourse

In all languages referring expressions, NPs, can be ordered along a continuum representing the degree to which they presuppose the existence and identity of the referents (e.g. Chafe, 1976; Clark & Haviland, 1977; Halliday & Hasan 1976; Lambrecht, 1994; Givón 1976, 1983; Silverstein 1976, 1987). Along this continuum, the more explicit forms (e.g. nominals) often denote referents not presupposed in mutual knowledge (newness) between the interlocutors, while implicit forms (e.g. pronominals) denote mutually known entities (givenness). In terms of local markings of information status in Mandarin discourse, a gradient of NP types exists in Mandarin Chinese, as illustrated in (1) (Hickmann 2003:60).

NOMINALS			PRONOMIALS	
(NUM) + CL + NOM	BARE	DEM	EXPLICIT	NULL
NEW	NEW/GIVEN	GIVEN	GIVEN	GIVEN

As can be seen, nominal determiners are optional in Mandarin NP. Bare nouns (without determiner or classifier/CL) potentially denote given or new information. Researchers observed that Mandarin, being typologically different from English, varies in the particular optional and obligatory markings regarding information status. Mandarin local markings are optional to mark newness, but global ones obligatory,

whereas the reverse is true in English (Hickmann *et al.*, 1996). Therefore, Mandarin was mostly believed to provide a fruitful area for discourse-functional approach to investigate how noun phrase forms mark newness/givenness. As noted, among these different referential forms, much research focuses on simple nominals including full nouns, pronouns, zero anaphora (simple omission) and demonstratives.

With respect to global marking, Mandarin relies more on structure variations for discourse organization due to the absence of a complex morphology. Thus, NP position serves as the main feature to mark role relations in sentences, and word order (global marking) acts as a central marking in Mandarin discourse and sentence. In general, it has been proposed that Mandarin follows a universal pragmatic principle, according to which speakers prefer to place new information towards the end of the utterance and old one at the sentence-initial position. For example, subject-verb inversions such as (2) demonstrate that new information must be postverbal (Li & Thompson, 1981). Canonical subject-verb sequence such as (3) shows that the topic that is being talked about in the context (e.g. given information) must be sentence-initial (Chu, 1998). Existentials such as (4) provide another example which follows the same principle as the subject-verb inversion in (2) but uses an existential verb *you3* ('have') to present a newly introduced entity in discourse (Hickmann *et al.*, 1996).

- (2) lai2 le yi1-ge ren2  
 come PCL one-CL person  
 'A person came.'
- (3) ta1 lai2 kan4 ni3 le, ke3shi4 ni3 bu2 zai4  
 he come see you PCL but you not at  
 'He came to see you, but you were not in.'
- (4) you3 yi1-zhi1 gou3  
 have one-CL dog  
 'There is/was a dog.'

Note that the markings on New/Given information mentioned above primarily apply to simple nominals. We do not yet know whether these principles are applicable as well to complex nominals like Mandarin pre-nominal DE phrases. We will address this question in our data analyses.

## 2.2. Mandarin pre-nominal DE phrases

In Mandarin, complex nominals can be coded with a grammatical morpheme *de*, which serves as a marker in associative and modifying noun phrases as illustrated in (5a) to (5d).

### (5a) Possession (ownership)

xiao3 xiong2 de feng1-mi4  
little bear DE honey (little bear's honey)

### (5b) Possession (Part-whole relationship between physical objects)

xiao3 gou3 de wei3-ba1  
little dog DE tail (little dog's tail)

### (5c) Attribute

hong2 se4 de qi4-che1  
red color DE car (red car)

### (5d) Modification

chi1 fan4 de kuai4-zi  
eat rice DE chopstick (the chopsticks which are used in eating)

These pre-nominal DE phrases, all using uniform *X de Y* forms, can be categorized into at least three types of syntactic concatenation, corresponding to their individual syntactic categories, as shown in (6). Among them, (6a), (6b), and (6c) match possession, attribute, and modification respectively.

### (6) Pre-nominal DE strings in Mandarin

- a. N/Pron + DE + N
- b. Adjective + DE + N
- c. V + DE + N

Most previous work embarked on the investigation of Mandarin DE phrases from structural perspective. Some show major concern for the mapping between the uniform *X de Y* form and its various functions. Following this trend, developmental studies would address how children may progress from one pattern of function to another in acquisition (Chang & Huang, 1986; Erbaugh, 1992; Hsu, 1987). Other studies set out by observing the relation between the modifier *X* and the modified head *Y* in the *X de Y* structure. For example, Packard (1988) examined the use of DE with nominal head from 27 children in Taiwan, aged between 2;0 and 2;11. He found that in children's

spontaneous production, verbal modifiers tend to occur in lexically headless DE structures, i.e. V-DE-Ø, whereas nonverbal modifiers tend to occur in headed DE structures, i.e. N-DE-Head. This tendency is also reported in Wang's (1996) developmental study of DE in Mandarin-speaking children. Both studies explained the usage of head/headless DE structures from the form-oriented approach, attributing children's omission of head to their incompetent control of the headed DE structure.

As found in previous studies, the pre-nominal DE is of particular concern because the head noun following DE can be omitted in certain contexts. That is, both headed and headless DE forms in Mandarin discourse are permitted. In a given context, headed form in (7a) and headless form in (7b) refer to the same thing, and the headless form would not cause problems for listeners to interpret. For our present purpose, we intend to find out the determinants in deciding about the marking between headed DE and headless DE. Nevertheless, instead of departing from traditionally structural perspective, we would take the notion of discourse as a point of departure and investigate the DE phrases beyond the sentential level to a macro inter-sentential view.

- (7a) you3 da4 de jian3-dao1, xiao3 de jian3-dao1  
 have big DE scissor, small DE scissor
- (7b) you3 da4 de Ø, xiao3 de Ø  
 have big DE Ø, small DE Ø

### 2.3. Functional-discourse approach to the choice of complex nominals

We begin in this section with description on our attempt to use functional and discourse approach in the model of information flow to explain the marking of Mandarin head and headless DE. In fact, many factors of information flow have been proposed to play a role in motivating the choice of grammatical forms. Generally speaking, these factors are both cognitive and interactional, considering from speakers' assumption for the hearer's state of mind. In 2.3.1 we illustrate that grounding devices are available in one type of complex nominals in English, the relative clauses. Then in 2.3.2 we gave a brief review to prior research on Mandarin children's use of pre-nominal DE in spontaneous production, which helps shed light on the discourse approach to the head and headless DE issue.

### 2.3.1. Grounding device

In spite of few considerations being put on complex nominal forms, it has been observed that the choices of one type of “complex NPs” with modifying/attributing function, i.e. headed relative clauses in English, can be explained on discourse-level. The uses of differing relative clauses manifest the symptoms of interactants’ attention to information flow (Fox & Thompson, 1990).

Fox & Thompson (1990) collected 414 relative clauses from a corpus of natural conversations by native speakers of American English. Their data show that all NPs containing relative clauses are grounded. Namely, these referents are made relevant to the ongoing conversation by being explicitly related to Given referents in the discourse (Fox & Thompson, 1990:300). These grounding devices interact to contribute to the distribution of different relative clause types in the discourse.

For example, in the whole data set, nonhuman subject head tend to co-occur with object relatives (S-O), while nonhuman object head tend *not* to co-occur with object relatives (O-S), as exemplified in (8) (adopted from Fox & Thompson, 1990: 303-305).

(8a) *the car* that she borrowed had a low tire (S-O; nonhuman subject head + object relative)

(8b) he’s got--*a spring* [that comes, way up] (O-S; nonhuman object head +subject relative)

They explained that the preponderant choice of (8a) S-O is motivated by the principles of information flow. The nonhuman head NP ‘*car*’ was made relevant for the hearer by explicitly relating it to a Given discourse referent, i.e. the pronoun ‘*she*’, as pronoun has been proposed as the primary way to refer to Given referents (Fox, 1987). By linking the entity ‘*car*’ with another given NP (pronoun *she*) contained in the relative clause, the relative clause thus anchors the NP *car*, making the ‘*car*’ grounded.

The use of object relative in (8a) is because nonhuman referents are often made relevant in terms of the humans who own them, use them, and manipulate them (Du Bois 1980: 269-270). Therefore, the construction containing a pronominal subject with a verbal predicate, denoting human’s relevance to the entity, and an unexpressed object role (i.e. object relative) is chosen. As for speaker’s decision on the O-S form in (8b), it is again explained with cognitive and interactional factors. Since the main clause has been grounded with the pronoun ‘*he*’, there is no communicative need to ground the given referent. The relative clause here would not serve a grounding function, but a characterizing function. That the relative serves to characterize the NP can be evidenced

by the indefiniteness feature of the Head NP, *a spring*. That is, in (8b) the main clause provides the grounding information, while the relative clause provides the new information.

Fox & Thompson's study demonstrates that speakers constantly make decisions about their listener's state of knowledge, on the basis of which they make structural choices regarding the management of the flow of information.

### *2.3.2. Information status of head NP in Mandarin Pre-nominal DE*

As most of the studies on DE pay attention to the structural complexities of DE, little is mentioned on the discourse function. To our best knowledge, the only work in this regard is made by Cheung (1997), who challenged Packard's (1988) structural account and analyzed the NEW/GIVEN information status of DE in children's narrative data. Three functions of DE based on Dasinger and Toupin's (1994) classification were adopted, which were also a merge of Fox and Thompson's (1990) classification on information status and functional role. They are (a) situating new referent, (b) situating old referent, and (c) re-identifying old referent. The results show that although 4-to-6-year-old children used few headless DE phrases, these headless DE forms are frequently used for situating an old referent, providing more information on the entity which has been specified in the previous context.

Cheung's observations have pointed out that Mandarin children show sensitivity on the use of headless DE by following the general discourse functions in the information flow. This also leads to the direction that the choice of pre-nominal DE forms may be accounted for with the discourse-level explanations.

## **3. METHODOLOGY**

### *3.1. The Data base*

This study examines headed/headless DE phrases. Our DE phrases were selected from transcripts of naturally-occurring conversations of one mother-child dyad, recorded monthly over one year (aged 2;05 at the start and 3;04 at the end). The data includes face-to-face conversations and play session between mother and child. Most involve two participants: mother and child, but there are several with participants from the recorder and other family members. The current study only reports the structural and distributional characteristics of headed/headless DE forms made between mother and

child, due to scarcity of DE forms by other participants. The tokens of headed/headless DE in referring expressions regarding their information status used by mother and child were collected, transcribed according to the CHAT (Mandarin) and calculated with CHILDS program (MacWhinney, 2000a, b).

### 3.2. *Transcription and coding*

Mother and child's pre-nominal DEs were identified and coded except (a) DE as final particle, (b) in fixed expressions and in (c-f) conditions (based on the 10 DE patterns from Chang & Huang 1986). Four tiers of coding scheme were used for the discourse and cognitive factors in the current study. They are information status, mention status, modifier, and structural position.

(a) As final particle

ni3 shou1 bu4ke3yi3 de  
 you say no DE (You told me that it is prohibited.)

(b) In fixed expressions

zhen1 de  
 true DE (It's true.)

(c) In shi complement structure (shi-DE)

ta1 shi4 zuo2tian1 lai2 de  
 3S is yesterday come DE (It is yesterday when he came.)

(d) With manner adverb

pao3 de kuai4  
 run DE fast (run fast)

(e) In complex stative construction

ta1 ku1 de yan3jing1 fa1 hong2  
 3S cry DE eyes become red (Her eyes become red due to crying)

(f) in sentence linking

wou3 xiao3 de shi2hou4  
 I little DE time (the time when I was little)

### 3.3. *Overall data*

Background data is provided here for further analysis. Table 1 shows mother produced 2906 utterances and child produced 2687 utterances in total along the data collection period.

Table 1: Total utterances

Age	2;05	2;06	2;07	2;08	2;09	2;10	2;11	3;00	3;01	3;02	3;03	3;04	Total
Mother	497	154	200	182	199	256	209	396	272	286	98	157	2906
Child	619	206	202	190	205	181	191	172	215	182	192	132	2687

Table 2 gives an overall display of the child’s MLU in word across the observational period (2;05 to 3;04). As seen in Table 2, the child demonstrates a rise and fall pattern after 2;11, showing a normally developmental progress near age 3. Table 3 reports a month by month use of DE by mother and child. In general, headless DEs are used in fewer tokens than headed DEs over the one-year span for both mother and child, and this requires further analysis.

Table 2: Child MLU (Mean length of utterance) in word from the first 100 utterances in each age sample

Age	2;0	2;06	2;07	2;08	2;09	2;10	2;11	3;00	3;01	3;02	3;03	3;04	Average
MLU	3.38	3.45	3.5	3.39	3.45	3.32	4.15	3.26	4.4	3.04	3.4	4.19	3.5825
SD	2.04	2.02	2.1	1.87	2.15	1.97	2.09	1.85	2.5	1.86	1.7	2.37	2.047583

Table 3: Month by month use of DE

	Age	2;05	2;06	2;07	2;08	2;09	2;10	2;11	3;00	3;01	3;02	3;03	3;04	Total
Mother	Head	29	15	14	19	19	17	20	34	21	14	4	8	214
	Headless	27	5	2	1	12	6	11	2	2	4	3	2	77
Child	Head	25	19	9	8	6	6	11	5	14	4	1	12	120
	Headless	21	8	5	1	16	6	10	2	9	1	8	0	87

#### 4. DATA ANALYSIS

In section 4.1 we provide a quantitative analysis to the overall spontaneous production sample made by the mother and the child. A general conclusion to the distinctive use between head and headless DE from the perspective of information flow can be made. Then in section 4.2 we make a further analysis toward the marking between Head Given and Headless Given from the discourse perspective.

#### 4.1 Overall data analysis

##### 4.1.1. Frequency distribution of headed/headless DE patterns in the data

As seen in Table 4, mother produced 2906 utterances in total, among which 291 utterances (10.01%) contain headed or headless DEs. Child produced 2687 utterances, among which 207 utterances (7.7%) occur with headed or headless DEs. For headed/headless DEs, Child showed roughly equal percentage of headed and headless DE forms (+H:-H/57.97%:42.03%), while mother made more headed DE (73.54%) than headless DE (26.46%). Compared with child, mother uttered more headed DE than child, and in contrast, child made more head elision.

Table 4: Distribution of Headed/Headless DE

	MOT	CHI
Total Utterances	2906	2687
Head	214 (73.54%)	120 (57.97%)
Headless	77 (26.46%)	87 (42.03%)
Subtotal	291	207

At first sight, one may easily consider that child produces more headless DE due to the simplicity of form. However, as we analyze the data in regards to information flow, both mother and child demonstrate clear-cut distinction in choosing the DE forms concerning the first factor: new and given information status.

##### 4.1.2. Information status of pre-nominal de NP

First, we examine the head/headless DEs in their information status. The newly introduced pre-nominal DE phrases were coded as first mentioned NEW information in our data, and the subsequently mentioned ones were coded as GIVEN information. The distribution of pre-nominal DE as a function of new and given information status is shown in Table 5.

As can be seen from Table 5, mother and child show roughly similar tendency in using headed/headless DE regarding the information status. Headed DEs can be either used for NEW or GIVEN information in both mother and child's production, whereas headless DEs are primarily for GIVEN information, and headless DEs are scarcely uttered for NEW information (lower than 5%).

Table 5: Distribution of Headed/Headless DE as a function of NEW/GIVEN information status

	MOT (%)	CHI (%)
HeadNew	97 (33.33)	61 (29.47)
HeadGiven	117 (40.21)	59 (28.5)
HeadlessNew	6 (2.06)	8 (3.87)
HeadlessGiven	71 (24.4)	79 (38.16)
Total	291	207

A broad conclusion can be drawn from Table 5 that when it comes for new information, headed DEs are the preferred marking, as headless DEs are rarely chosen in presenting new information. So problems only arise when GIVEN information is encountered, which forms (headed or headless DE) should be chosen? To address the question concerning speaker's choice between head/headless DEs in terms of Given information, a series of factors will be examined in the following sections.

#### 4.2. *Specific factors*

In this section we argue that Mandarin pre-nominal DE phrases, unlike simple nominals, do not seem to rely on global or local marking to convey their information status. Instead, they depend more on the internal relation between modifier and modified in the *X de Y* form to show their information status. Furthermore, the use of Head or Headless Given relates tightly to the grounding devices.

##### 4.2.1. *Information status of pre-nominal DE phrases in global structure*

Li & Thompson (1981) has posited that in Mandarin global structure new information must be in post-verbal position, while subject position is usually preferred for given referent. This is because old or given referent is more likely to appear earlier so as to be accessible or salient to the listener. Therefore, sentence-initial position and grammatical subject status are thus reported to be able to establish sufficiently the prominence of the referential expressions. In contrast, new information is frequently presented later and grounded on the preceding given information. Thus, the object position is suggested to be of lower prominence and usually occupied by the new referent. However, we have to note that this generalization is made on the part of 'simple' nominal form. We wonder whether this principle is applicable to the 'complex'

pre-nominal DE construction.

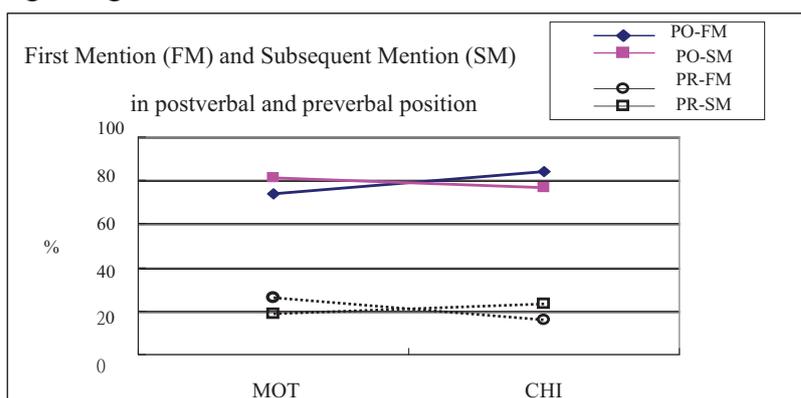
We categorize constructions containing DE into  $\pm$ verbal constructions and examined their grammatical roles. The +verbal construction is usually the canonical (S)-VO construction, and the subject/object position can be calculated. For the -verbal construction, the pre-nominal DEs mostly stand alone as a single phrase. Therefore, no grammatical role can be computed. The results are listed in Table 6.

Table 6: Distribution of DE phrases in  $\pm$  verbal construction

DE in $\pm$ verbal construction	MOT (%)	CHI (%)
(S)-VO construction (+verbal)	207 (71.13)	122 (58.94)
Others (-verbal)	84 (28.87)	85 (41.06)
Total	291	207

Table 6 indicates that both mother and child use headed/headless DE in +verbal constructions, accounting for at least over 50% in their communication. Figure 1 displays among the +verbal constructions the distribution of these headed/headless DEs occurring at preverbal and post-verbal positions as a function of their recent mention (either first mention-FM or subsequent mention-SM, which we view as new referent and given referent respectively).

Figure 1: Headed/Headless DEs in post-verbal (PO) and preverbal (PR) position regarding their mention status



Compare the solid lines indicating post-verbal position with dotted lines indicating preverbal position in Figure 1. It is obvious that both mother and child tend to produce pre-nominal DEs in post-verbal (PO) position, regardless of their mention status. This indicates that although post-verbal positions, regulated by general discourse principles, serve as a place for presenting new information, such a regulation may be merely

applicable to ‘simple’ nominals. Therefore, complex nominals such as Mandarin pre-nominal DE phrase do not seem to rely as much on global marking for information status as the simple nominals do.

#### 4.2.2 Information status of pre-nominal DE phrases in local structure

Then we examine one of the local marking in accordance with the information status, i.e. Mandarin definiteness marker, in the pre-nominal DE phrase. Table 7 illustrates the percentage that demonstrative (DEM) marker occurs in the headed/headless DE phrases in terms of the information status in our data. As is shown, mother produced 46 DEMs in the pre-nominal DE construction, and child uttered 50 tokens. In total, DEM (e.g. *zhe4*, this; *na4*, that) is frequently used with pre-nominal DE in GIVEN information. So given information can roughly correspond to the notion of definiteness in this case.

Table 7: Percentage of demonstrative (DEM) as a function of information status

	Information	DEM (%)
MOT	GIVEN	32/46 (69.57%)
	NEW	14/46 (30.43%)
CHI	GIVEN	41/50 (82%)
	NEW	9/50 (18%)

However, Mandarin doesn’t seem to rely heavily on the definiteness device in conveying the information in the local pre-nominal DE structure, as the DEM marker co-occurs with the pre-nominal DE only in nearly one out of five ratios (around 7.14% to 32.35%) across four modifier types in the pre-nominal DE forms, which is shown in Table 8. These four modifier-modified types, based on (6), can mostly account for the *X de Y* pre-nominal *de* form.

Table 8: DEM with DE modifier type

	DEM-PRON-DE	DEM-NP-DE	DEM-ADJ-DE	DEM-V-DE
MOT	9/98 (9.18%)	12/47 (25.53%)	5/70 (7.14%)	17/66 (25.76%)
CHI	17/79 (21.52%)	11/34 (32.35%)	10/42 (23.81%)	11/46 (23.91%)

As can be seen, the child shows a higher percentage in using DEM with pronominal modifier (DEM-PRON-DE) and adjective modifier (DEM-ADJ-DE) than mother. For DEM with nominal modifier (DEM-NP-DE) and verbal modifier (DEM-V-DE), both

mother and child show equal percentage. Overall speaking, the low percentage of the definiteness marker shows that the local device is not necessarily required in marking the information status of pre-nominal DE.

In general, our data show that the pre-nominal *de* phrases do not depend on local or global device to mark their information status. This indicates there might be other factor at work. We address this factor in the following section 4.2.3.

#### 4.2.3 Grounding and the type distribution of pre-nominal DE phrases

We calculated the distribution type of Head/Headless DE in accordance with GIVEN information status, which is shown in Table 9.

Table 9: Modifier type percentage of Headed/Headless DE in terms of GIVEN information status

	[±verbal] label	Modifier type	MOT (%)	± verbal (%)	CHI (%)	± verbal (%)
Head	- verbal	PRON-DE	39/291 (13.40%)	22.68%	26/207 (12.56%)	17.87%
		NP-DE	27/291 (9.28%)		11/207 (5.31%)	
Given	+verbal	V-DE	17/291 (5.84%)	15.81%	10/207 (4.83%)	10.14%
		ADJ-DE	29/291 (9.97%)		11/207 (5.31%)	
Headless	- verbal	PRON-DE	3/291 (1.03%)	2.75%	19/207 (9.18%)	15.46%
		NP-DE	5/291 (1.72%)		13/207 (6.28%)	
Given	+verbal	V-DE	36/291 (12.37%)	21.3%	24/207 (11.59%)	21.25%
		ADJ-DE	26/291 (8.93%)		20/207 (9.66%)	

Table 9 demonstrates that mother and child, intriguingly, show similar patterns in terms of Headed/ Headless DE in GIVEN information status. Head Given differs from Headless Given in two ways: More (-) verbal DE (i.e. PRON-DE/NP-DE) are used in Head Given, while more (+) verbal DE (i.e. V-DE/ADJ-DE) are used in Headless Given. This is consistent with Packard’s finding that headless DE forms were mostly used with verbal modifiers and headed DE with non-verbal ones. Nevertheless, Packard’s structural account that children use more headless DE forms preceded by verbal modifiers due to their incompetent control on the binding relation between head and the predicate argument in the verbal modifier seems not to be plausible, as in our data mother shows similar usage as does the child. One should not attribute adult’s usage to structural incompetence.

A more plausible interpretation would be, as we intend to suggest in this paper, a

discourse information account. The following examples (9) and (10) illustrate typical scenario in using Head Given and Headless Given in our data. Grounding device plays an essential role in explaining the usage.

(9) Head Given (Age 2;05 )

- 1 \*MOT: zhe4 ge she2me a ?  
this CL what UFP  
'What is this ?'
- 2 \*CHI: hua4 bu4 chu1lai2  
paint no out  
'It cannot paint.'
- 3 \*CHI: ke3shi4 hui4 hei1 ye  
but will black UFP  
'But it can paint into black.'
4. \*MOT: zhe4 ge bi3 yi3jing1 mei2 shui3 le. ← (First mention)  
this CL pen already no water UFP  
'This pen runs out of ink.'
5. \*CHI: **ta1 de zuei3ba1** shi4 she2me? ← (Further question)  
3S DE mouth is what  
'What is *its mouth*?'
6. \*MOT: **ta1 de zuei3ba1** jiu4 shi4 yi4 zhi1 bi3 a, ← (reply)  
3S DE mouth just is one CL pen UFP  
'Its mouth is exactly a pen.'
- 7 \*MOT: zhe4 shi4 yi4 zhi1 gou3gou3bi3 a.  
this is one CL dog pen UFP  
'This is a dog-pen.'

Our data show that Head Given relies more on PRON-DE than Headless Given. In (9) line 4, the referent *bi3* 'pen' is mentioned first into the conversation by mother. Then in line 5, the child asked a further question regarding the function pertaining to part of the pen. Finally, in the subsequent reply in line 6, mother replied by using the full headed DE form, which acts as a maintaining device for reintroducing the entity. Thus, the pronoun in the PRON-DE-Head string in line 6 serves as grounding information, and the Head in the Headed Given form achieves a maintenance function, building coherence for the re-introduction of the previously mentioned entity *bi3* 'pen' as the specific answer to the question.

(10) Headless Given (Age 2;06)

- 1 \*CHI: na4 nong4 hao3 chi1 de tang2tang2. ← (First mention)  
then make good eat DE candies  
'Then find some delicious candies.'
- 2 \*MOT: hao3.  
good  
'Ok.'
- 3 \*MOT: wa! zhen1 hao3 chi1 ye!  
wow really good eat UFP  
'Wow, this is delicious!'
- 4 \*CHI: **rou2rou2 zuo4 de** la! ← (specification)  
Name make DE UFP  
'This is made by rou2rou.'
- 5 \*MOT: ni3 zuo4 de tang2 a? ← (confirm by reintroducing)  
You make DE candy UFP

Headless Given occurs more with V-DE and ADJ-DE in our data. As shown in (10), child firstly mentioned the referent in a nominalization Headed DE structure in line 1. Then in line 4, the child specifies that these candies were made by her. A headless nominalization DE is used. The empty head is a given referent, which is properly anchored by the full name NP '*rou2rou2*' (the girl's name, known to mother but newly mentioned) contained in the nominalized relative clause. Thus the empty head is made relevant to the ongoing conversation by being linked to the situation provided by the relative clause which contains explicit nominal (*rou2rou2*) and predicate (*zuo4*). Namely, the whole relative clause provides grounding and it helps to specify the Given referent (*tang2*, candy) which has been previously known to mother. Nevertheless, when it comes eventually to confirm what the child said, the mother reintroduced the referent *tang2*, and used pronoun *ni3* (you) as a grounding in the relative clause.

## 5. Conclusion

In accordance with the information-flow patterns, we have shown that Mandarin pre-nominal headed/headless DE phrases are chosen for referential expressions according to the interactive and cognitive factors inherent in the process of communicating. A traditional perspective of 'structural complexity' in explaining the

grammatical patterns of pre-nominal DE phrases is challenged in this study. For one thing, one should not merely consider the headless '*X de Ø*' form as an elliptic counterpart to the full form '*X de Y*', and infer that the former is formally simpler than the latter for Mandarin learners/users. Our data show that the two conversationalists, mother and child, constantly make decisions about their addressees' state of knowledge, and on the basis of these decisions, they choose headed/headless DE forms to comply with the flow of information. When it occurs for a newly mentioned referent, i.e. new information, the headed DE forms must be used. From the speaker's point of view, the full pre-nominal DE with head is more informative to the listener.

For another, that the head marking between headed/headless DEs is not structurally determined can be evidenced by the results that the distribution of modifier type preceding DE is similar across mother's and child's production. In particular, when it comes for a verbal modifier preceding pre-nominal DE, both mother and child tend to use empty head in the construction, i.e. *V-DE- Ø*. Previous study made by Packard only examined children's utterances in conversation and suggested that children produced more headless DE forms first because they do not have a good command on the abstract binding relation between the head and its verbal modifier. This conclusion cannot be drawn given we observe that both mother and child show the same usage regarding the +verbal headless DE.

We observe that the marking of head in the pre-nominal de phrases regarding the information status is not tightly connected with the global or local devices. Rather, grounding device plays an essential role. Head Given depends more on locally preceding pronoun as a grounding device for the head. Head is hold for maintaining the referent in question. Headless Given prefers occurring in nominal V-DE construction. Nominalization also acts as a globally grounding device, which activates a propositional frame suggested by the verb and such a V-DE construction often provides a specification function as illustrated in (10).

In general, our findings provided supports in favor of the hypothesis that communicative factors are a major determinant of the referential choices between headed and headless DE forms in Mandarin discourse. While simple nominals may rely either on local or global device to mark the information status, the complex nominals such as pre-nominal DEs depend more on background task, i.e. grounding and discourse function to facilitate mutual understanding and interpretation on what speakers intend to talk about. Accordingly, this would affect what referential forms should be used.

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# The topic that gradually ran away from home<sup>1</sup>

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## Abstract

This paper proposes that topicalization in the clausal domain is licensed by topicalization in the nominal domain. More specifically, it is argued that a noun phrase (NP) can move to a discourse-related specifier position of a functional projection in the clause (namely, TopicP) only after it moves to a specifier position of a functional projection in the nominal phrase (namely,  $D_{\text{Topic}}P$ ). Therefore, it is shown that the left edge of the determiner phrase (DP) fulfills the same grammatical role as that of the complementizer phrase (CP). This further suggests that the parallelism between CP and DP also holds at the level of information structure.

**Keywords:** topicalization, left periphery, Mandarin, DP.

## 1. Introduction

It is well-known that Chinese has a canonical Subject-Verb-Object (SVO) word order and that in Chinese the numeral-classifier sequence precedes the noun as shown in (1):<sup>2</sup>

- (1) Zhāngsān mǎi-le shí zhī bǐ  
Zhāngsān buy-Asp ten Cl pen  
'Zhāngsān bought ten pens'

However, it has also been noticed that the noun (i.e. *bǐ* 'pen') can appear in a pre-numeral position as in (2), a preverbal position as in (3), and a sentence-initial position

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<sup>2</sup> I use the following abbreviations in the gloss: Asp=Aspect, Cl=Classifier, DE=de (modifying marker).

as in (4):

- (2) Zhāngsān mǎi-le bǐ shí zhī  
Zhāngsān buy-Asp pen ten Cl  
'(lit.) Zhāngsān bought pens ten'
- (3) Zhāngsān bǐ mǎi-le shí zhī  
Zhāngsān pen buy-Asp ten Cl  
'(lit.) Zhāngsān, pens, bought ten'
- (4) bǐ Zhāngsān mǎi-le shí zhī  
pen Zhāngsān buy-Asp ten Cl  
'As for pens, Zhāngsān bought ten'

Concerning these four types of sentences, an important issue is how they are derived. More specifically, are they base-generated as distinct sentences, or are they transformationally related to each other? While Tang (1996) suggests that (1), (2) and (4) are transformationally unrelated, I propose that (1)-(4) indicate a successive-cyclic procedure of topicalization.

In section 2, I briefly introduce Tang's (1996) non-movement account and discuss a theoretical problem it faces in light of the current Minimalist program. In section 3, a phrasal movement analysis of (1)-(4) is postulated. Section 4 concludes by discussing some implications of my proposal.

## 2. Non-movement account

According to Tang (1996), there are actually three different constructions in (1), (2) and (4). In other words, these three examples are base-generated as distinct sentences, and no movement is involved in the derivation. What Tang suggests is that in (2) the numeral-classifier sequence *shí zhī* 'ten Cl' is syntactically base-generated as an adjunct argument of the verb *mǎi* 'buy' and is semantically predicated of the object *bǐ* 'pen'. As for (4), she maintains that the noun *bǐ* 'pen' is merged directly in the specifier (Spec) position of CP and is associated with a null noun within the postverbal nominal phrase, as shown in (5).

- (5) bǐ<sub>i</sub> Zhāngsān mǎi-le shí zhī *e<sub>i</sub>*  
pen Zhāngsān buy-Asp ten Cl  
'As for pens, Zhāngsān bought ten'

However, within the current Minimalist framework, Tang's non-movement analysis has to assume that a null noun also appears within the postverbal nominal

phrase in (2) and (3), or that a mechanism of NP ellipsis for the object DPs is involved in the derivation of (2) and (3). Otherwise, the formation of the object nominal phrases will become a problem, for there are only extended functional projections (i.e. DP), but no lexical projection (namely, NP). In contrast, what I argue for in the next section is a movement account. That is, (2) and (4) should be analyzed as being transformationally derived from sentence (1). More specifically, I propose that an NP like *bǐ* ‘pen’ can move to the left periphery of the sentence only after it moves to the left periphery of the nominal phrase. In other words, topicalization in the CP domain of Mandarin Chinese is licensed by DP-internal topicalization.

### 3. Phrasal movement analysis

#### 3.1. Topicalization

Wu (1998) argues that topicalization in Mandarin Chinese, as shown in (1) and (4), involves a movement operation for two reasons. First, island effects are found, as in (6) and (7):

(6)\**bǐ<sub>i</sub>* Lǐsì juéde bù gāoxìng yīnwèi Zhāngsān mǎi-le shí zhī *t<sub>i</sub>*  
 pen Lǐsì feel not happy because Zhāngsān buy-Asp ten Cl  
 Intended meaning: ‘Lǐsì felt unhappy because Zhāngsān bought ten pens’

(7)\**bǐ<sub>i</sub>* Lǐsì bù xiāngxìn Zhāngsān mǎi-le shí zhī *t<sub>i</sub>* de shuōfǎ  
 pen Lǐsì not believe Zhāngsān buy-Asp ten Cl DE claim  
 Intended meaning: ‘Lǐsì doesn’t believe the claim that Zhāngsān bought ten pens’

(6) indicates that the topic (i.e. *bǐ* ‘pen’) cannot be associated with the numeral-classifier sequence (i.e. *shí zhī* ‘ten Cl’) in an adjunct island, whereas (7) shows that the topic cannot be associated with the numeral-classifier sequence in a complex NP island. The analysis proposed by Tang (1996), shown in (5), fails to explain the island effects.

Second, unlike the topic sentence where the topicalized element is the whole nominal phrase, and, therefore, the gap can be filled by a resumptive pronoun (RP), as shown in (8), an RP cannot be inserted into the gap in sentences like (4), as shown in (9).

(8) shí zhī bǐ Zhāngsān mǎi-le (tāmen)  
 ten Cl pen Zhāngsān buy-Asp them  
 ‘The ten pens, Zhāngsān bought them’

(9) bǐ Zhāngsān mǎi-le shí zhī (\*tāmen)

pen Zhāngsān buy-Asp ten Cl (\*tāmen)

‘As for pens, Zhāngsān bought ten’

Given these two reasons, I maintain that the NP undergoes movement in the process of topicalization.

### 3.2. *Basic assumptions*

To further elaborate the process of topicalization in (1)-(4), I shall make the following assumptions about the internal structure of a nominal phrase in Mandarin Chinese:

- a. Mandarin Chinese, being a language without articles, also has the functional projection DP as the extended projection of the NP;
- b. DP is parallel to CP; both of them are phases;
- c. A particular layer of the CP, namely topic phrase (TopicP), is available for a topicalized element found in the left periphery of the clause.

There are several reasons for the first assumption. First, based on her study on Serbo-Croatian, an article-less language, Progovac (1998) maintains that the projection of DP is a property of Universal Grammar (UG). It is independent of the presence of an item in the lexicon that realizes the head of the projection. In addition, as proposed by Longobardi (1994), DP serves the deictic function, which refers or applies the description provided by the NP to the specific entity in the real or possible world. That the lexical element serves the function of description, whereas the functional element performs the referring or deictic function, has also been argued to be a property of UG (Cheng and Sybesma, 1999). As for the second assumption, it follows the line of research by Szabolcsi (1987) and Stowell (1989) that both CP and DP share the function of turning predicates into arguments. Furthermore, since Chomsky (2001) proposes that CP is a phase, Svenonius (2004) and Radford (2004) respectively argue that DP forms a phase as well.

Next, following Rizzi’s (1997) proposal, it is assumed here that CP can split into ForceP, TopicP, FocusP, TopicP and FiniteP. Except for FiniteP, each projection encodes a discourse-related property. Of primary interest are the TopicPs. Since SVO is the canonical word order for Mandarin Chinese, we have to assume that topicalization is involved in the OSV structure. Hence, I assume that the landing site for the topicalized element is the Spec of TopicP.

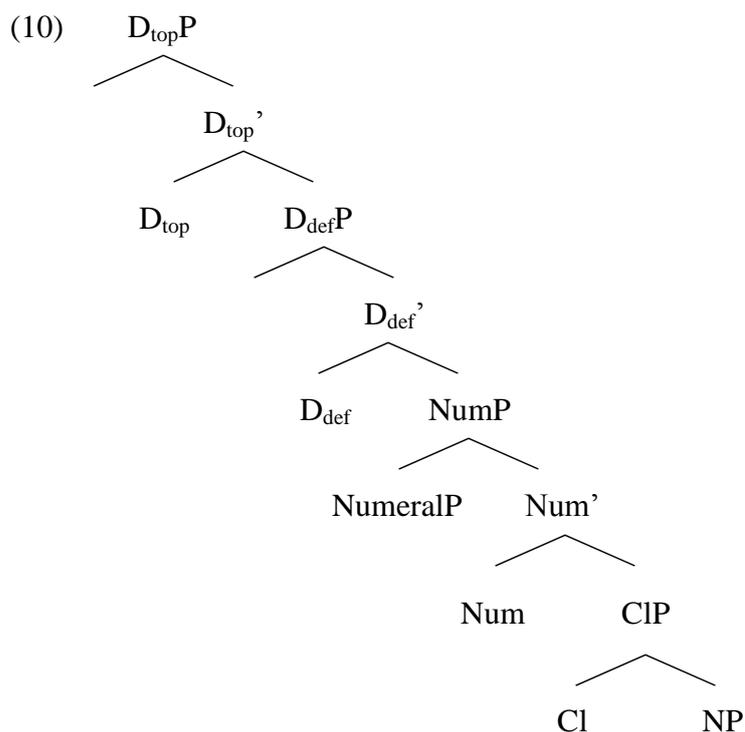
### 3.3. My proposal

Given the assumptions that DP is a phase and that topicalization is involved in the OSV structure, the direct extraction of noun out of the DP to the left periphery of the sentence, as shown by (4), will violate the Phase Impenetrability Condition, which does not allow an external probe (i.e. Topic) to attract anything from within the c-command domain of a phase head (i.e. D). In order to prevent this violation, I suggest that clausal topicalization in Mandarin Chinese must be licensed by nominal topicalization. In line with Aboh (2004), I suggest that the Spec of the functional head  $D_{top}$  is the escape hatch for the fronted NP in Mandarin Chinese.<sup>3</sup> The sentence order in (1)-(4) further indicates a successive-cyclic process of topicalization of the object NP in Mandarin Chinese. What I assume is that the edge feature [EF] of the functional head  $D_{top}$  triggers the movement of the NP to its Spec. Only after the object NP is moved to the edge of DP deriving the sequence Noun-Numeral-Classifier (i.e. *bǐ shí zhī*), is the topicalized NP then accessible to an external probe (i.e. Topic) in the clausal domain. As shown in (3) and (4), the NP undergoing topicalization further moves to the Spec of  $vP$  and finally reaches the Spec of TopicP.

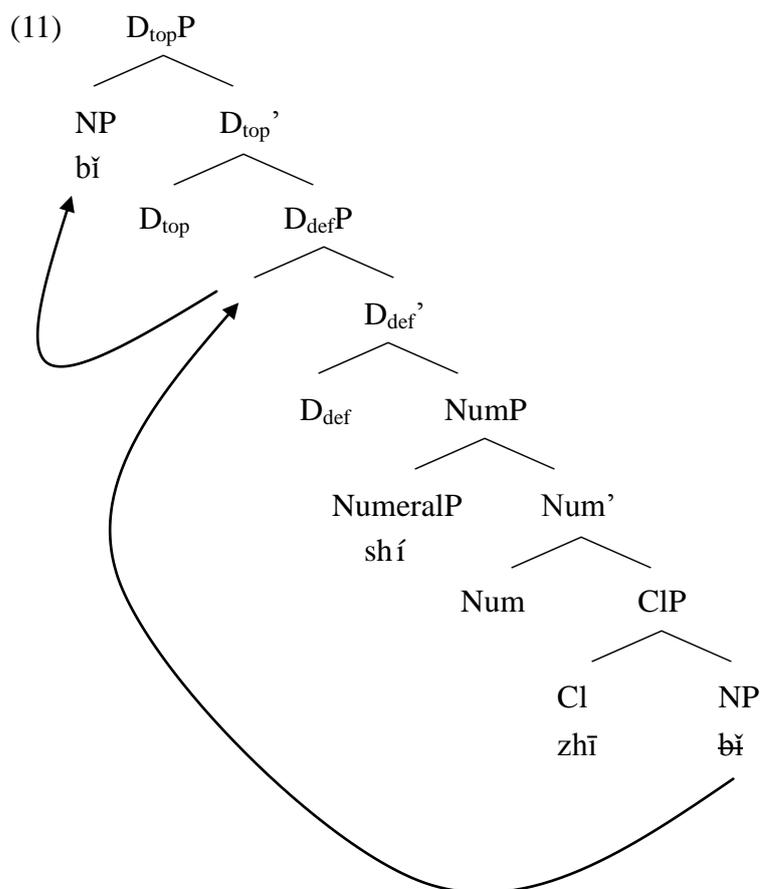
Based on Tang's (1990, 2005) and Li's (1998) studies, I propose that the nominal phrase of Mandarin Chinese has the internal structure illustrated in (10).

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<sup>3</sup> Given Rizzi's (1997) split CP proposal, it is assumed in this paper that D can be decomposed into separate functional heads, namely  $D_{force}$ ,  $D_{top}$ ,  $D_{foc}$ ,  $D_{top}$  and  $D_{def}$ . Of primary interest are the  $D_{top}$ s.

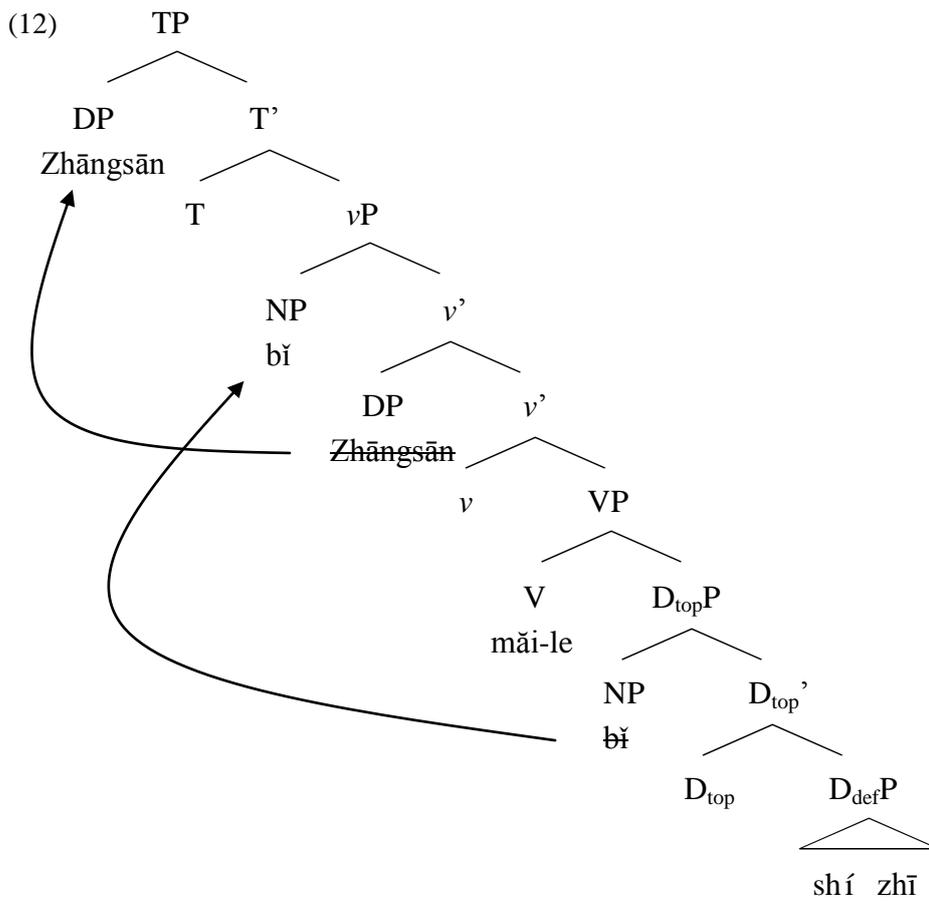


Given that (1) is the sentence with canonical word order, now let's turn to the derivation of the topicalization of *bǐ* 'pen' in (2)-(4). First, *bǐ* merges with a Cl *zhī* as its NP complement. The functional head Num then takes CIP as its complement. Next, the numeral *shí* 'ten' is merged in the Spec of NumP. Further, a null determiner merges with the NumP to form the D<sub>def</sub>P. After the formation of D<sub>def</sub>P (*shí zhī bǐ* 'ten pens') and the merging of D<sub>top</sub>, the [EF] feature carried by the D<sub>top</sub> triggers the movement of NP (*bǐ* 'pen') to its Spec position, as shown in (11).

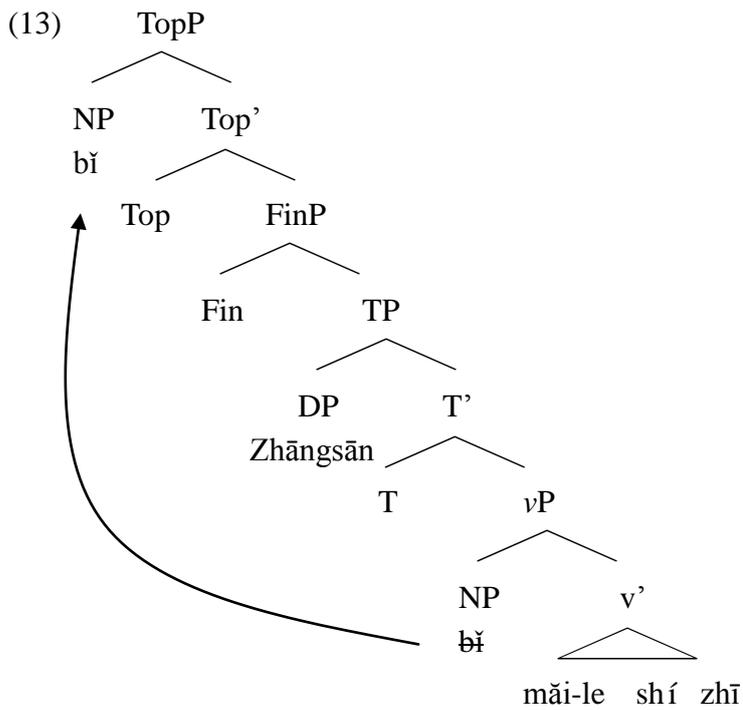


As it is at the edge of the derived DP, the NP is then accessible to an external probe in the clausal domain. The grammaticality of (2) supports such an analysis.

Next, since the transitive  $vP$  also forms a phase, the NP must move to the Spec of  $vP$  in order to be reachable to the external probe, Topic. The NP does move because of the [EF] feature carried by the transitive  $v$ . The well-formed (3), which has the stage of derivation shown in (12), predictably supports the current analysis.



Finally, at the stage of derivation shown in (13), the [EF] feature on the functional head Topic then attracts the NP to its Spec to derive (4).



As demonstrated above, topicalization in the CP domain of Mandarin Chinese indeed involves DP-internal topicalization.

Furthermore, the extracted NP and its associated numeral-classifier sequence can be separated from each other by one or more clauses, as shown in (14) and (15).

- (14) bǐ Lǐsì shuō Zhāngsān mǎi-le shí zhī  
 pen Lǐsì say Zhāngsān buy-Asp ten Cl  
 ‘Lǐsì said that Zhāngsān bought ten pens’
- (15) bǐ wǒ jìdé Lǐsì shuō Zhāngsān mǎi-le shí zhī  
 pen I remember Lǐsì say Zhāngsān buy-Asp ten Cl  
 ‘I remember that Lǐsì said that Zhāngsān bought ten pens’

According to the current account, this is predictable, for topicalization, being an instance of A-bar movement, is not subject to any locality condition.

The proposed analysis is not limited to the extraction of the object NP. The NP within the subject nominal phrase can also undergo topicalization, as shown in (16) and (17).

- (16) shí zhī bǐ jiù gòu le  
 ten Cl pen then enough Asp  
 ‘Ten pens will be fine’
- (17) bǐ shí zhī jiù gòu le  
 pen ten Cl then enough Asp  
 ‘(lit.) Pens, ten will be fine’

Similarly, the direct extraction of the noun out of the subject DP to the left periphery of the sentence will violate the Phase Impenetrability Condition. As a result, only after the subject NP has moved to the edge of DP, deriving the sequence Noun-Numeral-Classifier (i.e. *bǐ shí zhī*), is the topicalized NP then accessible to an external probe (i.e. Topic) in the clausal domain.

#### 4. Conclusion

This paper has discussed the derivation of four types of sentences, exemplified by (1)-(4). In contrast to Tang’s (1996) non-movement analysis, I propose a unified transformational account in terms of DP-internal topicalization. The main idea is that in Mandarin Chinese an NP can be extracted to the left periphery of the sentence only after it moves to the left periphery of the nominal phrase. It is shown that the edge of the nominal phrase fulfills the same grammatical role as that of the clause – both encode

topicality. This parallelism between CP and DP is revealed to hold as well at the level of information structure. On the other hand, one might ask if there is any constraint on the DP-internal topicalization, such as the Left Branch Condition. I will leave this question open for future research.

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# Information Structure and Sentence Formation in Matengo<sup>1</sup>

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## Abstract

Matengo is a topic-prominent language. Topicalized items and non-topicalized ones are clearly distinguished by word order. The focus and non-focus items are also distinguished by word order, and the choice of verb form is involved in expressing the focal item. The treatment of focus, however, is not as rigidly controlled as topicalization. The informational value of focus is sometimes neglected in order to satisfy the syntactic conditions. Sentence construction in Matengo is achieved not by meeting one absolute condition, but rather by interactions between informational and syntactic requirements.

**keywords:** Matengo, topic, focus, conjoint/disjoint verb form

## 1. Introduction

Information structure plays an important role in determining sentence structure in Matengo, a Bantu language spoken in the southwest part of Tanzania. Word order in this language is determined by information structure, rather than grammatical relations. However, informational rules, although important, can be violated or eased in order to achieve syntactic requirements. This paper will discuss how information structure is involved in sentence formation, and how it interacts with syntactic constraints.

## 2. The Principles

The basic principles that determine word order in Matengo are:

- Topical elements occur before the verb, and non-topical elements occur after

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the verb.

- The focus of the sentence, if there is any, occurs immediately after the verb.

### 2.1. Position of the subject

Although the slot before the verb is the canonical place for the subject in many Bantu languages, it is the place for topic in Matengo (Yoneda 2007, 2008). Thus, the position of the subject differs depending on whether it is topicalized or not. The topical element is in boldface and the focused item is in italic in examples.

- (1) **María** ju-hík-ití. 'María' is topic  
Maria(1) SM(1)-arrive-PF<sup>2</sup>  
"(While Maria has been waited for) Maria has come."
- (2) Ju-hík-ití *Marî:a*. 'María' is not topic but focus  
SM(1)-arrive-PF Maria(1)  
"(Answer for "who has come?") Maria has come."
- (3) Ju-hík-ití mû:ndu. 'mundu' is not topic nor focus  
SM(1)-arrive-PF someone (1)  
"(Hearing unexpected knocking) Someone has come."

The subject is placed in the pre-verbal position in (1) because the subject is topicalized. The subject is not topicalized but is focused in (2), so it is placed in the post-verbal position. When the subject is neither topicalized nor focused as in (3), it is also placed in the post-verbal position.

### 2.2. Topicalization

Sentences (4a) and (5a) are examples of object topicalization and adverbial topicalization respectively. Notice that locative inversion, which is a very common phenomena in Bantu languages, does not occur in Matengo as shown in (\*5b).

- (4) a. **Kinûnda** lu-a-(mu-) lum-iti lúju:si.  
Mr. Kinunda(1) SM(11)-PAST-(OM(1)-)bite-PF bee(11)

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<sup>2</sup> The abbreviations used in this paper are as follows: SM: subject marker, OM: object marker, PAST: past tense marker, NPF: non-perfect final, PF: perfect final, INF: infinitive prefix, Loc: locative, Neg: negative marker, The numbers in ( ) refer to the noun classes.

- "Mr.Kinunda, a bee stung (him)."
- cf. b. Lújusi      lu-a-mu-lum-iti      Kinû:nda.  
bee(11)      SM(11)-PAST-OM(1)-bite-PF      Mr. Kinunda(1)  
"A bee stung Mr. Kinunda."
- (5) a. **Mu-kítengu**      ga-a-tam-iti      máhi:mba.  
Loc-forest(18)      SM(6)-PAST-live-PF      lion(6)  
"In the forest, lions lived."
- b. \* **Mu-kítengu**      mu-a-tam-iti      máhi:mba.  
Loc-forest(18)      SM(18)-PAST-live-PF      lion(6)

(6) is an example of a sentence where the object is topicalized and the subject is focused. An example of a situation in which this sentence might occur is if you see many potatoes and yams, and ask who bought them. In such a case, word order must be OVS, although SVO is the canonical word order in many Bantu languages.

- (6) (Answer for "who bought these potatoes and yams?")

**Ílasí**      ju-a-hémél-aje      *Tóma:si,*  
potatoes(8) SM(1)-PAST-buy-NPF      Thomas(1)  
                 **íjabujabu**      ju-a-hémél-aje      *Marî:a.*  
                 yams(8)      SM(1)-PAST-buy-NPF      Maria(1)  
"Thomas bought potatoes, and Maria bought yams."

### 3. Elements of the topic slot

As we have seen above, in Matengo, each element in a sentence is assigned to a slot according to its information structure--namely whether it is topic, focus, or neither. For the non-topic/non-focus subject, however, the assignment of the slot involves another condition--that is, the presence or absence of other elements in the sentence.

#### 3.1. Non-topic/ non-focus subject

Both (7) and (8a) are answers for the question "What happened?" Therefore the whole sentence is new information and nothing is topicalized nor focused. When the non-topic/ non-focus subject is the only argument NP of the verb, then it occurs after the verb, as in (7). It follows the word-order principles in Matengo. But when the sentence

has another non-topic element as in (8), then the non-topic/ non-focus subject must occur before the verb, even it is not topicalized. It does not abide by the principles, but if the subject occurs after the verb in this case (thus, when other non-topic elements than non-topic subject are present in the sentence), then the subject is automatically interpreted as a focused element, as shown in (8b).

(Answer for "What happened?")

(7) Ju-a-hagak-iti            mwâ:na.

SM(1)-PAST-fall-PF child(1)

"A child fell down."

(8) a. Mwáná ju-a-hagak-iti            mú-nko:ngu.

child(1) SM(1)-PAST-fall-PF from-tree

"A child fell out of the tree."

cf. b. Ju-a-hagak-iti            mwáná    múnko:ngu.

SM(1)-PAST-fall-PF child(1) from-tree

"(Answer for "Who fell out of the tree?") *A child* fell out of the tree."

### 3.2. Topicality of the subject

The phenomenon of (8) shows that the subject always has the possibility of being treated as the topic (or at least as a suitable element for the topic slot) unless it is specifically expressed as the focus in Matengo. This can be considered to be the result of the highest degree of topicality that the subject inherently possesses.<sup>3</sup>

When a sentence has a topicalized element, the element occurs in the topic slot. However, when the sentence does not have a topicalized element and has two or more non-topical elements, the element that has the inherently higher topicality--namely the subject--is treated as the topic and occurs in the topic slot. In other words, the element that occurs in the slot before the verb is not limited to an intentionally topicalized element, but "an element that is high enough in topicality" is also a strong candidate; and the subject inherently possesses topicality high enough to be eligible for the topic slot, unless it is in focus.<sup>4</sup>

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<sup>3</sup> It has been said that, cross-linguistically, the subject is the most typical topic (Givón 1976, Lambrecht 1994, etc.).

<sup>4</sup>See Yoneda(2007, 2008) for more detailed discussion on this issue.

## 4. Focus and Verb Forms

### 4.1. the Conjoint verb form

Matengo's word-order principle "non-topical elements occur post-verbally" allows two types of non-topical elements to occur after the verb. The first type is a focused element, such as indicating contrast as shown in (9), or the answer to a WH question as shown in (10). The other type is an element that is neither focus nor topic, as in (11) and (12). Example (11) consists of only new information throughout the whole sentence, and so no single element is in focus. In (12), the element after the verb is an indefinite noun, which usually cannot be considered to be a focus.

<focus>

(9) Ju-a-lel-aje                      *Tómasi*      nga:      Marî:a.  
SM(1)-PAST-cry-NPF    Thomas(1)    Neg      Maria(1)  
"Not Maria but Thomas cried."

(10) Ju-í-kelabuk-aje              *kilâ:bo*.  
SM(1)-FUR-return-NPF    tomorrow  
"(Answer for "when will he come back?") He will come back *tomorrow*."

<non-topic/non-focus>

(11) Ju-a-lí-hejul-iti                      mwâ:na.  
SM(1)-PAST-ref.-hurt-PF    child(1)  
>("What has happened?") My child hurt himself."

(12) Ju-hík-ítí                      mû:ndu.                      (=3)  
SM(1)-arrive-PF    person/someone(1)  
"(Hearing the sound of knocking) Someone has come."

Here, information structure affects the choice of verb form. To put focus on a certain element as in (9) and (10), the verb form with the suffix *-aje* is used. In the sentence without a focused element, the verb form with the suffix *-iti* is used.

*-aje* is a suffix used for the non-perfect verb form, and *-iti* is the suffix indicating the perfect verb form. They are usually used to convey different aspectual information. But the difference between the non-perfect form and the perfect form is often simply the presence or absence of the focused elements, rather than an actual aspectual difference. The verb form with *-aje* always requires the element to occur immediately after it, and it

is usually used to express the focus. Similar verb forms can be observed in some other Bantu languages such as Makhuwa (van der Wal 2006), Matuumbi (Odden 1984), Zulu (Buell 2006). It is called a "focal form" because of its function, or a "conjoint form" because of the syntactic characteristic that prohibits the verb from occurring at the sentence-final position. I will call this form "conjoint form" in this paper. The conjoint form cannot occur in the sentence-final position and always requires an element after it. Also, that element has to carry enough information to qualify as a focus. Therefore, the conjoint form involves both a syntactic requirement and an informational requirement. The verb form that doesn't have such a condition is called the "disjoint form."

The verb in (13a) is in the non-perfect form (conjoint form). When the verb in the conjoint form has only one argument NP, topicalization of the NP is syntactically precluded, as shown in sentence (\*13b) because that NP must stay after the verb. When the sole NP needs to be topicalized, the alternative verb form such as the perfect form (disjoint form) must be used, as in (13c).

- |         |  |   |                             |
|---------|--|---|-----------------------------|
| (13) a. | N-a-golol-aje<br>SM(1sg)-PAST-wash-NPF | <i>lúha:gi.</i><br>plate(11)            | (non-perfect/conjoint form) |
|         | "I washed a plate."                    |   |                             |
| b. *    | <b>Lúhagi</b><br>plate(11)             | n-a-golol-aje.<br>SM(1sg)-PAST-wash-NPF | (non-perfect/conjoint form) |
|         | (The plate, I washed (it).)            |   |                             |
| c.      | <b>Lúhagi</b><br>plate(11)             | n-a-golol-iti.<br>SM(1sg)-PAST-wash-PF  | (perfect/disjoint form)     |
|         | "The plate, I washed (it)."            |   |                             |

Moreover, even if the verb is followed by a word and the sentence meets the syntactic requirement, the sentence is not considered as a well-formed sentence if the word does not satisfy the informational requirement of the focus. In the sentences in (14), the noun *mundu* occurs immediately after the verb. (14a)--with the conjoint form--is appropriate for expressing the idea that Samuel beat a human, not an animal; however, the degree of acceptability is much lower when the same sentence is used to state that Samuel beat someone, that is, a person about whom nothing is known. This is because the indefinite noun "someone" does not have enough information to meet the necessary conditions to be a focus.

- (14) a. ?Samuéli ju-a-mu-lapul-aje *míndu.* (conjoint form)  
 Samuel(1) SM(1)-PAST-OM(1)-beat-NPF person/someone(1)
- b. Samuéli ju-a-mu-lapul-iti *múndu.* (disjoint form)  
 Samuel(1) SM(1)-PAST-OM(1)-beat-PF person/someone(1)  
 "Samuel beat someone."

The conjoint form does not allow just any word to occur immediately after it, but it requires the following word to have enough information to be a focus. When the word that occurs immediately after the verb does not have enough information to be a focus, a disjoint form such as the perfect verb form in (14b) is preferred.

#### 4.2. Priority of the conditions

Now as I have shown, the conjoint form needs to meet both the syntactic requirement and the informational requirement. But the informational condition is not as strict as the syntactic condition, as shown by the contrast of (13b) and (14a). Example (13b), which doesn't meet the syntactic condition, is completely unacceptable, while (14a), which doesn't meet the informational condition, is *not* completely unacceptable, although this sentence is not preferred. Let's look at other examples.

- (15) a. N-a-heng-aje líhe:ngu. (non-perfect/conjoint form)  
 SM(1sg)-PAST-work-NPF work(5)  
 "I worked."
- b. \* N-a-heng-aje. (non-perfect/conjoint form)  
 SM(1sg) -PAST-work-NPF
- c. N-a-heng-iti. (perfect/disjoint form)  
 SM(1sg) -PAST-work-PF
- d. N-a-heng-iti líhe:ngu. (perfect/disjoint form)  
 SM(1sg) -PAST-work-PF work(5)

In (15a), *lihengu* "work" occurs immediately after the verb. Since the verb *-heng-* means "to work," the NP *lihengu* does not provide any new information. Therefore, in fact, it does not satisfy the informational requirement to be a focus. However, (15a) is acceptable. On the other hand, (15b) is ungrammatical because the verb does not have a word following it, and therefore does not meet the syntactic requirement.

From these observations, we could postulate that in the use of the conjoint form,

the syntactic requirement has priority over the informational requirement. If there is no appropriate NP to put after the verb, then disjoint form have to be chosen to abide by Matengo's word-order principle. However, if disjoint forms are not suitable and cannot be chosen, it's also possible to place a word that does not meet the informational condition in the focus position as a "dummy" in order to satisfy the syntactic requirement. Even a verb can be used as a dummy focus.

- (16) a. Maria ju-a-tend-aje ku-pomule:la.  
 Maria(1) SM(1)-PAST-do-NPF INF-rest  
 "Maria rested/was resting."  
 cf. b. \*Maria ju-a-pomulel-aje.  
 Maria(1) SM(1)-PAST-rest-NPF  
 (Maria rested/was resting.)

(16a) is an example of the use of a verb as a dummy focus. The verb *-tend-* "to do" in the conjoint form, and the addition of a verb in infinitive form immediately following *-tend-* creates a compound verb form, which is used when the focus is on the action of the verb itself. However, it is also often used to prevent the conjoint form from occurring in the sentence-final position, thus satisfying the syntactic requirements for well-formedness. Of course (16a) is used when putting focus on the verb *-pomule-* "to rest," such as in the answer to the question "what was Maria doing?" However, this sentence is also used even when there is no focus on *-pomule-* if there is no other optional NP to be placed after the verb *-pomule-*. This use of a verb as a dummy focus occurs especially with intransitive verbs.

#### 4.3. the Disjoint form

While the non-perfect form (the conjoint form) of the verb always requires an element to follow it, the perfect form (the disjoint form) has no such syntactic constraints. Thus, (15c) is a well-formed sentence. Moreover, unlike the conjoint form, the perfect form does not have requirements on the informational value of the element that occurs after it, so that (14b) is also a well formed sentence.

As I have mentioned above, the conjoint form is basically used to express focus, but it is also possible to express the focus with the perfect form, that is, the disjoint form. Example (17a) has the verb in the perfect form and focus is placed on *musumba senze* "in this room."

- (17) a. Ju-gonel-ití      *mu-súmba*      *se:nze*.  
 SM(1)-sleep-PF    Loc-room(18)    this  
 "(Answer for "where is she sleeping?") She is sleeping in this room."
- cf. b. Ju-gonel-adjé      *mu-súmba*      *se:nze*.  
 SM(1)-sleep-NPF    Loc-room(18)    this  
 "(Answer for "where does she usually sleep?") She sleeps in this room."

#### 4.3. Comparison with Makhuwa

Now we have seen that the conjoint form in Matengo can permit a dummy focus NP, and the disjoint verb form can sometimes be used to express focus. Therefore, in Matengo, while topicality is clearly coded by word order, the treatment of focus does not seem to be as strictly controlled as topic is. This is in contrast to other related languages such as Makhuwa.

In Makhuwa, in order to express focus, the conjoint form must be used. This verb form must be followed by an element and the element is rigidly required to have informational value as focus as in (18a). Example (18b) does not have an element after the verb, and therefore is ungrammatical.

When there is no focal element that follows the verb, the disjoint form must be used. The disjoint form is used when there is no element following the verb as in (18d), or when the element that follows the verb is not in focus as in (18c). Therefore unlike Matengo, the disjoint form is not used to express focus, and focus is expressed by the conjoint verb form exclusively.

- (18) <Makhuwa>      (van der Wal 2006)
- conjoint form
- a. enyómpé    tsi-n-khúúrá      *malashí*.      "The cows eat *grass*."  
 cows(10)    SM(10)-PRES-eat    grass
- b. \* enyómpé    tsi-n-khúúrá.      (The cows are eating.)  
 cows(10) SM(10)-PRES-eat
- disjoint form
- c. enyómpé    thi-náá-khúúra      *malashí*.      "The cows eat *grass*."  
 cows(10)    SM(10)-PRES.DJ-eat grass
- d. enyómpé    thi-náá-khúúra.      "The cows are eating."  
 cows(10)    SM(10)-PRES.DJ-eat

In comparison with Makhuwa, the treatment of focus is not rigidly controlled in Matengo. In Makhuwa, the conjoint form does not permit a dummy focus, and the disjoint form cannot be used to express focus. On the other hand, in Matengo, the conjoint form accepts a dummy focus, and the disjoint form can be used to express focus. This seems to be the result of restrictions on each form relating to what types of tense and aspect they may mark.

In Makhuwa, both the conjoint form and the disjoint form can be used to mark the same tense and aspect. Thus, when a focalized element follows the verb, the conjoint form can be exclusively used, and when there is no element following the verb, or when the element that follows the verb is not focalized, the disjoint form is used.

(19) A Comparison of the Conjoint/Disjoint forms in Makhuwa and Matengo

	Conjoint form		Disjoint form	
	non-perfect	perfect	non-perfect	perfect
Makhuwa	✓	✓	✓	✓
Matengo	✓	X	X	✓

In contrast to Makhuwa, the conjoint forms and the disjoint forms do not exist in a parallel relationship in Matengo, as shown in (19). For example, in the past tense and present tense, the conjoint form can only be non-perfect, while the disjoint form can only be perfect. Therefore, combinations of the conjoint form and a dummy focus, and a disjoint form and a focus, are used to bridge the gap. If the verb does not have a focused element following it, and perfect form is not appropriate, then a dummy focus is used to compensate. Also, when the verb is of the type that often occurs in the perfect aspect, and the sentence has focus, the perfect form, that is disjoint form must be used to express the focus. Example (17), for instance, has a different meaning if the non-perfect form--that is, the conjoint form--is used.

## 5. Conclusion

I have tried to show how information structure is involved in sentence formation, and how it interacts with syntactic constraints in Matengo. In Matengo, the information structure plays an important role in determining sentence structure. It is involved not only in word order but also in the choice of verb form. Both topic and focus are distinguished in this language, but the treatment of focus is not as rigidly controlled as

topicalization. That seems to be the result of the fact that the conjoint and disjoint verb forms do not exist in a parallel relationship in Matengo. The informational value of focus is sometimes neglected in order to satisfy the syntactic condition. Sentence construction in Matengo seems to be achieved not by meeting one absolute condition, but rather by more complex interactions between informational and syntactic requirements.

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# Exhaustive Focus in Japanese\*

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## Abstract

It will be pointed out, first, that, in Tokyo Japanese, some extraordinary focus prosody induces exhaustivity of a focus interpretation in general and, second, that this correlation obligatorily holds for a matrix Wh-question but not for a subordinate Wh-question. To support these claims, various arguments will be provided based on phonetic experiments as well as semantic/pragmatic considerations. Possible syntactic analyses of these phenomena will also be briefly explored at the end.

**Keywords:** (exhaustive) focus, focus prosody, Wh-question, matrix phenomenon, performative analysis

## 1. Introduction and Background

There seems to be a growing sentiment among generative grammarians which alerts us to the danger of the syntactic investigation of sentences without paying proper attention to the information packaging and its associated prosody involved there. These non-syntactic factors are known to have significant effects on the speakers' judgments of sentences, and it seems to be the case that the information structural problems have often been mistaken for ungrammaticality even in published works. Paying heed to this warning, this paper makes a progress report on the study of some interesting correlation between prosody and the interpretation of a focused item encoded in some specific syntactic constructions in Japanese.

I would like to start the investigation by clarifying the definition of some informational structural terms that I will adopt in this work. First, the term *focus* will be used when and only when the notion "set of alternatives" is induced in the interpretation of a *sentence* along the line of Chafe (1976: 33-35) and Rooth (1992: 76-7). Furthermore, a Wh-interrogative expression and the item providing its identity in the answer are both regarded as a focused item along the line of Hamblin (1973).

Following partly and extending Krifka (2007: 33), focus is regarded as *exhaustive* if it involves a clear implicature that *only the proposition that becomes true with the selected alternative (= focus denotation) is the context change potential of the utterance*, and that *none* of the propositions that become true with the selection of any of the *actually unselected alternatives* is the context change potential of the utterance.

Along the line of Fuchs (1984), it is also assumed that one or more constituents of every syntactic *phrase* are always *informative* (i.e., informationally weighty, salient and/or relevant) in a given utterance. Informativity is independent of focus or discourse-giveness or -newness,<sup>i</sup> but an informative item becomes prosodically prominent by virtue of resisting prosodic reduction at each prosodic phrase (Kitagawa (2008).

While the definitions of the information structural terms presented above may or may not be appropriate and fully justifiable, they should at least clarify what I have in mind when I mention these terms in this work and allow us to avoid unnecessary confusion and misunderstanding. For this reason, I will also refrain from using the terms often found in the literature like "emphatic focus," "contrastive focus," "presentational focus," "identificational focus," and "informational focus."

## 2. Two types of focus

### 2.1 E-FPD vs. N-FPD

It has been observed in the literature that focus in *Tokyo* Japanese (henceforth referred to simply as Japanese) induces a distinctive prosodic pattern. For example, both Wh-focus in a question and the focused word providing its identity in the answer as in (1) below are assigned prosodic prominence with a somewhat high pitch peak and intensity on these items (indicated by SMALL CAPITALS), which is followed by "post-focal reduction" — significant compression of the pitch range of the items following them (indicated by **shades**). (' indicates the position of a lexical accent.)

(1) A: Kyoo-wa DA're-ga kita-no?  
 today-TOP who-NOM came-Q?

B: Kyoo-wa ME'arii-ga kimasita.  
 Mary-NOM came

'Who came at 9 o'clock? Mary came.'

Throughout, I will refer to a focus prosodic pattern like these as Focus Prosody (henceforth *FPD* for short).

With this observation as background, what I have noted and would like to pay close attention to in this work is, first, that we can elevate the level of prosodic prominence of a focused item even higher by adding extra rise of pitch and intensity (indicated by **BOLD FACE CAPITALS**) as in (2).

(2) Kyoo-wa **ME'**arii-ga kimasita.

'No one else but **MARY** came today.'

And, second, that such an extra focus prominence seems to semantically indicate the exhaustivity of focus — in this particular case, implicating that "**MARY**, *not anyone else*, came." A similar point can be illustrated even more clearly by the contrast between (3) and (4) and that between (5) and (6).

(3) < A conversation between two nurses >

A: 201-goositu-no kanzya-san-wa bangohan-ni **nani**-o tabe-masita-ka?  
 201-room.number-GEN patient-TOP supper-for what-ACC ate-Q?

B: oNI'ku-o tabe-masita.  
 meat-ACC ate

'What did the patient in Room 201 eat for supper? She ate meat.'

(4) 201-goositu-no Yomasita-san-wa kyoo-wa tyoosi-ga iidesuyo.  
 201-room.number-GEN Yamashita-TOP today-TOP condition-NOM good  
 Nanisiro oNI'ku-o tabe-masita-kara.

for meat-ACC ate-because

'Mr. Yamashita in room 201 is doing well today, for he ate **MEAT**, *not any ordinary hospital food*.'

(5) A: Anata-wa **donna**-kuruma-ni notteru-no?  
 you-TOP what.sort-car-in ride-Q

B: Boku-wa PO'rusye-ni nottemasu.  
 I-TOP Porsche-in riding

'What kind of car do you drive? I drive Porsche.'

(6) Ano hito-wa kanemoti-da-to omouyo.  
 that person-TOP wealthy.is.that think

Datte **PO'**rusye-ni notteru-mon.  
 for Porsche-in riding

'I think he is rich, for he is driving a **PORSCHE**, *not any ordinary car*.'

Here, the prominent items in (3B) and (5B) straightforwardly indicate the selected alternatives as the answers to the Wh-questions without any other special implicature involved. The extraordinarily prominent items in (4) and (6), on the other hand, involve a strong flavor of the exhaustivity of focus, implicating something like "meat, (which is

only for healthy people,) not any ordinary hospital food" and "Porsche, (which is a very expensive sports car,) not any other ordinary car," respectively.

In short, the extraordinarily enhanced FPD seems to prosodically indicate the semantic interpretation of exhaustive focus, which the regularly observed FPD does not achieve. I will refer to the former prosodic pattern as "*Exhaustive Focus Prosody*" (henceforth *E-FPD*) and the latter as "*Neutral Focus Prosody*" (henceforth *N-FPD*).

## 2.2 Semantics of *E-FPD*:

We can confirm that the exhaustivity of focus (as defined in Section 1) above is induced by *E-FPD* but not by *N-FPD*, appealing to the test offered by Szabolcsi (1994: 519). First, the focus consisting of a coordinated DPs in (7B-i) as an answer to a Wh-question (7A) allows us to infer (7B-ii) as its logical consequence. The discourse (i)-(ii) therefore can be interpreted naturally when eating raisins is an implicit issue.

(7) A: Kanozyo-wa NA'ni-o tabemasita-ka?

she-TOP what-ACC ate-COMP<sub>Wh</sub>

'What did she eat?'

B: (i) Kanozyo-wa [ RE'ezun-to PI'inattu ]-o tabemasita.

she-TOP raisin-and peanut-ACC ate

'She ate raisins and peanuts.'

(ii) Dakara tasikani kanozyo-wa [ RE'ezun ]-o tabeteimasu.

hence surely she-TOP raisin-ACC has.eaten

'Therefore, she certainly has eaten raisins.'

When the *N-FPD* in (7B i-ii) is replaced by *E-FPD* as in (8 a-b) below, on the other hand, the discourse cannot flow naturally.

(8) a. Kanozyo-wa [ RE'ezun-to PI'inattu ]-o tabemasita.

'It was **RAISINS AND PEANUTS** that she ate.'

b. #Dakara tasikani kanozyo-wa [ RE'ezun ]-o tabeteimasu.

'Therefore, it certainly was **RAISINS** that she has eaten.'

The problem here arises presumably because the exhaustivity of focus involved in both sentence in (8) does not permit the inference relation between them — (8a) implicates that raisins and peanuts were all and only food eaten while (8b) implicates that raisins were the only food eaten, inducing a contradiction.

To sum up so far, we should recognize and distinguish in Japanese two distinct types of focus prosody, *N-FPD* and *E-FPD*, only latter of which seems to induce exhaustivity of focus. *E-FPD*, in other words, marks exhaustive focus in Japanese.

### 3. Two types of FPD for Wh-focus

#### 3.1 Prosody-scope correlation in Wh-focus

Nishigauchi (1990, 33) reports that Subjacency sentences in Japanese become acceptable only with "a *marked intonation with a heavy stress* on the interrogative word which purports to have matrix scope."

- (9) Keesatu-wa [ kanozyo-ga ano-ban DA're-to atteita-**ka** ] sirabeteiru-**no**?  
 police-TOP she-NOM that-night who-with seeing-COMP<sub>Whr</sub> checking-COMP<sub>Wh</sub>

'Who<sub>1</sub> is s.t. the police are investigating [*whether* she was seeing him<sub>1</sub> that night]?'

He correctly recognized the need for prosodic prominence of a Wh-word for its proper interpretation in an interrogative sentence. It was overlooked, however, that such Wh-prominence as a type of focus prominence must be also accompanied by the post-focus reduction (= the shaded part) stretching to the matrix interrogative COMP with which the Wh-focus is associated for its scope interpretation.

We can also confirm that it is a mistake to regard such focus prosody to be a *marked* intonational pattern that is appealed only to override the Subjacency condition, when we observe that a similar prosodic pattern, i.e., FPD, is required for Wh-scope extraction in general — even out of a non-island *declarative CP* as in (10).

- (10) Keesatu-wa [ kanozyo-ga ano-ban DA're-to atteita-**to** ] kangaeteiru-**no**?  
 -COMP<sub>That</sub> think-COMP<sub>Wh</sub>

'Who<sub>1</sub> do the police think [*that* she was seeing t<sub>1</sub> that night ]?'

Furthermore, FPD is observed even when the Wh-phrase located within the subordinate clause takes subordinate scope as in (11) below. Notice that the surface form is identical in (11) and (9) except for the length of FPD — the post-focal reduction ends at the *subordinate* interrogative COMP *-ka* in (11), whose termination is marked by the *unreduced* accent of the matrix predicate *sira'beteiru* 'investigating'.

- (11) Keesatu-wa [ kanozyo-ga ano-ban DA're-to atteita-**ka** ] sira'beteiru-no?  
 -COMP<sub>Wh</sub> checking-COMP<sub>YN</sub>

'Are the police investigating [*who*<sub>1</sub> she was seeing t<sub>1</sub> that night ]?'

Crucially, (9) is interpreted as a matrix Wh-question and (11) as a yes-no question.

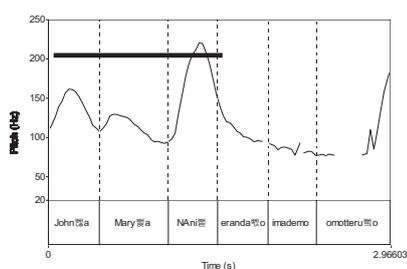
What all these observations indicate is that there is one-to-one correspondence between the domain of focus prosody and the domain of Wh-scope. As has been pointed out by Deguchi and Kitagawa (2002), Ishihara (2002) and Ishihara (2003), when FPD stretches through the end of the matrix clause as in (9)-(10), the Wh-interrogative expression that starts this prosodic pattern takes the matrix clause. When FPD is

terminated at the end of a subordinate clause as in (11), on the other hand, the Wh-interrogative expression takes subordinate scope. Throughout, I will refer to the former type of FPD as "*Global FPD*" and the latter type as "*Local FPD*."

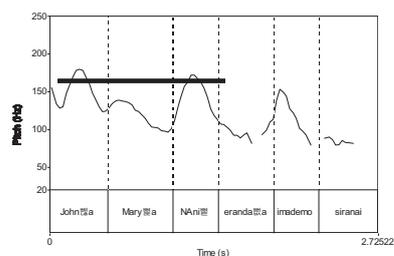
### 3.2 *Phonetic Experiment:*

Through several independent experiments which examined other people's and my own recording of Wh-interrogative sentences, I have noted that the prosodic prominence of the Wh-focus in *Global FPD* tends to be realized noticeably higher in pitch than that of *Local FPD*. That is, the Wh-interrogative word taking matrix scope tend to be pronounced higher in pitch than that taking subordinate scope. The pitch track diagrams in (12) of the author's recordings illustrate this observation.

(12) a. *Global FPD:*



b. *Local FPD:*



In order to examine if this initial impression can be elevated to the level of generalization, I conducted a phonetic experiment involving the recordings by more substantial number of speakers. The experiment was conducted with the following procedure: (a) Seven test sentences involving Wh-interrogatives were prepared and quasi-randomized in order with 12 filler sentences — 4 different orders were prepared. (b) Ten Japanese speakers from Tokyo and its vicinity (Kanagawa and Chiba), ages 19~23, were asked to read aloud each sentence with natural intonation *after they read it silently and understand its interpretation*. (c) For potentially ambiguous Wh-questions, a preceding discourse and a specific answer were added to clarify the intended interpretation. (d) Eleven recordings per each sentence were obtained, of which ten renditions were adopted for analysis, with the first rendition discarded. (e) The peak  $F_0$  values of all the Wh-words in the recordings were measured. (f) *T-tests* were applied to the means of two independent samples in each pair of sentences.

The experiment was designed to examine whether or not Wh-expressions exhibit significant and consistent pitch differences under the following three distinct conditions: (i) "*scope asymmetry*" — when they are interpreted with *distinct scope* (matrix or subordinate), (ii) "*location asymmetry*" — when the "matrix scope taking" Wh-phrases

are *located in distinct clauses* (in the matrix clause or in the subordinate clause), and (iii) "*distance variation*" — when the *distance* between the Wh-expressions and their associated COMPs *varies* (short distance or long distance). Sections 3.2.1 - 3.2.3 below each presents the experimental results of (i)-(iii) and their analyses.

### 3.2.1 Scope asymmetry:

First, the effect of *scope asymmetry* on the pitch of Wh-expressions was examined. In this experiment, the two sentences in (13) below were used, which involve a direct Wh-question ((13a)) and an indirect Wh-question ((13b)), respectively.

- (13) a. [CP-M **DO'no** rikisi-ga katta-**no** ]? 'Which sumo wrestler won?'  
           which sumo.wrestler-NOM won-COMP<sub>Wh</sub>
- b. Q: [CP-M [CP-S **DO'no** rikisi-ga katta-**ka** ] kininarima'su-ka ]?  
           which sumo.wrestler-NOM won-COMP<sub>Wh</sub> wonder-COMP<sub>YN</sub>
- A: Ee, soodesune. Kanari kininattyai-masune.  
           yes right highly eager.to.know.

Are you eager to learn which sumo wrestler won while? Yes. Very much so.'

Crucially, the two Wh-interrogative sentences here have virtually identical content and length. Their only difference is whether the involved Wh-scope is matrix or subordinate. The pitch peak of a Wh-expression (henceforth *Wh-peak*) was compared between the two sentences.

The table in (14) summarizes the result of the *t*-test applied to the data obtained in this experiment, where the Wh-expression taking matrix scope is labeled as "Wh<sub>M</sub>" and that taking subordinate scope as "Wh<sub>S</sub>." In this table and all others that will be presented below, all indicated *p*-values are *two-tailed* and rounded to the nearest 1/1000. When *p*-values are smaller than 0.001, they are indicated with an inequality sign.

(14) T-test: Wh <sub>M</sub> > Wh <sub>S</sub>				
	df	t	p (2-tailed)	Δ peak (Hz: Wh <sub>M</sub> minus Wh <sub>S</sub> )
Speaker 1	18	<b>5.795</b>	> <b>0.001</b>	<b>48.40</b>
Speaker 2	18	<b>9.673</b>	> <b>0.001</b>	<b>21.77</b>
Speaker 3	18	<b>4.333</b>	> <b>0.001</b>	<b>14.01</b>
Speaker 4	18	<b>5.617</b>	> <b>0.001</b>	<b>60.13</b>
Speaker 5	18	<b>4.114</b>	<b>0.001</b>	<b>28.63</b>
Speaker 6	18	<b>3.340</b>	<b>0.004</b>	<b>9.32</b>
Speaker 7	18	<b>4.472</b>	> <b>0.001</b>	<b>18.17</b>
Speaker 8	18	<b>2.466</b>	<b>0.018</b>	<b>9.11</b>
Speaker 9	18	<b>5.352</b>	> <b>0.001</b>	<b>13.59</b>
Speaker 10	18	1.960	0.066	5.58

The result shows that nine out of ten speakers showed statistically significant

asymmetry of pitch peak between Wh<sub>M</sub> and Wh<sub>S</sub> — the former is higher than the latter (Wh<sub>M</sub> > Wh<sub>S</sub>).

### 3.2.2 Location asymmetry:

Second, the effect of *location asymmetry* on the pitch of Wh-expressions was examined. In this experiment, the two direct Wh-question sentences in (15) below were used, which involve a Wh-expression in the matrix clause ((15a)) and a Wh-expression in the subordinate clause ((15b)), respectively.

(15) < Food poisoning situation >

a. [<sub>M-CP</sub> kanzya-tati-wa sono mise-de NA'ni-o tabeta-*no* ]?  
 patients-TOP that restaurant-at what-ACC ate-COMP<sub>Wh</sub>  
 'What did the patients eat at that restaurant?'

b. [<sub>M-CP</sub> [<sub>S-CP</sub> kanzya-tati-wa sono mise-de NA'ni-o tabeta-to ] omoimasu-*ka* ]?  
 what-ACCate-COMP<sub>That</sub> think-COMP<sub>Wh</sub>  
 'What do you think the patients are at that restaurant?'

In both sentences, in other words, a Wh-expression takes matrix scope, while the location of these Wh-expressions is distinct. Again the Wh-peak was compared between the two sentences.

The table in (16) summarizes the result of the *t*-test in this experiment, where Wh<sub>M</sub> located in the matrix CP is labeled as "M-CP" and the Wh<sub>M</sub> located in the subordinate CP is labeled as "S-CP."

(16) T-test: M-CP vs. S-CP			
	df	t	p (2-tailed)
Speaker 1	18	0.333	0.743
Speaker 2	18	1.221	0.238
Speaker 3	18	0.341	0.737
Speaker 4	18	1.754	0.096
Speaker 5	18	1.943	0.068
Speaker 6	18	0.677	0.507
Speaker 7	18	1.365	0.189
Speaker 8	18	1.319	0.203
Speaker 9	18	0.221	0.827
Speaker 10	18	1.044	0.31

As the *p*-values here indicate, none of the ten speakers showed statistically significant asymmetry of Wh-peak between the Wh<sub>M</sub> in the matrix CP and the Wh<sub>M</sub> in the

subordinate CP in pitch (M-CP  $\approx$  S-CP).

### 3.2.3 Distance variation:

Third, the effect of *distance variation* on the pitch of Wh-expressions was examined. In this experiment, two Wh-questions were compared which differ from each other in the distance between the Wh-expression and its associated COMP. Such comparison was done between a pair of direct Wh-questions (Wh<sub>M</sub>) as in (17) as well as a pair of indirect Wh-questions (Wh<sub>S</sub>) as in (18). Again the Wh-peak was compared in each pair.

(17) a. [<sub>CP-M</sub> DO'no rikisi-ga katta-**no** ]? (= (13a))

which sumo.wrestler won-COMP<sub>Wh</sub>

'Which sumo wrestler won?'

b. [<sub>CP-M</sub> [<sub>CP-S</sub> DO'no rikisi-ga katta-to ] omoimasu-**ka** ]?

which sumo.wrestler won-COMP<sub>That</sub> wonder-COMP<sub>Wh</sub>

'Which sumo wrestler do you think has won?'

(18) a. Q: [<sub>CP1</sub> Hokenzyo-wa [<sub>CP2</sub> kanzya-tati-ga NA'ni-o tabeta-**ka** ]

Health.Dept-TOP patients-NOM what-ACC ate-COMP<sub>Wh</sub>

tasika'metandesu-ka ]

confirmed-COMP<sub>Y/N</sub>

'Did the Department of Health confirm what the patients ate?'

A: Hai. Sore-wa sudeni kakuninzumi-desu.

yes that-TOP already confirmed

'Yes. That, we have.'

b. [<sub>CP1</sub> Naoto-wa [<sub>CP2</sub> Mama-ga NA'ni-o nyuugaku-no oiwai-ni

Naoto-TOP Mama-NOM what-ACC admission-GEN gift-as

kureru tumori-**ka** ] A'ni-ni tazunete-mita ]

give plan-COMP<sub>Wh</sub> brother-DAT asked

'Naoto asked his elder brother what Mommy was planning to give to him as gift for getting into school.'

The table in (19) summarizes the result of the *t*-test in this experiment, where Wh<sub>M</sub> involving a shorter distance between the Wh-expression and the associated COMP is labeled as "SD" and that involving a longer distance is labeled as "LD."

## (19) T-test:SD &lt; LD

a. Wh <sub>M</sub> : ((17a) vs. (17b))				b. Wh <sub>S</sub> : ((18a) vs. (18b))			
	df	t	p (2-tailed)		df	t	p (2-tailed)
Speaker 1	18	0.701	0.493	Speaker 1	18	0.298	0.769
Speaker 2	18	0.367	0.717	Speaker 2	18	<b>2.839</b>	<b>0.011</b>
Speaker 3	18	0.283	0.78	Speaker 3	18	<b>8.248</b>	<b>&gt; 0.001</b>
Speaker 4	18	1.575	0.133	Speaker 4	18	1.087	0.291
Speaker 5	18	<b>2.265</b>	<b>0.036</b>	Speaker 5	18	<b>2.250</b>	<b>0.037</b>
Speaker 6	18	1.882	0.076	Speaker 6	18	0.373	0.714
Speaker 7	18	<b>3.929</b>	<b>0.001</b>	Speaker 7	18	<b>4.716</b>	<b>&gt; 0.001</b>
Speaker 8	18	1.504	0.15	Speaker 8	18	<b>4.342</b>	<b>&gt; 0.001</b>
Speaker 9	18	<b>3.137</b>	<b>0.006</b>	Speaker 9	18	<b>4.142</b>	<b>0.001</b>
Speaker 10	18	0.480	0.637	Speaker 10	18	0.491	0.63

As the *p*-values here indicate, some speakers showed statistically significant sensitivity to the distance variation in determining the Wh-peak — it is higher when the distance between the Wh-expression and the associated COMP was longer (SD < LD). The contrast between (19a) and (19b) also reveals, however, that such a distance effect is quite erratic and varies both among speakers (Speakers 5, 7, 9 vs. Speakers 2, 3, 8) and sentences ((17) vs. (18)). We also observed above that (15a) and (15b) do not exhibit any significant contrast in Wh-peaks despite the distance variation involved there, as the experimental results in (16) indicated.

To sum up our experimental results, we did observe the following. First, the scope asymmetry of Wh-expressions clearly affects their Wh-peaks (Wh<sub>M</sub> > Wh<sub>S</sub>). Second, the location asymmetry of Wh-expressions does not affect their Wh-peaks (M-CP ≈ S-CP). Finally, variation in the distance between the Wh-expression and the associated COMP seems to affect Wh-peaks (SD < LD) but only erratically.

Among these results, what is worthy of our special attention is the scope asymmetry effect on Wh-peaks (Wh<sub>M</sub> > Wh<sub>S</sub>) we have observed in (13) above. Note especially that the scope asymmetry in Wh-peaks (Wh<sub>M</sub> > Wh<sub>S</sub>) in (13) arises *independently of* the Wh-COMP distance effect. I thus consider that my initial and informal observation on the asymmetrical prosodic prominence of the Wh-focus in *Global FPD* and *Local FPD* is verified. Another observation that I can report, though it is yet to be verified with a formal experiment, is that the asymmetry "Wh<sub>M</sub> > Wh<sub>S</sub>" is phonetically quite similar to the contrast between E-FPD and N-FPD reported on (2) and (1B) above.

The initial informal support for this observation comes when we compare the tables in (20) and (21).

(20)	Range of Wh <sub>M</sub> peak in (13a)	Range of Wh <sub>S</sub> peak in (13b)	Range of Δ peak (Wh <sub>M</sub> minus Wh <sub>S</sub> )
8 male speakers	132.8 ~ 259.5 (Hz)	119.2 ~ 199.4	5.58 ~ 60.13

(21)	E-FPD peak in (2)	N-FPD peak in (1B)	Δ peak (E-FPD minus N-FPD)
YK	225.63 (Hz)	194.17	31.46

The table (20) lists the pitch ranges of: (i) the Wh-peak of Wh<sub>M</sub> in (13a), (ii) the Wh-peak of Wh<sub>S</sub> in (13b), and (iii) their difference in the recordings of all the male speakers in our experiment above. The table (21) lists the average pitch peaks of: (i) E-FPD in (2), (ii) N-FPD in (1B), and (iii) their difference in the ten recordings by the author. Note that all the average peaks of E-FPD, N-FPD and their difference in (21) comfortably fall within the pitch ranges of Wh<sub>M</sub> peak, Wh<sub>S</sub> peak, and their difference in (20). This observation leads us to the hypothesis that the contrast between the focus prosody in Wh<sub>M</sub> and that in Wh<sub>S</sub> is essentially identical to the contrast between F-FPD and N-FPD.

#### 4. Semantics of Wh-focus:

Once such a hypothesis is adopted, we inevitably make a prediction that a Wh-expression taking matrix scope (continuing to be referred to as Wh<sub>M</sub>) is to be interpreted as exhaustive focus while that taking subordinate scope (Wh<sub>S</sub>) is to be interpreted as neutral focus, i.e., the focus which is not necessarily be interpreted as exhaustive while it also has a potential to be interpreted as exhaustive. This final section is devoted to argue for the plausibility of this hypothesis.

##### 4.1 Exhaustive and Neutral Wh-focus

First, Groenendijk and Stokhof (1981,157) claim that the proposition denoted by the complement CP in (22a) below must be exhaustive since the argument presented in (22) can be valid in English.

(22) a. John believes [<sub>CP</sub> that Bill and Suzy walk ].

b. Only Bill walks.

c. John doesn't know [<sub>CP</sub> who walks ].

While they mention only the exhaustiveness of the embedded proposition in (22a) here, their reasoning necessarily leads them to the view that the Wh<sub>S</sub> in (22c) must also be exhaustive.

The situation seems to be quite different, however, when we examine a similar argument in Japanese as in (23).

(23) a. John-wa [<sub>CP</sub> konya-no paatii-ni Mary-to Susan-ga yobareteiru-to ]

John-TOP tonight's party-to Mary-and Susan-NOM invited-that  
sinziteiru.

believe

'John believes that Mary and Susan have been invited to tonight's party.'

b. Mary-wa yobareta-kedo, Susan-wa yobare-nakatta.

Mary-TOP invited-though Susan-TOP was.not.invited

'Mary was but Susan wasn't invited.'

c. John-wa [<sub>CP</sub> konya-no paatii-ni DA're-ga yobareteiru-ka ] sir-anai.

John-TOP tonight's party-to who-NOM invited-COMP<sub>Wh</sub> know-not

'John doesn't know who has been invited to tonight's party.'

Here, the argument is deemed invalid. Japanese speakers feel rather clearly that John still has a partial knowledge of the identity of the invitees, and that it is too strong and inappropriate to simply claim that he does not know who have been invited to tonight's party. The Wh<sub>S</sub> in (23c), in other words, does not seem to have to be interpreted as exhaustive in Japanese.

We can confirm the validity of this intuition when we add a partitive expression *hitori-dake* 'one person only' to (23c), as in (24).

(24) John-wa [ konya-no paatii-ni DA're-ga yobareteiru-ka ] *hitori-dake* sitteiru.

John-TOP tonight's party-to who-NOM invited-COMP<sub>Wh</sub> 1.person-only know

'John knows the identity of only one of the people who have been invited to tonight's party.'

Since the partitive interpretation indicated by the translation is possible, the Wh<sub>S</sub> here must be interpretable as non-exhaustive.<sup>ii</sup>

Interestingly, on the hand, a similar Wh-question becomes incompatible with such a partitive interpretation when it takes matrix scope as in (25), which suggests the exhaustivity of the involved Wh-interrogative expression as focus.<sup>iii</sup>

(25) a. John-wa [ konya-no paatii-ni

John-TOP tonight's party-to

DA're-ga yobareteiru-koto ]-o *hitori-dake* sitteiru-no?

who-NOM invited-fact-ACC one.person-only know-COMP<sub>Wh</sub>

= 'Who does John alone know has been invited to tonight's party?' (Irrelevant)

≠ 'Who is the only one of the guests that John knows has been invited to tonight's party?'

b. DA're-ga *hitori-dake* yobareteiru-no?

who-NOM one.person-only invited-COMP<sub>Wh</sub>

= 'Who is the only one that has been invited to tonight's party?' (Irrelevant)

≠ 'Give me the identity of only one of the guests who have been invited to tonight's party.'

We observe here, in other words, that Wh<sub>M</sub> in general seems to be obligatorily interpreted as exhaustive focus while no such requirement seems to be imposed on Wh<sub>S</sub>. Putting together all the observations so far, we now reach a hypothesis that the prosody-information correlations in Tokyo Japanese Wh-interrogatives as follows. A matrix Wh-question, whether simplex or complex, is prosodically accompanied by *E*-FPD and semantically interpreted as *exhaustive* focus. A subordinate Wh-question, on the other hand, is accompanied by *N*-FPD and interpreted as *neutral* focus.

This hypothesis can be further supported when we analyze a paradigm as in (26).

(26) a. [<sub>CP</sub> DA're-ga *sankasuru-ka*] *daitai* wakatteimasu.

who-NOM participate-COMP<sub>Wh</sub> mostly know

'We mostly know who will participate.'

= 'We know the identity of *most of whom* that will participate.'

b. DA're-ga *daitai* sankasimasu-ka?

who-NOM mostly participate-COMP<sub>Wh</sub>

= 'Who will participate in most events?' (Irrelevant)

≠ '*Most of whom* will participate?'

c. *Sannensee-wa* *daitai* sankasimasu.

3rd.grader-TOP mostly participate

= '*Most of the third graders* will participate.'

What we observe in (26a) reminds us of the Quantificational Variability Effects (QVE) discussed in the semantics literature like Berman (1991), Lahiri (2002), and Beck and Sharvit (2002), in which an adverb of quantification in the matrix clause appears to quantify over answers to the embedded question (or subquestions). Since the adverb in question is a partitive expression *daitai* 'mostly', this amounts to the observation that the subordinate Wh-interrogative in (26a) and its answer need not be interpreted as inducing

exhaustive focus. A crucial new observation we can add here is that a similar interpretive effect is not available when the involved Wh-interrogative takes matrix scope as in (26b). We witness here, in other words, the matrix-subordinate asymmetries of QVE between Wh<sub>S</sub> and Wh<sub>M</sub>. We can confirm that the interpretive asymmetry in question is induced by Wh-interrogation when we eliminate a Wh-interrogative expression from (26b) as in (26c) and see that the partitive interpretation is permitted. Both "subordinate-matrix" asymmetry and "Wh-NonWh" asymmetry here can be correctly captured when we assume that the "Wh<sub>M</sub>-focus" is obligatorily exhaustive while "Wh<sub>S</sub>-focus" is not, and only the former is incompatible with the partitive adverbial expression. Note also that partitivity is compatible with (26b) when it does not restrict the Wh-focus, which provides the interpretation irrelevant to our investigation.

The neutrality of "Wh<sub>S</sub>-focus" can be also demonstrated when we see that it is compatible either with a partitive expression *hitori-dake* 'one person only' as in (27a) or with an exhaustive expression *hitori-nokorazu* 'without leaving anyone out' as in (27b).<sup>iv</sup>

- (27) a. [<sub>CP</sub> reesu-ni DA're-ga sankasuru-ka ]     *hitori-dake* wakatteimasu.  
           race-in who-NOM participate-COMP<sub>Wh</sub> one-only     known  
           'We know of only one of the people who are participating in the race.'
- b. [<sub>CP</sub> reesu-ni DA're-ga sankasuru-ka ]     *hitori-nokorazu* osiete-kudasai.  
           race-in who-NOM participate-COMP<sub>Wh</sub> all.of.them     tell.us  
           'Please inform us of everyone that will participate in the race.'

#### 4.2 Potential Counterexamples and Restricted Exhaustivity:

There are some sentences which strike us as counterexamples to our hypothesis above.<sup>v</sup> First, the acceptability of the sentence in (28) below provides us with the impression that Wh<sub>M</sub> need not be interpreted as exhaustive focus.

- (28) *Tatoeba*,     DA're-ga sankasimasu-ka?  
           for.instance who-NOM participate-COMP<sub>Wh</sub>  
           'For instance, who will participate?'

Here, the interpretation of *tatoeba* 'for instance' apparently involves partitivity, and hence is expected to be incompatible with the exhaustivity of Wh<sub>M</sub>, contrary to the fact.

I believe, however, that the problem here is only apparent. Observe first a matrix Wh-question as in (29), which is accompanied by a topic phrase.

- (29) *Sannensee-wa* DA're-ga sankasimasu-ka?  
           3rd.grader-TOP who-NOM participate-COMP<sub>Wh</sub>  
           'Among the third-graders, who will participate?'

Here, the topic phrase *sannensee-wa* 'third grader-TOP' indicates a temporary pragmatic restriction imposed by the addresser, and the Wh-question requests the exhaustive answer within this restriction — "limiting ourselves to the third graders, please provide an exhaustive list of the people who will participate." The answer here therefore need not provide the exhaustive list of participants in the strictest sense, which may include, for instance, second-graders. *Dare* 'who' in (29) therefore can be regarded as a Wh<sub>M</sub>-focus inducing *restricted exhaustivity*. In fact, using the Wh-question in (29), we can make a paradigm similar to (26) above which exhibits both "subordinate-matrix" asymmetry and "Wh-NonWh" asymmetry:

- (30) a. [<sub>CP</sub> *Sannensee-wa* DA're-ga *sankasuru-ka*] *daitai* wakatteimasu.  
 3rd.grader-TOP who-NOM participate-COMP<sub>Wh</sub> mostly know  
 = 'We know the identity of most of the third-graders that will participate.'
- b. *Sannensee-wa* DA're-ga *daitai* *sankasuru-no*?  
 3rd.grader-TOP who-NOM mostly participate-COMP<sub>Wh</sub>  
 = 'Who among the third-graders will participate *in most events*? (Irrelevant)  
 ≠ 'Give me the identity of *most of the third-graders that will participate*.'
- c. *Sannensee-wa* *dansi-ga* *daitai* sankasimasu.  
 3rd.grader-TOP boys-NOM mostly participate  
 = 'Among the third graders, *most of the boys* will participate.'

Here, the Wh-question in (29) becomes compatible with a partitive expression *daitai* 'mostly' when it is embedded as in (30a) while it is still incompatible in the matrix as in (30b). No such restriction is observed, on the other hand, even in the matrix clause when the Wh-expression is eliminated as in (30c). We can confirm, in other words, that the Wh<sub>M</sub> in (29) involves exhaustive focus, though this focus is of a "restricted" kind.

Returning now to (28), I would like to point out that this sentence can be analyzed in a similar way as in (29). The expression *tatoeba* 'for instance' represents the *restricted* domain of *exhaustivity* imposed by the addresser — "Limiting yourself to a small portion of the entire participants, please provide the list of those participants." Here as well, exhaustivity is imposed but only on the restricted small number *of the addressee's choice*. Once again, we can confirm that the Wh-expression in (28) induces exhaustive focus when we observe a "subordinate-matrix" asymmetry as in (31) below concerning its compatibility with a partitive expression *hitori* 'one person'.

- (31) a. [<sub>CP</sub> *Tatoeba*, DA're-ga *sankasuru-ka*] *hitori* agetemite-kudasai.  
 for.instance who-NOM participate-COMP<sub>Wh</sub> one.person mention  
 'Please mention one of the people, for instance, who are participating.'

- b. *Tatoeba*, DA're-ga *hitori* sankasimasu-ka?  
 for.instance who-NOM one.person participate-COMP<sub>Wh</sub>  
 ≠ 'For instance, who is one of those who participate?'

*Dare* 'who' as Wh<sub>S</sub> in (31a) induces neutral focus and is compatible with *hitori*, while *dare* as Wh<sub>M</sub> in (31b) induces "restricted exhaustive focus," and is incompatible with *hitori*.

Another potential problem arises when we observe that the Wh<sub>M</sub> in (32A) below seems to permit a partitive interpretation since it can be answered as in (32B), which obviously does not provide the exhaustive list of the possible answers.

- (32) A: JR-no zikokuhyoo-wa DO'ko-de kaemasu-ka?  
 JR-GEN schedule-TOP where-at available  
 'Where can we buy a (train) schedule for Japan Railways?'  
 B: Soko-no eki-mae-no honyasan-de kaemasuyo.  
 right.there station.front book.store-at available  
 'You can buy it at the bookstore in front of the station right there.'

We may consider, however, that (32) also induces restricted exhaustivity, assuming that the question here involves a *tacit pragmatic restriction* equivalent to *kono-hen-dewa* 'around here' as in (33).

- (33) (Kono-hen-de-wa) JR-no zikokuhyoo-wa DO'ko-de kaemasu-ka?  
 here.around-TOP JR-GEN schedule.book-TOP where-at available-COMP<sub>Wh</sub>  
 'Where can I buy JR's (train) schedule book (around here)?'

Once again, a partitive expression *ikkasyo-dake* 'only one location' is incompatible with the restricted exhaustiveness of the Wh<sub>M</sub>-focus *doko* 'where' in this sentence, as shown in (34a).

- (34) a. (Kono-hen-de-wa) JR-no zikokuhyoo-wa DO'ko-de *ikkasyo-dake* kaemasu-ka?  
 = '??What is the location around here where JR's schedule book is exclusively purchasable.' (Irrelevant)  
 ≠ 'Please show me only one of the locations you know around here where we can buy JR's schedule book.'  
 b. [<sub>CP</sub> (Kono-hen-dewa) JR-no zikokuhyoo-ga DO'ko-de kaeru-ka ]  
 around.here JR-GEN schedule.book-NOM where-at available-COMP<sub>Wh</sub>  
*ikkasyo-dake*-demo wakareba suguni kaniik-aseru-nodaga.  
 even.one.place if.known right.away send.someone.to.buy-though  
 'If even one place were known where we can buy JR's schedule book, I would send someone there to buy one!'

When we embed the Wh-question in (33) as in (34b), on the other hand, it can be restricted by the same partitive expression without any problem.

Finally, when we alter the word order in (26b) as in (35) below, the partitive expression *daitai* seems to become compatible with Wh<sub>M</sub>.

- (35) *Daitai*,            DA're-ga sankasimasu-ka?  
 approximately who-NOM participate-COMP<sub>Wh</sub>  
 = 'Roughly speaking, who do you expect to participate?'  
 ≠ 'Please tell me the identity of *most of whom will participate*.'

It seems to be the case, however, that *daitai* here does not indicate the partitivity of Wh-focus but is associated with the utterances a whole and means something like "roughly speaking." In this sense, we may consider that *daitai* 'approximately' here is inducing restricted exhaustiveness. In fact, when a partitive expression cannot fulfill such a "speech-act-like" function, no similar reordering effect arises:

- (36) *Hitori-dake*        DA're-ga sankasimasu-ka?  
 one.person-only who-NOM participate-COMP<sub>Wh</sub>  
 = 'Who is the lone participant?' (Irrelevant)  
 ≠ 'Please tell me the identity of *only one of whom will participate*.'

## 5. Conclusions and Possible Syntactic Analyses

In this paper, I have argued for the existence of prosody-information correlations in Tokyo Japanese for focus in general and then for Wh-focus in particular. First, the general correlation between extraordinary focus prosody and *exhaustive* focus interpretation was pointed out. It was further argued that this correlation obligatorily holds for a matrix Wh-question but not for a subordinate Wh-question, the latter of which is accompanied by a more neutral type of focus prosody and is interpreted as a focus that is *neutral* as to its exhaustivity. Descriptively speaking, we have pointed out that obligatory exhaustivity is a matrix phenomenon of Wh-focus.

If this generalization is correct, we must not only identify a syntactic locus of exhaustivity that is available in every Wh-question but also make its appearance in its matrix clause obligatory. This task may be achieved with the following analysis, though its full development must be left for future work. First, we assume that the exhaustive focus operator feature ( $Ex_F$ ) is lexically introduced to the head of the domain of an exhaustive focus interpretation, and comes to be associated with the focus item in this domain at LF, as indicated in (37).<sup>vi</sup>

- (37) [CP [IP Kyoo-wa **ME'arii<sub>F</sub>-ga** kimasita ]  $\emptyset_{\text{COMP-EX}_F}$ ] (= (2))  
 today-TOP Mary-NOM came 'No one else but **MARY** came today.'

We then capture the obligatory appearance of  $EX_F$  in matrix Wh-questions by postulating a *performative* interrogative predicate  $\emptyset_{ASK}$  in the matrix context as in (38a) below, and assuming that it has a selectional property "+[ $EX_F$ ]."

- (38) [CP [IP **DA're<sub>F</sub>-ga** sankasimasu ] **ka-EX<sub>F</sub>**] ]  $\emptyset_{ASK}$ ? 'Who will participate?'  
 who-NOM participate COMP<sub>Wh</sub> +[ $EX_F$ ]

The contrast in (39) below provides initial support to this analysis.

- (39) a. [CP DA're-ga sankasuru-ka ] **hitori-dake** **sittei**-masu.  
 who-NOM participate-COMP<sub>Wh</sub> one-only know  
 'I know the identity of only one of the people who will participate.'  
 b. [CP DA're-ga sankasuru-ka ] **hitori-dake** **tazune**-masita.  
 who-NOM participate-COMP<sub>Wh</sub> one-only asked  
 = 'I alone asked who will participate.'  
 ≠ 'I asked the identity of only one of the people who will participate.'

While the partitive interpretation of *hitori-dake* 'one person only' is compatible with  $Wh_S$  when this clause is selected by the matrix predicate *sittei* 'know' as in (39a), it becomes unavailable when  $Wh_S$  is selected by *tazune* 'ask' as in (39b). Under the proposed analysis, the interpretive restriction in (39b) can be reduced to a similar restriction involving  $Wh_M$  as in (38) since (39b) also involves a higher predicate selecting an interrogative COMP accompanied by the feature  $EX_F$ , as illustrated in (40).

- (40) [CP [IP DA're<sub>F</sub>-ga sankasuru ] **ka-EX<sub>F</sub>**] **hitori-dake** **tazunemasita**.  
 one.person asked (+[ $EX_F$ ])

Extending the syntactic structure of the clause periphery a little further, we may also be able to consider that "restricted exhaustivity" discussed in 4.2 above is induced when partitive expressions (e.g., *tatoeba* 'for instance' in (28) and *daitai* 'roughly speaking' in (35)) are placed within a Topic phrase located outside the scope of the speech act QUEST and become topical just as *sannensee-wa* 'third graders-TOP' in (29) is, as illustrated in (41). (cf. Krifka (2001) and Kitagawa, et al. (2004))

- (41) [TOP P **Tatoeba** TOP ] [[QUEST] [ **DA're<sub>F</sub>-ga** sankasimasu-**ka-EX<sub>F</sub>** ]  $\emptyset_{ASK}$  ]?  
 for.instance who-NOM participate-COMP<sub>Wh</sub>

'For instance, who will participate?'

Evidently, more substantial investigation is necessary to support these syntactic analyses more fully.

## Notes

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<sup>i</sup> Kitagawa (2008) provides examples which demonstrate that an informative item ([+Info]) and a non-informative item ([-Info]) can be distinguished even within a *discoursary all-new phrase*, as a *discourse-given* item in a *topic* phrase, and even when a clear *focus* exists *elsewhere* in the same utterance.

<sup>ii</sup> When we place the partitive *hitori-dake* 'one person only' within the subordinate clause, an interesting asymmetry arises depending on its position as in (i) and (ii).

(i) John-wa [ konya-no paatii-ni *hitori-dake* DA're-ga yobareteiru-ka ] sitteiru.

(ii) John-wa [ konya-no paatii-ni DA're-ga *hitori-dake* yobareteiru-ka ] sitteiru.

(i) seems to permit the interpretation indicated in (24) in addition to the irrelevant interpretation 'John knows the identity of the only one person that has been invited to tonight's party,' while (ii) does not. I leave this as an unsolved mystery. Possibly, *hitori-dake* and the adjunct PP preceding it each has been moved to the matrix.

<sup>iii</sup> The interpretive asymmetry mentioned in footnote ii does not arise even when we place the partitive *hitori-dake* in the subordinate clause here:

(i) John-wa [ konya-no paatii-ni *hitori-dake* DA're-ga yobareteiru-koto ]-o sitteiru-*no*?

(ii) John-wa [ konya-no paatii-ni DA're-ga *hitori-dake* yobareteiru-koto ]-o sitteiru-*no*?

Both of (i) and (ii) also reject the partitive interpretation rejected in (25a), further demonstrating the asymmetry between Wh<sub>M</sub> and Wh<sub>S</sub>.

<sup>iv</sup> We should therefore consider that the correlation between *E-FPD* and exhaustive focus is unidirectional (*E-FPD* → exhaustive focus), not bidirectional.

<sup>v</sup> I am grateful to Satoshi Tomioka and Chris Tancredi for bringing up and discussing the potential counterexamples in this section.

<sup>vi</sup> I tentatively introduce *Ex<sub>F</sub>* under COMP without making a commitment to this particular choice.

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# A Puzzle of Contrastive *Wa* in Japanese\*

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## Abstract

Contrary to the disambiguation in the German contrastive topic construction, the contrastive *wa*-particle in Japanese apparently makes an unambiguous sentence ambiguous: its association with a universal *subete-no*-NP can shift its scope under negation. This paper shows, however, that the wide scope negation by its association is apparent, and no scope shifting takes place in the sentence. In addition, a puzzle arises if the semantics of a sentence with *wa* is computed: contrary to our intuition, its ordinary semantic value cannot derive the apparent wide scope negation as long as the associated *subete-no*-NP is postulated as a universal quantifier. To resolve the conflict, this paper proposes that the associated *subete-no*-NP is not a universal quantifier but denotes the name of a particular individual. According to the study on plurality, an NP can denote a structured set that contains both atomic and plural individuals. If the associated *subete-no*-NP denotes the name of the maximal individual in the set, the ordinary semantic value of a sentence with *wa* does not contradict the apparent wide scope negation.

**Keywords:** *wa*, alternative semantics, contrastive topic construction, scope, plurality.

## 1. Introduction: contrastive *wa*

Japanese has a rich system of focus morphology: association of focus particles such as *mo*, *dake*, *sae*, and so on triggers effects that are similar to the focus effects displayed by ‘also’, ‘only’, ‘even’, etc. Among them, this paper focuses its attention on *wa*. It is widely assumed that associating the *wa*-particle can induce contrast (see Kuno 1973; Kuroda 2005; among others). Consider the sentences in (1). Both (1b) and (1c) are supposed to be answers to the question (1a). In (1b), the speaker asserts that s/he

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knows that John came, and, at the same time, s/he can implicate, for example, that s/he does not know about other potential attendees. On the other hand, the utterance (1c) can be a complete answer that carries no implicature.

- (1) a. dare-ga paatii-ni ki-ta ka?  
 who-NOM party-DAT come-PAST Q  
 “Who came to the party?”
- b. John-wa ki-ta.  
 John-CTOP<sup>1</sup> come-PAST  
 “As for John, he came.”
- c. John-ga ki-ta.  
 John-NOM come-PAST  
 “John came.” (Hara to appear)

### 1.1. Apparent scope inversion by contrastive *wa*

One of the peculiarities of contrastive *wa* is that it is apparently involved in scope phenomena. Consider the sentences in (2) that have *subete-no*-NP and negation in the same clause.<sup>2</sup> Many previous studies of Japanese assume that *subete* corresponds to ‘all,’ though I later reject this assumption. It is reported that, in Japanese, negation tends to take wider scope than *subete* in the same clause (see Kuno 1980; cf. Miyagawa 2001; Yatabe 1995). I assume that (2) only means the narrow scope negation with respect to the universal *subete-no*-NP: it is not true in the situation in (3b), but is true in (3a). Given this, its meaning description seems closer to (4a) than (4b).

- (2) John-ga *subete-no-gakusei-ni* LGB-o  
 John-NOM all-GEN-student-DAT LGB-ACC  
 yom-ase-nakat-ta (koto)  
 read-CAUSE-NEG-PAST (fact)
- (3) a. John has exactly four students. John let none of them read LGB.  
 b. John has exactly four students. John let only two of them read LGB.

<sup>1</sup> See Footnote 3.

<sup>2</sup> It is often assumed that *nai* is (truth functional) negation  $\neg$  in Modern Japanese. To avoid any confusion by readers, this paper adopts this assumption. However, the assumption seems unwarranted, and, in fact, I refute it in Furukawa (2008).

- (4) a. all > ¬ “for all students, John did not let them read LGB.”  
 b. ¬ > all “It is not the case that, for all students, John let them read LGB.”

- (5) a. John-ga        *subete-no-gakusei-ni-wa*        LGB-o  
       John-NOM    all-GEN-student-DAT-FOC<sup>3</sup>    LGB-ACC  
       yom-ase-*nakat-ta*                    (koto)  
       read-CAUSE-NEG-PAST    (fact)
- b. [John-ga        *subete-no-gakusei-ni*        LGB-o  
    [John-NOM    all-GEN-student-DAT    LGB-ACC  
    yom-ase-ta]-no-de-**wa**                    *nai*.  
    read-CAUSE-PAST]-NML-CPL-FOC    NEG

To express a reading similar to wide scope negation (4b), Japanese associates the contrastive *wa*-particle<sup>4</sup> either directly with *subete-no*-NP as shown in (5a) (see Hara to appear; Nakanishi 2007), or with the final position of the sentence excluding negation, though its association in the latter case has *no-de* intervening, as shown in (5b).<sup>5</sup>

<sup>3</sup> Since the following discussions are based on focus semantics, the contrastive *wa*-particle in the following examples is glossed as FOC ‘focus’, though some previous studies gloss it as (C)TOP ‘(contrastive) topic’, as shown in (1b) (see Hara to appear; Nakanishi 2007).

<sup>4</sup> Those who are familiar with the previous studies of *wa*-particle might raise the following question. It is often assumed (see Kuno 1973; Nakanishi 2007; cf. Kuroda 2005) that *wa* is (apparently) ambiguous between contrastive and non-contrastive/‘topic’ aspects. Here, I have to show that *wa* in (5) is really contrastive. To verify whether or not their *was* are really contrastive, Kuroda (2005) proposes one diagnostic: if a sentence with *wa* is embedded in a conditional such as *mosi...ta/na-ra*, only its contrastive reading emerges. This seems to be the case, as shown in (i). Note, however, that, to avoid any complication, and also, to focus our attention on the scope relation between *subete-no*-NP and negation, the examples in this paper ignore *mosi...ta/na-ra*. Note that Nakanishi (2007) also provides a phonological diagnostic to distinguish them. She reports that the contour of a sentence with contrastive *wa* significantly differs from that of a sentence with non-contrastive *wa*.

- (i) (mosi) John-ga        *subete-no-gakusei-ni-wa*        LGB-o  
       (if)    John-NOM    all-GEN-student-DAT-FOC    LGB-ACC  
       yom-ase-*nakat-ta(-ra)*...  
       read-CAUSE-NEG-PAST(-COND)

<sup>5</sup> One might wonder whether or not the scope phenomenon here is inherent to the subject of the caused event in Japanese. As far as I can see, it is observable in several places in Japanese. In (i), *subete-no*-NP occupies the object position of the embedded clause. Since it is true in (iia) but false in (iib), it seems to unambiguously mean narrow scope negation (iia). Once its *subete-no*-NP is contrasted by *wa*, the wide scope

Here, I have three things to note. First, Section 1.2 suggests that the wide scope negation intended in (5) requires ‘relevant’ alternatives: unless the discourse designates such alternatives, (5) still means narrow scope negation. Second, scope relation in German is also affected by contrast, and some previous studies on contrastive *wa* try to assimilate the apparent scope shifting induced by contrastive *wa* with the German scope phenomenon. Section 1.3 insists, however, that the former basically differs from the latter. Finally, one might think that wide scope negation is available in (5) since *wa* can shift the scope of the associated quantifier under the scope of negation. However, Section 1.4 shows that the wide scope negation intended in (5) is apparent since *wa* does not shift the scope of the associated quantifier.

### 1.2. Relevant alternatives

It is not necessary that (5) unambiguously express wide scope negation. In fact, the association of *wa* with *subete-no-NP* seems to make the unambiguous sentence ambiguous: (5) seems to have both narrow and wide scope negation.

In addition, narrow and wide scope negation in (5) are highly context dependent. As generally required by sentences with focus, both (5a) and (5b) require sets of

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negation (iiib) emerges in (iv). Note that the following discussions do not consider the contrast between (i) and (iv): comparison between them seems unfair due to the presence/absence of the Accusative Case marking.

- (i) John-ga Mary-ni (LI.22-no-)subete-no-ronbun-o  
 John-NOM Mary-DAT (LI.22-GEN-)all-GEN-article-ACC  
 yom-ase-nakat-ta (koto)  
 read-CAUSE-NEG-PAST (fact)
- (ii) a. LI 22 has exactly ten articles. Among its ten articles, John let Mary read none of them.  
 b. LI 22 has exactly ten articles. John let Mary read eight of them. However, he did not let her read the rest of them.
- (iii) a.  $\text{all} > \neg$  “for all articles (in LI 22), John did not let Mary read them.”  
 b.  $\neg > \text{all}$  “It is not the case that, for all articles (in LI 22), John let Mary read them.”
- (iv) a. John-ga Mary-ni (LI.22-no-)subete-no-ronbun-wa  
 John-NOM Mary-DAT (LI.22-GEN-)all-GEN-article-FOC  
 yom-ase-nakat-ta (koto)  
 read-CAUSE-NEG-PAST (fact)  
 b. [John-ga Mary-ni (LI.22-no-)subete-no-ronbun-o  
 [John-NOM Mary-DAT (LI.22-GEN-)all-GEN-article-ACC  
 yom-ase-ta]-no-de-wa nai.  
 read-CAUSE-PAST]-NML-CPL-FOC NEG

‘relevant’ alternative propositions that may be contextually determined,<sup>6</sup> and the wide scope negation intended by them depends on the design of the sets. For example, if discourse designs a set of alternatives as in (6a), (5a) is false in the situation (3a) but true in (3b).<sup>7</sup> On the other hand, if discourse designs a set of alternatives as (6b), it can be true in (3a). These seem to suggest that its wide scope negation is intended merely as an implicature.

- (6) a. {for all 1st year students John let them read LGB, for all 2nd year students John let them read LGB, for all 1st and 2nd year students John let them read LGB...}  
 b. {for all professors John let them read LGB, for all postdocs John let them read LGB, for all TAs John let them read LGB...}

### 1.3. German contrastive topic differs from contrastive *wa*.

German has a similar scope phenomenon to the apparent scope shifting by contrastive *wa*. In fact, some previous studies try to assimilate it with the German scope phenomenon (see Hara to appear; Nakanishi 2007). The following presents an outline of the German contrastive topic construction.

It is reported that, with unmarked stress, the universal quantifier *alle* ‘all’ can take both wider and narrower scope than negation *nicht* (see (7a)). Once its universal quantifier has contrastive contour, only the narrower scope reading of *alle* is available, as shown in (7b) (see Büring 1997; Krifka 1998; among others).<sup>8</sup>

- (7) a. Alle Politiker sind nicht korrupt.  
 all politicians are not corrupt  
 $\sqrt{\forall} > \neg$  “For all politicians, it is not the case that they are corrupt.”  
 $\sqrt{\neg} > \forall$  “It is not the case that all politicians are corrupt.”

<sup>6</sup> Contrary to (5), (2) doesn’t require a set of alternatives. In fact, recent studies on *wa* assume this, and provide analyses based on focus semantics (see Section 2).

<sup>7</sup> Since how to design a set of relevant alternatives for the intended wide scope negation is part of the puzzle that is mentioned later, I do not mention it until Section 4.

<sup>8</sup> Previous studies on the construction report that the contrasted *alle* in (7b) has a rise contour. They assume that the rise contour is a topic contour in German. They further report that, at the same time, (7b) has a fall contour on *nicht*. Some of the studies assume that its fall contour is a focus contour in German. For further details on the construction, see Büring (1997), Krifka (1998), and among others.

- b. )ALLE Politiker sind NICHT\ korrupt.  
 $*\forall > \neg, \sqrt{\neg} > \forall$  (Büring 1997; see also Krifka 1998; Nakanishi 2007)

Although previous studies on German give several analyses to the disambiguation in (7b), I do not discuss details of these analyses here since the main issue of this paper is independent of the issues of the German contrastive topic construction. Nevertheless, I would like to insist here that what is going on in the apparent scope shifting by contrastive *wa* seems completely different from the disambiguation in the German contrastive topic construction: while the latter decreases the number of its possible readings as exemplified in (7), the former seems to increase the number of possible readings, as observed earlier. Therefore, I believe that the former should not be analyzed exactly in the same way as the latter.

#### 1.4. No scope shifting takes place.

Given the availability of wide scope negation, one might think that, since *wa* can shift the scope of its associated quantifier under the scope of negation, (5) is ambiguous. I insist, however, that no scope shifting takes place in (5). Consider the sentences in (8) that contain a disjunction phrase and negation.

- (8) a. John-ga [Bill ka Mary]-ni LGB-o  
 John-NOM [Bill or Mary]-DAT LGB-ACC  
 yom-ase-nakat-ta (koto)  
 read-CAUSE-NEG-PAST (fact)
- b. John-ga [Bill ka Mary]-ni-**wa** LGB-o  
 John-NOM [Bill or Mary]-DAT-FOC LGB-ACC  
 yom-ase-nakat-ta (koto)  
 read-CAUSE-NEG-PAST (fact)
- c. [John-ga [Bill ka Mary]-ni LGB-o  
 [John-NOM [Bill or Mary]-DAT LGB-ACC  
 yom-ase-ta]-no-de-**wa** nai.  
 read-CAUSE-PAST]-NML-COL-FOC NEG

As shown in the truth table in (10), it is reported e.g. by Goro (2003) that (8a) never has wide scope negation.<sup>9</sup> If the disjunction phrase is contrasted by *wa*,

<sup>9</sup> It seems to me that (8a) can be true in the situation where both (9a) and (9b) are

however, the scope of disjunction is still higher than negation in (8b), as indicated in the table in (10).

- (9) a. John let Bill read LGB.  
b. John let Mary read LGB.

(10)

	true in (9a) & true in (9b)	true in (9a) & false in (9b)	false in (9a) & true in (9b)	false in (9a) & false in (9b)
(8a)	false	true	true	#
(8b)	false	true	true	true
(8c)	true	false	false	true

This seems to suggest that *wa* has no ability to shift the scope of the associated quantifier, and hence, the intended wide scope negation in (5) is apparent.<sup>10</sup> Given this, Section 4 claims that a different meaning description gives (5) the impression that its intended meaning is wide scope negation.

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false. Nevertheless, however, it seems infelicitous in this situation, as indicated in the truth table (10). Its infelicity seems to be partly due to the preference of ‘stronger’ statements such as the utterances in (i).

- (i) a. John-ga [Bill-to-Mary]-ni LGB-o  
John-NOM [Bill-and-Mary]-DAT LGB-ACC  
yom-ase-nakat-ta (koto)  
read-CAUSE-NEG-PAST (fact)
- b. John-ga [Bill-ni-mo Mary-ni-mo] LGB-o  
John-NOM [Bill-DAT-also Mary-DAT-also] LGB-ACC  
yom-ase-nakat-ta (koto)  
read-CAUSE-NEG-PAST (fact)

“(the fact that) as for Bill and Mary, John did not let them read LGB.”

<sup>10</sup> Bernhard Schwarz (p.c.) points out to me that (8) does not necessarily show that *wa* does not shift the scope of the associated *subete-no*-NP in (5) if the wide scope disjunction in (8a) and (8b) is due to the idiosyncratic nature of *ka* (the disjunction marker in Japanese), such as bearing positive polarity. In fact, Goro (2003) provides an analysis in this line. Although I have objections to Goro’s claim, I postpone my objections to another occasion due to space limitations.

## 2. Semantics of Focus

As mentioned in Section 1.3, recent studies agree that the meaning of a sentence with contrastive *wa* requires (a set of) alternative propositions. Given this, these studies basically follow alternative semantics that crucially uses a set of alternative propositions to compute the meaning of a sentence with focus (though some of the studies do not consider contrastive *wa* to be a focus-particle but instead a topic-particle). The following presents the essential parts of alternative semantics.

Despite a long debate, previous studies on the semantics of focus basically agree on the two conditions listed in (11). The alternative semantics that was largely developed by Rooth (1985; 1996) nicely incorporates them into the semantic description of a sentence with focus, as defined in (12).

- (11) a. Association of focus does not change the truth value.  
b. Focus introduces a set of alternatives. (Rooth 1996)

- (12) *alternative semantics*: the meaning of focus consists of...  
a. an ordinary semantic value of the proposition and  
b. a set of its alternative propositions. (Rooth 1996)

An ordinary semantic value and the alternative propositions are defined based on the guideline in (13). Given (12) and (13), the semantics of the sentence (14a) can be defined as (14b-c).

- (13) a. The ordinary semantic value of a sentence with focus is identical to the semantic value of its focus-less counterpart.  
b. An alternative proposition is obtained by making substitutions in the position of the focused phrase.

- (14) a. John introduced Bill to [Sue]<sup>F</sup>  
b. ordinary semantic value: the semantic value of “John introduced Bill to Sue”  
c. set of alternatives: the set of propositions of the form “John introduced Bill to *z*” (see Rooth 1996)

Since I also assume that the meaning of a sentence with contrastive *wa* requires (a set of) relevant alternatives, I adopt these basics of alternative semantics. When

alternative semantics is applied to (5a), however, one problem arises.

### 3. The puzzle

Consider (5a), repeated in (15a).<sup>11</sup> As mentioned earlier, we definitely have an intuition that the utterance (15a) can be true in the situation (3b), repeated in (15c).

- (15) a. John-ga            *subete-no-gakusei-ni-wa*    LGB-o  
           John-NOM    all-GEN-student-DAT-FOC   LGB-ACC  
           *yom-ase-nakat-ta*                    (koto)  
           read-CAUSE-NEG-PAST    (fact)
- b. John has exactly four students. John let none of them read LGB.  
 c. John has exactly four students. John let only two of them read LGB.

Based on alternative semantics, let us define the ordinary semantic value of (15a). If its ordinary semantic value is the same as the value of (4a), repeated in (16a), the intended wide scope negation in (15a) is not obtainable since, contrary to our intention, (15a) would be false in (15c). The wide scope negation is not obtainable either if its ordinary semantic value is the same as the value of (16b) that considers the case where *nai* in (15a) somehow does not work as truth functional negation but as a kind of pragmatic negation, such as meta-linguistic negation.<sup>12</sup>

- (16) a. “for all students, John did not let them read LGB.”                    (all>¬)  
       b. “for all students, John let them read LGB.”  
       c. “It is not the case that, for all students, John let them read LGB.”    (¬>all)

<sup>11</sup> As for (5b), see Footnote 12.

<sup>12</sup> Contrary to truth functional negation, Horn (1989) reports that it is not necessary that meta-linguistic negation changes the truth value of a proposition. I suspect that Japanese also has meta-linguistic negation (see also Horn 1989). A piece of evidence for it is the truth of (8c) in the situation where John let both Bill and Mary read LGB, as observed in the truth table (10). Its truth in the situation suggests that the truth of its nonnegative counterpart (i) is not falsified by the presence of negation in (8c). Note that there is little understood not only about meta-linguistic negation in Japanese but also about meta-linguistic negation in general. Hence, this paper avoids discussing the semantic value of (5b) since it may involve such pragmatic factors.

(i) John-ga    [*Bill ka Mary*]-ni    LGB-o    *yom-ase-ta*                    (koto)  
       John-NOM [Bill or Mary]-DAT LGB-ACC read-CAUSE-PAST    (fact)  
       “(the fact that) John let Bill or Mary read LGB.”

On the other hand, if the ordinary semantic value of (15a) is the same as the value of (4b), repeated in (16c), its truth in (15c) is apparently predicted. Nevertheless, however, several problems arise. First, as mentioned earlier, it is assumed in (11a) that focus does not change the truth value, and hence, the ordinary semantic value of (15a) should be identical to the semantic value of the sentence without focus. However, its focus-less counterpart (2), repeated in (17), never exhibits the wide scope reading of negation.

(17) John-ga     *subete-no-gakusei-ni*     LGB-o  
        John-NOM all-GEN-student-DAT     LGB-ACC  
        *yom-ase-nakat-ta*                     (koto)  
        read-CAUSE-NEG-PAST (fact)

In addition, as observed earlier, *wa* does not shift the scope of the associated quantifier. Finally, previous subsections discuss that the intended wide scope negation (16c) seems to be merely an implicature. If this is correct, the ordinary semantic value of (15a) should not be identical to the value of (16c) since, logically speaking, implicatures should be distinct from what is conveyed (or entailed).

Thus, (15a) seems to have no ordinary semantic value that can be true in the situation (15c). Nevertheless, native speakers of Japanese have an intuition that (15a) can be true in (15c), as observed earlier. This is the puzzle behind (15a).

#### 4. My solution

Suppose that the status of *nai* does not differ in (17) and (15a). As long as *subete-no-NP* were postulated to be a universal quantifier, the three candidates mentioned in (16), i.e.  $\forall\neg\alpha$ ,  $\forall\alpha$ , and  $\neg\forall\alpha$ , would exhaust the logical possibilities for the scope relations between *nai* and *subete-no-NP*. As observed in Section 3, however, none of them is able to predict the truth of (15a) in the situation (15c). The puzzle seems to suggest that no analysis that assumes that *subete-no-gakusei* in (15a) is a universal quantifier corresponding to ‘all students’ can solve the puzzle. Thus, I give up the assumption.

Alternatively, I propose that its *subete-no-gakusei* denotes the name of a particular (plural) individual. Given that, the ordinary semantic value of (15a) can be described as (18).

(18)  $[[\text{let}]](j)(p) = 0$   
 where  $p = \text{read}(\textit{subete-no-gakusei}, \textit{lgb})$

What kind of an individual can it denote? Recent studies on plurality propose that the set denoted by an NP can be a structured set (see Link 1983). Suppose, for example, that the current world has exactly four students, namely Bill, Carl, Mary and Sue. According to the studies, the set denoted by *gakusei* ‘student’ in this world can be defined as in (19), containing not only atomic members such as Bill but also plural members such as Bill+Mary.

(19)  $\{B(\text{ill}), C(\text{arl}), M(\text{ary}), S(\text{ue}), B+C, B+M, B+S, C+M, C+S, M+S, B+C+M, B+C+S, B+M+S, C+M+S, B+C+M+S\}$

Adopting this algebraic view of nominal expressions, I propose (20). Given (20), the value of *subete-no-gakusei* is identified with the value of  $B+C+M+S$  in this world, since it is the maximal member in the set (19).

(20) *Subete-no-NP* can denote the maximal individual in the set denoted by the NP.

Then, suppose that the previous context designates (19) as the generator of alternatives whose members can substitute in the position of the focus-phrase. The set of alternative propositions for (15a) introduced by the context can be described as in (21).

(21)  $\{\text{let}(j, p = \text{read}(B, \textit{lgb})), \text{let}(j, p = \text{read}(C, \textit{lgb})), \text{let}(j, p = \text{read}(M, \textit{lgb})), \text{let}(j, p = \text{read}(S, \textit{lgb})), \text{let}(j, p = \text{read}(B+C, \textit{lgb})), \text{let}(j, p = \text{read}(B+M, \textit{lgb})), \dots\}$

Suppose that, in the situation in (15c), the two students that John let read LGB are Bill and Carl. Since *subete-no-gakusei*, whose value is identified with the value of  $B+C+M+S$  by (20), is basically an independent individual from  $B+C$ , the true alternative proposition ‘ $\text{let}(j, p = \text{read}(B+C, \textit{lgb}))$ ’ no longer contradicts the ordinary semantic value given in (18).

However, one problem arises here. If *subete-no-gakusei* in (17) also denotes the name of the maximal individual, (17) would not be false in the situation in

(15c), contrary to our intuition. Therefore, both the case where *subete-no-gakusei* unambiguously denotes the name of the individual and the case where it is freely ambiguous between an individual and a generalized quantifier seem unlikely. At this moment, I have two speculative solutions to the problem.

One speculative solution is to appeal to the proposal by É Kiss & Gyuris (2003). In fact, they make a similar proposal to the one given here, i.e., a universal quantifier in Hungarian is an individual-denoting expression if it is a contrastive topic. They claim that only a referential expression can be a topic. Given this, the topic universal quantifier must be individuated, since it is often assumed that a universal quantifier is a non-referential expression. As mentioned in Footnote 4, contrastive *wa* superficially has the same form as the form of topic *wa*. If contrastive *wa* also maintains its status as a topic-particle, this speculation might predict that the associated *subete-no*-NP is individuated only in (15a).

The other speculation is to appeal to another possibility. Although I am not sure whether or not it is a tenable assumption, let us assume that either a generalized quantifier in general, or at least a universal *subete-no*-NP, is somehow defective in its ability to create a generator of alternatives. Once a universal *subete-no*-NP is contrasted by *wa*, however, it faces a conflict, since the defective nature of the associated universal *subete-no*-NP cannot satisfy the demand on a set of alternatives called for by contrastive *wa*. My hope is that, to resolve the conflict, the semantic type of the associated universal *subete-no*-NP is lowered from  $\langle et, t \rangle$  to  $\langle e \rangle$ : as suggested by the structured set (19), its individual counterpart can produce a generator of alternatives.

Obviously, however, both speculations have problems.<sup>13</sup> Thus, at this stage, I simply stipulate that *subete-no*-NP is basically a universal quantifier, and that the association of contrastive *wa* lowers the semantic type of the universal *subete-no*-NP from  $\langle et, t \rangle$  to  $\langle e \rangle$  (see also Partee 1987).

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<sup>13</sup> As for the first speculation, whether or not a non-referential expression such as a quantifier can be a topic is less clear. In addition, even if the observation that a non-referential expression cannot be a topic is correct, the reason why it cannot is unclear. As for the second speculation, whether or not a (universal) quantifier can produce a generator of alternatives is unclear. In fact, some previous studies (see Hara to appear; Nakanishi 2007) claim that those propositions whose values are e.g. ‘John let most students read LGB’, ‘John let some students read LGB’, ‘John let few students read LGB’, etc. can be alternative propositions for (15a). To develop the second speculation, I have to prove that none of them can be its alternative propositions.

## 5. Summary and future research

Through the investigation of the semantic value of a sentence with the contrastive *wa*-particle, this paper first observed that no scope shifting takes place in its association with *subete-no*-NP, though the sentence apparently exhibits wide scope negation. In addition, it argued that, contrary to intuition, the *wa*-sentence whose semantic description is computed in terms of alternative semantics cannot express the intended wide scope negation as long as it is assumed that the contrasted *subete-no*-NP is a universal quantifier. To account for the intuition, this paper proposed the alternative that the contrasted *subete-no*-NP can denote the name of the maximal individual in the set denoted by the NP. Other than the problem mentioned in the previous section, however, this proposal seems to face at least one problem.

One might claim that, if (17) is potentially ambiguous between wide and narrow scope negation (and its wide scope negation is absent due to other factors such as pragmatics), the puzzle mentioned in this paper may not be a puzzle anymore.<sup>14</sup>

I have two comments on this claim. First, as observed in Section 1.1, I do not find wide scope negation in (17), and I believe that its unacceptability in the situation in (15c) is not due to pragmatic factors such as felicity, preference and so on, but simply due to its falsity.

Second, some previous studies report that Japanese has a case where a sentence with a universal quantifier and negation exhibits scope ambiguity. At the same time, it is also reported that Japanese has a case where a sentence with both of these elements never exhibits such scope ambiguity (and only has narrow scope negation). For example, Miyagawa (2001) reports that (22a) has no wide scope

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<sup>14</sup> Some previous studies propose a semantics of a sentence with contrastive *wa* whose *wa*-less counterpart is ambiguous between wide and narrow scope negation with respect to the associated universal quantifier (see Hara to appear; Nakanishi 2007). As long as their observations about their *wa*-less sentences are accurate, the puzzle discussed in Section 3 does not seem to arise in their cases. Due to space limitations, this paper does not mention any details of their studies. However, one thing that I would like to note here is the following. As far as I can see, none of the studies verifies whether or not the ambiguity in their *wa*-less sentences is really scope ambiguity. If their intuition that their *wa*-less sentences are true in the wide scope negation case is not due to the scope relation between the two scope bearing elements, but instead due to other reasons, the puzzle may remain even in their cases. I leave further discussions on this issue for future research.

negation over *zen'in*.<sup>15</sup> Once its *zen'in* is followed by contrastive *wa*, however, the implicated wide scope negation emerges. Therefore, I believe that the puzzle is real.

- (22) a. Zen'in-ga sono tesuto-o uke-nakat-ta (yo)  
 all-NOM that test-ACC take-NEG-PAST (PTCL)  
 'All did not take that exam.'  
 $\sqrt{\text{all}} > \text{not}$ ,  $*\text{not} > \text{all}$  (Miyagawa 2001)
- b. (mosi) zen'in-wa sono tesuto-o uke-nakat-ta(-ra)  
 (if) all-FOC that test-ACC take-NEG-PAST(-COND)

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<sup>15</sup> As indicated by the gloss in (22), Miyagawa (2001) assumes that *zen'in* is a universal quantifier corresponding to 'all'. However, whether or not his assumption is tenable seems unclear.

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# The Charter of Regional and Minority Languages as a political factor

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## Abstract

In this paper the genesis of the Charter of Regional and Minority Languages (1992) is discussed briefly, just as the current politico-linguistic situation in a few European languages with respect to the Charter. Especially the position of the Russian speaking minority in the Ukraine, one of the partners of the Charter, is compared with that of the Russian speaking minorities in Latvia and Estonia.

The role and the positive effect of the periodical reports of the Committee of Experts of the Council of Europe is sketched. In the conclusion a possible role of the Strasbourg Court of Justice is foreseen where it comes to strengthening of linguistic rights via case law.

**Reference terms:** Linguistic Rights, Minority Languages, Russian speakers in the Ukraine and the Baltic States, Charter of Regional and Minority Languages

## 1. Introduction

November 1992 the Council of Europe accepted a Charter of Regional and Minority Languages, which came into force March 1998 after eight Member States of the Council of Europe had ratified it. At present 23 Member States ratified the Charter, ten other countries signed the Treaty but did not ratify it so far. Among this last group one finds not only Malta, which signed the Charter immediately in 1992, but also France which put its signature in 1999 already and Poland that signed the Charter in 2003.

In the Preamble of the Charter the ‘Contracting States’ first realize:

that the protection of the historical regional or minority languages of Europe, some of which are in danger of eventual extinction, contributes to the maintenance and development of Europe’s cultural wealth and traditions;

subsequently state:

that the right to use a regional or minority language in private and public life is an inalienable right conforming to the principles embodied in the United Nations International Covenant on Civil and Political Rights, and according to the spirit of the Council of Europe Convention for the Protection of Human Rights and Fundamental Freedoms

and finally come to the conclusion:

that the protection and promotion of regional or minority languages in the different countries and regions of Europe represent an important contribution to the building of a Europe based on the principles of democracy and cultural diversity within the framework of national sovereignty and territorial integrity. (Charter: Preamble)

By regional or minority languages the Charter means languages that are:

- i. “traditionally used within a given territory of a State by nationals of that State who form a group numerically smaller than the rest of the State’s population;
- ii. different from the official language(s) of that State”; (Charter: art.1)

Furthermore these languages should not be either dialects of the official language(s) of the State or the languages of migrants. (Charter: art.1)

The Charter also distinguishes ‘non-territorial languages’, “languages used by nationals of the State which differ from the language or languages used by the rest of the State’s population but which, although traditionally used within the territory of the State, cannot be identified with a particular area thereof” (Charter: art.1). Usually languages such as Roma and Yiddish are concerned as non-territorial.

The Charter makes a difference between recognition according to Part II and Part III. Part II is a general part setting down the objectives and common principles for all states and all languages.

Part III lists concrete, specific undertakings which may vary from country to country and language to language.

Recognition of a language under Part II is a simple recognition as a minority or regional language tout court, whereas recognition under Part III forces a country to protect and support this regional or minority language actively. This difference roughly corresponds to the Romaine’s distinction between ‘tolerance rights’ and ‘promotion rights’ (Romaine 2008: 87).

The Charter explicitly excludes dialects and the languages of recently arrived immigrants. Therefore acceptance or promotion of these languages are not discussed in the Charter.

## 2. Previous History

The Charter did not arrive like a bolt from the blue. In the Parliamentary Assembly of the Council of Europe as well as in the European Parliament there had been discussions on minority rights and linguistic rights already for some decades (cf. Hamans 2006, Nic Shuibhne 2002). As early as in 1950 the Council of Europe accepted the ‘Convention for the Protection of Human Rights and Fundamental Freedoms’. In 1995 the Council added the ‘Framework Convention for the Protection of National Minorities’ to its catalogue of treaties.

On the multilateral level there is a legal relation between the Charter of Regional and Minority Languages and the ‘Universal Declaration of Human Rights’(United Nations, 1948, see for the text also Puppel 2007: 17-23) just as to the ‘International Covenant on Civil and Political Rights’ and the ‘International Covenant on Economic, Social and Cultural Rights’(both United Nations, 1966, also Puppel: 81-83).

In this same period of Cold War the OSCE propagated democracy, civil rights, state of law and the protection of diversity via the ‘Act of Helsinki’(1975) and later after the collapse of the Warsaw pact via the ‘Charter of Paris for a New Europe’ (1990). The nineties of the last century showed a growing interest in minority rights and linguistic rights.

“Efforts at developing international norms of minority rights at both global and regional levels have resulted in a post-1990 flood of international declarations, conventions and recommendations, including, for example, the United Nations Declaration on the Rights of Persons Belonging to National or Ethnic, Religious, and Linguistic Minorities (1992), the Framework Convention for the protection of National Minorities (1995) and the Declaration on the Rights of Indigenous Peoples (2007)”(Romaine 2008: 87)

In this same period the European Union formulated the Copenhagen Accession Criteria in 1993, which explicitly expected future Member States of the EU to respect and to protect minorities.

Not only in the field of international politics linguistic minority rights attracted interest. In the sixties and seventies of the last century a new linguistic discipline emerged, sociolinguistics, which among other things concentrates on the socio-political consequences of linguistic behaviour. The rise of sociolinguistics can not be seen apart from the interest in language disadvantages, equal rights and other aspects of linguistic diversity. (cf. Hamans 2006).

Although these dates and facts suggest acceptance of linguistic rights of minorities was a simple point of culmination in the history of civil rights, this is a misunderstanding. The 19<sup>th</sup> and the early 20<sup>th</sup> century show a different picture.

At the moment the Jacobins took over power during the French revolution the fate of linguistic diversity in France was determined: *égalité*, 'equality' became the watchword. For the linguistic diversity of France this implied extinction. The new French government was even more eager than the previous ones to build a uniform nation state, in which everybody should be equal and should get education. One and the same language was the only solution therefore (Spolsky 2004: 63-65, Van der Horst 2008: 199-2000), or in the words of the slogan of those days "*La langue doit être une comme la République*", the language should be one just as the republic. (Chaurand 1969: 93).

In Germany something similar happened, not due to a same extremely rationalist philosophy, but also because of a nation building movement. Germany under Bismarck finally became a unity, with all romantic ideas of identity which go together with a growing nationalistic consciousness. In this program there was not much room for linguistic diversity and minority rights. "Belonging to a linguistic minority was commonly a cause for peripheralization, exclusion or, at best forced assimilation. Compulsory education and universal military service became techniques for standardizing the national language"(Spolsky 2004:115).

The period after the Second World War, mentioned above, was not the first time in which rights of minorities, including their linguistic rights, were guaranteed. Although the Austro-Hungarian Empire (1867-1918) was the first Central-European government to guarantee linguistic rights formally (cf. Taylor 1948), already the Act of the Congress of Vienna (1815) permitted the use of Polish in some parts of the Austrian empire (de Varennes 1997).

Article 19 of the Austro-Hungarian constitution stated that "all races of the empire have equal rights, and every race has an inviolable right to the preservation and use of its own nationality and language". Nevertheless the implementation of this principle led to several disputes. Officially all customary languages, *landesübliche Sprache*, were equal, in fact it took a handful of nationalistic Slavic movements to get the Slavic languages, spoken on the territory of the Empire, accepted and recognized as equal.

After the First World War the treaties which set up the countries in the Balkans called for equality and linguistic rights (Spolsky (2004: 116), but often these rights only existed on paper and could not be implemented.

After the Russian Revolution the Soviet Union granted rights to all ethnic languages as well. The reason thereof was that the government wanted to teach "literacy and socialism in the fastest practical way", which was via the ethnic languages the different people and nations spoke. In the thirties, when Stalin had succeeded Lenin, this approach was abandoned because of the resistance against collectivization which was supposed to be of nationalistic origin.

Stalin's program of homogenization and elimination of ethnic differences might be considered as a continuation of the russification under the Czars. (Spolsky 2004:116/7)

### 3. Monolingualism

The Charter of Regional and Minority Languages stresses the equal rights of speakers of different mother tongues and in this way is a medium to promote antidiscrimination.

However, in France the principle of equality and non-discrimination has been understood just opposite. In the French tradition starting with the Enlightenment equality does not imply the acceptance of differences but just the other way round. It means to abolish and to equalize differences. Equality does not mean equal chances and possibilities in the French interpretation, but literally being equal. It is for that reason that Article 2 of the French Constitution says: "The language of the Republic shall be French". Everybody shall speak the same language. Because of this France even though it signed the Charter never ratified it, since the Conseil constitutionnel interpreted the Charter to be in conflict with the national constitution. (Montfrans 2004).

But times are changing, even in France. The speakers of the 75 regional and minority languages of the republic do not accept their languages to be considered inferior anymore. So there is a continuous but so far unsuccessful political pressure to grant linguistic and educational rights to these languages. The French Academy, which feels itself the guardian of the purity of the French language, keeps warning against legal recognition of regional languages. June 2008 the Academy called again recognition of regional languages an attack on French national identity. Local language militants ridicule the outdated nationalism of the *Académiciens* (Chrisafis 2008). In the French regional press a senator from the Occitan speaking area who voted against the recognition of the regional languages was advised to change his Occitan name Mortemousque into the French Mouche Morte, dead fly (Peyrouny 2008).

The attitude of the French Academy towards the issue of minority languages is typical for the French idea of homogeneity. In France the idea that a person can be both a French citizen and have an ethnic or religious identity is unacceptable, whereas for instance in Britain, Sweden and modern Germany community cohesion promotes the combining of race and faith with the idea of being British, Swedish or German.

France is not the only European country which defends official monolingualism. Greece has the same approach. Poland, which was one of the most heterogeneous countries of Europe till 1939, claimed to be a country without minorities after the Second World War. This must be seen as typical of the Stalinist practice of the whole of Eastern Europe Policy (Moskal 2004). Almost immediately after the collapse of the Warsaw Pact the then minister of Social Affairs and former dissident Jacek Kuron tried to introduce legal rights for speakers of regional and minority languages. Unfortunately it took fifteen years and serious pressure from the European Union via the Copenhagen Accession Criteria till on the 1 of May 2005, a year after EU-accession, before a law on national minorities came into force.

This law contains a threshold of 20%, which means that in a community a minority should be bigger than 20 percent before it may practice its rights. This is the so called 'Territorial Principle'. In the Sejm, the Polish lower house, the members of parliament proposed and voted in favor of a threshold of 50%. The final result, which is still 20%, is that there are only 42 municipalities with minority language rights, and what is more there is no village, town or city where Roma received linguistic rights.

The law makes a difference between three types of languages: regional languages such as Kashubian and Silesian, minority languages such as Byelorussian and German and diaspora languages (non-territorial languages in the wording of the charter) such as Yiddish and Armenian. Altogether 16 languages other than Polish have been recognized.

Not only Stalinism objected against pluralism. The same happened in Franco's Spain.

During the second Spanish Republic (1931-196), a statute of autonomy was approved by the Spanish Parliament for Catalonia in 1931 and for the Basque country in October 1936. In Galicia the process was not completed owing to the dramatic events of the 1936-1939 Civil War.

The Franco regime represents a brutal interruption of the process of recognition and use of traditional regional or minority languages of Spain that had just started. Their public use was forbidden, books written in these languages were burnt in public, and regional names were erased from the toponymy and civil registers. In practice, it was prohibited to speak regional or minority languages. Printing offices were subject to brutal censorship. Many regional or minority language writers and artist decided to go in exile. (Evaluation Report Experts Spain 2005)

When Franco died, 20 November 1975, the situation changed. Democracy was restored in 1978. The new Constitution offered a possibility for autonomy of different regions and long before Spain ratified the Charter in 2001 the Basque (1978/9), Galician (1981), Valencian (1982) and Catalan (1983) languages have been recognized as regional languages.

The acceptance of autonomy and of the linguistic rights of other languages than Castilian Spanish became a matter of political discussion, the left being in favor of autonomy and minority rights, the right against it, except for Valencian. That is since Valencia, where the right is in the majority, does not want to be associated with Catalonia, where the parties from the left usually form the regional government.

A few years ago (2005/6) the Spanish government defended the rights of speakers of Basque, Catalan and Galician to use their language officially outside Spain as well. The EU accepted the right of the speakers of these three languages to address themselves to the European authorities in their native languages, but it is Spain and not the EU that pays for the extra costs. So in terms of Romaine's (2008) distinction Spain granted the speakers of Basque, Catalan and Galician the promotional linguistic rights whereas the EU accepted only tolerance rights.

This set an example for Welsh as well. Recently the British government agreed with a request of the Welsh Assembly Government to acquire the status of "co-official language" too. The European Council, which is the Council of EU prime-ministers, still has to decide upon this proposal.

#### **4. Equal Rights**

In some countries equal rights for speakers of different languages imply full equality of languages. This is for instance the case in Belgium, where the linguistic controversies forced the government to restructure the country in a federal way according to the official languages spoken.

Belgium now is a federal state with four territorial linguistic regimes, Flanders, the Walloon provinces, the German speaking eastern part of Belgium and bilingual Brussels.

Unfortunately the Belgium language war is not completely over. There is still discussion about the linguistic status of Brussels and the municipalities around the capital.

That and the reminiscence of the vehement language quarrels prevented Belgium to join the Charter. The Belgium government had already enough troubles with the four national languages and therefore did not hanker after more languages and complications.

However, multilingualism does not have to be synonymous to problems. The cases of Luxembourg, Finland and Switzerland show that different national languages smoothly may go together.

Switzerland, where the recognition of national languages is a matter of the federation just as in Belgium, nicely shows that multilingualism does not imply necessarily language wars. Switzerland, which is one of the 'contracting partners' of the Charter, recognizes four national languages, German, French, Italian and from 1996 on Romansh. Two of these languages are called 'lesser widely used official languages' and are granted special protection under Part III of the Charter therefore. The Swiss cantons themselves designate which language(s) are the official languages of each canton.

Luxembourg, which is a partner in the Charter as well, recognized its most widely used language *Letzebuergesch*, 'Luxembourgish' as late as only in 1984 as the official language of the Grand-Duchy next to the two other widely used languages German and French. In the Law on the Linguistic Regime French is called the legislative language. French, German and Luxembourgish may be used in administrative and juridical matters (Nic Shuibhne 2002: 306). Most of the inhabitants of Luxembourg are bi- or even trilingual.

Finland is a third and peaceful example of linguistic coexistence. Finland has two national languages at the institutional level, Finnish and Swedish, the latter the language of a former colonial or occupying power. Under Part III of the Charter Finland recognizes Swedish also, since the use of this language declines and needs protection for that reason. Next to Swedish Finland recognizes Sami, which is almost an endangered language. Finland accepts a few more languages under Part II (simple recognition), such as Karelian, Russian, Tatar and Kaló, a Roma language.

## **5. Rights at a different level**

In traditionally monolingual countries the Charter usually leads to the recognition of languages at a different level than the official or national language.

In the UK for instance three regional languages are accepted under Part III. These are Scottish Gaelic, Irish and Welsh. Cornish, Manx Gaelic, Ulster Scots and Scots are recognized under Part II. The regional authorities are expected to take care of the regional languages.

Although the status of the regional languages is not the same as that of English, the British Nationality Act of 1981 grants British citizenship to speakers of English, Welsh and Gaelic (State Periodical Report UK 2002). It is not known whether ever in a process of naturalization Welsh or Gaelic was used as to qualify for British nationality.

In Sweden, Norway, Denmark and the Netherlands there have been recognized regional, minority and non territorial languages such as Sami, Finnish, Meänkieli, Romani Chib and Yiddish in Sweden, Sami in Norway and later - under the pressure of the experts of the Council of Europe who monitor the application of the Charter each three years - , also Kven, a language which resembles Meänkieli, German, Faroese and Greenlandic in Denmark and Frisian in the Netherlands as a Part III language. In the Netherlands Low Saxon and

Limburger have been recognized as Part II languages after a serious scholarly and political discussion. The language of the province of Zeeland, being a dialect of Dutch, was not accepted to the great dissatisfaction of the provincial authorities.

The same happened in Sweden with the widely spread and used Skanian (Spolski 2004: 123) and Elfdalian, a small language spoken in the Dalarna County. The experts of the Council of Europe asked for serious research on this matter in their evaluation report of 2006. Germany is one of the countries that carefully makes a distinction between minority languages such as Danish, Frisian, Sorbian and the regional language Low German, known in the Netherlands as Low Saxon. Romany, although being a non territorial language, is called a minority language in the German reports.

From these examples and enumerations it may be clear that not all regional and minority languages are of the same kind. There is a huge difference between a minority, or regional language which is a national language in a neighboring country, such as for instance German in Denmark and a language that misses such a powerful sister, such as Sorbian. Especially in Central Europe this distinction plays a crucial role. For instance Hungary supports the protection, encouragement and propagation of Hungarian in Slovakia and in other regions where Hungarian is a minority language, whereas Ruthenian in Slovakia has to survive without external aid.

## **6. The Role of the Charter**

The Charter is not only a non-binding inventory of the cultural and linguistic wealth of the 'contracting partner states', the Charter is an international Treaty. Although the Council of Europe has no political, legal or economic power, since the Council monitors the application of the Charter each three years conscientiously the public opinion forces governments to accommodate by naming and shaming.

Hungary and Slovakia are for instance seriously criticized for their treatment of speakers Roma. The experts of the council of Europe say loudly and clear that integration, which is a good thing, is not the same as assimilation.

The Committee of Experts recalls in the first Place that the Charter does not question at all the need to acquire an adequate command of the State's official language(s). Indeed, the Preamble of the Charter states explicitly that "the protection and encouragement of regional or minority languages should not be to the detriment of the official languages and the need to learn them". Furthermore the wish of the Romany-speakers to see their children successfully integrated in the Slovak society is fully understandable and deserves the maximum support, taking special account of the unfavorable economic, social and political conditions from which Roma have suffered for centuries in most European countries. However, integration should not be confused with assimilation and all the information at the Committee of Experts disposal indicates that full recognition of the linguistic and cultural specificities of Roma is conducive to their successful integration in the society.( Evaluation report Experts Slovakia 2004)

Whereas the experts of the Council of Europe are not the only one to criticize the Slovak government on its treatment of the Roma minority, this well documented criticism may have some effect.

The monitoring process together with the publication of the reports and other documents is the only instrument the Charter has. But it may be effective.

The experts remain critical about thresholds levels and question the effectiveness thereof. The threshold in the national Slovak legislation is so high, 20%, that some linguistic minorities never may enjoy the effect of the Charter. Even the Czech minority, consisting of almost 50.000 speakers, nowhere is in a position to profit from the language laws. The Slovak government has to answer the experts and the Committee of Ministers, whereas Poland which only recently joined the Charter so far never had to render account for this.

The same applies to the Croatian system where there is also and even a higher threshold level of 1/3 of the population of a municipality, but where local authorities have a certain competence to grant linguistic rights to the minority in their community. The experts found that this only appears where bilingualism has been accepted since long. For non traditionally accepted minorities the disfavoring still remains.

The experts more often complain about the practice that national authorities delegate the care for regional and minority languages to regional authorities or to the *Länder* as in Germany. The national state is partner in this international treaty, thus national authorities have to take care of the regional and minority languages. Of course national authorities may delegate the actual care to lower authorities, but this does not mean that these national authorities may hide themselves behind regional and local authorities and their small budgets. Recently the Dutch national government got a hard rap over the knuckles from the Committee of experts. The experts blamed the national Dutch government for its delegation of duties to regional authorities and for the limited budgets and efforts which resulted thereof for the promotion of regional and minority languages. This criticism was big news in the Dutch newspapers (*Algemeen Dagblad* 12 July 2008).

The reports of the Committees of experts also reveal that there may be a discrepancy between the law and the daily practice in a country. In Serbia legally everything seems to be in good order, actually one learns from a letter by the Council of Rumanian Ethnic Minorities that “the positive legal norms are not applied in practice”( Evaluation Report Expert Serbia 2007)

## **7. Difference in interpretation**

Sometimes there has been a discussion between a national government and the Committee of experts whether a language should be considered as a minority or regional language or simply should be seen as a dialect or even as a phantom. Some countries, for instance Spain, Slovenia and Croatia, interpret the text of the Charter in such a way that only languages that have been listed by national authorities may be called minority or regional languages and may profit from this status.

In its discussion with the Slovenian government in 2006 the Committee made clear that each language which fulfils the requirements of the Charter automatically should receive recognition as a Part II language. There is no official assignment of any national authority required.

At the moment this opinion will become more widely known there might be expected that quite a few groups of speakers of so far not recognized languages will appeal tot the Charter and will claim a status with all internal political consequences thereof. (Evaluation Report Experts Slovenia 2006)

For instance the experts question why the government of Montenegro does not grant Part II status to Bosnian/Bosniac and Croatian along Albanian and Romani. At the moment a

study reveals that for instance Bosnian/Bosniac fulfils the requirements of the Charter it will be no longer up to the Montenegrin authorities to answer this question. (Evaluation Report Experts Montenegro 2007)

But it is not only the Committee of experts which criticizes national authorities. The comments of some governments are critical too. For instance: the experts' report and the following public Recommendation of the Committee of Ministers convinced the Norwegian authorities to recognize Kven as a minority language. However, in their answer the Norwegian authorities correctly pointed out what the problem is in collecting data about linguistic and ethnic background. The experts of the Council insisted on receiving recent and reliable figures especially with regard to the ethnic status of the population. The Norwegian government answered they understood the request of the Committee for this kind of information, but they hoped the Committee would have sympathy for the problem a government may have in producing this kind of statistics as well. After all quite often this type of information is not available, as in some countries it is seen as an infringement on somebody's privacy and rights to enquire about his/her linguistic and ethnic background, since these data can easily be used to discriminate people.

## **8. Russian in the Ukraine**

One of the last countries to join the Charter has been the Ukraine. The Ukraine listed 14 minorities and their languages in connection with the Charter. These languages are Belarussian, Bulgarian, Gagauzian, Greek, Jewish (?), Crimean Tartar, Moldovan, German, Polish, Russian, Romanian, Slovak and Hungarian.

All these languages are recognized under Part III, the active protection and promotion part. Nevertheless there is a difference between for instance Gagauzian and Russian. There are only 31.900 speakers of Gagauzian, mainly in the Odessa region, whereas there are about 13,5 million speakers of Russian in the Ukraine, who do not only live in the eastern part of the country but also in some concentration in Odessa, Kyiv and other big cities.

In the constitution of 1996, which came into force five years after the independence of the Ukraine on 24 August 1991, Ukrainian was granted status of 'national state language'. Along Ukrainian Russian received certain rights. A few years later it turned out that nevertheless the number of speakers of Russian had decreased, from 22,1% in 1989 to 17,3% in 2001.

Sociological and ethnological research studies and surveys suggest that such difference has to be explained not so much by the outflow of ethnic Russians but, rather, by re-identification of its permanent residents, especially the descendants of mixed, Ukrainian-Russian marriages. In the USSR, the term "Russian" was perceived as similar to "Soviet" and therefore, many Soviet citizens, especially from ethnically mixed families, preferred to be defined as "Russians" for career purposes. After the collapse of the USSR, such a perception has lost either practical or conceptual meaning; no wonder that is no more inherent in mass consciousness within the non-Russian successor states. (Belitser and Gerasymchuk 2008:56)

However, not everybody seems to be so happy with the secondary position of Russian, although there is ample possibility to follow Russian education. From the moment of the independence on the issue of extending status of second official language to Russian has been the subject of extensive, controversial discussion. In all presidential election campaigns it

plaid a role. In 2006 the Council of Kharkiv, Kharkiv City Rada, was the first to declare Russian to be an official regional language. Quite a few places followed, most of these decisions have been overturned by ruling of courts.

In the First State Periodical Report concerning the application of the Charter submitted by the Ukrainian Government to the Council of Europe in August 2007 nothing is found about this problem. It is to be expected that the Committee of experts will raise questions on this issue. In this way the Charter may be helpful or instrumental in solving or calming down this discussion.

## **9. Russian in the Baltic States**

In the Baltic States, especially Latvia and Estonia, a similar problem appears. However, there are major differences. Speakers of Russian and of Ukrainian who are exposed to the other language for some time understand that other language more or less, without having been taught the language explicitly. There is not such a familiarity and similarity between the Baltic languages and Russian.

Secondly the Baltic States felt colonized by Russia and the Soviet Union, whereas the Ukraine, which country even formally was independent in a certain way from Moscow during the Soviet times, felt occupied but by relatives. The Baltic States suffered from a serious Russification. Because of economic reasons quite a few Russians settled in the three formerly independent Baltic States or were sent to there. In 1989 only 52 % of the inhabitants of Latvia spoke Latvian, while the comparable figure in Estonia was 62%.

Russian was not only the official language during the Soviet period but also the language of instruction in Kindergarten as well as in universities. The position of Russian was dominant in the Soviet era. In these times professionals at an intellectual level seldom got an appointment in their own region. So Latvian physicians were sent to for instance Kazakhstan, whereas teachers from the Ukraine, Kirgizstan or Russia were appointed in the Baltic States. So a Soviet citizen who had to see a doctor or a dentist had to speak Russian, since the physician or dentist was not from his area and therefore did not speak the regional language. In the Ukraine this problem was less painful because of the comparable small distance between the two sister languages Russian and Ukrainian. In the Baltic States people felt humiliated by this practice. Apparently they and their language were second class.

That is why the Baltic States concentrated on nation building after their independence in 1991. (cf. Rannut 2004). This is the third difference between the Ukraine and the Baltic States.

As the Committee of experts rightly says: it is the majority which determines how a minority language will be perceived ((Evaluation Report Expert Slovakia 2004). In the case of the Baltic States this means that there was not only a certain nationalism involved in the attitude of Estonians and Latvians towards Russian, but also feelings of resentment against the former colonists plaid a role. (Joseph 2006: 11)

That is why the Baltic States, although being members of the Council of Europe, never considered signing and ratifying of the Charter to be an option. Nation building which involved standardization of their oppressed national languages and negative feelings towards Russians and Russian prevented them of doing so.

However, the Copenhagen Criteria for the accession to the EU forced the Baltic States to implement legislation in order to protect linguistic and ethnic minorities. In Estonia for instance national minorities with a membership of more than 3.000 are accepted as officially recognized minorities nowadays. This gives right to the Swedish, German, Jewish and of course Russian minorities to organize itself.

However, the main problem in Estonia and Latvia are the laws on citizenship. Whereas the British law even accepts knowledge of Gaelic and Welsh as sufficient for the British nationality, Estonia and Latvia require a certain degree of fluency in the national language before citizenship can be acquired. Because of different reasons there is a group of a few hundred thousand people who are stateless. They lost their Russian nationality and never made it to get the Estonian or Latvian citizenship. As a consequence they have no nationality anymore and are stateless.

It is quite clear that this is against all international law, especially against the Framework Convention for the Protection of National Minorities (Council of Europe 1995) and against the spirit of the Charter of Regional and Minority Languages.

Therefore it is a pity that the Baltic States do not take part in the Charter. In that case they would have been blamed vehemently of course because of their laws on citizenship and the deprivation of all minority rights for these group of stateless people. On the other hand the national, linguistic and educational authorities could have profited from discussions with the Committee of experts. Most likely the experts would have told the national authorities that calling the language of your former occupier a second national or a minority language, just as the Fins did with Swedish, or the Ukrainians did with Russian and Polish respectively, is not a vice or an admission of weakness but a sign of civilization.

It is to be hoped that the good example of the Ukraine will help the Baltic states to overcome their hard feelings and that they will not only join the Charter one day but also will give a decent place to Russian in their legislation.

## 10. Conclusion

As has been shown The Charter of Regional and Minority Languages is not a very powerful instrument. Since the Council of Europe is an institution without very much power and actual influence, the Treaties of the Council of Europe are of a lower legal status than for instance EU-regulations. On the other hand for countries which have signed and ratified the Charter it is binding. This does not imply very much, since the Charter itself is rather noncommittal in its wording and does not include sanctions. Tolerance and promotion, to use Romaine's terms, are vague and permissive. It is up to the Committee of experts to give an interpretation and evaluation of these notions.

Since the Charter is a Treaty of the Council of Europe minorities that feel neglected, discriminated or not treated well in language respects may go to the Court of Justice in Strasbourg, which is an institution of the Council of Europe and can be seen as the author of legally binding decisions. Minorities or individuals representing minorities can plead their cases with the Court. Possibly this may lead to case law and jurisprudence of the Court, as happened in quite a few individual complaints about language discrimination by national authorities. Already in one of the first cases, 'Ministère Public versus Robert Heinrich Maria Mutsch' (Nic Shuibhne 2002: 72-80), the Court declared that

[i]n the context of a Community based on the principles of free movement of persons and freedom of establishment the protection of the linguistic rights and privileges of individuals is of particular importance. (ibid: 74).

So far the Court of Justice has not been asked to give a verdict in a case of a language minority.

The monitoring reports of the Committee of experts are a far more effective weapon. The national authorities have to answer the comments and criticisms of the experts and are expected to improve the situation before the next round of inspections, but since the experts visit the countries and the regions and invite all stakeholders to provide the Committee with facts and data and to give their opinion on the linguistic situation in their region or country, the work of the Committee can better be seen as a wakeup call for all the interested parties.

Since the reports of the Committee are public, they influence the public opinion. Public opinion expressed by the media is the most powerful and effective weapon the Charter has at its disposal. In this way speakers of minority and regional language may get informed about their rights and chances. At the same time media also may put pressure on authorities. Together these two actions are the best means to promote the Charter and the linguistic rights of minorities.

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# **Immigrant Languages and the Dilemma of the Welfare State. A Case Study of Arabic in the Danish Educational Sector.**

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## **Abstract**

This paper is a part of a larger project on the status of non-European immigrant languages in Denmark with a focus on Arabic. The working hypothesis is that states belonging to the Universal Welfare Model (Esping-Andersen 1990) tend to shape language policy at the national level in at least two ways: On the one hand, they develop a strong focus on the national language and subsequently a very elaborate infrastructure of teaching it as a second language; on the other, non-European immigrant languages hold a very weak position, if any, in the national language policy.<sup>1</sup> In what follows, I shall analyze the status of Arabic in the Danish educational sector as a part of this framework, in order to illustrate how non-European immigrant languages have to compete with the national language for educational resources, and how they are downgraded in the educational sector. And finally I shall point to some dilemmas arising from this policy in Danish education.

**Keywords:** Non-European immigrant languages, Arabic, language policy, education, welfare states.

## **1. Introduction**

Denmark is a small, democratic and highly globalized welfare state. Each of these characteristics influence Danish language policy in different ways: With a population of 5,45 million inhabitants – roughly half of greater Paris or one quarter of the metropolitan area of Seoul – and ranking 5th on the global top 20 on the world's most globalized countries (Kearney, 2006: 74, 77), Denmark is obviously very much dependant on the surrounding world, be it for economic development, technological innovation or national security. The high degree of globalization favors a language policy which sets English as a top priority and, at least ideally, focuses on the need for other foreign languages.

With the pressure from globalization comes an increased focus on Danish. This is not only due to cultural pressure from those who consider English a threat to the national language – an issue which is, at times, hotly debated in Danish media - but also to a political pressure from government, parliament and other decisionmakers who consider Danish a necessary gatekeeping mechanism to safeguard the Danish welfare state. Denmark belongs to what political scientists have labelled “the universal welfare

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<sup>1</sup> The important exception to this is Sweden which attributes an important position to immigrant languages in its national language policy. It is a part of this project to define how the differences between Sweden and the other Nordic welfare states can be explained.

model” (Esping-Andersen, 1990)<sup>2</sup>, and Danish society is characterized by an important redistribution of wealth: The state takes responsibility for most social services, regardless of a person’s race, gender, ethnicity or religion, some services being universal and thus offered to all inhabitants regardless of income – health services, education and child allowances - while others are offered only to low income groups depending on individual needs and regulated by a detailed social legislation. In order to finance the expenditures of the welfare state, Denmark has a highly developed tax system, based on direct as well as indirect taxation.

The safety net which has thus been stretched out under all Danish citizens, makes Denmark attractive to non-European immigrants and with the open borders which the country shares with other memberstates of the European Union (EU), the pressure from immigration has necessitated a political response. As a memberstate of the EU, however, Denmark has limited means to establish its own barriers to immigration, but one which can be safely brought into play, is the use of the national language: If immigrants want to get access to many of the benefits of the welfare state, they must master Danish to a certain level, that is, they must take compulsory language classes, sit for tests and exams which in turn will allow them to apply for certain benefits. As such Danish has become a gatekeeping mechanism which ensures that in a globalized world which favors free movement of people across borders, the pressure from immigration will not lead to the breakdown of the welfare state (Nielsen, forthcoming)

Denmark is not only a small and globalized welfare state. It is also a democratic state, and consequently, Danish legislation includes language rights for minority languages. Denmark has ratified the European Charter for Regional or Minority Languages and has officially recognized three minority languages: Feroese, spoken by 50.000 at the Feroe Islands, Greenlandic, spoken by appr. 50.000 in Greenland, and German, spoken by appr. 15.000 at the Danish side of the German border (Indenrigs- og Sundhedsministeriet, 2006: 3). In practise, however, Feroese and Greenlandic are recognized and used as official languages in their islands respectively, together with Danish, but are not considered nor used as such in the mainland of Denmark.

Immigrant languages, on the other hand, have no officially recognized position in Danish legislation, apart from what is mentioned in the United Nations Human Rights Treaties which Denmark ratified for the first time in 1971 (United Nation, 2008). The treaties give all citizens the right to speak whatever language they want, and national legislation makes it further possible for minority groups to open private or independent day-care centers, kindergardens and schools, subsidized by the authorities (Ministry of Interior and Health, 2006: 6-7). Since the 1970’s Denmark has received a growing number of immigrants and asylum seekers, most of them of non-European origin. The total percentage of immigrants in Denmark amounts to 8.8%, corresponding to 478.000 persons, and non-European immigrants constitute app. 6.1% of the Danish population. The 10 most important non-European immigrant languages in Denmark today are Arabic, spoken mainly by Iraqis, Lebanese, Maroccians and Palestinians, and

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<sup>2</sup> Most researchers define the welfare states of the western world as belonging to one of three categories: The universal welfare state, which prevails in e.g. the Scandinavian countries; a selective or labour market related welfare state prevailing in Central Europe; and a residual welfare state as in Great Britain and the US. See Esping-Andersen (1990) for more details.

Turkish, followed by Urdu and Somali, as shown in figure 1. These numbers are based on registered nationality, since Danish population statistics do not include information about languages, religion or ethnicity.

**Fig. 1:**  
**Top 10: Non-European Immigrants in Denmark** (Statistics Denmark, 2008: 5)

Turkey	56.585
Iraq	27.851
Lebanon/Palestin	23.249
Pakistan	19.347
Somalia	16.504
Iran	14.551
Vietnam	13.093
Afghanistan	11.554
Marocco	9.240
China	8.045
Total	<u>200.019</u>

Denmark also has an important number of European immigrants, most notably of German, Swedish, Norwegian and British origin (with 30.076, 19.876, 16.033 and 15.454 persons, respectively). These immigrants are not included in this study because their languages hold a very different position in Danish society from that of non-European languages: English, German and French are taught as foreign languages in primary and secondary schools, whereas Swedish and Norwegian are included in the curriculum of Danish, given that the three languages are mutually intelligible.

In what follows, I shall focus mainly on Arabic when presenting data on non-European immigrant languages. This is due to the fact that Arabs constitute the most important group of immigrants in terms of numbers, Arabic being supposedly the most widespread non-European language in Denmark. Furthermore, using the distinction made by Bagna, Machetti and Vedovelli (2003) between *migrant languages* and *immigrant languages*, Arabic in Denmark is considered a “true” immigrant language: Whereas migrant languages are defined as mainly passing through an area, e.g. as a result of short termed labour migration, and thus do not put down roots and leave signs on the host community’s language and linguistic landscape<sup>3</sup>, immigrant languages are considered a more stable phenomenon, due to the longterm presence of immigrant groups who intend to stay in the host community. An immigrant language therefore stands a better chance of leaving linguistic traces on the host society (Barni & Bagna, 2008: 298), and as such Arabic is well suited to illustrate what happens to non-European immigrant languages in the Danish welfare state.

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<sup>3</sup> Polish is a good example of a migrant language in Denmark: The number of Polish speaking immigrants are currently growing, amounting to 25.725 (2008). Coming from a new memberstate of the EU, they are considered Europeans, but their language is not taught in primary and secondary schools. The current growth of Polish immigration to Denmark began in 2004 when Poland became a full member of the EU, and takes mainly the shape of short term labor migration.

## **2. The Danish Educational System**

One way of illustrating the status of non-European immigrant languages in Denmark is to analyze the language policy of the educational system. In theories of language policy, education – or what has been termed “the school domain” in language policy (Cooper, 1989, Spolsky 2004) – is seen as a key component in national language policy, because education requires a range of language choices to be made, and thus becomes an important domain used to create de facto language practices (Shohamy, 2006: 76). Language choices in education are influenced by a range of different agents, but there is a general consensus that the strongest influence comes from central authorities such as government agencies, ministries of education and regional and local educational boards (Shohamy, 2006: 77-78). Other agents such as parents, religious authorities and community leaders as well as local school directors, teachers and eventually the students themselves also influence language educational policy, but to a much lesser degree (Spolsky, 2004). The choices made by the central authorities on issues such as the language of instruction, what foreign languages to be taught, what status to attribute to mother tongue in case it differs from the school language, etc. are highly political and strongly influence language practices: Not only are children socialized into values and norms for language use through these choices; choices are in fact imposed on children since they are activated in a context which is compulsory for all children

The Danish educational system is divided into preschool (for children from 3 to 6 years), primary school (6 to 16-17), secondary school (16-19) and higher education. The Danish educational sector is highly centralized through laws and ministerial decrees, though preschool and primary schools are formally placed under the authority of the municipalities.

## **3. Preschool language activities**

About 95% of all children in Denmark go to kindergarden from the age of 3 to the age of 6 (Statistics Denmark, 2006: 1). The high percentage does not indicate that kindergarden is a compulsory part of the Danish school system, but has mainly to do with the high participation of women in the labour market. Except from a few private or independent institutions, most kindergardens are formally run by the municipalities. This has mainly economical implications; in practice, the kindergardens are dealt with as independent institutions acting freely inside a broad framework of pedagogical guidelines. From the mid 1990's, however, the Danish parliament started to include kindergardens in their immigration policies, and in 1999 it was decided that immigrant children between 4 and 6 years old should be offered specific Danish language training activities in kindergardens to prepare them for entering school. Immigrant children who did not go to kindergarden, should have access to the same kind of Danish language activities through the establishment of “playing groups” made available to them by the municipality, 15 hours a week, an activity most often located in a local school.

In 2002, these language activities were extended to immigrant children from 3 years of age (Law no. 412, 2002), and in 2004, what had until then been offered as something which immigrant families could take or leave, now became compulsory: The Danish Primary Education Act now stipulates that if an educator finds that an immigrant child does not possess satisfactory language skills in Danish, s/he will have to participate in Danish language activities offered to them (Primary Education Act, §4a, stk. 5). It has not been specified, however, what sanctions should be used against parents, should they refuse to act accordingly. And in 2005, the Ministry of Education issued a recommendation that immigrant preschool children should be screened or tested in Danish on a regular basis, e.g. once a year, so as to make sure that they progress adequately in Danish and thus are ready to benefit maximally from what they will learn in school.

Based on these political decisions it seems safe to conclude that during the last 10 years, the national political agenda has been in favor of upgrading Danish for preschool immigrant children.

#### **4. Primary school**

Primary schools in Denmark are strongly regulated by the Ministry of Education, whereas the implementation and the administration are run by the municipalities. In recent years, there has been much debate about the position of the Danish language in primary school (number of hours, curriculum etc.), fuelled by an increasing pressure from those who consider English a threat to the national language on the one hand, and the declining results of Danish students in the international PISA reading tests on the other (Ministry of Education, 2006: 4). This has led to an increasing number of teaching hours of Danish in primary school as well as more focus on research and new methods of teaching how to read Danish, to the benefit of all school children, including immigrants.

While Danish has been upgraded in primary school, mother tongue education in non-European immigrant languages has been downgraded: According to the Primary Education Act of June 26<sup>th</sup>, 1975, immigrant children in Denmark used to have access to free mother tongue education, organized by the local authorities whose costs were in turn reimbursed by the state. It was stipulated that children would get 3 to 5 weekly hours of instruction in their mother tongue, that these classes were to take place at public schools outside normal class hours, and that the teachers of mother tongue instruction should be approved by the local school authorities, though they did not have to be certified teachers. There should be at least 12 children in a class – if less students, then less hours (Kristiansdottir, 2006: 8). From 1993 to 2001, this right was challenged 14 times by M.P.s from the Danish People's Party, the Liberal Party and the Conservatives, who proposed, in motion after motion, to limit or abolish this right, despite the fact that it was unrealistic, politically, to put through a majority vote against the law, due to the political composition of the parliament (Nielsen, 2007: 14).

When a liberal-conservative coalition took over the Danish government in 2001, they immediately initiated legislative work which led to a law reform in 2002: It was now left to the local authorities to decide if they wanted to offer free mother tongue education in immigrant languages, the main difference being that the state would no

longer reimburse the costs. In that way, the government did not formally abolish the right to free mother tongue education in immigrant languages; they only placed the responsibility for it at a different administrative level. It was stipulated in the law that the money saved by the state should now be used for Danish language activities for immigrant pre-school children (Law no. 412, 2002). This led to a dramatic downsizing in the number of classes in mother tongue education all over the country: Most of the local authorities having been in constant need for money over the years, could (or would) not afford to pay for mother tongue education. Four years later, in 2006, only 4 out of the 20 municipalities with most immigrants still offered free mother tongue education, and 2 of these had limited their offer to children up to the 3<sup>rd</sup> and 5<sup>th</sup> grade (Schnabel, 2006: 5). A year later, one of these municipalities, that of Copenhagen which has the highest proportion of immigrant children in Denmark, also decided, for budgetary reasons, to stop free mother tongue education.

There was, however, one important exception to the law on mother tongue education: As a member state of the EU, Denmark is legally required to offer mother tongue education in European languages, if there is a demand for it. The idea is to ensure the free movement of labour in Europe, and to guarantee the right for European children to keep up with their mother tongue while living with their parents abroad. Therefore, the law reform on mother tongue education only involved non-European languages, and consequently, Denmark has a legally adopted language policy which discriminates between children: Today, an English speaking child has a legal right to get free mother tongue education, because English is an officially recognized language of a European memberstate, while an Arabic speaking child has to content him- or herself with the Arabic instruction s/he can get in the local mosque or pay for it at an Arab private school, because Arabic is not a European language. Thus, the same municipality may well offer free mother tongue classes for Dutch or Polish children whose parents can easily afford to pay for their classes, whereas they do not support classes for the hundreds of Arab and Turkish children, whose parents often cannot afford it. This is e.g. the case in the municipality of Odense, the third largest city in Denmark, with appr. 187.000 inhabitants, where 19 Dutch, 14 Spanish, 13 Polish and 12 Icelandic children take free mother tongue classes, whereas 1290 Middle eastern, mainly Arabs, 479 Somali and 385 Turkish children were not even offered any classes (Odense kommune, 2007).

## **5. Secondary school**

Secondary school in Denmark has a long tradition for teaching foreign languages and for allowing students to choose among a wide range of foreign languages. Furthermore, Denmark follows the European Council's recommendation from 1995 stating that students should, as a rule, have the opportunity to learn two languages of the European Union in addition to their mother tongue. In secondary school, therefore, students continue to study English which is compulsory from 3<sup>rd</sup> grade in primary school onwards, and are offered the possibility of either to continue German or French which are offered from the 7<sup>th</sup> grade in primary school or to study a different foreign language, such as Spanish, Italian or Russian, pending on what the secondary schools offer (Primary Education Act, 2003, §5 & 14; Ministry of Education, 2007).

In 2003, the Danish Parliament decided on a ground breaking reform of the secondary school which aimed at ensuring that young Danes will be able to meet the demands of a globalized society. The reform which was implemented in 2005, added Arabic and Turkish to the secondary school curriculum as optional foreign language courses, pending on the schools' availability of teachers. This came about as a result of the opposition's pressure on the government to offer immigrant languages, not only because of the size and importance of these languages in today's world, but also to raise the status of these languages in a Danish context. Chinese and Japanese languages were also added to the curriculum, not because they were considered immigrant languages, but mainly because of China's and Japan's rising economic power in the global economy (Ministry of Education, 2007).

As a consequence of the reform, foreign language classes now fall into one of three categories: (1) Compulsory foreign languages, comprising English and a second foreign language; students can opt between German, French, Italian, Russian or Spanish. (2) Foreign languages as a specialization: Students must choose a profile of either natural sciences, social sciences or arts - humanities related subjects, or a mixture of it; in case they opt for languages, they can choose between French, German, Greek, Italian, Latin, Russian and Spanish as well as upgrading their English. And (3) Optional foreign languages which students can take depending on the number of hours and subjects they have chosen for their specialization. Here students can opt, among other things, for Arabic, Chinese, Japanese and Turkish (Ministry of Education, 2007: Section 3).

The fact that two non-European immigrant languages are now offered as an option of the secondary school language programme, adds to the status of immigrant languages. However, since they belong to the optional category of languages, they are at the same time the least prestigious, and experience actually shows that there has been very little interest in establishing classes in these languages: Three years after the implementation of the reform, there is only one school in the entire country offering one class in Arabic and one class in Turkish and apparently no schools preparing to offer these languages in a foreseeable future. This situation cannot be explained only with reference to the low status often attributed to immigrant language: There seems to be a genuine interest in taking Arabic classes among second generation immigrants in Denmark – a phenomenon I shall return to below, when describing the demand for Arabic at university level – but many secondary schools either will not or cannot offer such courses, partly because of lack of teachers, partly because language teachers of French, German, Spanish and other foreign languages try to prevent new languages from entering their schools, by fear that there will be even less students opting for the languages they teach.<sup>4</sup> This mixture of low prestige, lack of teachers and professional language teacher infight is very illustrative of the weak position of these languages in the secondary school system and does certainly not seem promising for the future.

## **6. Higher Education**

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<sup>4</sup> This information is based on a number of personal communications which the author had with secondary school language teachers as well as directors of such schools.

Unlike the position of Arabic and Turkish in the secondary school system, there is a long tradition in Denmark for offering university programmes in these languages, the first Arabic programme dating back to 1492 at Copenhagen University. What has characterized these programmes over the years is that they are mostly philological in nature with a focus on literature and linguistic science. Since 1992, however, it is possible to study Arabic as a modern foreign language as a part of a business degree, or, since 2005, as a part of a communication studies degree. These programmes cover the Danish labor market's need for graduates with language skills in Arabic to be employed in exporting companies working with business or marketing related issues.

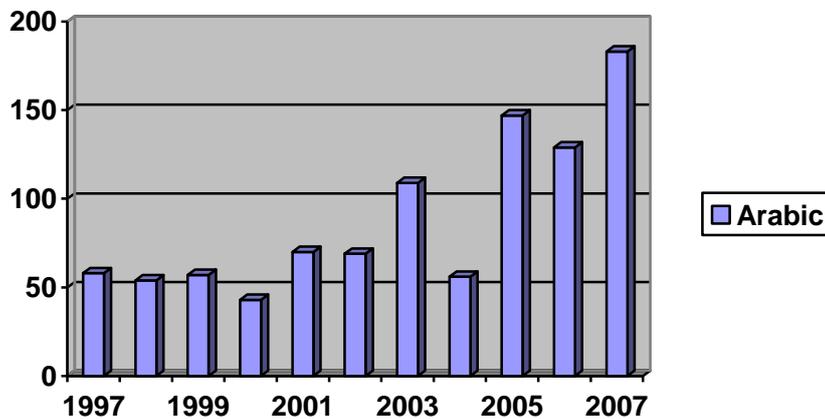
When it comes to the needs of the Danish public sector, however, things are quite different: In a welfare state where immigrants are taken care of by the state in many aspects, there is a dire need for certified translators and interpreters who can assist the authorities when Arab speaking immigrants with little knowledge of Danish are to interact with the authorities. Social workers, hospitals and doctors, legal offices and criminal courts have been crying out for qualified translators and interpreters in Arabic for many years (Courts of Denmark, 2003: 3-6; Andersen, M. 2003: 152), only to be met with silence from universities and ministeries. This educational void is most probably due to the fact that the need for translators is caught up in a vacuum between universities arguing that such programmes are too expensive to run on the usual financial conditions, whereas the Ministry of Education and the Ministry of Science and Technology have declined to offer any special support. As a result, there is no established program to train certified translators or interpreters in Arabic in the country, and therefore the public sector continues to employ native speakers of Arabic with no formal qualifications on a freelance basis to translate in courtrooms, at hospitals, etc. where so much can be at stake. This strategy keeps costs low for the authorities, given the fact that such freelancers are payed much less than certified translators of other languages, but it does not establish any mechanisms of quality check or guarantee any form of problem solving strategy in case serious misunderstandings arise.<sup>5</sup>

Since the end of the 1990's, there has been a growing interest in studying Arabic, be it in a traditional programme of Arabic language and literature or as a combined study degree of Arabic and business economics or communication studies. The growing interest can be seen from figure 2. This interest has come at a time where the number of students studying European foreign languages is decreasing: Apart from English which is by far the most important foreign language in Denmark at all levels, the number of students applying for language programmes of German, French, Russian and Spanish at university level has fallen significantly (KOT, 2008). This has led to a new situation in Danish Universities where Arabic is considered one of the big foreign languages, measured in numbers of students.

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<sup>5</sup> The only attempt to remedy the lack of qualified translators and interpreters was offered by Copenhagen and Aarhus Business Schools which established a one year open university programme in immigrant languages in 1997. The programme aimed at upgrading native speakers of immigrants languages, but only very few classes were realized due to lack of students: When native speakers of an immigrant language can get a job as an interpreter or a translator without any diploma or certification and to the same remuneration as one with a one year diploma, there is obviously no incentive for spending time and money on such a programme.

**Fig. 2:**  
**The number of applicants for Arabic at Danish universities 1997-2007 (only applicants with Arabic as first choice included).**



Kilde: KOT <http://www.tilmeldingssekretariatet.dk/>

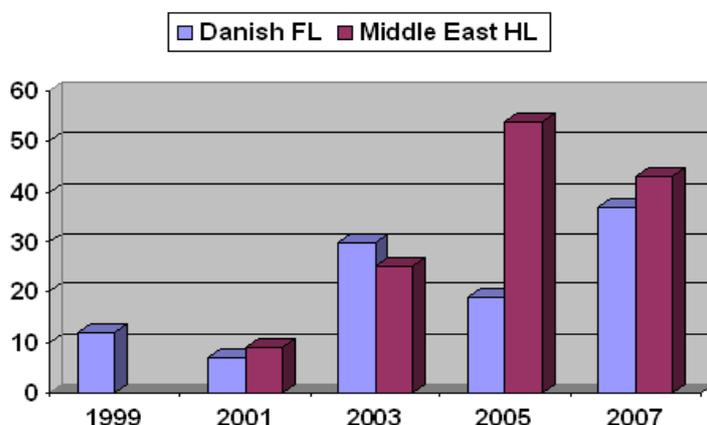
The growth of Arabic at university level can be explained partly by the fact that there has been an increased interest in studying the language from young Arab and Middle Eastern immigrants living in Denmark. In the pedagogical literature, these students are often referred to as heritage learners, meaning “...someone who has had exposure to a non-English (in our context: non-Danish) language outside the formal education system”, or “individuals who appear in the foreign language classroom, who are raised in homes where a non-English (non-Danish) language is spoken, speak or merely understand the heritage learner, and are to some degree bilingual in English (Danish) and the heritage language.” (Valdes, 2001, cited in Hornberger and Wang, 2008: 4).<sup>6</sup> Danish universities do not register students according to race, ethnicity or religion, however, and therefore, not much is known about how many students actually qualify for the term heritage learners. From classroom experience in one of the three Danish Universities which offer Arabic, the number of heritage learners has risen considerably over the last 7 years, as can be seen from fig.3<sup>7</sup>

**Fig. 3:**

<sup>6</sup> For further discussion about the different definitions of heritage language learners, see e.g. Hornberger and Wang, 2008.

<sup>7</sup> Until 2007, this Arabic programme only accepted students every second year.

## Number of applicants for Arabic at the University of Southern Denmark, 1999-2007



Kilde: KOT <http://www.tilmeldingssekretariatet.dk/> and University of Southern Denmark

Based on figure 2 and 3, we may confidently conclude that there is a growing interest in studying Arabic at university level in Denmark and that, at least to some degree, this interest is a reflection of the fact that more Middle Eastern heritage learners are taking an interest in learning or upgrading their language proficiency in Arabic.

### 6. Dilemmas in Danish educational language policy

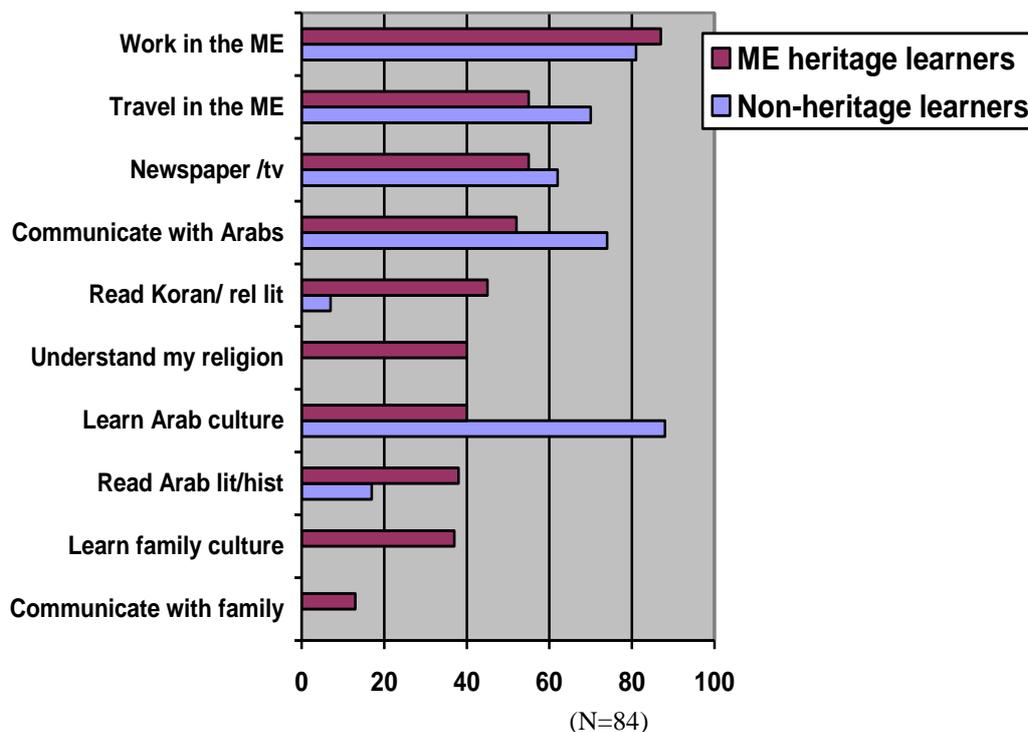
To briefly sum up, the Danish educational sector has experienced an upgrading of Danish in preschool activities and in primary school during the last decade, while at the same time, non-European immigrant languages have been downgraded in primary school to the extent of almost disappearing from the official curriculum. As for secondary school, studying non-European immigrant languages was never an option prior to the reform in 2005, and though Arabic and Turkish are now offered as optional language classes, it seems unlikely that this will have any impact on the situation, at least in the short run, due to structural problems such as lack of teachers and lack of demand for foreign language classes in general. Only at university level do we find language classes of any importance in non-European immigrant languages such as Arabic and Turkish; these languages were institutionalized long before immigration from non-European countries became an issue in Danish society, and this is probably the reason why they have managed, rather easily, to meet the demand for Arabic studies, not least among the growing number of Middle Eastern heritage learners.

But why does a growing number of students, and not least heritage learners, presently choose to study a non-European immigrant language such as Arabic at the university level? Not much is known about this, partly because of the general scarcity of studies dealing with student motivation in the field of Arabic, partly because the growth of students in university studies of Arabic is a fairly new phenomenon, not least in a Danish context. Is it e.g. because heritage learners want to learn more about the language and the culture of their parents? Do heritage learners feel that they can turn their “disadvantage as immigrants into an advantage” in the labour market, as claimed

by some of them? Or is it, as argued by a wellknown Danish History professor, because the heritage learners “want to make a shortcut to an academic degree” (Ø stergaard, 2007)?

In order to shed light on students’ motivations and expectations for studying Arabic, a survey was conducted at the Arabic programme of the University of Southern Denmark in 2007. By means of a questionnaire, which was distributed one week after the beginning of the semester, all first year students were asked, among other things, about their reasons for choosing to study Arabic, what they expect to learn, in what field they want to work after graduation, and how their choice of study was perceived by their family and friends. In an attempt to make at least some of the results comparable to an earlier survey on students of Arabic in the US, we used many of the same questions on student motivation as Belnap (2006)<sup>8</sup>.

**Fig. 4:**  
**First year students’ reasons for studying Arabic at university level (%)**



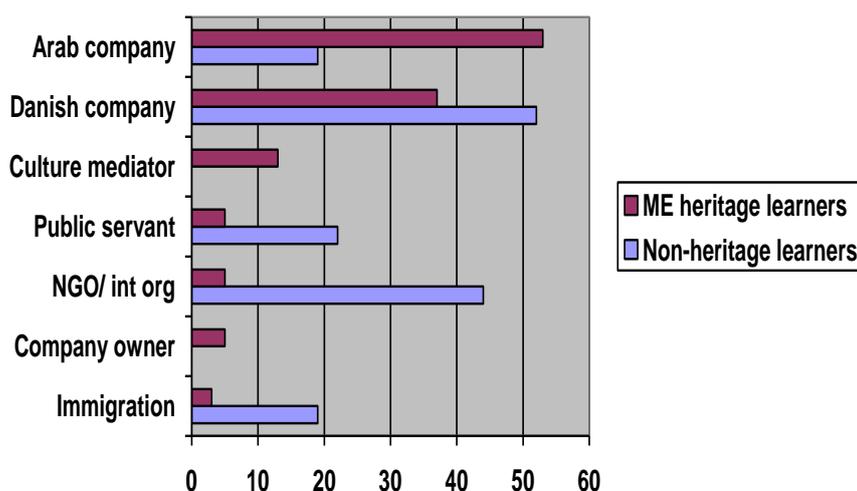
As can be seen from fig. 4, heritage learners and non-heritage learners share a common motivation for studying Arabic: More than 80 % of both groups state that their main objective is to get a job working with the Middle East. As second choices come travelling in the Middle East, getting access to news in Arabic and communicating with Arabs, which attract approximately half of the heritage learners and 50-60% of the non-heritage learners. Religious aspects (reading the Koran and religious literature, understand their religion) and access to Arab heritage (literature, history, culture and

<sup>8</sup> Belnap’s survey, however, does not report much on differences in student motivation between heritage learners and non-heritage learners (Belnap, 2006, 174-175).

family matters) seem to attract mainly heritage learners (around 40%), the only exception being that non-heritage learners are also highly motivated by learning about Arab culture (more than 80%). This seems to suggest that heritage learners' reason for studying Arabic, in Denmark at least, is of the same nature as that of all other students: They want to get a job, preferably related to the Middle East. Heritage-related motivations, such as religion or learning the language and culture of their parents, seem to be of less importance.

What kind of jobs do the students want to get, once they graduate? While heritage and non-heritage learners do not differentiate very much in their wish to use their degree for career-opportunities, there are indeed differences as to where they want to work in the future: As can be seen from fig. 5, non-heritage students opt for a variety of jobs, be it in the public sector, in international organizations, NGO's or in Danish companies. The heritage learners, on the other hand, give priority to the private sector: They want to get a job in an Arab or a Danish company, whereas neither the public sector nor international organizations/ NGO's seem to be of interest to them.

**Fig. 5**  
**First year students' expectations for future jobs (%)**



The survey is based on a rather small sample of students, and one has of course to take care not to overgeneralize the results. With this in mind, it is nevertheless noticeable that students who opt for an education in a non-European immigrant language such as Arabic, do so with the clear expectation of getting a job, be it in the private or the public sector. And this very fact points to at least two dilemmas in Danish educational language policy: First, in a society which upgrades Danish and downgrade non-European immigrant languages in the educational sector, a growing number of young Danes, heritage and non-heritage learners alike, not only want to study a non-European language such as Arabic; they also see their choice as a way into the job market. Thus, there seems to be a contradiction between the policy of the Danish educational sector on non-European immigrant languages and the interests, wishes and aims of heritage and non-heritage learners, which is all the more striking because the Danish welfare state

would eventually benefit from these learners getting access to the labour market in terms of taxation.

And secondly, there seems to be dilemma with regards to globalization: On the one hand, a small and highly globalized welfare state such as the Danish one is very dependant on its interaction with the outside world, be it financially, culturally or for national security, and therefore must give priority to foreign language learning. On the other hand, the welfare state does what ever it can, to downgrade the importance of non-European immigrant languages by creating barriers for education in these languages. This leads to a weird situation where the potential of non-European immigrants to support the globalized economy of the Danish welfare state is not used to its full potential, neither for the immigrants, nor for the welfare state.

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# The transcription of personal names: the Japanese passport

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## Abstract

An important matter of language policy today, affecting thousands of individuals around the world on a daily basis, is the roman transcription of personal names in identity documents. Yet, despite a half-century of effort by the International Civil Aviation Organization (ICAO) to standardize travel documents, state authorities often issue passports with improper and contradictory roman spellings. The modern Japanese passport is notably bad, but such problems face international travellers from Chinese, Arab, and other cultural areas. The documentation and verification of personal names is an important feature of international policing, banking, and general commerce; and linguists must help craft language policy which informs the documentary records of people and their personal names.

**Keywords:** language policy, Japanese passport, names, document standards, roman transcription

## 1. Documentary names

One of the most important matters of language policy today, which immediately affects thousands of individuals around the world on a daily basis, is the roman transcription of personal names in identity documents. Moreover, the current climate of wariness over international terrorism has heightened the scrutiny of identity documents, raising also the risks faced by normal innocent people. Strolling through today's global village invites routine police stops, questionings, and requests for a "photo ID". One's personal name is no longer what one utters in reply to a friendly greeting: "Hi! What's your name?" Instead, personal names have become so many patterns of ink on government documents; and woe be to the person with discrepancies in the documentation of his or her personal name! Yet, despite a pressing need for rational and perspicuous language policy decisions, and despite a half-century of effort by the International Civil Aviation Organization (ICAO) to standardize travel documents, we have a situation which may be aptly termed "unplanned language policy" (cf. Touchstone 1996); in this case, where a state authority issues passports with insufficient regard for the precise manner of name transcription. The resulting frustration and complaints are similar to those described for laissez-faire language policy by Phillipson (2003: 133-137).

In former times, passports were fairly casual travel documents in which a person's name was written as he or she might desire, which is actually a very good policy. After all, if I were to say, "My name is 'Joe'," and you were to say, "Oh, hi Jim," then I would correct your misapprehension of my name by saying something like, "No, my name is 'Joe', not 'Jim'."

### 1. a plausible introduction

- Hello! My name is 'Joe'.
- Oh, hi Jim!
- No, my name is 'Joe', not 'Jim'.

Similarly, as a competent adult, I tell people how to write my name, especially since people often have a hard time with "DeChicchis".

Over the past generation, passport offices have increasingly usurped the responsibility for writing a person's name "properly", with unfortunate consequences for travelers. Such usurpation is done in the name of "uniformation" (cf. Rubin 1977:

171-172), and Japan's passport offices have ostensibly done this in order to better meet Japan's international obligations toward the standardization of travel documents. Officials at Japanese passport offices have become more careful in checking roman transcriptions, and they have become less tolerant of variation, all with an eye toward achieving the goal of a uniform passport transcription policy. Ironically, in part due to these same passport officials, Japan is now replete with stories about the bizarre misspelling of names. By striving for passport uniformity, these officials have actually contributed to the proliferation of discrepancies vis-à-vis other identity documents.

Due to ICAO-led standardization, the passport has come to serve as a proof of personal identity. Therefore, it is particularly surprising to learn that the passport name of a person may not be that person's legal documentary name. This is the area where the discrepancies between countries' documentary traditions and the ICAO's emerging international standards are most glaring. Personal names may be natively written using scripts or diacritics or styles which are eschewed by the international passport standard. The modern Japanese passport is notable, not only because the person's roman script passport name does not match the person's legal Japanese script name, but also because the Japanese government's protocol for romanizing Japanese personal names is often at odds with Japanese cultural tradition, documentary precedent, and the personal desires of the Japanese people. As a result, many Japanese have become accustomed to using a passport with an incorrectly spelled name. The passport spelling may not match the spelling on a credit card; it may not match the spelling on a school diploma; it may not match the spelling on a driver's license.

The official Japanese documentary name of a person is written on a document which constitutes proof of that person's Japanese nationality. The data of the "koseki tohon" (戸籍謄本 "one's family registry record") are written using a limited set of Chinese and Japanese script characters. This koseki system of family registration both records and certifies the official Japanese script name of each Japanese person.<sup>1</sup>

## 2. spelling one's name

- How do you spell your family name?
- D, E, capital C, H, I, C, C, H, I, S.
- Thank you.

田中

健

## 3. official Japanese name as registered and printed on proof of nationality

On the other hand, the official Japanese passport is printed without the Japanese person's official name; instead, in accord with ICAO guidelines, a romanized name is given.



4, Japanese name as written on the Japanese passport

Two questions immediately present themselves. First, how is the roman script name to be decided? The Japanese government has devoted some attention to this question, and government policy is discussed below. Second, when looking upon a Japanese passport, how is an official looking at the passport able to infer the actual Japanese documentary name of that person? Considering the romanization of many common Japanese names yields an appreciation for the relevance of this seemingly abstract policy question. For example, the passport name "Watanabe" can correspond to one of four common family names: 渡部, 渡辺, 渡邊, 渡邊. The passport name "Tachibana" can be 橘 or 立花; and "Sakai" can be 坂井 or 酒井. The Passport Law (法律第二百六十七号) remains underspecified as to the nature of Japanese orthography; however, it does require that the "shimei" 氏名 (i.e., a full documentary name, with both family and given names) be written in the passport. Now, the authority for a Japanese person's shimei is undeniably the "koseki", i.e., the family registry, where the shimei is written without the use of roman characters, and where the shimei is typically written using only kanji. In other words, the official documentary name of a Japanese person, the shimei, is never written in roman and is typically written only in kanji. One immediately wonders why the passports currently issued by Japan do not bear this shimei, as required by law.

Of course, romanizing names for passports does not just affect Japanese people. International travellers from Chinese, Arab, or other cultural areas experience similar choices, and even absurdities. How should Arabic be romanized? Moreover, troublesome transcription problems are not necessarily associated with nonroman scripts, as the Latvian court cases involving the variant spellings of "Mentzen" and "Mencena" made clear. Although Latvia's ultimate court decision on this particular woman's passport name transcription indicates that even a linguistically hard-line government can show sensitivity in language policy making (cf. Republic of Latvia 2001), such sensitivity is still uncommon.

5. Arabic يوسف  
Yusef, Yousef, Yusf, or Joseph?

6. spelling in Latvia  
Mentzen or Mencena?

## 2. Japan's modern personal name

Japan's modern era begins with the Meiji Restoration, shortly after which all Japanese were required to adopt surnames, and these became the inherited family names of today. Thus, the modern Japanese personal name, the seimei 姓名, consists of a family name and a given name, both of which are recorded in the family registry (the koseki 戸籍) maintained for each Japanese person by the appropriate municipality. Such registration constitutes proof of Japanese nationality.

### 7. the Japanese name

**pattern:** seimei 姓名 = myōji 苗字 + namae 名前

**example:** 田中健 = 田中 + 健

**romanized:** Tanaka Ken.

Today, a person's family name may be called a myōji (苗字 or 名字), uji (氏), or sei (姓), although these terms were not synonymous in former times. The given name is called the namae (名前 "name") or, when disambiguating, the shita-no-namae (下の名前). In the family registry, the family name is written in an area separate from the given name, but in other documents the family name and given name are written together and in that order. Technically, for Japanese nationals, there is no space between the family name and given name when written together as one seimei; however, on many official documents, a space or even a punctuation mark can separate the family name from the given name. Thus, a person's documentary name may be printed in several ways.

### 8. common seimei variants

田中健  
田中 健  
田中 健  
田中、健  
田中・健  
田中, 健

A myōji may be written with between one and five kanji, though most family names are written with either two or three kanji. Of the fifty most common Japanese family names, forty-six are written with precisely two kanji. Thus, even when written without an intervening space or punctuation, the boundary between the myōji and the shita-no-namae is normally easily guessed.

The Japanese family registry records the official transcription of the seimei, and only a proper subset of the Japanese script characters are used in this registry's transcription. Moreover, the pronunciations of the names are not explicitly recorded. Consequently, the family registry record cannot differentiate homonymous names, nor can it identify homophonous names.

### 9. script ambiguity

**homonymous** 上野 and 上野  
(i.e., Ueno and Uwano)

**homophonous** 川村 and 河村  
(i.e., Kawamura)

Using the Japanese syllabary, we can easily write the pronunciation of a family name or a given name. For example, my own family name (which is the registered name of Japanese nationals) is written デキキス with syllabic characters. However, most registered Japanese names are written with kanji (i.e., with Chinese logographic characters). Thus, for a typical Japanese person, the family registry affirms the official

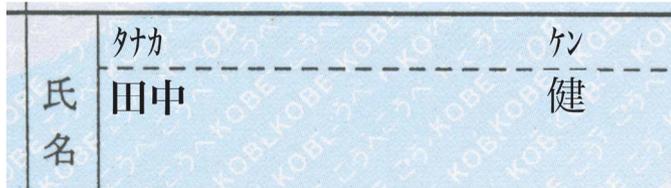
documentary name of that person, in Japanese script, and the name is typically written with logographic characters. The indeterminate nature of such pronunciations is well known.<sup>2</sup> Nevertheless, the pronunciation of such logographic characters is not explicitly written on the koseki tohon and other Japanese family registry documents.

Although it is not written on the koseki documents, the pronunciation of a Japanese person's documentary name is written on other official documents. For example, it is now always written on the document used to register a person's birth. The official pronunciation of a seimei may also be transcribed with the Japanese syllabary in the person's residence certificate, which replicates the data of the jūminhyō 住民票, the address registry maintained by the appropriate municipality. The city of Kobe prints the pronunciation using the Japanese syllabary on the residence certificate; however, the city of Osaka does not.

**10. names registered in syllabic script**

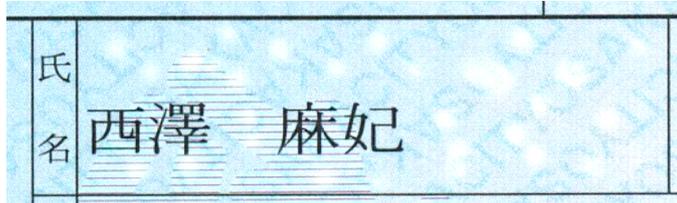
**family name:** デキキス

**given name:** りな



**11. Kobe pattern:**

**The Japanese pronunciation is printed on the residence certificate above the official seimei (jūminhyō 住民票).**



**12. Osaka pattern:**

**No pronunciation is printed on the residence certificate,**

Currently, as seen here, the Kobe residence certificate prints these pronunciations along with the seimei. In Osaka, on the other hand, the pronunciation is not printed. A person's birth registration certificate, or sometimes even a national insurance card, can be used as documentary evidence of a name's pronunciation; however, a Japanese rarely has to document the pronunciation because simply saying the name aloud suffices in most contexts. In the case of passport applications, when documentary proof of a pronunciation cannot be provided, the passport official must be willing to accept the applicant's attested pronunciation.

**3. Japan's romanization schemes**

Neither the family registry nor the residence registry provides for a romanization of a personal name. Thus, in order to comply with ICAO passport standards, it is necessary to romanize the personal name of each person who receives a Japanese passport.

Japan's foreign ministry has thus been entrusted with the task of romanizing the seimei of any Japanese who desires a passport.

Japanese language has been romanized in various ways over the years, but the most common romanization schemes used today are all either a Hepburn version or a variant of the Nihon-shiki. Varieties of the Hepburn romanization scheme have been used since 1885, although no Hepburn system is currently the legal standard of Japan. Since 1954, the legal standard for romanization has been a variant of the Nihon-shiki known as the Kunreisiki, which was the basis for the international standard ISO 3602. Figure 13 shows how some Japanese names might be romanized under different systems.

### 13. variant romanizations

大谷	Ohtani, Ôtani, Ootani, Outani, Otani
中島	Nakajima, Nakazima
藤原	Fujiwara, Huziwara, Fudziwara
梅治	Meiji, Meidi, Meizi

A Cabinet Order of 1954 (内閣告示第一号) standardized the romanization, resulting in the so-called Kunreisiki system. However, the wording of this order was vague enough to allow for continuing discrepancies. In particular, exceptions listed in "Table Two" were intended to accommodate the most common Hepburn transcription practices. Figure 14 gives the three rules of the 1954 Order.

### 14. government romanization rules

- (1) In order to transcribe Japanese into roman characters, you must follow Table One.
- (2) If, due to international relations or convention or such, you are unable to follow Table One, then Table Two may be in order.
- (3) In any case, the notes below must generally be applied.

To compensate for such vagueness, one would expect that the administrative protocols for transcription be well specified. How are the tables to be read? Precisely when should Table Two be used? Who is authorized to answer these questions? However, as is often the case in Japan, a consistent protocol for resolving transcriptions according to these 1954 guidelines has not been published.

As can be seen in the passports issued by the various passport offices of the Foreign Ministry, passport names generally violate the 1954 law. To take two simple examples, Japanese passports have been issued which vary on the spelling of し as either SHI or SI, and on ち as either TI or CHI.

### 15. Table One and Table Two conflicts

し should be romanized as:  
(re Table One) SI  
(re Table Two) SHI  
ち should be romanized as:  
(re Table One) TI  
(re Table Two) CHI

Passports have also been issued which vary on the use of R~L and N~M, even though the 1954 Order is clear that L and syllabic M should not be used. According to the Notes of the Order, ん should always be written as N, and both Table One and Table Two require writing れ as RE (never as LE). Some representative variants are listed in Figure 16.

### 16. authorized and unauthorized romanizations

pronunciation in hiragana	authorized by Table One	authorized by Table Two	unauthorized romanization
しまの	Simano	Shimano	
みちえ	Mitie	Michie	
じゅんぺい	Zyunpei	Junpei	Jumpei
れお	Reo	Reo	Leo

In defense of their deviation from the Kunreisiki standard, passport officials routinely state that they are adhering to Hepburn rules for romanization; however, they do not specify which version of Hepburn they follow. The traditional Hepburn system sometimes transcribes ん as M, whereas later versions always use N (often with a diacritic, such as an apostrophe or macron). In any event, to explicitly claim to follow Hepburn rules is still a violation of the 1954 Cabinet Order which mandates Kunreisiki. Moreover, no version of the Hepburn transcription permits writing LE for れ, yet such a spelling can be used on a Japanese passport, and Japanese passports have indeed been issued which spell names with L.

#### 4. The problem: no protocol, case-by-case variation, local passport office caprice

In short, there is no published protocol for uniquely transcribing Japanese names into roman letters, and examination of official practice reveals that transcriptions actually vary on a case-by-case basis. Currently, at Japanese Passport Offices, the reality of

Japan's transcription protocol is simply this: An applicant for a Japanese passport is browbeaten to transcribe the pronunciation of the seimei in conformity with Table Two of the 1954 Cabinet Order, unless the applicant can show good reason to do otherwise. Passport officials may also insist on transcriptions which violate the Notes of the 1954 Cabinet Order (e.g., syllabic M instead of N). In general, in completing the application form, whenever an applicant for a passport provides a roman transcription which a passport official does not like, the transcription is routinely changed, and a passport is issued in the "acceptable" spelling; the applicant can either take it or leave it.

Thus, the modern Japanese adult who travels abroad now receives a third transcription of his seimei. Besides the seimei as traditionally written with kanji in the koseki, and besides the official pronunciation of the seimei as written with the Japanese syllabary on the birth certificate and elsewhere, there is now the romanized seimei as written in the Japanese passport.

## 5. The case of Genmoto~Gemmoto

Japan's passport authorities and their romanization insensitivity have been a source of trouble for many people. The case of the Genmoto げんもと family is illustrative. The traditional Hepburn transcription occasionally uses M to transcribe the syllabic ん, but later versions of Hepburn (e.g., the Library of Congress version) do not use M in this way. Under Japanese law (e.g., the 1954 Order), this name should be transcribed as GENMOTO, and it is so transcribed on the credit cards and important civic and commercial documents of one Genmoto family. Yet, in the case of this family, the passport office has insisted on spelling their name GEMMOTO. The spelling GEMMOTO explicitly contradicts the 1954 law, which specifies that the syllabic ん must always be transcribed with N.

17. Genmoto~Gemmoto	
<b>pronunciation in hiragana:</b>	げんもと
<b>VISA card romanization:</b>	GENMOTO
<b>passport romanization:</b>	GEMMOTO
<b>air ticket romanization:</b>	??????????

Since 2001, heightened scrutiny of documents at airports has been troublesome for the Genmoto family. If an e-ticket is issued in the name GENMOTO, then it will match the name on the purchasing credit card; however, it will not match the name on the passport. Alternatively, using the passport spelling makes it difficult to purchase a ticket. Despite pleas from the Genmoto family, the Japanese passport officials have refused to issue a passport with the desired spelling of GENMOTO, even though this is the spelling which has been official since 1954. As one member of the Genmoto family puts it: "I have spelled my name both Genmoto and Gemmoto. For Japanese friends and when I am in Japan, I use 'Genmoto', and for friends outside of Japan and when I go abroad, I use 'Gemmoto'. This is because of my passport."<sup>3</sup> Of course, the Genmoto

family would like to use a uniform roman spelling of their name, but the Japanese passport authorities have made this impossible.

In 1954, Japan showed promise for implementing rational language policy when it reaffirmed its pre-war decision on Japanese romanization; however, today, Japanese policy in this area remains inchoate. Romanization is important in Japan because of its widespread use in banking and commerce. In addition, the roman transliteration and transcription of Japanese names is widespread outside Japan, especially in the Americas and Oceania, and the reconciliation of alternate spellings of family names across international boundaries is an issue of Japanese concern. For other reasons as well, Japan has long recognized the need for a sensible romanization policy, but it has simply failed at implementation.

To appreciate the extent of this failure, it is enough to note that Japan's current passport law contradicts an earlier cabinet order. Moreover, Japan's passport law, in spite of Japan's ICAO membership and participation, also fails to comply with the ISO standard and with the ICAO's own guidelines for passport name transcription. After all, the 1954 Kunrei romanization system is the ISO standard, and it is cited in the ICAO passport guidelines as the proper way to romanize Japanese. Clearly, Japan's passport offices are not only failing to serve their own people, but they are also failing to meet their obligations under international agreements.

## **6. Government awareness of the problem**

Passport officials are aware of the problems which name transcription currently creates. The biggest single problem is that a person's official Japanese script name does not appear anywhere on the modern Japanese passport. Towards rectifying this problem, and as a way of also bridging the gulf between disparate spellings, passport officials now encourage Japanese citizens to sign their passport using the Japanese script in block style.

Unfortunately, many Japanese have cultivated cursive signatures in both Japanese and roman scripts. Given that their passport signatures may be used as an identifying feature in their foreign commerce, they are reluctant to sign a passport in block letters, and they often prefer to use a roman script signature.

International experience often prompts a Japanese person to develop a cursive roman signature. Here is an example of the cursive roman signature commonly used by one Japanese man:



## **18. Cursive roman script signature**

Of course, before developing his roman signature, he had also developed a cursive way of writing his name in Japanese, for both vertical and horizontal directions. For example, upon receiving certain letters or parcels, he commonly would write his "shomei" 署名 in Japanese script as a mark of such receipt. When writing his Japanese shomei, (i.e., his Japanese signature), from left to right, it looks like this:

A cursive Japanese signature written horizontally from left to right. The characters are highly stylized and connected, typical of a personal signature.

### 19. Cursive Japanese script signature

However, this same man, when writing in the block style suggested by the passport office, writes his name this way:

The same name written in a block-style Japanese script. The characters are more distinct and less connected than in the cursive version, but still written horizontally.

### 20. Name written in block-style Japanese

Clearly, the block style suggested by the passport office is the least personal of the three. Moreover, it can not serve as a basis of signature comparison for identification purposes.

## 7. An easy solution

In general, Japanese language policy in this area requires four things:

- (1) There should be uniform government compliance with the 1954 government romanization rules. These rules are not perfect, but they are fairly clear, and government officials should generally not violate them. Moreover, the 1954 rules have been taught to Japanese school children for over a generation, they are institutionalized in various areas of commerce, and they are well accepted by the general public.
- (2) With respect to the transcription of a personal name, any deviation from the 1954 rules should be made in accordance with the desires of the person affected. A passport official should not presume to tell Japanese citizens how to spell their own names.
- (3) A passport name spelling should be amended whenever this is so desired by the person affected. Just as a foreigner living in Japan can change his or her official pseudonym (i.e., the *tsūshōmei* 通称名, which is registered in the municipal registry) at will, a Japanese citizen should be accorded a similar courtesy vis-à-vis the spelling of his or her passport name.

(4) Without violating ICAO specifications, the format of the Japanese passport should be revised to incorporate the Japanese script seimei of the passport holder, and the seimei should be printed in a standard style.

## 8. Linguistic expertise must inform government policy

The actual adoption of any reformulation of Japan's passport name policy would naturally be a governmental decision. Nevertheless, the precise articulation and the rational evaluation of such policy is the proper concern of "language policy" as an object of linguistic attention. Expert linguistic opinion is particularly important in technical issues which lack enough popular interest to make the political agenda, for absence from the agenda does not diminish the importance of an issue. The documentation and verification of personal names is an undeniably important feature of international policing, banking, and general commerce; and linguists have a duty to inform governments and other entities which manage the documentary records of people and their personal names. Despite today's focus on Japan, the issues raised here have global ramifications, not in an abstract academic way, but immediately for real people trying to live their normal lives.<sup>4</sup>

## 9. Notes

1. The graphic depictions of documentary name tokens herein are not exact replicas of actual personal documents. Rather, they are good simulations which preserve the important graphic features of those Japanese documents.
2. Often the indeterminacy involves a trivial morphophonemic variation, such as the pronunciation of を書宮川 as either みやかかわ (Miyakawa) or みやがわ (Miyagawa). In many cases, however, the difference is quite significant, such as the pronunciation of 角田 as either かくた (Kakuta) or つのだ (Tsunoda).
3. Mrs. Genmoto, personal communication.
4. I am grateful to Yasushi Miyazaki, Bouzid Omri, Maki Nishizawa, Miyako Kawano, and others for their help with various parts of this paper. Any errors of fact or interpretation are attributable solely to myself.

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# Empowering African languages: Focus on Tanzania and Namibia

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## Abstract

The language policy of Tanzania (endoglossic) and Namibia (exoglossic) is referred to with reference to the empowerment of African languages. Tanzania's gradual stipulation of the national language Swahili as the co-official language (alongside English) is contrasted with the imposition of the foreign language English in Namibia as official language. In addition, the paper deals with those national languages that are excluded from official and other formal domains in Tanzania, but tolerated and used in Namibia in education, the media and elsewhere. The language policy of both countries is designed to guarantee the prominent role and use of the official languages, while little or no attention is paid to the rich linguistic heritage reflected in the existence of many other languages.

**Keywords:** Language policy of Tanzania and Namibia, empowerment of Swahili and other national languages, official languages, language status, language use.

## 1. Introduction

The objective of this paper is to review language policy issues with particular reference to the empowerment of national languages in two selected African countries, i. e. Tanzania and Namibia. The former country has been known for its endoglossic approach to the linguistic situation. Namibia is an example of an exoglossic language policy which has been pursued since independence in 1990.<sup>1</sup>

The Tanzanian example has frequently been discussed in publications. Accordingly, the question arises - why is Tanzania's language policy taken up again here within the limited context of this conference contribution? The answer is quite simple - the way the country's language policy is portrayed is deficient in one way or another. Thus, the Swahili language is said to have become the official language of the country at a certain point in time authors referring to 1961, 1962, 1964 and 1967 respectively; while up to date any decision of this kind by Tanzanian authorities is still pending.<sup>2</sup> Or, in this connection another tendency is to speak of Swahili as being declared the Tanzanian national language.<sup>3</sup>

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<sup>1</sup> *Endoglossic* and *exoglossic* are terms that became popular in describing language policy positions and implementations in the 1970ies mainly as the result of the thorough discussion of sub-Saharan issues by Heine (1979), see for a current reference Wolff (2000: 342).

<sup>2</sup> See Tanzania (1997: 15) which states that Swahili has not yet been declared the official language of Tanzania (“..bado Kiswahili hakijatamkwa kisheria kuwa ni Lugha Rasmi ya Taifa”).

<sup>3</sup> Comp. i.a. Bamgbose (1991: 121) - “... declaration of Swahili as the national language...” (see also *ibid.*; 32), which obviously refers to its official status as well as to the fact that this (and other “national”

In the case of Namibia, the country's language policy after 1990 enjoyed international attention in early years of post-independence development. In those days, scholars and experts were still hoping that Namibia would have learnt from other African countries and their thorny way of spreading and using the ex-colonial language. However, in so doing the overwhelming majority of Africans was in fact excluded from any active role in the process of nation-building for lack of understanding the official language. Hence, after some years of watching the Namibian experiment of virtually imposing English as a 'no (wo)man's' language, this initial attention faded away. Namibia and her language policy do no longer occupy a favourite position in language policy papers pertaining to Africa, where the focus in the South has shifted to South Africa. Nonetheless, as an example of how an exoglossic policy struggles to spread a foreign language Namibia can still well be taken into account.

## 2. Linguistic situation

Both Tanzania (population 40,213,160) and Namibia (2,088,669 people)<sup>4</sup> are linguistically complex countries. The numbers of languages and language varieties spoken in each country are impressive, even if one takes it for granted that neighbouring "languages" (represented by divergent glossonyms/autonyms) are frequently mutually intelligible language varieties (dialects), thus representing a dialect continuum. Without taking this fact appropriately into account "Ethnologue" (Gordon 2005) claims for Tanzania:

The number of languages listed for Tanzania is 128. Of those, 127 are living languages and 1 is extinct.

The Languages of Tanzania (LoT) project<sup>5</sup> which in 2006/7 carried out a country-wide survey to record the distribution of all languages (national and those of foreign origin) came up with a list of approx. 150 glossonyms. Accordingly, the divergence "Ethnologue" - LoT demonstrates the need for further studies to properly account for the language - dialect dichotomy that is also characteristic of most other African countries.

Swahili is the national language of Tanzania on account of its nation-wide distribution as well as its strong social basis<sup>6</sup> in particular as second language for most adult Tanzanians.<sup>7</sup> English enjoys the status of an official language. Although people

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languages) have their origin in Africa. For a substantial discussion of the term "national language" that includes also this reference to the official status of a particular language see Brann (1995).

<sup>4</sup> Estimates for 2008, source: CIA (2008).

<sup>5</sup> LoT is a Swedish funded research cooperation project that is based at the University of Dar es Salaam, Tanzania, Department of Foreign Languages and Linguistics and the African languages section (University of Gothenburg, Sweden).

<sup>6</sup> Hence, it has not to be declared the national language. Nor are Swedish or German declared the national language of Sweden or Germany and Austria respectively. Such a declaration would be redundant and has never been made. A national language, of course, exists without any formal recognition - terminological vagueness like e.g. portrayed by Bamgbose (see above), or, more general, Wolff (2000), is often typical in this connection.

<sup>7</sup> Probably more than 90 percent of the adults are competent speakers of this language (in fact, to a large extent speaking Swahili as their first language, while mother tongue competence is eroding and lower, the latter being in the process of been given up or less frequently used than Swahili). Children in urban areas mostly acquire Swahili as their mother tongue regardless of the ethnic origin of their parents. In ethnically

speaking English could be found all over the country, its social basis is weak. It is indeed a foreign language despite many years of being taught in school.

For Namibia Gordon (2005) presents the following summary:

The number of languages listed for Namibia is 28. Of those, all are living languages.

Again, the language - dialect problem plays a major role, even with regard to political issues. As a matter of fact, glossonyms like Kwanyama, Ndonga and those of other members of what has earlier been classified as “Ambo cluster” (currently referred to as *Oshiwambo* in Namibia) create the impression of denoting languages of their own. But they are all mutually intelligible constituting approx. 50 percent of languages spoken in Namibia. People, however, resisted and continue to resist any harmonization endeavour on ground of claiming to lose their linguistic and ethnic identity, as soon as measures which aim at overcoming dialect boundaries by creating standard varieties are even discussed.<sup>8</sup>

Initial colonial domination (and after World War I) foreign rule made the linguistic situation even more complex. Thus, with German the colonial rulers imposed a foreign language that was prescribed as being official in important formal domains (in particular the official domains legislation, administration, and judiciary). The Mandate/Trusteeship administration (South West Africa/Namibia was handed over to South Africa, German East Africa - renamed as Tanganyika - was ruled by Great Britain) made English and in Namibia in addition Afrikaans the official languages. These official languages enjoyed a high status, while national languages<sup>9</sup> were rather neglected. Only in Tanganyika British rulers found Swahili to be of some value in order for facilitating the communication of officials with Tanganyikans within the limited framework of primary education, local administration, manpower recruitment, legal matters, taxes or health care.

When South Africa implemented with the Odendaal plan in her Trusteeship country Namibia Apartheid by creating Bantustan-like structures, languages of each so-called self governing territory were made official alongside Afrikaans and English. However, the *de facto* official language of Namibia before independence 1990 was Afrikaans.

It goes without saying that the complex linguistic situation both in Namibia and Tanzania raises many questions which basically boil down to one issue - how to deal with this situation taking into account that there are

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(and hence linguistically) homogeneous rural areas up-country the language of the dominant ethnic community /henceforth called L1) is still the favourite medium of communication which is even acquired by the young generation. Accordingly, approx. 50 percent of rural children are supposed to be not competent in Swahili when they start schooling (author's estimate based on his experience and field work in various regions of the country).

<sup>8</sup> See the summary of a cross-border language workshop and its recommendations in Legère (1998). Until 1994 there was a Language Committee which monitored the development of both Kwanyama and Ndonga, but was split up in September 1994 into the Oshikwanyama Curriculum Committee and the Oshindonga Curriculum Committee. The aim was to further promote both varieties as media of instruction and subjects in school, just ignoring the well known fact that ‘unity is strength’ (much needed to survive in view of the omnipresent position of the official language English).

<sup>9</sup> This term is used here in analogy to other African countries (e.g. Benin, Ethiopia, Central African Republic, Cameroon - for the latter case see Rosendal 2008) to denote heritage languages that are not of foreign origin, but have emerged and being spoken in sub-Saharan Africa since time immemorial (for the use of this term in Africa see Brann 1995).

- those languages which are media of wider communication across ethnic and linguistic boundaries,
- large numbers of languages which are in-bound and not spoken outside the area where the speech community lives, and further
- small and heavily endangered as well as moribund languages?

It is just logical to assume that either every language is left alone to grow or to die, or, as an alternative, that some planned interference takes place addressing relevant variables, some of which are sketched above. In this respect, language policy has an important role to play.

According to Calvet (1986: 20), language policy (*politique linguistique*) is the totality of conscious choices made with regard to the relations between language and social life. From a more comprehensive perspective, the following aspects of what language policy is, were discussed in Legère (1995: 71-72):

Language policy is ... part of the political concept which deals with the linguistic situation in a given country and its intended change along the lines perceived by political or social groups and parties. It is the politically motivated attitude towards a language/languages, in particular its/their role and use in domains which are directly or indirectly controlled by these aforementioned entities. ... a language policy may be formulated by groups of different social or political profile, while its implementation is mostly confined to the ruling class which controls the State and its institutions. Nonetheless, even circles which are not in power may pursue their language policy and its implementation within domains which are either beyond the control of the State or there where the latter is not much interested.

The language policy of a given country may be expressed in policy statements by ruling circles as well as by the opposition or other groups, and may be subsequently entrenched in the Constitution or other legal documents.

... any language policy is embedded in the political credo of the given entity. Thus, the language policy of countries which temporarily followed the ideal of a socialist orientation such as Ethiopia or Tanzania demonstrated much more the will of the Government to actively promote the dialogue with the population by enhancing the use of languages widely spoken or understood by the latter, while traditionally pro-Western regimes like Ivory Coast or Kenya focused on French or English unless the Western-educated and oriented political leadership needed the support of the masses where African languages were used.

For sub-Saharan Africa e. g. Bamgbose (1991) has extensively contributed to the language policy discussion. In particular his final chapter deals in detail with language policies and language planning in African countries as well as the OAU Plan of Action for African Languages.

The author is fully aware of other approaches regarding the understanding of language policy and its role. Within the constraints of this paper reference is made to Spolsky (2008) who summarizes well the on-going discussion on this issue. Spolsky (2004), Ricento (2006) and others provide solid examples of language policy matters both from a theoretical and practical perspective.

### 3. The formulation of a language policy and its implementation

The following part summarizes some historical aspects of how a language policy was formulated and subsequently implemented in both countries taking into account the focus and priorities of addressing the linguistic situation.

#### 3.1 Tanzania

For many years there has been a strong support for Swahili in Tanzania as a landmark which is peculiar for this East African country. This support dates back to the years before independence (Tanganyika 1961, Zanzibar 1963). In those days, the political party Tanganyika African National Union (TANU) which took power in 1961 paid particular attention to Swahili. As early as 1954 the then Founding Party Congress included this language in its resolutions with regard to stipulating the language's official status alongside English in the Legislative Council (as well as its role as medium of instruction in school, see TANU 1954: 3). During the independence struggle Swahili was almost exclusively used by the TANU President Nyerere and other leaders as the medium of communication for mobilising the population and explaining TANU policy. This preference of Swahili that took the language's wide spread into account was corroborated in political speeches, statements by party officials and in documents (e.g. at the 1958 TANU Congress which is said to have endorsed Swahili to become the official language after independence).

The political leaders of independent Tanganyika and Zanzibar (and subsequently Tanzania) have been promoting Swahili in many ways thus setting an example for sub-Saharan Africa. The then presidents J. K. Nyerere and Sheikh Abeid Amani Karume, Prime-Minister/Vice-President Rashidi Kawawa and others time and again stressed the role of Swahili as a unifying factor both in Mainland Tanzania and the islands Zanzibar/Pemba.<sup>10</sup> Thus, Nyerere (1965a: ii) stated that "*Kiswahili ni lugha ya Taifa Tanzania*" (Swahili is the language of the Tanzanian nation), but also "*Kiswahili ni moja katika lugha mbili za Taifa*" (Nyerere 1966: v, Swahili is one of the two languages of the nation).<sup>11</sup> The then Second Vice-President Rashidi Kawawa (1970: 4) spoke of Swahili as the "language for all our politics and for almost all our administration".

The years after independence evidenced the far-reaching empowerment of Swahili. Swahili was introduced step by step as official language into formal - in particular official - domains<sup>12</sup> that were a stronghold of English. The latter language was taken over as the official language from the previous dispensation.

Some decisions by Tanganyikan/Tanzanian authorities in favour of Swahili were subsequently interpreted by authors as the year or date which marks the declaration of Swahili as the official language of the country. Very recently, for instance, Maral-Hanak (2008, 116) stated that in the year 1967 Swahili became the official language of

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<sup>10</sup> 21 January 1964 the then People's Republic of Zanzibar and Pemba made Swahili the official language (this decision was announced only a few days after the overthrow of the Sultan's regime). Zanzibar and Mainland Tanganyika formed a Union in April 1964 with the new name Tanzania.

<sup>11</sup> Clearly referring to its role in formal communication alongside English. More about Nyerere's role in the empowerment of Swahili see Legère (2006).

<sup>12</sup> "Official domains" means here National Assembly/Parliament (legislative), Government and administration (executive) and law courts and law-enforcing institutions (judiciary).

the government. This statement is not further corroborated.<sup>13</sup> The year 1967 seems plausible, since that year coincides with the Arusha Declaration, the then focus on a pro-socialist orientation and fundamental changes in the political development of Tanzania where grassroots mobilization in a language known by the overwhelming majority - and this was clearly Swahili - was a declared goal. Nevertheless, any interpretation which relates the year 1967 with Swahili becoming the official language of Tanzania is not correct, as it neglects the process character of the development and earlier decisions (e.g. in 1964).<sup>14</sup>

The quote initially (in footnote 2) which comes from the quite recent Culture Policy document (Tanzania 1997) makes clear that Swahili has not yet been stipulated as Tanzania's official language. Nevertheless, in practice it has been enjoying this status alongside English for many years. Under the leadership of JK Nyerere the Tanzanian government has appropriately entrenched and consolidated the use of Swahili in particular in the legislative, executive, and judiciary. This language was taken care of in legal documents, such as the constitution, laws, directives, proceedings, etc.

Here are some milestones that demonstrate the officialisation of Swahili:

- 1962 - Report of the Swahili Commission (Chairman Amri Abedi), subsequently Prime Minister Kawawa directs Ministers and civil servants to speak Swahili in public;
- 1962 - President Nyerere addresses the National Assembly in Swahili;
- 1962 - Swahili examination for civil servants;
- 1963 - The Speaker of the National Assembly authorizes MPs to use Swahili in the proceedings;
- 1964 - Kawawa reiterates his directive about Swahili use in administration and parastatals;
- 1967 - Kawawa directs the exclusive use of Swahili in government offices;
- 1972 - Correspondence with Ministries has to be exclusively in Swahili, mail in a language other than Swahili to be returned to sender or remaining unanswered;
- 1974 - Staff Circular 1 directs the far-reaching use of Swahili for
  - all ministerial correspondence;
  - all communication in offices;
  - all office names (Ministries, etc.);
  - all forms.<sup>15</sup>
- 1997 - The Cultural Policy document pays attention to the role and importance of Swahili as well as of L1s, proposing various steps that aim at documenting and promoting these languages.

It should be further noted that various laws and by-laws mark the formal introduction of Swahili in a particular official domain. This is meticulously listed by Bakilana (2004) who refers i. a. to the Marriage Law (1971) being the first legal document translated into Swahili, the Local Authorities (Elections) Act (1979), the Primary Courts Act

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<sup>13</sup> There is a certain automatism in this statement which is replicated from another source in the sense that its relevance is not scrutinized, but taken for granted.

<sup>14</sup> For details see Legère (1981).

<sup>15</sup> In the late seventies and the eighties of the 20th century no further substantial changes in support of Swahili were made. That's why TUKI (1985) praised the early enthusiasm of the post-independence period but was critical about subsequent stagnation.

(1984), and, of course, to the Tanzanian Constitution which is exclusively written in Swahili (and then translated into English) and the Standing Rules of the National Assembly.

The initiatives summarized above had a far-reaching impact on the position of Swahili in official domains. This language replaced English in the National Assembly, in ministries and other government offices of the central or regional level and as language of the law courts and law enforcing institutions.

Furthermore, the preference Swahili was given in official domains is also mirrored in further legislation which stipulates the use of Swahili (next to English) in other formal domains, such as education (expanding its use as medium of instruction throughout primary education), mass media, trade and commerce, economy etc. In 1969, the Ministry of Education announced in the Second Development Plan (1969-1974) that by 1974 Swahili would be the language of instruction in secondary schools.<sup>16</sup> This objective was, however, subsequently dropped.<sup>17</sup> Another attempt was made in 1984 with one of the recommendations of the Kuhanga Commission that was never implemented, obviously under pressure from institutions in UK. Since then no viable government initiative to address this issue was made.

So far nothing has been said about L1s which are an integral part of the Tanzanian nation. For many years of the post-independence period until the early 1990ies these languages spoken by substantial parts of the Tanzanian population in rural areas of Mainland Tanzania were stigmatized in public and branded as a symbol of tribalism undermining national unity.<sup>18</sup> This position which contradicts linguistic human rights that are i. a. encapsulated in the Universal Declaration of Human Rights and other international documents was formally revised in the 1997 Cultural Policy document (Tanzania 1997) where a special part of the publication is dedicated to the as called therein “community languages” (*lugha za jamii*).<sup>19</sup> This policy document emphasises with regard to the L1s:

- L1s represent sources of history, customs, traditions, (traditional) technology and culture in total.
- people will continue using L1 and being proud of them.

As a consequence, the following issues should be addressed:

- People and parastatal as well as private institutions are encouraged to write in, collect material for, study and protect L1s, and to translate from these languages into others, and
- the production of dictionaries (glossaries) and grammatical descriptions (*vitabu vya sarufi*) is encouraged.
- Institutions and individuals are encouraged to edit/publish texts in L1s.

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<sup>16</sup> “Serikali imekata shauri kuwa baadaye Kiswahili kitatumika kufundishia masomo ya Sekondari” (Tanzania 1969: 13).

<sup>17</sup> Insiders blamed Nyerere for being against this step. In fact, he stated in 1974 that the further expansion of Swahili’s role in education would be the death blow for English.

<sup>18</sup> Wrote JK Nyerere: “Making Kiswahili Tanzania’s language helped us greatly in the battle against tribalism. If every Tanzanian had stuck to using his tribal language or if we had tried to make English the official language of Tanzania, I am pretty sure that we would not have created the national unity we currently enjoy ... [W]e have ... an enormous duty to continue to promote and enhance Kiswahili. It is a great weapon for our country’s unity” (quoted in Laitin 1992: 91–92).

<sup>19</sup> This is tautology, as there is no language without its speech community.

Mainly for budget constraints, but probably also for lack of political will, the implementation of this policy document is not making progress. No L1 is accepted in official domains or in state-controlled formal domains, as stated May 2006 by the then Minister of Information, Culture and Sports, Muhamed Seif Khatib, during the launch of LoT publications. Even private initiatives to run e.g. a radio station which broadcasts programmes in L1s would not be allowed.

In recent years the official bilingual policy with its focus on Swahili is under pressure. Obviously some influential parts of the Tanzanian bureaucracy pledge for a stronger position of English in official domains. Attempts to promote English in various institutions as a result of the current *laissez-faire* policy are recorded.<sup>20</sup> A clear token of this policy is the lack of initiatives for consolidating and improving the role of Swahili in education, where the language has been blamed for falling standards of education, while government indeed fails to properly run primary and secondary schools. However, whether or not Swahili is appropriately supported, its status as the Tanzanian national language that is used in most formal domains all over the country is unquestionable.

### 3.2 Namibia

Language policy issues were in particular sensitive prior to independence, the reason being the strong segregation function that ethnic and linguistic factors were assigned to play in the then Apartheid strategy of the South African administration. In view of this fact, the leading liberation movement SWAPO pledged in exile for English that was claimed to be a neutral choice and even called “language of liberation”. The political orientation towards the promotion of this language with a strong colonial past went along with the rejection of Afrikaans (the then *lingua franca* of South West Africa, but also spoken by an important non-White Namibian community, the Basters). This approach was further corroborated during the 1980 conference on language policy in free Namibia held in Lusaka/Zambia at the United Nations Institute for Namibia (UNIN). During the meeting the pro’s and con’s of all languages spoken in Namibia were (partly subjectively) rated.<sup>21</sup>

A language symposium held in Windhoek/Namibia in August 1989 brought together SWAPO representatives and those of other political parties in Namibia. All made statements about how they would like to address the linguistic situation summarizing their attitudes towards languages in Namibia. In a nutshell, the SWAPO position was as follows:

- English will be selected as the future official language;
- Afrikaans was to be relegated from an official language to the same level all other non-official languages were supposed to share;
- National languages (L1s) were promised adequate development; their status as media of instruction for lower primary grades was reconfirmed.

It is not incidental that in the same year the SWAPO Election Manifesto (SWAPO 1989: 9) which dealt in detail with language policy, gave the following summary:

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<sup>20</sup> English was in particular praised, promoted and supported by the then Minister of Education, Joseph Mungai, who in 2001 is said to have called Swahili being underdeveloped.

<sup>21</sup> See UNIN (1981).

The Namibian nation is made up of cultural and linguistic heritage of its various groups. Democratic Namibia will be enriched by all which is healthy in this heritage. A SWAPO government will therefore pursue a language policy that accords equal status and respect to all locally spoken languages. The new policy will redress the present injustice whereby the German and South African colonial states have placed emphasis on the teaching, development and use of German and Afrikaans at the expense of all other local languages, such as, Damara/Nama, Kuangari, Otjiherero, Oshiwambo, Silozi, etc., will be improved to a satisfactory standard.

Mother language will be used as the medium of instruction at the lower primary school level. The concern here is not with so-called group identity or ethnic consciousness and exclusivity, as has been the case with the apartheid colonial regime, but with the fulfilment of cognitive and communicative functions. Since it is through the mother languages that infants first acquire social habits, manners, feelings, tastes, skills and other cultural norms, it is important that their formal schooling starts with those languages of everyday life at home.

At the higher primary school level, English, which SWAPO proposes to make the official language for independent Namibia, will be introduced as a compulsory subject. English will then be used through the secondary level to higher education as the medium of instruction. This policy objective is based on the realisation that none of the locally spoken languages, Afrikaans included, is a medium of international communication; and that in this day and age of increased interdependence among nations, parochial outlook does not serve the interests of any nation. Also, to improve Namibian people's quality of life requires that our country adopts, as a practical sovereign right, all language that will help our people to speedily acquire the vital scientific knowledge and technological know-how. English is one such language.

The independence constitution of 1990 (Namibia 1990) reflects the SWAPO/UNIN position. The document stipulates in article 3.1:

English is the official language of the Republic of Namibia.

But it goes on in sub-article 3.3:

Nothing contained in Sub-Article (1) hereof shall preclude legislation by Parliament which permits the use of a language other than English for legislative, administrative and judicial purposes in regions or areas where such other language or languages are spoken by a substantial component of the population (Namibia 1990:3).

The Namibia Institute for Democracy (NiD 2000:3) interprets this article 3 in the sense that "Government officials and courts may also use other languages where that language is spoken and understood by most people in the region".

It is a matter of fact that since Independence Namibian authorities have implemented English as the official language, although in 1991 it was spoken by only 0.8 percent of the Namibians (census results, see Namibia 1994). Even today the percentage of those who can properly express themselves in the official language is not much higher, despite massive support for English language proficiency country wide, as displayed in the results of the 2001 population census (Namibia 2003). Therein major L1s are listed for each region, but not English.

The focus on English as the official language disempowers all other languages spoken in the country. L1s, but also Afrikaans and German are formally not accepted in official domains. As a consequence, only a tiny minority of Namibians can be directly addressed and is able to communicate with those institutions where the use of English is compulsory, while most other Namibians are relegated to the status of “silent objects of development” (Idris, Legère, Rosendal 2006: 44).

The biased position towards English in official domains and the lack of adequate linguistic competence and English skills transpires in many cases. For instance, when listening to the Parliamentary debates, it becomes very soon clear, that the way a number of MPs speak and use English leaves much to be desired. When in ministries and in central offices (and more at the regional level) civil servants speak to each other, they do so frequently in L1s. The same observation is made in law-enforcing institutions such as police stations, at the Hosea Kutako Airport Windhoek and army camps. In official domains English is a must in writing, while oral communication is conducted both in L1s and the official language, depending on the topic.

There are some state-controlled domains and activities, where the use of L1s is accepted and practiced. These include:

- Schools - L1s (also Afrikaans and German) are the medium of instruction in grade 1-3, becoming a subject in grade 4 and higher grades;<sup>22</sup>
- media - the national radio station Namibian Broadcasting Corporation (NBC) broadcasts in L1s, similarly news in L1s are televised daily at 6 pm and repeated next morning,<sup>23</sup> the state controlled daily newspaper “New Era” publishes news in L1s on a regular basis;<sup>24</sup>
- health services - i. a. AIDS or polio vaccination campaigns, and
- the population census of 2002 were conducted in L1s.

Regardless of these facts the strict policy focus on English is not negotiable. In 1994, after the 1991 census figures disclosing the extremely weak social basis of English were released, opposition members of Parliament complained about the official status of this language. This discussion was immediately turned down by the then acting Prime Minister Pohamba (the current Namibian President).<sup>25</sup> Subsequently when a language bill was introduced in October 1995 by the opposition, the SWAPO majority bluntly rejected this initiative. Another attempt of more properly addressing the linguistic situation was made in 2003, when the donor-funded AfriLa project (Upgrading African Languages) distributed a discussion paper. Its focus was on expanding the use of L1s in primary education. So far the Ministry of Education in charge has remained silent about the discussion, no progress is reported. This is again an evidence for the fact that issues pertaining to Namibian national languages and the country’s language policy are kept at a low profile by Namibian officials.

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<sup>22</sup> These languages are Herero, Ju/'huan, Khoekhoegowab, Kwangali,, Kwanyama, Lozi, Manyo, Mbukushu, Ndonga. Tswana, German and Afrikaans are similarly treated.

<sup>23</sup> Prime time news at 8.00 pm are televised in English.

<sup>24</sup> The ruling party SWAPO newspaper “Namibia Today” (a weekly) publishes news in Herero, Khoekhoegowab, Lozi, *Oshiwambo* (i.e. Ndonga/Kwanyama) and *Rukavango* (mainly Kwangali). These texts are also available on the web as <http://www.newera.com.na/>

<sup>25</sup> See Legère (1995) for details.

#### 4. Conclusions

As stated initially, each country approaches the linguistic situation and the empowerment of her national languages from a different perspective. Tanzania has gradually, occasionally drastically, promoted the national language Swahili as the co-official language by introducing it into all official as well as other State-controlled formal domains. This country does not accept any of her many L1s in official and most formal domains. The paper argues that the empowerment of Swahili in the wake of the Tanzanian language policy was and still is an on-going process that also experiences setbacks. So far, the official status of Swahili in Tanzania results from a number of measures that all embark on empowering this language by legalising and stipulating its use in official and other formal domains. Even the long-awaited declaration of Swahili as the Tanzanian official language will not mean the end of this process.

In contrast, Namibia imposes with English a foreign language as the official language. There is no room for any other language in official domains, at least by law. In selected formal domains L1s play a certain role even in state-controlled institutions and initiatives. The State obviously tolerates or even supports alternatives such as L1s as media of instruction in lower primary education, radio broadcasts and TV news in national languages and elsewhere as long as they do not interfere with official policy by challenging the position of English as the official language. Having this aspect in mind, Namibia's language policy also entails elements of an endoglossic approach which, however, does not aim at empowering L1s to an extent where they could replace English in the long run.<sup>26</sup>

Comparing Namibia's position towards L1s with that of other exoglossic African countries, one lesson can be learnt - the existence of an official language quite rigorously excludes L1s from official domains, but not from other formal domains. A similar approach is practised e.g. in Kenya and Uganda, where L1s are i.a. used as media of instruction in primary education. This is also an argument for referring to official domains as a specific category within the domain discussion, since official (mainstream) language policy mainly deals with the legislative, executive and judiciary, while being more lenient and flexible when it comes to other formal domains.

The empowerment of national languages is intimately tied to a language policy which pays adequate attention to the complex linguistic situation. Namibia as well as Tanzania are still far away from an optimal approach as long as national languages (including Swahili) are not fully empowered. A feasible solution which respects linguistic human rights is both a theoretical and practical challenge.

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<sup>26</sup> At the end of his tenure, Namibia's Founding President Sam Nujoma alerted this issue when addressing community members in former Bushmanland (see Idris, Legère, Rosendal 2006: 28).

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# **Theory Development Process Towards Language Management and Policy: Examining Students' Beliefs (Language Orientations) in the JFL Classroom**

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## **Abstract**

This paper discusses language beliefs with a focus on theory development processes. Reviewed and redefined, the orientation theories (taxonomies) were used as a research tool to examine a case study, and the empirical research results suggest additional development of the language orientation theories. Using a Grounded theory methodology, this case study focused on areas of language ideology and beliefs in the context of a Japanese-as-a-Foreign-Language (JFL) college classroom in the United States. The additional theory development helped to describe the needs of students who were studying Japanese as their heritage language in the JFL classroom. This paper shows the imperative need for detailed analyses of the political and ideological factors that go into language policy decisions.

**Keywords:** Language Policy, Language Orientations, Belief System, Heritage Language, Foreign Language Education.

## **1. Introduction**

Spolsky (2004) identifies three key areas (language practices, ideologies and beliefs, and language management and policy) that are driving the language policy (LP) field. Language community members share common sets of language beliefs and orientations that are a basis for language practice, and identifying both these beliefs and language practice should underlie language policies; currently some policies may contradict those beliefs and practices. The inter-relationships among these three key areas, especially the relationships between language practices and language beliefs, haven't been explored yet in the LP literature. This highlights some language planning theories with a focus on the areas of language ideology and beliefs and language orientations (Ruiz, 1984; Kono, 2001).

Before discussing Language Beliefs and Orientations, I will provide a brief

overview of trends in theories of Language Policy (Ricento, 2000; 2006). James Tollefson (2006: 44) offers this three-part definition of critical LP research:

- 1) It refers to work that is critical of traditional, mainstream approaches to LP research;
- 2) It includes research that is aimed at social change; and
- 3) It refers to research that is influenced by critical theory.

This research paradigm urgently suggests that critical LP researchers should look for the underlying ideologies in language policies and goals, should be concerned with research ethics and methodologies, and should pay attention to the concept of power (Pennycook, 2001; Reciento, 2000; 2006). In order to achieve this, some scholars suggest a historical analysis (Wiley, 1999), use of critical ethnographical studies (Canagarajah, 1993) and bottom-up approaches (Hornberger, 1996; 2006). In the same volume of Reciento's introductory book of language policy, Hornberger (2006: 42) reviewed several critical LP frameworks and models that were developed in the late 80's and 90's including her own integrated LP model and further suggests "using her LP frameworks as tools to examine and develop LP goals." I echo Hornberger's approach and also suggest using a critical framework or theory within the critical LP research paradigm. This paper, therefore, closely examines one of the critical LP theories, Language Orientations, and suggests further use of this theory as a research tool (Kono, 2001).

## **2. Orientations in Language Policy and Planning**

### *2.1. Orientations and belief system*

Richard Ruíz (1984) first introduced the terminology *orientations* into language planning and policy in the area of bilingual and minority language issues in the United States. Because of this, his orientations theory has sometimes been misunderstood as a theory which is only applicable to minority language issues or bilingual education; however, this theory can be applied to any language situation in the world. This theory has been often used by language policy makers and language planners in order to determine in which direction language policy and language ideology incline: language as problem, language as right, or language as resource. Later, Ruíz (1998) called this approach to language *evaluative orientations* and distinguished it from *descriptive*

*orientations.* Before I get into the details of the two types of orientations, I would like to review similar concepts in other fields that Ruíz (1984) also noted in his article. In addition, I have added Rokeach's (1968) beliefs study in order to make a link between Ruíz' orientations and theories of belief systems. The next table summarizes these five orientation related concepts:

Table 1: Orientation-Related Concepts

Studies	Discipline	Terminology	Key concepts
Boulding (1959)	Sociology	Image	Behavior depends on the image – the sum of what we think we know, and what makes us act the way we do. (p.6)
Kuhn (1970)	Science	Paradigm	Paradigm functions by permitting the replication of examples any one of which could in principle serve to replace it. (p.23)
Heath (1977)	Anthropology – social science	Language ideology	.. assumptions about language(s) different from those held by the communities or groups to which language planning will be directed.. (p.55)
Ruíz (1984)	Language planning	Orientations	A complex of dispositions toward language and its role, and toward languages and their role in society. (p.4)
Rokeach (1968)	Behavioral psychology	Beliefs, attitudes, and values	Beliefs have a cognitive component representing knowledge, an affective component capable of arousing emotion, and a behavioral component activated when action is required. (cited by Pajares, 1992, p.314)

All of the scholars above accepted the idea that abstracting human behaviors and thoughts is possible -- as theory. For example, Boulding (1959) states that describing the process of policy formation is possible, and he calls this abstraction an image, which is created and shared among people. Furthermore, he states that the core of the image is related to "role." In this sense, Boulding's notion of image is parallel to Ruíz' in the way he focused on the "role of language." Boulding also pointed out that the private/public distinction would be very important in the concept of image. This discussion could be applied to language as well, in the way people distinguish "private" language from "public" language.

Abstraction of human behaviors and thoughts is seen as “substructure” in the studies by Boulding, Kuhn, and Rokeach. The higher level of abstraction – image, paradigm, and belief – directs or structures human emotions, attitudes, knowledge behaviors and action like a web. These three scholars seem to have been strongly influenced by the *gestalt* school. Just as visual patterns arise from a mosaic of independently existing sensations like a jigsaw puzzle, these theorists believe that dramatic attitudinal and behavioral changes are possible once higher levels of beliefs are changed, in a kind of intellectual conversion. Rokeach (1968:159) explains this structure nicely. According to him, attitudes and values are substructures of belief systems. An attitude is “an organization of several beliefs focused on a specific object or situation, predisposing one to respond in some preferential manner”; on the other hand, “values have to do with mode of conduct and end-states of existence.”

Although Rokeach’s study is helpful to explain the web structure and shares similar characteristics with the other theories, beliefs seem to lack the larger, directional flow of the other concepts. For example, language orientations consist of different kinds of language beliefs such as beliefs about language variation, beliefs about standard languages, beliefs about mother tongue and so on. These individual beliefs compound to determine the orientation. The belief system is associated with affective, behavioral and cognitive components. Orientations, on the other hand, include several belief components (such as one’s mother tongue, ethnic pride, and position of power) and a collection of beliefs show some directional implications. Orientations themselves, therefore, are associated with specific knowledge, emotions and actions.

I conceptualize the relationship between orientations and belief system that sustain cognitive, affective and behavioral components. For example, the language-as-problem orientation might sustain a belief that national unity can only be accomplished in a situation where people speak one common or national language. And this belief or ideology promotes negative connotations and attitudes toward immigrants or minority languages, and discriminatory behaviors toward the languages and the people who speak them.

In my own research, I have not focused on the distinctions among beliefs, emotions and actions. Rather, I treat them as various components that show some essences of each orientation. Examining discourse, as well as their behaviors, helps to identify orientations. In other words, this is a bottom-up approach to policy and language planning research with contextualization.

The real challenge to language planners and policy makers is to see if they can transform the language-as-a-problem orientation to the language-as-a-resource

orientation, and if so, how? If beliefs can be altered and consequent attitudes and behaviors could be changed as Boulding and Rokeach say, maybe there is a possibility that orientations could be altered. Detailed discussions about what components contribute to each orientation on any cognitive, affective or behavioral level, or how they contribute should help to answer these questions.

## *2.2. Descriptive orientations*

Ruíz (1984) introduced some previous orientations suggested by Tauli (1968) and Kelman (1972). In his own work on orientations, according to Tauli (1968: 9), “language is a system of signs, the main purpose of which is communication... language is an instrument, a means, never an end.” On the other hand, Kelman assumed that language is tied up with group identity, and “language is an important aspect of self-expression and self-identification” (Ruíz, 1984:17). This view might be called “language as sentimental attachment” as opposed to Tauli’s instrumental view of language.

Theodore Andersson (1964), who was an early advocate for foreign languages in elementary schools in Texas, suggested four values of modern foreign languages: language as a tool; language as communication; language as culture; and language as style. His first view, language-as-tool, presents an instrumental view of language. Andersson (1964: 305) explains the view as the “narrowest concept of language, though one widely held.” This view is similar to Tauli’s instrumental view toward language. The second view, language-as-communication, also seems to overlapp with the language-as-means view by Tauli. According to Andersson (1964:312),

“One language makes a wall; it takes two to make a gate. That is why Americans, praying for peace and seeking an increase in international understanding, now gather to discuss foreign language study as a means to these ends.”

Andersson (1964: 319) thinks that foreign languages are an essential part of a liberal education. Language-as-communication helps to break “human barriers” and to “free an individual from his own linguistic limitations.” The third view is language as culture. Andersson (1964:312) holds the anthropological stance of culture: “culture as a total way of life, the learned and shared patterns of behavior of a group of people living together.” Consequently, this anthropological stance reflects his view of

language. Andersson (1964: 313) defines language thus: “in expressing typical feelings, thoughts, attitudes, and values, language is both a vehicle and a mirror of culture.” The last category of language is style. According to Andersson (1964: 319), studying the literature contributes to the “freeing and to the cultivation of the human spirit.”

Andersson’s articulation of views toward language and foreign language education is remarkable. In the section on language-as-culture, he also mentioned foreign language teachers as foreign culture teachers, and predicted that teaching culture would be emphasized in foreign language education. As he predicted, teaching culture is becoming an increasingly marked dimension of foreign language education. As a continuation of this discussion, I will include classroom culture and teaching culture segments in the next section.

Ruíz (1998) synthesizes these perspectives of language and suggests the following typology as descriptive orientations: language-as-a-tool; language-as-means; and language-as-a mediator of culture. Using Kelman’s (1972) terms, language-as-a-tool and language-as-means seem to address the instrumental view of language; whereas language-as-a-mediator-of-culture expresses the sentimental attachment of language.

Since complete descriptions of Ruíz’ Descriptive Orientations had not been given by the author during my study, I interviewed him (March 4, 1999) and asked him to provide more explanation about his typology. The interview session was tape-recorded. My main concern was to distinguish between *language-as-a-tool* and *language-as-means*. In the interview Ruíz explained *language as a tool* as something that relates to technocratic ideas; for example, speaking Spanish might help somebody who lives in Nogales get a job. *Language as means* also deals with instrumentality of language, but is better characterized as a vehicle rather than a tool. Ruíz gave the metaphor of using a telephone as an example. While a telephone receiver can be used to crack open a walnut in order to eat it (language-as-tool), it is more commonly conceived of as a vehicle for sending messages (language-as-means). Both concepts have instrumentality more or less; however, *language-as-a-tool* could be thought of as more immediate, instrumental and technocratic, where *language-as-means* refers to opportunities for the use of the language.

Based on the information above, I summarize Descriptive Orientations as follows:

Table 2: Descriptive Orientations

Descriptive Orientations	Definitions
<b>Language as a tool</b>	The orientation that sees language as enabling people to complete a task or achieve a goal; the view that would utilize the language, for example, as a tool to get a job or to complete a task.
<b>Language as means</b>	The orientation that sees language as a medium for communicating thoughts, feelings, and expressions; the view that would objectify the language or would emphasize linguistic components such as lexicon, grammar or writing system.
<b>Language as a mediator of culture</b>	The orientation that sees language as conveying culture; the view that language is tied up with identity, family, community or society.

### 2.3. Evaluative orientations

Ruíz' Evaluative Orientations appeared in "Orientations in Language Planning" (1984) and, since then have been widely used as one of the crucial concepts in language planning (Hornberger, 1994; Baker, 1995; Crawford, 2000; Djite, 1994; Cummins, 2000; Hubner & Davis, 1999; Kontra, et.al., 1999; and Zephir, 1997). Since his article appears in the context of US policy analysis, this theory might mistakenly be thought to apply only to limited situations such as bilingual education in the US and the language-as-problem orientations. However, this is a theory in language planning that can be and has been applied to any situation in the world. Also, after he published his article in 1984, people have interpreted the theory in differently. Again, I interviewed Ruíz about these concepts, especially how about these concepts are related to Freire's critical pedagogy framework (March 4, 1999).

Ruíz explained that he originally provided the three different directions (orientations) without suggesting any relationships among them. Then, some of his students used the three orientations as sequential stages beginning with language-as-problem to language-as-right orientations, then moving from language-as-right to language-as-resource orientations, as if the first was a prerequisite to the second, and so on. An alternative view posits a possible relationship among the three based on critical theory pedagogy, and this view further states that Ruíz interprets Freire's ideas as presenting a tension between the oppressed and the oppressors, and suggested the "new man" (the third person) as a new solution; that is, both the oppressed and the oppressors

need to change, and look for a new organization or new ideology. Ruíz sees the ideas of Giroux (1988) similarly; he applied the concept of the tension between the two “opponents” to language, and developed his ideas of “language-of-oppression” and “language of possibilities.” Ruíz applied Freire’s framework to his orientations and explained as follows:

There is a tension in the real world. Some people see language as a real problem like the case of Navajo language. The society reinforces this orientation. On the other hand, there are other people who claim that the maintenance of the language is the right for the speaking community. So, there is a tension between language-as-problem and language-as-right. We hardly find any examples of language-as-resource in the real world. But Freire saw in the world a tension between the oppressors and the oppressed, and suggested a solution as the third person (the new man) coming out of the tension between the two. That is probably applicable to the orientations. The language-as-resource orientation might be seen as the third (alternative) orientation coming out of the tension between the two orientations (language-as-problem and language-as-right).

(Ruíz in the interview: March 4, 1999)

Below I summarize and compare several definitions of evaluative orientations that appear in the literature (Baker, 1996; Ricento & Hornberger, 1994), and add insight from critical pedagogy, and summarize the definitions as follows:

Table 3: Evaluative Orientations (Critical Pedagogy)

<b>Evaluative orientations</b>	<b>Definitions</b>
<b>Language as problem</b>	The orientation that would see the local language as a problem or some kind of burden for some specific purposes such as uniformity or similarity within the community
<b>Language as right</b>	The orientation that would see the community language as a basic, human right; there should be an individual right to choice of language. There is often a tension between this view of language and the language-as-problem orientation.

<b>Language as resource</b>	An alternative orientation to the language-as-problem and language-as-right orientations; the idea of language as a personal and national resource including cultural, spiritual and educational growth as well as economic, commercial and political gain.
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These orientations overlap and mix within the society and are dependent on contexts. I assume that there is no simple orientation for any situation. Furthermore, I assume that it would be difficult to determine the appropriate orientations without minute data analyses since their relationships are complex.

In addition to these theories of evaluative orientation, there are additional interpretation of orientations that are useful to consider. There are some different interpretations toward orientations as a theory in language planning and policy. Wiley (1996: 116) interprets orientations from an historical-structural and ideological approach that includes socio-historical factors of language use and political questions that inadvertently support the status quo. He assumes that:

The historical-structural and ideological approaches can essentially be placed in both the language as right and the language as resource orientations because language planners adhering to them frequently become advocates for language rights and also try to promote the maintenance and/or development of minority languages as social, cultural, and political resources.

On the other hand, Crawford (2000) considers orientations as a useful tool to analyze sociolinguistic issues and to summarize policy alternatives, but thinks it is less useful in analyzing political and ideological factors. Crawford reluctantly assumes that collective language rights are lacking in the United States. Furthermore, Kontra, Phillipson, Skutnabb-Kangas & Varady (1999: 6) approach Crawford's view critically. They urge people to exercise "linguistic human rights" in the framework of "problem" or "resource" as complementary goals, as follows:

Firstly, people need linguistic human rights in order to prevent their linguistic repertoire from becoming a problem or from causing them problems. Secondly, people need to be able to exercise language rights in order for their linguistic repertoire to be treated as, or to become, a positive, empowering resource.

The issues of linguistic human rights has been discussed in Ruíz' language

orientations. Ruíz (1990: 17) explains that “the language-as-right orientation is most visible... when the dominant language-as-problem orientation is taken to extremes.” If I, furthermore, carry Kontra et al’s framework of orientations to a discussion of the relationship between the language-as-resource orientation and linguistic human rights, I assume that the relationship would probably be as follows: the language-as-right orientation is most *invisible* when the language-as-resource orientation fully underlies the community or the society. In language-as-problem oriented communities, people need to protest their violations of linguistic human rights in order to protect their identity and rights whereas those efforts are not necessary in the language-as-resource oriented communities in which minority languages are protected and multiple identities are encouraged by the communities themselves. In other words, the language-as-right orientation is a barometer of whether the community is categorized as a language-as-problem oriented or a language-as-resource oriented society.

The linguistically *homogeneous* or *monolingual* countries like Japan or the United States (categorized by Lambert, 1995; Spolsky & Shohamy, 1999) would need this kind of effort: making minority languages and community languages more visible in order to achieve exercises of linguistic human rights. The movement for collective linguistic human rights has been seen only recently in the United States, advocated by Brecht et al. (Heritage Languages Initiative, 1999).

Crawford (2000) speculates that US language policies have been just caught in the cross-fire of political arguments. Foreign language education is not an exception, either. Ortega (1999, 2000) warned about the lack of political awareness of foreign language educators, and that it could result in failing the needs and goals of multilingualism and multiculturalism among minority students. The elite view toward foreign language education, which originated historically in the US, excludes minority language communities and minority students. Ortega concludes that foreign language professionals can achieve these goals – multiculturalism, multilingualism and language-as-resource orientation – when they incorporate minority students’ points of view in their teaching. For example, in my own research on Japanese Americans in Japanese language classes at university-level shows that their view towards language was not reflected in their language classroom practices and policy. This suggests that people would need an over-reaching language policy as a program as well as language policies nationally.

### 3. Case Study

#### 3.1. Overview of the research

One hundred students were enrolled in the Japanese as a Foreign Language (JFL) program at a university in the Northwestern United States. I use ‘Northwest University’ as a pseudonym in my paper. Three professors and nine graduate teaching assistants were team teaching the classes including the four-year language classes, Methodology classes, Japanese literature classes, and so forth. All of the teachers and students in the program were the participants in my study. I conceived of the language program as a language community, and the teachers and students participated in my study on a volunteer basis. I asked them to volunteer for several separate activities.

Based on a previous questionnaire study (a pilot study), the descriptions of language were gathered (see Table 4) and, further, used for card-sorting activities. I used Cluster Analysis methods to describe the descriptive orientations. The results from those analyses as well as learning/teaching scenarios were used to elicit the participants’ perceptions about what language is (descriptive orientations) and their normative stances or attitudes toward the role of language in the Japanese classroom (evaluative orientations) during interviews. Also, classroom observations and other information sources were used to discover evaluative orientations. There were two kinds of interviews: confirmatory and exploratory interviews. By “confirmatory” I mean that I used some interviews to confirm or discuss with the participants some results of the cognitive maps and others; by “exploratory” I mean that I used the other interviews to elicit the participants’ opinions or ideas about language and foreign language education. During the exploratory interviews, both the cognitive maps and the scenarios were partially used as tools to evoke the participants’ memories, to bring up some of the issues about which they usually are not conscious, and to let the participants reconsider/reevaluate what they feel about language and foreign language education and how they value them. Interviews with the participants, classroom observation and other sources were transcribed and coded. I used the categories which emerged from analyses as well as the existing theories (Ruíz, 1984, 1998) as potential coding schemes. However, I left those schemes open to change or modification since data analysis is a process of interaction between the data and theories (Glaser & Strauss, 1967), and the coding process itself is part of theory-building or theory-elaboration.

My approach to the research was “educative, collaborative, transformative and active” (LeCompte & Preissle, 1993). In other words, my research was done *with* the

participants, rather than *to* the participants. I tried to create an atmosphere in which the participants felt comfortable enough to collaborate *with* me and to develop a good rapport between me and the participants. I asked for their feedback to my research process, and I gave them my feedback from time to time. At the end of the research, I felt that the participants moved toward me as much as I moved toward them. My research was an on-going process, and the research itself was developed and evoked through the collaborative effort of both the participants and myself. For example, the results of multidimensional scaling and hierarchical cluster analysis provided visual maps that I then shared with the participants. I especially chose these techniques for this study so that I could discuss the interpretations together with the participants. Part of the ongoing auditing process to ensure trustworthiness and appropriateness in the findings involved sharing and discussing results with the participants (Lincoln & Guba, 1985). In my research, language is treated as a psychological construct, and the participants' perceptions on language have been explored using various research techniques as a case study.

Table 4: Descriptions of language for card sorting

1. fun	2. fluidity/change
3. identification of people	4. expressing cultures
5. learning culture norms, standards	6. formal study
7. self-identity	8. using culture norms, standards
9. nonverbal aspects	10. words, vocabulary
11. rule-governed	12. writing system –kanji(orthography)
13. international, foreign	14. express individual feelings – medium for expression
15. spoken language, speaking	16. grammar, word-order
17. fluency/proficiency	18. slung, humor
19. power/privilege	20. politeness
21. background characteristics (personality, gender, age)	22. individual languages (Japanese, English)
23. means of communication	24. tool to convey values, beliefs, and thoughts
25. communication	26. helping you in job career

### 3.2. Cluster analysis results: Five language-concept clusters

The cluster analysis suggests five clusters. After I examined the category names in the questionnaire and discussed several naming possibilities with the participants, the following five language-concept clusters were determined.

Table 5: Five Clusters (The phrases in italics are the actual items on the cards.)

Five clusters	Interpretations
<b>Culture</b>	Pertaining to culture and identity, for example, <i>learning culture norms, using culture norms, politeness, background characteristics, identification of people, expressing cultures or self-identity</i>
<b>Power/use language to get ahead</b>	Powerful aspects of language and usefulness for personal benefit, for example, <i>international, foreign, power/privilege, fluidity/change, helping you in job</i>
<b>Communication</b>	Communication aspects of language, for example, <i>fun, slang, humor, means of communication, tool to convey values, medium for expression, two-way communication</i>
<b>Speaking</b>	Aspects of speaking, especially in the language classroom, for example, <i>fluency/proficiency, individual languages, spoken language</i>
<b>Formal study/structured</b>	Structured aspects of language or some aspects that you get in language classroom, for example, <i>rule-governed, words, vocabulary, grammar, word-order, writing system</i>

The culture category includes some culture-related concepts such as learning culture norms, using culture norms, and expressing cultural concepts. Ruíz (1998) conceptualizes two types of orientations: descriptive and evaluative. One of the descriptive orientations is ‘language as a mediator of culture’, and Category A (culture) fits well into this type of orientation. However, two different discussions emerge in this category. The first discussion seems to represent ‘learned culture.’ In other words, participants seem to capture culture as something they are learning in the class. The first part includes learning culture norms, using culture norms, politeness and background characteristics. Background characteristics (personality, gender, and age) and politeness are closely linked to culture concepts in the Japanese classes, where the

relationship between language and culture is heavily emphasized. Students are taught that they need to change language behavior depending on the relationship between the speaker and listener. Age, social roles, social status, and gender make every spoken interaction different. The students in this program are taught about those subtle differences in grammar classes in English, and then they practice with native instructors in drill classes. They call the grammar and culture classes “Fact classes” and the drill classes “Act classes”. In Act classes, the students are required to perform their own role in each drill. The instructors assign the students some roles and let them practice different levels of speech. Politeness is one of the key factors they need to learn and to utilize in the Japanese class. Therefore, it seems quite natural for them to put those terms together (learning culture norms, using culture norms, politeness, and background characteristics).

The second discussion of this category includes identification of people, expressing cultures, and self-identity. A couple of interviewees addressed the differences between the two parts wondering why ‘culture’ and ‘self-identity’ are combined in this category, even though most of them decided to name it as ‘culture.’ The second part of this category was not addressed in the textbook, or observed in the classroom. In the pilot study, those terms were brought into the survey by several students who had different backgrounds. One of the interviewees said that she had learned how important the language could be, especially to minority language communities (e.g., Native Americans in the United States) in the Anthropology class that she took previously, and how closely language and identity were connected. She also emphasized the tight relationship between language and culture. A couple of other students said that they were learning Japanese because they wanted to know their ancestors’ culture more, and to search for their own identity. One student, who was born in the United States and whose mother is Japanese, said that language would differentiate ethnic groups and suggested the term ‘identification of people.’ Those students all suggested a strong relationship between language and culture. I assume that’s how the second part (‘identity’) was connected to the culture category; however, the orientation of the second part seems very different from that of the first ‘learned culture’ part. The students can learn and use the learned culture norms, whether they are visible or invisible. How you express culture as your own and how you connect the culture (or language) with your identity are different from just learning something in the classroom.

The second category represents power/use of language to get ahead. This category includes the following terms: international, foreign, power/privilege, fluidity/change, and helping you in job/career. Most of the terms explain how much

benefit students can get from learning (foreign) languages. Additional languages help the students to have more effective communication with those from other countries, which gives them more power and privilege. By learning a language the students might gain different perspectives or more flexibility (ability to change). Being fluent in more than one language might help the learners get better careers or job positions. All of those elements indicate the instrumentality of language. In other words, this category shows that language can be a powerful tool in society. By using this tool, learners can get ahead and gain more power. This category indicates an aspect of another descriptive orientation – language as a tool.

The communication category shows some aspects of language-as-means. This category includes the following terms: means of communication, tool to convey values, beliefs and thoughts, medium for expression, and two-way communication. Those elements show that language is used as a means of communication to express values, thoughts and so on. Interestingly, the participants put two other cards (fun and slang, humor) together into this communication category. The Japanese classroom places a lot of emphasis on communication activities. Japanese teaching assistants seem to spend much energy and time inventing fun activities to facilitate learning in the classroom. Students learn Japanese not only in the classroom; but the program also provides some opportunities for students to speak Japanese with native Japanese speakers in tutoring sessions. If the students are interested in working with somebody, they can have a conversation partner. Some exchange students from Japan and students in ESL classes also participate in these activities. Both the students in Japanese classes and the students learning English interact and facilitate their respective learning. I also observed more student-facilitated activity in one of the cafeterias. There was a group of people who spent some time together for lunch, tea, chats and study. They seemed to come together voluntarily and to enjoy each other's company. The group members included some Japanese teaching assistants, first year students in Japanese classes, Japanese students in ESL as well as exchange students from Japan, and a few other non-Japanese. The students seemed to try their learned Japanese outside of the classroom and to seek out more humor, slang and a lot of fun.

The next category represents speaking. It seemed strange when I first looked at this particular category. However, the program puts so much emphasis on speaking, I assume that it would be natural that this came out as an independent category. This category includes the terms: fluency/proficiency, individual languages (English, Japanese), and spoken language. One of the interviewees said that the program emphasizes fluency as well as proficiency, particularly in speaking.

The last category is formal study/structure. It includes the following terms: formal study, rule-governed aspects, words & vocabulary, grammar & word-order, writing system-kanji and nonverbal aspects. Most of the terms strike me as “the things that the students learn in the classroom” and most of the interviewees’ answers indicated the same. In the confirmatory interviews, a couple of students, as well as myself, questioned why nonverbal aspects were included here and not in the communication category. A couple of other interviewees in the first year answered this question. In the role-playing dialogues used in their classes, non-verbal aspects were emphasized. For example, when you introduce your wife/husband to your boss, how do you use your hands to indicate people? When you give a present to a host, how do you do it? These nonverbal details were introduced to the students in many ways. First, the grammar teacher might show the lesson video that includes the dialogue and explains why the actors are behaving that way. Second, the drill teachers actually show the students how to perform; and finally the students practice their role-plays. I observed one scene in a classroom where a drill teacher explained to one student how deeply he needed to bow in the particular situation. Since the drill classes were conducted in Japanese, the instructor imitated the student’s gesture and showed her own several times with some explanations in Japanese. The student tried to imitate his teacher several times.

### 3.3 Comparison of Five Clusters and Descriptive Orientations

I compared Five Clusters (Table 5) and Descriptive Orientations (Table 2) and found out that there are extensive overlaps between the two.

Table 6: Comparison between Descriptive Orientations and Five Clusters

Descriptive Orientations (DO)	Five Clusters
<b>Language as a tool</b>	<b>Power/Use language to get ahead</b>
<b>Language as means</b>	<b>Communication</b> <b>Speaking</b> <b>Formal study/Structure</b>
<b>Language as a mediator of culture</b> (Emphasis on first language and culture)	<b>Culture</b> (Emphasis on cultures in general)

The power/use language to get ahead cluster is easily related to the language as a tool category in Descriptive Orientations (DO). Speaking Japanese or other languages helps

the participants to feel “foreign” or “international”, and they believe that these aspects might help advance their career or help them get a job. This view has in origin a very instrumental orientation, as articulated by a couple of interviewees:

- As an international person by learning a foreign language, you can advance yourself by speaking another language.
- [By being able to speak Japanese, I’ll get] prestige, credibility. I could go to a Japanese construction company or could be an administrative manager.

The communication cluster corresponds the language as means category in DO. The participants seem to have an orientation that sees language as a medium of thoughts, feelings, and expressions. The items such as *Means of communication*, *Tool to convey values*, *Medium for expression*, and *Two-way communication* were sorted into the Communication Cluster and seem to reflect this view. One of the interviewees emphasized this communication aspect in foreign language education. “People [who learn a foreign language] will be able to communicate with a better understanding of each other without miscommunications...” Also, one of the instructors believed that foreign language teaching might contribute to world peace by reinforcing world-wide communication.

The culture cluster overlaps with the language as a mediator of culture category in DO; however, DO’s definition seems to emphasize the relationship of “language and identity” (i.e., the view that language is tied up with identity, family, community or society” in Table 4.2) whereas the CULTURE cluster includes elements of both first and other languages as they relate to culture and identity. To me DO’s definition explains the L1 situation well, but not the L2 or LX situation. Also, it was difficult to code using this system. Consequently, the new version of the language as a mediator of culture category shows two different emphases: [C1] first language and culture (i.e., the view that mother or heritage language is essential for development of ethnic identity); and [CX] any language and culture (i.e., the view that cultural aspects are essential in the first or second or any language) (Table 7).

The language as means category has two themes, and the coders reported the difficulty of coding for that reason. Therefore, I decided to develop new definitions extending the language as means category into two different emphases: [MC] communication and [ML] linguistics (Table 7). In this way, the modified version can include the aspects of the speaking and formal study/structure clusters. The speaking cluster appears closer to the formal study/structure cluster than to the communication cluster. The analyses support this categorization based on the semantic proximity

obtained using hierarchical cluster analysis. This is consistent with the teaching methodology used in the program. “Speaking” is emphasized so much in the classroom because of their teaching methodology. Moreover, most of the interviewees separate “speaking” from “communication” in terms of “instrumental” versus “sentimental” strands. “Speaking” is something that you need to practice in the classroom although “communication” has been a goal in the program. For example, one of the interviewees said, “Right now, my girlfriend is Japanese and she doesn’t speak very much English and I don’t speak very much Japanese, so we help each other.” His desire to “communicate” with his girlfriend furnished his motivation toward learning Japanese. On the other hand, the Formal Study/Structure Cluster seems to emphasize more structured aspects of language such as words, grammar, word-order, and writing system. I defined these aspects as [ML] linguistics: the view that objectifies the language or would emphasize linguistic components, and is differentiated from [MC] communication: the orientation which sees language as a medium for the communication of thoughts, feelings, and expressions (Table 7). This view is reflected in arguments on linguistic competence versus communicative competence articulated by Hymes (1972). The distinction generates opposing approaches toward language and language teaching: the view that sees language as a linguistic system, and the view that sees language as a means of communication. In the latter view, effective language means the competence to communicate effectively rather than to demonstrate grammatical accuracy or fluency. The language as means cluster indicates that the participants in this study retain both views.

I conducted classroom observations and structured interviews with the students and teachers, specifically focusing on the role of language, but in a broad context including the role of foreign language education related to perceptions of language and the role of language. After the examination, I used 82 events for coding, and chose twenty-nine representative transcripts. Four individuals who have linguistics and TESL/TEFL backgrounds were asked to check the appropriateness of the coding schemes. After I modified the descriptive orientations, the average agreement among the coders was improved from 49.7 % to 60 % in the Kappa formula (from 67.2 % to 77.5 % in raw agreement). The changes in conceptualization of orientations and the cluster formations that resulted from informant responses led me to change my formulation of descriptive orientations as presented in Table 7.

Table 7: Descriptive Orientations (Modified)

Descriptive Orientations (Modified)	Definitions
<b>Language as a tool</b>	The orientation which sees language as enabling people to complete a task or achieve a goal; the view which would utilize the language, for example, as a tool to get a job or to complete a task.
<b>Language as means:</b> <b>Language as means of Communication [MC]</b>  <b>Language as linguistic means [ML]</b>	<p>The orientation which sees that language as a medium of communication of thoughts, feelings, and expressions.</p> <p>The view which would objectify the language and would emphasize linguistic components such as pronunciation, lexicon, grammar, and writing systems.</p>
<b>Language as a mediator of culture</b>  <b>Two different emphases:</b> <b>First language and culture [C1]</b>  <b>Any language and culture [CX]</b>	<p>The orientation which sees language as conveying culture aspects; the view that language is tied up with identity, family, community or society.</p> <p>The view that mother or heritage language is essential for development of ethnic identity.</p> <p>The view that culture aspects are essential in the first, second or any language</p>

#### 4. Conclusion

Detailed interviews were conducted to confirm the case study data and also to further explore their values and concepts in the language community. The study confirmed that this particular community reflected many aspects of the language-as-resource orientation, and most of the participants' voices and hopes were explicitly included in the program policy in foreign language education. However, heritage

language identity issues were not explicitly discussed in this particular community, and my study suggested that there should be a place for the heritage language learners to address this issue in the program (Kono, 2001).

Current LP research trends suggest the use of micro-level research and data analysis methods, such as ethnography (Canagrajah, 1993) or discourse analysis (Lo Bianco, 1999; Wodal, 2006). I echo those scholars and suggest further that a micro-level of policy analysis is needed to untangle the interrelations between language beliefs and language policies. My case study demonstrated the use of the theories of language orientations as a research tool within the college-level classroom context of Japanese as a foreign language. This exploratory study is founded in Grounded Theory (Glaser & Strauss, 1967; Strauss & Corbin; 1994, 1998), which emphasizes ‘research as a process.’ The recent version of this theory encourages the use of both qualitative and quantitative methods. They highly recommend bottom-up approaches rather than meta-analyses; however, they also accept researchers as individuals who bring their own beliefs and backgrounds to their research and analyses, including existing theories.

I conducted a two-year ethnographic study and compiled sources of data using practices such as interviews, observations, and card-sorting activities, all of which used the language orientation theories as a research tool. I developed coding systems of both descriptive and evaluative orientations for examining the discourse level. “A combination of descriptive orientations and evaluative orientations makes it possible to examine the causative relationship between the evaluative orientations and factors” (Kono, 2001: 196). This suggests the imperative need for detailed analyses of the political and ideological factors that go into language policy decisions. By doing this kind of microanalysis, researchers can avoid overgeneralization, which has been a major criticism of critical theorists, and further this research suggests important implications between language practices and language beliefs, which we hope models a technique for researching and defining future improvements to any language education setting.

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# Language Policy-Planning and the Interactive ‘Turn’: the Case of the European Union

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## Abstract

The article analyses language policy-planning at the European level, focusing on spontaneous and individual discursive activity as a relevant factor in the construction of political discourses. The authors argue that the micro-interactive perspective contributes to the study of language policy-planning when analysing inconsistencies or discrepancies in discourse. Using discursive psychological approaches, two excerpts from semi-structured interviews with policy-makers are examined with regard to the conflict potential language policies present to individual social actors and the ways these conflicts are addressed during interaction.

**Keywords:** language policy-planning, multilingualism, micro-interaction, role conflict, discursive psychology, language attitudes and identity.

## 1. Introduction

This paper is concerned with the micro-environment of language policy-planning in a specific socio-political context, i.e. spontaneous speech of policy-makers in different European institutions.<sup>1</sup> It particularly addresses the complexity of the concept of ‘language policy-planning’ from a theoretical and methodological perspective and seeks to contribute to building an integrated theory and method for a comprehensive study of language policy-planning discourses. At the core of this paper lies the assumption that too much attention has been paid so far to describing macro-political, i.e. socio-political, dimensions of policy-planning. We believe that the macro-perspective has only limited explanatory potential to describe language policy-planning processes on the ground, which are carried out by individuals trying to cohere with the world in which they live. We would like to illustrate this tension and shortfall in explanatory models by presenting results from fieldwork activities with policy-makers from various positions and at different stages in the language policy-planning process. We will propose assumptions about how micro-interaction of language policy-planning can be fruitfully theorised by discussing two short excerpts from semi-structured interviews conducted with policy-makers of the European Union. We intend to show that the clash between personal and institutional ‘identities’ constitutes a powerful factor in the construction of language policy-planning discourse that contributes to the decision-making process.

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## 2. Language policy-planning revisited

We would like to begin our discussion by revisiting our definition of language planning which we proposed in an earlier paper: “Language planning in a very general sense will be understood as a discursive event aimed at resolving issues pertaining to the function and use of languages in specific contexts” (Studer et al. 2008:10).<sup>2</sup> Implied in this definition is the notion of language planning as planned conventionalised behaviour between interactants. The reference to planning here reminds us of linguistic activity in Levinson’s (1998) sense, while the reference to discursive event can be interpreted in terms of Hymes (1974) and Gumperz (1982, 1992), i.e. as verbal behaviour which is external to task-oriented activity and thus outside the activity frame of language policy-planning.

Gumperz’ (2003: 219-220) proposal of a personal perspective in interactional sociolinguistics seems to bridge the concept of event and activity in the study of talk exchange. He stresses the difference between the concept of “communicative practices shaped by habitus” (especially macro-societal conditions) and the constructivist approach (interactive construction of the world). The questions deriving from these considerations which are relevant to the present discussion can be formulated as follows: 1) how and by what signalling devices does language function to evoke the contextual presuppositions that affect interpretation of the interactants; 2) what kind of presuppositions are at work in particular talk exchanges? In other words, the analysis of spontaneous language planning, as understood here, needs to take account of ‘conversational inference’ of interactants (Gumperz 2003: 219) and of the relationship between interaction and inference.

The reference to the aim of resolving issues that pertain to language function and use in our definition agrees with Cooper’s (1989: 35) focus on language behaviour. This means that language planning is prompted by personal, political, institutional or social motivation to influence the language behaviour of others which surfaces in differences, controversies, disagreements or disputes (within and) between social actors. Thus, language planning does not primarily solve language or linguistic problems but represents a clash of ideas and ideologies regarding the use of languages in specific situations.

### 2.1 ‘Privatised’ language planning contributions

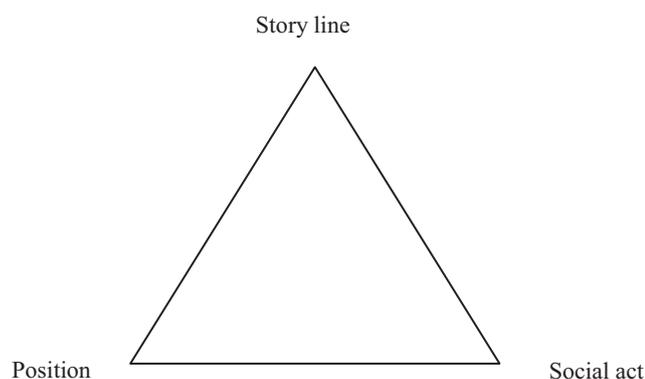
The difficulty in the definition of language planning as outlined above is that it directs attention to micro-interaction between policy-makers by focusing on relevant contributions that reveal the contextual presuppositions of individual policy-makers. Here we have to make some fundamental assumptions: Firstly, contextual presuppositions are expressed in personal contributions (i.e. in expressions of their minds), and the mind expresses itself or forms itself discursively. This assumption reflects a discursive psychological view which is understood as the “idea of an ontology in which utterances, interpreted as speech acts, become the primary entities in which minds become

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<sup>2</sup> We understand language policy-planning as embodying two separate strands of discourse: that of (mostly oral) planning activities and that of the drafting process of policies (Studer et al. 2008: 8-12). When we speak of language planning in this paper, we particularly refer to the stage of oral language planning prior to the drafting of policies.

personalized, as privatized discourses” (Harré/Gillet 1994: 36). Secondly, the mind expresses itself or forms itself in attitudinal structures (i.e. in the form of a constant evaluation of the ‘lifeworld’). These attitudinal structures are counterevaluative in Billig’s (1991) sense of the term. Thirdly, our evaluation of the world tends to follow a narratory principle (Sarbin 1986), in which “human beings think, perceive, imagine, and make moral choices according to narrative structures” (Sarbin 1986: 8).

Based on these considerations we can draw a triangle (cf. Figure 1) showing relationships between the position of speakers within the larger interaction context, the act that is performed by those speakers and the story line in which position and act are embedded: Such a ‘positioning triad’ has found its way into the theoretical framework of discourse analysis with three distinctive elements: “the story line evolving in an episode, the relative positions of speakers with respect to the local conventions of rights and duties of speaking or otherwise displaying judgments and/or expressing illocutionary acts, and the social acts they perform” (Harré/Gillet 1994: 156; cf. also Harré/Moghaddam 2003: 5-6).



**Figure 1** Positioning triad (adapted from Harré/Gillet 1994)

Discourse, in the discursive psychological tradition, is understood as an “institutionalised use of language and language-like sign systems” (Davies/Harré 1990: 45) at different levels. The central notion of social act in this line of thought is closely linked to speech act theory in which “speech-*action* can become a determinate speech-*act* to the extent that it is taken up as such by all the participants” (Davies/Harré 1990: 45).

The discursive ‘turn’ in psychology can thus be interpreted as an acknowledgement of the importance of performance style in real life episodes which is believed to have explanatory potential for the formation and expression of the self (Harré/Moghaddam 2003: 3). The interpretation of these episodes as highly situation-specific and context-sensitive ties in with our view of language policy-planning as a cultural/societal event. The interplay between situation and context is very complex and subject to contextual rules and conventions as well as to locally negotiated positions of participants within those conventions, reflecting “subtly varying presuppositions” of those people participating in interaction (Harré/Moghaddam 2003: 4). What complicates the analysis of the positions of participants is the possibility of multiple positioning of the same person during interaction (Davies/Harré 1990: 46). This various positioning can be seen, for example, in inconsistent choices people make in relation to different discursive practices.

People's discursive positions can be derived from many factors. Language policy-planning activities, for example, seem to invite a specific set of practices along which policy-makers can position themselves. For one, language is a concept that is immediately meaningful and relevant to every human being, prompting discursive activity that expresses a personal subjective position (or opinion) about language use. Unlike many other policy areas, language planning takes place, in its smallest form, in every family environment. It can be expected that these rather private discursive practices from the small group level become activated at the more global level of policy-making for larger communities. On the other hand, policy-makers' interactions are bound to be shaped by ideas or beliefs they express about language which can be related to the role they occupy in the planning process. This means that some beliefs and ideas about language are expected to be negotiated on the basis of shared assumptions about how policies (should) come about and about the impact they should have. Although this can be a creative process, participation in an 'official' language planning activity embeds language in a larger policy script which follows more or less 'ritualistic' rules. This script corresponds to the shared ideas people have about institutional role, conventions and duty; the more personalised dimension embodies the particular set of ideas individuals have about language that reflects their private belief.

In language planning activities, verbal communication among policy-makers is expected to be oriented along these lines, and is characterised by a constant (re-) negotiation of positions between the private and the institutional self. Obviously, the discrepancy between the two levels of positioning can be assumed to be greatest in situations where role, duty or conventions contrast or conflict starkly with the personal dimension. In joint task-oriented activities, such discrepancies tend to be experienced as inherently problematic and as something that disturbs the rational coherence of interaction (Davies/Harré 1990: 59).

For the purpose of analysing language planning discourses, attention should be drawn to episodes revealing personal or privatised contributions to institutional interaction, as they shape the progress of institutional activity. In order to incorporate this focus into a theory of language policy-planning, we need to expand the definition of language planning as proposed above to differentiate between personal (i.e. private) and institutional levels of contributions, and to highlight the relationships that may exist between these levels on the basis of relevant analytic categories. Bearing institutional and organisational theories in mind (e.g. Drew/Heritage 1998; Grant et al. 2004), we can imagine different scenarios in language policy-planning that seem to provide a fruitful starting-point for such an undertaking. For example, attention could be directed to discursive episodes which reveal subject positioning with respect to activity-bound contributions (especially emphasising the discrepancy between allowable vs. non-allowable contributions). The analysis of such episodes may help determine subjective role awareness or tensions participants may experience in particular circumstances. These scenarios may in extreme cases lead to obvious positioning conflicts which surface in attitudinal behaviour. Alternatively, one might imagine situations in which policy-makers try to eliminate signs revealing personal attitudes that differ from institutional group beliefs (or vice versa). In both these scenarios, we are concerned with verbal (and non-verbal) signals that become active in triggering such tensions during interaction.

## 2.2 *Micro-interaction and the identity sequence*

We would like to conclude our theoretical considerations by discussing briefly some analytic categories relating to the study of attitudinal surface structures and their potential relevance to our focus. Ager (2001) claims that attitudinal structures interact with a set of motives that combine into identity sequences. Attitudinal structures can be measured along three scales: the cognitive (knowledge about language), affective (attraction vs. rejection of language) and conative (readiness to act). The conative dimension constitutes a key element in determining the interplay of the different motives and attitudinal structures (cf. Ager 2001: 141).

Ager (2001: 125-145) connects these three scales to identity 'motives' in such a way as to facilitate the drawing of specific motivational profiles. Using Ager's identity model, we may be able to sequence the language planning process into coherent and more or less self-contained events. Together these events can be interpreted as forming the 'macro-rhetoric' or 'story line' of language planning, such as: identity, ideology, image, insecurity, inequality, integration and instrumentality. This macro-rhetoric can be understood as being triggered by an acknowledgement of inconsistencies within a policy and the need for identity construction.

*Identity* refers to the personal and social identity-building process in a community, when a consistent body of shared beliefs and values relating to language is identified and formulated. The identity-building process is initiated by knowledge about language and by the affective motive that corresponds to the feeling of 'togetherness' as well as the desire to exclude others (Ager 2001: 13). During this identity process, *ideologies* emerge as arguments, strategies or policies, which in turn lead to actions aimed at creating and maintaining a specific real-life *image* of these ideologies. This stage of the planning is characterised by a high motivation to act and defend one's position. When actions result in *inequalities* or social exclusion, the knowledge accumulated about languages/language communities is revised and new insights are *integrated* into the existing policies to improve the planning *instruments*.

We can now revise the positioning triad of language policy-planning by incorporating Ager's identity sequence into the model. Speaker positioning occurs relative to the larger socio-cultural context and situation, but equally in relation to the story lines unfolding from language planning activities. Story lines may unfold at different levels of complexity and abstraction and be present simultaneously in discourse. Discursive episodes can be expected to typically consist of motivational elements within this identity sequence (i.e. story line) and to follow, to some degree, the order proposed by Ager (2001). Episodes can at all stages result in social acts and are constituted by cues and signals in speech marking the joint acknowledgement of all actors involved in interaction.

Obviously it is much easier to measure the interplay of motives and attitudinal structures at group/community than at individual level; it is possible that personal contributions in short social episodes may not fit into attitudinal sequencing patterns at all. Indeed, language planning seems to be surprisingly resistant to micro-level analysis, which explains why it has mainly been examined at group level (cf. also Ager 2001: 158). While Ager's model awaits further refinement, we would like to propose it as a useful and valid starting-point for discursive psychological ventures into language policy-planning. However, one should be cautious not to confuse surface attitudinal

structures with actual linguistic behaviour (Ager 2001: 141); these attitudinal structures at best serve as ‘hinges’ to theorising and operationalising discursive psychological research on language policy-planning activities. In fact, it may be well worthwhile investigating the degree to which the conative power of motives runs counter to expressions of thought during interaction.

Let us, in conclusion, reformulate the task with which researchers setting out to analyse spontaneous speech in language policy-planning discourse are confronted and present a revised definition of language planning that takes account of our interactive focus. Researchers should focus their attention on how motivational impulses of interactants determine contributions to language planning within discursive episodes (micro-rhetorical ‘turns’) and between discursive episodes (macro-rhetorical ‘turns’). By ‘episode’, in this paper, we understand the smallest unit of coherent, cohesive, self-contained verbal or non-verbal contribution which forms part of interactivity between language planning participants and which is embedded in a discursive event. In the context of this focus, our definition of language planning runs as follows: *Language planning is an interactive process arising from and forming discursive episodes and events. It is carried out by social actors who represent different language interests and who position themselves in discourse accordingly. These interests of social actors manifest themselves discursively, i.e. in terms of the social potential the actors attribute to language policy concepts, and in typical attitudinal behaviour reflecting their language identities.*

### **3. The interactive ‘turn’ in practice**

We would now like to apply the model of the positioning triad and the identity sequence to the spontaneous discourse of language planning at the supranational level of the European Union.<sup>3</sup> We would like to discuss two discursive episodes from interviews with language policy-makers in which the interactive ‘turn’ impacted on the language planning process. Our analysis focuses on: 1) unrecognised, i.e. unnoticed, clash between personal and institutional identity, and 2) recognised, i.e. noticed, clash between personal and institutional identity. The analysis will show the discursive dynamics of these clashes during language planning activities and the ways in which institutional discourse can be disrupted by personal motivations. In the framework of this paper, we will limit the analysis to micro-rhetorical turns (i.e. contributions to language planning within discursive episodes).

The two excerpts of natural speech presented below form part of longer interviews with policy-makers involved with language planning at the European level. Current multilingualism policy in the European Union is confronted with a multilingual and culturally diverse socio-geographical context aiming to unite different sovereign nation states economically, politically and culturally. In 2000, the ideological grounds for current multilingualism policy were incorporated by the Lisbon Strategy, which set out

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<sup>3</sup> The data for this analysis have been collected from qualitative interviews with EU language policy-makers, carried out between June 2007 and June 2008, while also taking into account language policy-planning documents, speeches (esp. by Commissioner Orban) and the history of multilingualism policy-planning in the European Union.

to “make the European Union the most competitive knowledge-based economy in the world by the end of the decade” (COM(2003) 449 final: 3). European language policy, therefore, does not only focus on promoting cultural and linguistic diversity but also on promoting economic competitiveness in relation to and through multilingualism. The main aims of “A New Framework Strategy for Multilingualism” (COM(2005) 596 final) were to encourage language learning (‘mother tongue plus two’) and to promote linguistic diversity (as opposed to English as a lingua franca), to promote a healthy multilingual economy (increased employability and higher international competitiveness) and to give citizens access to European Union legislation, procedures and information in their own languages (linguistic human rights).

The official formula ‘mother tongue plus two’ is seen as the key to becoming a multilingual European citizen. On the one hand, citizens are advised to learn any two European official languages in addition to their mother tongue. On the other hand, the Union is obliged to communicate with its citizens in their mother tongue. In this context, the dominant role of English as a lingua franca poses a problem for multilingualism policy. Although the union promotes the learning of at least two foreign languages, it implicitly aims at motivating citizens to learn other languages than English as their ‘plus two’ languages. This again is a conflict, because it cannot be stated publicly for reasons of political correctness. In other words, current language policy results from macro-political considerations, which are expected to find expression in micro-interaction with language policy-makers.

In the context of our field research, we presented two potentially controversial quotes to policy-makers of the EU as a basis for discussion. These two quotes, extracted from the New Framework Strategy for Multilingualism (COM(2005) 596 final), read as follows:

1. It is this diversity that makes the European Union what it is: not a ‘melting pot’ in which differences are rendered down, but a common home in which diversity is celebrated, and where our many mother tongues are a source of wealth and a bridge to greater solidarity and mutual understanding.
2. Language is the most direct expression of culture; it is what makes us human and what gives each of us a sense of identity.

### *3.1 Unrecognised clash between personal and institutional identity*

The first discursive episode presents the reaction to the first quote by a policy-maker. The clash is motivated by the reading of the quote and the ensuing discussion, in which the respondent first picks up on the diversity concept, but then focuses on the more functional interpretation of the policy ‘mother tongue plus two’. Even though the respondent acknowledges the truth of the statement that language is the most direct expression of culture, he sees it only as “part of the overall picture”. Answering the interviewers’ question, which of the two parts (language as an expression of culture vs. language as a functional tool) might be more relevant to the debate, he states:

A: <L1de> I think i think one does not contradict the other it is not that we should now yeah ah (..) sometimes people do believe when they read things like that ah that we might go against one basic language of communication in practical terms against <L1de>englisch</L1de> NO we say and

then i'll translate from german we'll say that ah ah ah english is good but it's not good enough so that is to say it's fine as a first step but we need to go beyond this now if we look at the reality in europe i would say that we have made some progresses as far as english is concerned ah but we should also be realistic that ah there is still a considerable number of the population which does not speak any foreign language at all </L1de><sup>4</sup>

We would like to apply Ager's macro-categories to this discursive episode. Table 1 tries to divide the discursive episode into different 'turns' representing different steps in the identity formation process.

**Table 1** Discursive episode: unrecognised clash between personal and institutional identity

<i>i think i think one does not contradict the other it is not that we should now yeah ah (...)</i>	• Personal identity → institutional identity (shift)
<i>sometimes <b>people do believe</b></i>	• Ideology
<i>when they read things like that ah that <b>we might go against one basic language of communication in practical terms against &lt;/L1de&gt;englisch&lt;/L1de&gt;</b></i>	• Institutional image
<i><b>NO</b> we say and then i'll translate from german we'll say that ah ah ah english is good but it's not good enough so that is to say it's fine as a first step but we need to go beyond this</i>	• Insecurity (unrecognised clash – affective attitude)
<i>now if we look at the reality in europe i would say that <b>we have made some progresses</b> as far as english is concerned ah <b>but we should also be realistic</b> that ah there is still a considerable number of the population which does not speak any foreign language at all<sup>5</sup></i>	• Defend institutional identity
	• Instrumentality (readiness to act)

The episode builds on the interviewee's suggestion that diversity and the ability to communicate are two important pillars of EU multilingualism policy. However, already in the first sentence: "*i think i think one does not contradict the other it is not that we should now yeah ah*", there is a fluid shift from the personal to the institutional identity, marked by the change in pronouns "I" and "we" respectively. This shift accentuates the policy-maker's identification with the ideology of his institution. The interviewee then continues by shifting his position within the institutional role to an outside perspective to reproduce his assumption of the general belief (ideology): "*sometimes **people do believe***", which in turn constitutes the image of the institution or its actions. At this point, he takes on a defensive position: "*sometimes people do **believe** when they read things like that ah that **we might go against one basic language of communication in practical terms against </L1de>englisch</L1de>***".

With this statement the respondent not only presents his belief concerning the ideology of the general public and the image of the EU's multilingualism policy; but, in this instance, he gives away his own insecurity in connection with his attempt to reject the ideology and the image created by the general public. This becomes clear when analysing the German use of the word 'English' (</L1de>englisch</L1de>), which is the

<sup>4</sup> </L1de> </L1de> marks the first language of the speaker as German.

<sup>5</sup> All emphases are ours.

first language of the interviewee. The rhetorical function of this word becomes clear when we look at the attitudinal structure of this episode.

The German translation of the term 'English' in an otherwise English conversation, in combination with his tone apparent in the recording of the episode, indexes the respondent's affective attitude with regard to the language in question. The insertion of this affective attitude marker in an otherwise cognitive discursive event thus reveals a clash between the institutional and personal identity. This clash can be linked to Ager's notion of insecurity (2001: Chapter 4), which is closely connected to feelings of threat and fear, and puts the contribution in a German perspective, i.e. the perspective of a German native speaker. The referral to the respondent's native language thus emphasises a personal rather than institutional identity, which is otherwise performed through English in this discursive episode.

This personal expression is subsequently transformed into an institutional position: "*NO we say*", therefore defending it against the only just evoked allegations from the public – and his own position. The ensuing elaboration of the policy can be read in the same light and as an effort to undermine the respondent's own former affective insertion: "*NO we say and then i'll translate from german we'll say that ah ah ah english is good but it's not good enough so that is to say it's fine as a first step but we need to go beyond this*".

The respondent proceeds by emphasising in the last phrases of this excerpt the instrumental role of English in language policy-planning, which follows directly from his personal attitude towards English: "*now if we look at the reality in europe i would say that we have made some progresses as far as english is concerned ah but we should also be realistic that ah there is still a considerable number of the population which does not speak any foreign language at all*". Thus, the instrumentality of language planning (EU multilingualism policy) comes to the foreground while the affective side loses importance for this part of the episode.

Summarising, this example clearly shows how one's institutional identity potentially clashes with one's personal identity in specific, critical moments of language planning. The clash can be linked to a spontaneous focus on ideology and insecurity, which is embedded in personalised, language-specific, affective behaviour. The referral to one's native tongue in this context emphasises the relevance of such factors in the interactions in language planning episodes. Therefore, identity formation is shaped by ideological underpinnings, image adjustment and the maintenance – but also defence – of identity on the personal or institutional level. After all, these two layers of identity are intertwined and reflect back on each other. The clear separation but also complete conflation of the two is hardly possible, which is why tensions and conflicts seem an inherent part of social acts pertaining to the language policy-planning-sphere. This possibly problematic process can be linked back to the positioning triangle and the social act and positioning of the policy-maker, which, as was shown, can become contradictory and fraught.

### *3.2 Recognised clash between personal and institutional identity*

In the second example, an extract from an interview with a language policy-maker in an intermediate position, the discursive episode within the interview situation was triggered by a question, which directly addressed the contradictory potential of current

language policy. The respondent's reaction to that question was that, personally, she had great difficulty in conveying the institution's message because it was too imprecise on what exactly it conveyed. The respondent referred her personal difficulty back to her own emotionality and involvement with her work, which seemed to stem from her high institutional commitment.

Q: and ah if you think of multilingualism as a concept as a policy do you see any contradictions that are inherent in this concept is there anything contradictory about it or any aspects of multilingualism that are difficult to reconcile.

A: (.5sec) personally (..) the greater difficulty I have when I try to convey a message at conferences or in any case that we can not say because it does not apply to the situation learn this language or this other lang this is the key to success learn GERMAN LEARN English and don't bother about the rest LEARN because actually the idea is and it is just so difficult to pass the message that [...] it's it's it's like telling people go to the supermarket and buy what you want and actually publicit I mean marketing does that doesn't work exactly this way but this is more I mean maybe I feel it strongly because because I work on this field

Like in the previous example, Table 2 represents an attempt to apply Ager's concept of motivation to this episode.

**Table 2:** Discursive episode: recognised clash between personal and institutional identity

<i>(.5sec) personally (..) the greater difficulty i have when i try to convey a message at conferences or in any case</i>	<ul style="list-style-type: none"> <li>• acknowledgement of identity conflict (personal rejection)</li> </ul>
<i>that we cannot say because it does not apply to the situation learn this language or this other lang this is the key to success learn GERMAN LEARN English and don't bother about the rest LEARN because actually the idea is and it is just so difficult to pass the message that [...]</i>	<ul style="list-style-type: none"> <li>• representation of institutional identity towards interviewers (institutional rejection)</li> <li>• elaboration on institutional image (cognitive activity: reference to institutional ideology)</li> <li>• expressing personal insecurity</li> </ul>
<i>it's it's it's like telling people go to the supermarket and buy what you want and actually publicit I mean marketing does that doesn't work exactly this way</i>	<ul style="list-style-type: none"> <li>• personal interpretation of institutional image (readiness to act)</li> </ul>
<i>but this is more I mean maybe I feel it strongly because because I work in this field</i> <sup>6</sup>	<ul style="list-style-type: none"> <li>• integration of institutional role into personal identity (conflict resolution)</li> </ul>

Unlike the previous example, where the respondent's clash between the personal and institutional identities was left unacknowledged, this second interviewee takes the initiative to elaborate on the clash. Already in the first part, she demonstrates personal insecurity and dissatisfaction with her institutional identity by rejecting the image she has to convey to the public, expressing that "personally" she has "greater difficulty" when she has "to convey the message" representing European Union language policy in official contexts. She shows high preparedness to reject the policy not just in a specific situation, such as a conference where she has to represent the institution, but in "any case".

<sup>6</sup> All emphases ours.

The respondent explains why she has difficulty presenting the policy (“*we cannot say*”). By referring to herself and the institution as “*we*” she demonstrates a high degree of identification with her institutional identity but at the same time adheres to her personal rejection of the institutional image. Through the use of the collective personal pronoun “*we*”, however, she transforms her personal rejection into an institutional position. The respondent continues by criticising the institutional message (ideology) that she has to represent, i.e. encouraging citizens to learn languages without specifying which ones: “*learn this language or this other lang this is the key to success learn GERMAN LEARN English and don’t bother about the rest*”. Here the respondent demonstrates a highly cognitive attitudinal structure when critically evaluating the institutional ideology, revealing awareness of the discrepancy between belief and practice concerning language behaviour in the European Union and in European institutions. In Ager’s words (2001: 127ff), she evaluates the language variety-domain relationship and tries to correlate this with the appropriate language behaviour. Nonetheless, by repeating that “*it is just so difficult to pass the message*”, the interviewee problematises this attempt and displays a high degree of personal insecurity with regard to how she should integrate her personal evaluation into her institutional identity, revealing affective and personal despair with the language policy as such.

In the third part of the episode, the interviewee further emphasises the problem of EU multilingualism policy with a comparison that visualises and dramatises the extent of her conflict. She creates the image of advertising and marketing in a market-driven society (“*telling people go to the supermarket and buy what you want*”), without specifying what products there are to buy. Everybody can picture the image of a supermarket and customers wandering around, not knowing what to buy and why they should buy anything because nobody has sensitized them to possible needs. In this case the interviewee expresses a high readiness to act, indirectly calling for more guidance and structure in cohering with the policy content and in providing a tailor-made message to the people.

In the last part, the interviewee resolves the conflict by drawing back from her explicit expression of despair with her institutional identity. Rather than referring her state of despair about her institutional identity back to the content of the message she has to convey, she refers it back to her state of personal involvement. By saying “*but this is more I mean maybe I feel it strongly because because I work on this field*”, she refers to a personal state of emotionality and demonstrates how much she would like to be able to convey a more concrete message.

It is noteworthy that throughout this discursive episode the interviewee refrains from any personal anecdotes, references to the individual language background or ideology, nor makes explicit suggestions for improvement of the situation. She limits her contribution to a description of the current situation and expresses a personal and emotional problem with this situation by referring this problem back to her being overly involved in her work. In other words, the interviewee takes on the institutional identity, explains her insecurity and difficulty with the institutional role as a personal problem but justifies it at the same time as motivated ‘institutionally’ through her role. Thus, the interviewee signals awareness of this clash but tries to put this awareness into perspective by referring to it as a result of her own emotionality.

#### 4. Conclusion

The aim of the present paper was to draw attention to the micro-level of spontaneous language policy-planning and to outline a theoretical framework with which discourses deriving from spontaneous speech could be studied. We suggested a theoretical framework that was oriented towards the individual policy-maker in the language planning process and which was capable of revealing micro-discursive dynamics of speech *about* language in a professional context. We illustrated the potential of this perspective with two cases that we encountered in elicited conversation with policy-makers of the European Union. The policy-planning process we selected for this investigation was the debate surrounding the concept of multilingualism, which have emerged at a defining moment of European history when the European Union is constituting itself not only economically but also culturally and linguistically.

The discussion of the two cases selected showed that in language policy-planning discourses the clash between institutional and personal identities of policy-makers revealed themselves discursively and surfaced in attitudinal structures. This clash became visible especially when interactants were asked to comment on conceptual inconsistencies in their policies. As was demonstrated in this paper, identity clashes occurred both with and without recognition by the participants. While in the first example the speaker seemed to create the clash automatically during interaction, in the second the clash was acknowledged and problematised by the speaker. The analysis further suggested that language attitudinal structures might be suitable as a model to describe how language policy-planning discourses unfold spontaneously during speech interaction. In the two cases discussed in this paper, the national identity or the identity of a speaker of a certain language seemed to constitute a powerful and potentially subconscious motive in the discursive realisation of the language policy-maker's readiness to act. This was particularly evident in the first example where the speaker's readiness to act and to change the policy situation seemed strongly guided by his emotional disposition towards English and his personal language background. The second example was slightly different in that the conscious reflection of the speaker on current language policies seemed to lead to a rejection of its content on an affective level. In both cases, motives and attitudinal structures went hand in hand.

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# **Unplanned Policy: Planned Results**

## **Situating English in the Language Education Policy of Nepal**

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### **Abstract**

The ruling elites, who have held power in Nepal since its inception in the eighteenth century, have deliberately ignored issues related to minority/ethnic languages in favour of the languages of their choice. While this ‘unplanning’ of languages has been responsible for the loss of scores of languages, it has helped the elites to achieve ‘planned’ linguistic edge over the speakers of other languages. This paper outlines the socio-political and linguistic pretexts of the current policy debate which favours Nepali and English, and explains why English, essential though it is for education, employment and access to world resources, has in the existing situation, done more harm than good.

**Keywords:** language policy, language planning, unplanning of languages, linguistic eliticism, language hegemony

## **1. Introduction**

Nepal, a small nation-state in the Himalayas, has been in the news lately for all the wrong reasons. It is a nation, which is in the grip of a socio-political transition because as the newest republic, it has embarked upon a debate about equitable policies in all sectors of life, and more importantly a debate in which people in the changed political atmosphere advocate for a new social and political order. The paper reiterates some of the issues that are shaping up the debate, in particular the language education policy debate; and by recapitulating historical and political pretexts, outlines how the dominant linguistic groups have conspiratorially ignored language issues to, what Alexander (2004) calls, ‘entrench the domination of the powerful elites’.

The decade-long socio-political turmoil has brought the country to the verge of social as well as territorial disintegration. As various tribal groups fight for their survival, their ethnicities and languages are likely to become one of the reasons for this division. Therefore, Nepal, the Mecca of linguists for its vast linguistic resources is in all sorts of socio-political troubles. And the ‘unplanning’ of the very resources, i.e., its languages, is at the root of all this. By ‘unplanning’ of languages, I mean deliberately avoiding, delaying, and ignoring language related issues, or imposing hidden agendas (invisible planning?) in disguise of nationalism to create and promote language hegemony in favour of the languages of the dominant groups.

In the first part of the paper, I sketch the linguistic landscape of Nepal in which I talk about the historical and political reason why only one of over 100 languages and ethnicities has been dominant since the inception of modern Nepal. I illustrate how by ‘unplanning’ its linguistic resources, the ruling elites have been responsible for the systematic extinction of minority and ethnic languages. I elucidate how they manipulate languages to serve their interest and how they use them to maintain the power structure,

influence public opinion, channelise political energies, and allocate economic resources for the education and promotion of the languages of their choice. Their approach marginalizes the speakers of other languages and unfairly disadvantages them in accessing economic opportunities, resources and employment. It also prevents them from participating in the political processes (Singh, 2007).

The paper takes English as a case study. English in Nepal was imported historically for political reasons, i.e., for using it as a tool to strengthen the socio-political superiority of the ruling elites (Stiller, 1993) and to reserve the access to world resources - economic and educational for themselves. In theory, it has been available to anyone and everyone through public education since the 1950s. In practice however, no rigorous planning of resources and pedagogic mechanism has been worked out for its effective delivery to the average people. For most of the six millions school goers, therefore, proficiency in the language remains underachieved. In this way, the 'un-planning' of English language education (ELE) has been a strategy of the elites to divide the broader Nepalese society. In the second part of the paper, therefore, I situate English in the existing language education and discuss some of the issues, dilemmas and implications on the current language education policy debate in Nepal. In particular, I look into the historical, socio-political and educational pretexts of how English was adopted in the Nepalese education system and how social as well as educational institutions in the current system are structured either to preserve or perpetuate the interest of the elites at the expense of the larger interest of millions of others. I demonstrate how the conspiratorial 'un-planning' of its education has helped achieve the 'planned' results of English becoming a symbol of status, power and privileges, and facilitating the caste/class-based power structure. I argue that by 'un-planning' ELE for the average Nepalese people, the ruling elites have achieved results, which are visible, intended and planned.

## 2. Linguistic Landscape of Nepal

Predominantly a Hindu state in the foothills of the Himalayas, Nepal has linguistically and culturally been overshadowed by two socio-political and economic giants, China and India. A diverse range of Tibeto-Burman and Indo-Aryan ethnicities interplay harmoniously in mountainous Nepal. Ethnographically, therefore, it is a meeting point of the two great cultures blending into diversified cultural and linguistic richness. Nepal, however, has not been able to harness its huge cultural and linguistic resources. In fact, in the period from the establishment of the autocratic *Rana*-regime<sup>2</sup> in the 19<sup>th</sup> century to the *Panchayat*-rule<sup>3</sup> in the 20<sup>th</sup> century, it adopted a policy that regards linguistic and cultural diversity as a threat rather than a resource. The current so called 'democratic' language policy also does not support the development of languages.

As for the current language situation, all three types of language situations, monolingualism, bilingualism and multilingualism exist in Nepal. Languages, both dominant and non-dominant are constructed around the social life of the people of

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<sup>2</sup> A family of rulers who set up a family rule and reigned Nepal 1848-1951

<sup>3</sup> An authoritarian rule introduced in 1960

different ethnic backgrounds and they influence their choice and use of languages. In this section I sketch the language landscape of Nepal in terms of the users of mother tongues or first languages, second languages and English and describe how their choice of language reflects on their socio-cultural backgrounds.

The 2001 Census identified 92 languages with genetic affiliations to four different language families, namely, Indo-European (Indo-Aryan), Sino-Tibetan, Austro-Asiatic and Dravidian. Indo-Aryan languages constitute the largest group of languages in terms of their speakers. Of all Indo-Aryan languages, 9 languages are spoken as the first languages by over three quarters of the population (76.07 per cent). Nepali, as the first language of nearly 50 percent of the population, is spoken in the hills and in far western mountains, some parts of the Terai and in urban areas. Other Indo-Aryan languages are mainly limited to the southern plains. Numerically, Indo-Aryan languages, therefore, overshadow all other languages. Most Indo-Aryan languages have literate traditions and share a well-developed writing system.

Sino-Tibetan languages constitute the largest number of languages, i.e., 57 of them, spoken by about 18.4 percent of the total population. These languages are spoken in different geographic pockets of mountains and hills. The Kiranti group of languages, for example, is spoken in the eastern hills and mountains; whereas Magar, Thakali, Gurung and Sherpa languages are spoken in the central and western mountains and hills. Tibetan languages are spoken in the high mountainous areas such as Mugu, Dolpa, Mustang and Manang. Nepal Bhasha (also known as Newari) is spoken mainly in the Kathmandu valley. Of these languages, Rai and Limbu in the east, Magar in the central west and Nepal Bhasha in the Kathmandu Valley have been dominant in their respective regions.

Austic languages are spoken by some tribal groups in the eastern Nepal. How they happen to be in Nepal is unknown. However, its speakers have been reported in all censuses. Their number in the latest census stands at 0.2 percent. Similarly, the speakers of the Dravidian languages are settlers in the eastern Nepal and have a genetic connection with some tribes in northern India.

Urban and sub-urban areas are by and large inhabited by the people of mixed-ethnicity. So, Nepali comes handy as a link language. The use of mother tongues gradually decreases in such areas even in family situations as the people live there longer. Families with inter-caste marriage, and people returning to their villages after a considerable lapse of time tend to use Nepali in their villages because its use denotes being educated, economically well-to-do and socially superior. The choice of a second language, therefore, is not constrained by one's ethnicity but by economics and privileges. The people speaking over 57 Sino-Tibetan languages, for example, do not choose a second language from the same language family; but adopt Nepali as their second language conditioned by contact, peer pressure, employment, education and as the quotation below suggests, economic success

Maintaining the mother tongues whether within the indigenous area or outside of it, involves an extra effort, yet it brings no economic advantage. In fact, it may even be a hindrance to fluency and mastery of the prestigious national language. Thus mother tongue speakers of indigenous languages may feel compelled to abandon their mother tongues in order to succeed economically (Toba and Rai, 2005: 21).

In addition, a tendency in non-Nepali speakers is emerging in their language use, that is language shift. There is a decreasing trend in the use of ethnic language and increasing trend in the use of Nepali. Speakers of ethnic languages moving to urban areas for education and employment go through the transition of bilingualism with Nepali increasingly replacing their mother tongue. Similarly, there has been a sharp increase of Nepali speakers in the Terai (southern plain) lately mainly due to the same reason.

The relationship between ethnicity and language in Nepal, therefore, is complex. In a country where the tribe, caste and religion mix is complex, the language-ethnicity relationship can be summarised as (a) one tribe with one language, (b) one tribe with several languages, (c) one religion with one language, and (d) several tribes with one common language.

The majority of the Nepali as the first language (NFL) speakers is monolingual. As it is the language of administration, education, media, business and employment, the NFL speaker neither see any rationale nor do they feel any need to learn other local languages. They have, therefore, no knowledge and regard for the indigenous languages. In fact, they often (?) develop some sort of unfriendly outlook towards and superiority complex over the non-NFL speakers. The Nepali speaking elites, therefore, rarely see the importance of maintaining or preserving local languages. They consider language and cultural diversity as a hindrance and something that prevents rather than aid the development of nationalism. The non-NFL speakers, on the other hand, as a result of the century old linguistic domination and privileging of Nepali, have lost pride in their language, feel discriminated against, and, as Toba and Rai (2005) indicated above, have developed a tendency to neglect their languages in favour of Nepali.

To illustrate the issue further, I would like to present two real life stories. Like millions of young Nepalese, I grew up in a bilingual situation. At home I spoke Maithili, a local ethnic tongue, but at school and neighbourhood, I spoke Nepali. From the very childhood, I was led to believe that 'people are born equal, but some people are more equal than others' and language was an important factor in it. Very soon I realised that speakers of Nepali were different, and that those who spoke Nepali were 'superior', educationally brighter, more talented and more knowledgeable'. And I realised that my mother tongue was less valuable compared to Nepali, and it served no practical purposes other than communication with my parents and relatives. It neither helped me socialise with my fellow Nepali speaking students nor did it provide me the same opportunity, access, knowledge and ability as Nepali did.

The language and cultural divide was more pronounced in the cities than in the villages. When I moved to a city for my higher education, I realised that there was yet another level, another circle and another community of people with bigger and larger access and opportunity for education and employment. And English was their language. In this way, I chose Nepali and English for educational and economic opportunity and social benefits. In the want of becoming a part of broader and wider social and educational community, I abandoned my mother tongue and adopted the languages of others.

Sadly, my story is not unique.

In June 2008 (see Rork, 14 June 2008), a foreign linguist in Kathmandu was stunned to hear a Newar mother who said she did not talk Newari with her husband in the presence of her children lest they might learn it.

“Why is that so?” asked the linguist.

The mother replied, "Well, it's rather nice thing to learn your own language but you know my children will lag behind. English as an international language and Nepali as a communicative language are just fine; another language will make them dull."

The stories above illustrate how millions of the Nepalese people view their languages and why they abandon them. The elites, usually the NFL speakers, consider Nepali as a superior language and employ all political and educational means to perpetuate its dominance. The speakers of dominant languages persevere overtones of dominance because their language background ensures their participation in the national life. The speakers of other languages, on the other hand, are looked down upon, despised and often surpassed in the process of development. As a result, the non-NFL speakers develop an inferiority mindset towards their own languages.

### 3. Historical Pretext of the Debate

Historically, Nepali was imposed as a state language during the unification campaign in the 17<sup>th</sup> century, the purpose of which was to establish linguistic superiority alongside the military superiority. The successive regimes endorsed the policy and enforced it to create a hegemonic control over the minority languages and cultures. The *Rana*-monocracy, for example, infamous for its repressive family rule, introduced what is known as the ‘*muluki ain*’ (the Code of the nation enacted in 1854). The Code in theory was meant for implementation efficiency and administrative reforms. In practice, however, it was used as an administrative tool to promote and strengthen language and cultural hegemony. Writings in, and publication and promotion of any other languages were banned. This divided the people into two categories. The two peoples meant the rulers, and the ruled; the two languages and cultures were the languages of the ruling elites (Brahmins and *Kshetriyas*) and the languages and cultures of all others, the subjugated peoples (Malla, 1979). Nepali was the language of the civilised, educated and enlightened people whereas the minority languages, i.e., languages of the ethnic groups, were ‘the speech of the illiterate’ and ‘the dialects of the jungle’. The policy eventually became a means to repression, intolerance and elimination of pluriculturalism, prompted by ‘racial or caste prejudices’ (Hutt, 1986:6).

The *panchayat* autocracy, established through a political coup in 1960, implemented the language policy through the controversial ‘one nation-one language policy’; to enforce what Hohenthal (1998) calls ‘the linguistic eliticism’. The changing political climate of 1990 provided fresh hopes for a multilingual language policy. However, the reports of the two national education commissions of the 1990s reveal that the government’s position on languages is contradictory. Though the regime softened their earlier position on the use of Nepali as the sole medium of instruction; it made the study of Nepali and Sanskrit (from which Nepali was derived) compulsory in the post

primary level (NEC, 1992); which means that the study of Nepali and its culture remained dominant in the school curricula even in the changed political scenario. The elected government, according to Toba (1992), took no affirmative action regarding the language education rights enunciated in the 1990 constitution except for the fact that it merely allowed the local communities to set up ethnic language schools without any infrastructure and resource allocations. The National Language Policy Recommendation Commission (1994), for example, recommended allowing local and ethnic languages education. However, it did not recommend any models of provision or resource allocation. In fact, the uses of ethnic/minority languages in public domains were severely restricted (Giri, 2007). Therefore, in the complex mix of ethnic groups in the Nepalese society, some local languages ended up being a subject of study rather than a medium of instruction. This means that the actual linguistic impact of the new policy was less than the political impact.

The post-1990 democratic constitutions did nothing against the ‘one nation - one language’ policy. In fact by making some adjustments in the wording in the policy documents, they created what is known as linguistic cynicism to appease its opponents. The critics of the present ‘racist’ (Lawoti, 2004) constitution claim that the present language policy of the government is ‘unscientific and illogical’ (Manandhar, 2002), and question the intention of the key-players involved in the making of the constitution. Lawoti (2004), for example, pointing out the weaknesses in the procedural aspect of the constitution enactment, suggests that almost all members the constitution drafting committee were from the ruling elite (or *parbatiya* Hindus) (Hindus of the hill), and therefore, used the constitution as a basis to promote one language, i.e., *parbatiya* language (Nepali); one religion, i.e., Hindu religion; one community, i.e., the *parbatiya* community, and one culture, i.e. the *parbatiya* culture. This has been a deliberate strategy of the ruling elite to hegemonise the *parbatiya* language and culture and by doing so, the neo-colonial groups colonise the mind of the dominated groups (Dua, 1994).

#### **4. The Current Debates**

In the current language policy debate, there are three schools of thoughts emerging. The first one, advocated by people and parties associated with the left block of politics, is what is known as the nation-state system of governance. In this approach to federalism, a group of people with common language, common culture and common religion has rights to self-rule and therefore to a separate state. A nation, in this sense of the expression, is a federation of several states divided along the ethnic and language lines. These people believe that because the approach worked well in the past, it should work well in developing contexts now.

The second school of thought puts forward the case of state-nation approach to federalism. According to this thought, in the context of heterogeneous society and massive people movement and migration, nation-state approach to federalism is neither feasible nor practicable. Therefore, the advocates of such a system, actually live in the past, and propose so for a cheap political gain. In increasingly multi-ethnic, multicultural and multilingual countries like Nepal, only geographic states can be

created in which people of all cultures, religions and languages have their separate identities ensured through the principles of co-existence, mutual respect and equitable governance. As for the ethnic and indigenous languages, they have sentimental or symbolic value. In today's world of globalisation and competition, local languages neither help nor provide any opportunity. People value their language because they attach them to their identity. So, they are dear to them. Apart from that the local languages do not have any instrumental significance. In fact, they may even bring negative complexes.

The third school of thought, however, advocates for more inclusive politics with concession of autonomy to communities, which are concentrated in certain geographic regions and are capable of making their own socio-cultural and language education decisions. This calls for an educational solution to a political problem. The ethnic and indigenous people want their languages and cultures to be preserved which can be done by allowing them to educate their children in their language up to certain level. The system is formed on the three-language policy in which the local language, national lingua franca, and English as an international language have appropriate places allocated and their roles defined.

## **5. The Importation of English Language Education (ELE)**

The imposition of Nepali and Nepali belief systems has been a major factor in the recent political turmoil (Onesto, 2005). The inequitable distribution of English language education (ELE) has further complicated the situation. During the *Rana* oligarchy English was imported, and adopted as an advantage in favour of the ruling elites (Vir 1988).

The idea of language hegemony was further strengthened with the introduction of English to education in the 1950s when Nepal embarked on planning formal education for the first time. The Government of Nepal, appointed Dr. Hugh B. Wood, a US Fulbright scholar in India, advisor to Nepal National Educational Planning Commission (NNEPC) in 1954 the report of which has had overarching influence on education policy and which became the foundation for language education policy in Nepal. In fact, the Commission's legacy continues in one form or another in 'the construction, deconstruction and reconstruction of Nepal's language policy (Awasth, 2004)

Awasthi (2009, in press), and Cadell (2002) suggest that Wood was heavily influenced by Lord Thomas B. Macaulay, Chairman of the Governor-General's Committee on Education in India in the 1830s. The minutes he wrote during his chairmanship, known as the Macaulay Minutes, are regarded as a historic document on Indian education and the foundation of the Anglicisation of education system in India.

Macaulay's approach to education was what later came to be known as the 'Downward Filtration Model the purpose of which was to filter, select and educate a class of Indians who could function as interpreters between the British rulers and the millions of Indians they governed – a class of persons Indian in blood and colour but English in taste, opinions, in morals and intellect (Edwards 1967). Wood's 'Linguistic Restrictionism (restricting education and use of multiple languages in public domains) theory' and the concept of multilingualism reduction have its direct roots in the

Macaulay's model of education. Wood as the architect of the NNEPC report orchestrated the report to shape the Nepalese language education policy. Therefore, the concept of monolingual Nepal was a non-Nepali ideology imposed on it by, as Awasthi (2004) below suggests, someone with neo-colonial attitude:

... the reduction of multilingualism was not an indigenous construct of Nepal. Linguistic restrictionism was an alien concept for the people and polity, and was an importation from the West. The concept of reductionism grew during the British Raj in India and flourished [in Nepal] after the NNEPC report (Awasthi, 2004: 34).

## **6. English in the Current Language Policy Debate**

The politics of English as a global language is primarily local because while it has to cater to the global demand of the Nepalese people, it must also meet the local socio-political conditions. That is to say, the status and role of English must appropriately be situated in the local language policy debate. However, most of the debate on language policy in Nepal centres around the local languages and no debate seems to occur around English. Whatever debate takes place in relation to the language is limited to curricular and pedagogic matters and distribution of ELE facilities. The non-existence of the debate on ELE at the policy fronts may be because (a) there is reluctance on the part of the people to explicitly talk about politically sensitive issues such as the language issues in the present volatile political climate. Debating the sensitive and somewhat controversial ELE issue is likely to ignite a whole range of socio-political and educational issues for which Nepal is not politically ready, not at the present any way; (b) ELE is not a part of the overall consciousness of the average people; and finally, (c) the people see an undeniable, incontestable and uncontroversial role of English, and therefore, do not see the relevance of debating it.

There is no doubt that English today has established itself as a language of power but more importantly, it has become powerful because it has been used as a tool as well as a resource for social mobility, linguistic superiority and educational and economic benefits. English as a language of power, therefore, manifests itself in the following dimensions: demographic, socio-political, and economic.

### *6.1 The demographic dimension*

There has been an unprecedented spread of English across sectors and regions in Nepal. English is increasingly used as the main lingua franca, overtaking Nepali, in crucial sectors like tourism, trade and business, education, science and technology, and most other economic sectors:

As the process of globalisation ... is in effect all over the world, Nepal cannot withstand it. English has been a language, which seems to be replacing Nepali itself (Rana, 2006).

It is not only the ruling elites and the politicians who mix a great deal of English in Nepali in their conversations, ordinary rural populations also have developed some sort of taste in doing so. English has become one of the dominant languages in mass (print and electronic) media (Pokharel, 2003, p. 1). 25 percent of news dailies are in English and with all print media combined (i.e., dailies, weeklies, and fortnightlies and monthlies), 40 percent of all materials are published in English and the number is increasing (Humagain, 2001, p. 69). This illustrates that the spread of English in Nepal across sectors and regions is rapid and systematic. It has in recent times reached the lower strata of the population and in suburban as well as rural regions

### *6.2 The socio-political dimension*

English is often termed as the ‘prestige’ language in that it brings prestige and respect for anyone who speaks it irrespective of their class or caste background. The English language is almost sacrosanct in the sense that people equate modern education with English education. So much so that there is a great drive towards learning English and educating children in the English medium schools at all costs:

*Ma petkater bhayepani chhoralai angreji iskuulma padhuchhu [I would rather skip meals to be able to afford English medium school for my son} (a low-caste housemaid during an interview in 2006).*

At the politics level, the decision makers have always been confused between the political aims and the economic aims of teaching English. That is to say, they have had no clear understanding of what they prescribe and what is actually needed for the average Nepalese people. On the one hand, the government have always, since its introduction, imposed uniform ELE curricula at all levels of education, on the other hand, however, it has never ensured that the facilities and resources are distributed in a uniform manner. At the same time when everyone is questioning the relevance and effectiveness of the government’s universal, compulsory ELE program, it has, against all the odds, introduced English for all in Year 1 (Standard 1).

As a consequence of the uniform ELE curriculum and pedagogy, there is a huge discrepancy in the standard of ELE in the country. Furthermore, it encourages private English medium schools, which, because of its exorbitant fees, are only attended by the children of the rich families. The two-tier education system and the inequalities between the private English medium schools on the one hand and the Nepali-vernacular state-run schools on the other, have created two types of citizenry – of those who have adequate proficiency in English and therefore access to education, employment and opportunity as a result, and those who do not.

### *6.3 The economic dimension*

English is at the heart of all economic success. Whether it is a simple housemaid’s work or tourist guide’s, or whether it is teaching in a private school or establishing own business, English is an indispensable aid without which, as an academics says below, success is only an illusion:

People who know English are more exposed, more knowledgeable and therefore, more successful in life than those who don't. Without English, there is no academic or occupational future (a professor during interview in 2006).

English has reached a stage in which it monopolises education and employment at all levels and of all types. Officially, there is little change in the attitude towards English. In fact it remains as it was stipulated in the 1950s when it was incorporated in the formal education system fulfilling the role of a power language and language of the elite. At the practice level, however, it has consolidated its position in both *de facto* and *de jure* manners. English medium schools and colleges have contributed to the development of ELE in a *de facto* fashion, and requirements of English in every curial sector of life have legitimised its importance. The average people view English as an economic liberator, progress, prosperity and status which does not only provide a competitive edge, but also aids people with a global perspective or experience, an essential aspect of any regional and international economic ventures. In the recent times, therefore, there is a drive in the Nepalese people to be economically successful, but what drives the economic success is the success in leaning English.

## **7. Issues from Situating English in the Language Education Policy**

In theory, as indicated earlier, English is a foreign language in Nepal. In practice however, it is the main language in most technical disciplines, private education system diplomacy, research and academic activities, and certain economic sectors such as tourism and trade and business. It is the second most important language for the educated Nepalese people, higher education, administration, media and military. In the wake of globalisation, English is replacing all local languages (Rana, 2006).

This unspoken privileging of the language is a deliberate attempt to create a further division in already divided Nepalese society. The language has been used as an instrument by the elites to maintain their superiority (Stiller, 1993). The role this language has played in the community has, therefore, been controversial, and in the absence of a clear state policy for its education, the language has done more harm than good. It is not only creating a socio-cultural and linguistic chaos, it also contributes to emotional and social displacements which together may be termed as cultural anarchism (Giri, forthcoming).

Furthermore, Nepal appears to be working with the fallacy that monolingual governments are more efficient than multilingual governments; and that multilingualism always divides and monolingualism always unites. As a consequence, instead of producing constructive policy, the fallacy has created problems and counterproductive issues. In this section, I describe some of the issues and tensions that arise from the current language education policy approach of Nepal.

### *7.1 Non-integration of the speakers speaking other languages*

The common cause of the tensions among different language communities is the governments' stance, either in theory or in practice, about the mainstream languages. When people want to be integrated like items in a salad bowl, they are made to assimilate like ingredients in a melting pot causing insecurity, injustice and inequality in the ethnic/minority communities. The integration policy aimed at social transformation is creating tension because speakers of ethnic/minority languages are discriminated against those of mainstream languages such as Nepali and English. Similarly, the goal of making Nepali a language of all Nepalese people remains underachieved as it has not yet become a common language for many indigenous ethnicities. As a result, those who do not speak the languages do not integrate well in the mainstream life.

### *7.2 Policy Contradiction*

The policy regarding languages and how they are put to practice are also a source of tensions. There is a contradiction between the official policy or official position regarding languages, and the actual linguistic practice. For example, Nepal encourages only Nepali to be used in public domains restricting minority languages to limited social and private domains. Despite multilingual language policy rhetoric in the current political discourses, Nepali and English dominate the practice of all other languages. There is no concrete plans for promoting their use in the public domains.

Furthermore, there is a contradiction between the political aims and economic aims of ELE in Nepal. The academics recommend a compromise between the aims by suggesting that English should not be taught until after the elementary level of education as in the lack of adequate resources and teaching conditions, the ELE goals remain underachieved. Introducing it at a later stage of education will enable the government to be better prepared in terms of resources (both human and material), infrastructure and teaching conditions. The government, however, in the name of equity in education, has introduced it in Year 1, which without adequate plans and resources is merely a ritualistic exercise.

### *7.3 Politicising language policy*

Keeping language policy free of party politics has been a major issue in multilingual countries. Despite promised autonomy of policy making bodies, language policy making has been subservient of the ruling political parties which exert their ideological and political influence on the policy-making process as well as the product. For the Nepalese political parties, language policy is like political manifestos, in which they manipulate, perpetuate and promote their linguistic interest. The pro-Nepali politics comes from the people of the *parbatiya* group who promote Nepali as the language of the *pahades* (the hill people). The promotion of Nepali as the dominant language, therefore, means the extension of the dominance of the *parbatiya* community on all Nepalese people, which then paves way for Nepali language and culture to be placed above all others.

There is thus a lack of political will and lack of a consensus among the political actors and ruling elites to distance themselves from the narrow ideological/political conscience and work for a broader interest of all sections of the population.

#### *7.4 Aligning languages in term of their socio-political and economic relevance*

One other source of tension is the way indigenous/community languages are treated, prioritised or aligned for education, use and preservation. There is a tendency in Nepal to align languages in terms of socio-political rationale. For example, languages of socio-politically dominant communities have been selected and given space in media, education and to limited extent public domains leaving at least several dozens of languages in their own fate. Governments and social elites, therefore, channel away resources and energies into learning of these preferred languages instead of researching, investing, and maintaining the vast linguistic resources for their linguistic, cultural and human potentials.

#### *7.5 Declining parity of esteem of ethnic languages and falling mother-tongue education*

Privileging of English and Nepali has also resulted in declining parity of esteem of ethnic and indigenous languages. Though the current policy allows administrative sanction and limited economic support of certain level for the education of some ethnic languages, there is no statute to protect and support their legal status. With the diminishing educational and economic value, the people of young generation do not value their languages at all. As a result, these language communities are gradually losing their speakers.

For the Indigenous Nepal, mother tongues and their education have been their priority because 'it is only by knowing our language; we can make progress in all fields of life' (says an ethnic language teacher). However, this is simply a rhetorical statement. The existing mother tongue schools are experiencing a decline of students because they do not see any relevance of knowing their language. In recent years, a significant amount of interest has been shown especially by the people of tribal groups to educate their children in their local language, i.e., mother tongue. A dozen of mother-tongue education schools are in operation in various parts of the country (Yadava, 2005). This supposedly maintains their languages. However, the ethnic groups themselves point out the fact that the knowledge of the local language does not have the same value in employment, trade, media and education as English or Nepali. Inclusion of English (and Nepali) in mother tongue education, therefore, has been viewed necessary without them education in the ethnic languages alone is neither possible nor practicable (Eagle, 2000).

#### *7.6 English: One Language – Multiple Literacy*

There is a contradiction between how the elites view English and what the common people expect of it. There is a sharp contrast in the role they perceive of the language. The ruling elites, for example, are avoiding the issue and are content with the current arrangement because the discriminatory access to English helps maintain their

status quo. The academics have always recommended that English cannot and should not be compulsory for all at all levels of education (Davies, 1984; Malla, 1977). The common people, on the other hand, inspired by the current situation, expect that English must be for all, available at all levels and for all sections of the population. For them, English is a 'social capital', and like all other capitals, it must be carefully planned and 'fairly distributed'.

The status and role of English, irrefutable they may be in the Nepalese contexts, are far from clear. It is not clear, for example, how a uniform teaching and learning policy can address the complex population diversity and their diversified needs. Based on geography and the different economic activities people are engaged in, there are surely different needs requiring different levels of English proficiency for different types of populations. It needs to be ascertained who needs what type and level of English and how this is to be accomplished. However, the current debate only reveals that the place of English in Nepal is unassailable and it must form an important part of any educational package. What it does not address is the fact that different sections of the Nepalese population require different types/levels of English and therefore, English must be treated differently for them.

English language education, therefore, faces the dilemmas of social equity, social division and equitable practice. Academics and educational experts, for example, believe that ELE has to be based on the reality of the situation, and taking into account the fact that different sections of populations need different types and different levels of English, and that while English is 'second language in urban areas', it is the third or even fourth language in the rural and remote areas of Nepal, the English language must be treated differently in different parts of the country. This means that there has to be different literacy targets for different types of population. However, fair though it sounds, it creates a policy contradiction as it denies the same level of opportunity and excess to all.

## **8. Conclusion**

Languages in Nepal have been conspiratorially manipulated to serve the interest of the dominant groups of the society since the very formation of Nepal in the eighteenth century. The elites have deliberately ignored the issues related with the minority and ethnic languages. The 'unplanning' of English along with these languages has helped them have a linguistic advantage, and competitive edge over others, and better access to education employment and economic success. It has also helped them maintain the dominance of the languages of their choice.

English Language Education (ELE) in Nepal is, therefore, at the crossroads. Its hegemonic past, its deteriorating standards in public education, its divisive role in the community, and uncertainty of its future on the one hand, and on the other its ever growing demand in all socio-economic and developmental domains is creating a policy contradictions. What is needed is a policy framework, which gives ELE a definitive course and develops a policy that adequately accords a place for English along with other local languages, and recognises its role in the socio-economic and educational development of Nepal.

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# Language Policy in Germany and Beyond

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## Abstract

In Germany and Switzerland the world-dominion of English was already predicted in the 19th century. While today the impact of English on German has alarming consequences for many, English lexemes often fill a welcome gap in the language. The role German politicians play in the German vs. English debate can at best be called ambivalent. The part they played in the discussions about the reform of the orthography of German, on the other hand, is strongly negative. The paper concludes with remarks on the language policy of the European Union.

**Keywords:** English in German; Konrad Duden, the Nazis, today's politicians and the orthographic reform of German; Globalisation and languages; European Union language policy.

## 1.0. English in German

Remarks on language policy in many countries today must necessarily also include comments on the impact of English on those languages. This was also the case in the past. Jacob and Wilhelm Grimm as well as Jacob Burckhardt were great names in the intellectual world of 19th century Germany and Switzerland respectively; the first two were philologists and the second a historian. As early as in 1874, Burckhardt had already predicted the coming world-dominion of English with the alarming consequence: "The only way to rescue books written in German is to translate them into English" (translated from German). 135 years later, statistics prove the dominance of English also in book production. In 2000 German-speaking people translated 5,519 books from English, whereas English-speaking people translated only 248 books from German. Although due to the general decrease of book titles translated into German the number of books translated from English also decreased, namely to 3,611 in 2005, but with 65% the translations from English were far ahead of other languages, such as French with only 10%.

Even a quarter century before Burckhardt, Jacob and Wilhelm Grimm expressed a specific misgiving about German in Chapter 6 of their *Deutsches Wörterbuch*: "It is the duty of linguistic research and, specifically, of a German dictionary to oppose the immoderate and unfounded penetration of the foreign word" (Grimm & Grimm 1854-1971, translated from German). A philologist called Grimm's dictionary a Pyrrhic victory of Germanistics. By opposing the foreign word, it was argued, words such as *Kultur* were missing in the dictionary. Such reproach, however, must be modified: The volume that was to contain the word *Kultur* only appeared in 1873, that is ten years after Jacob Grimm's death and fourteen years after the death of Wilhelm Grimm. It was for linguistic reasons that Jacob Grimm called English a world language (1864: 293).

I shall not deal here with the influence of English on German from a historical perspective (on these aspects see Viereck 2004). Indeed, since the Second World War the impact of English on German has assumed such dimensions that every attempt to record it fully becomes futile. As one might expect, mostly Americanisms occur and particularly in those areas that are connected with technical innovations, such as information technology or new technology, which is abbreviated as IT or NT in German publications (and of course, refers to the world of computers). Other fields include telecommunication from whence we get *Handy*, a pseudo-loan for English *mobile (phone) or cell(ular) phone*, youth culture (pop music), economics, fashion, science, politics and advertising. Of course, the English influence must not only be seen negatively. Anglicisms often fill lexical or semantic gaps in German and there are numerous cases where they are to be preferred for stylistic purposes as they convey American or British colour, precision, brevity, vividness, tone or simply variation of expression.

When a German equivalent cannot be found soon afterwards to replace it, then the English word will stay. Often the English word is shorter. Small wonder with a language where such linguistic monstrosities exist as *Steuervergünstigungsabbaugesetz* ‘law on the abolition of tax rebates’, or *Eierschalensollbruchstellenverursacher* ‘a device used to create breaking points in egg shells in order to allow one to easily remove the top part of an egg without causing the shell to splinter’ (Limbach 2005: 157), a matter of amazement or ridicule at least since Mark Twain (1880). Such recent English additions as *Mobbing*, *Dialler*, *Skimming* or *Phishing*, an artificial word created from *password fishing*, will no doubt not be translated into German. Yet in very many cases the use of English words in present-day spoken and written German is excessive, unfounded and thoughtless and it is quite natural that this meets strong opposition especially from those people who do not know (enough) English. A number of language societies exist in German-speaking countries today which publish lists from time to time of unnecessary Anglicisms with their German equivalents. The following table reproduces excerpts of such a list, which altogether comprises 2,000 words put together by members of the association “Muttersprache” in Vienna:

Loanword	Suggestion for rendering in German	Number of Synonyms
<i>Bar</i>	Schantisch, Schankstube, Schank, Tresen, Schenke, Alma mater alcoholica*	6
<i>Box</i>	Schachtel, Pferdestand, Montageplatz (car)	3
<i>Boom</i>	Hochkonjunktur, Blütezeit (economy)	2
<i>boomen</i>	blühen, wuchern	2
<i>Camping</i>	Zelten, Fahrt-	2
<i>clever</i>	klug, schlau, gewitzt, gerissen	4
<i>Container</i>	(Groß-)Behälter	1
<i>Diskette</i>	Speicherscheibe, Merkring*	2
<i>Dock</i>	Werft, Schiffsbaustelle	2
<i>Dress</i>	(Be-)Kleidung, Gewand	2
<i>Drink</i>	Trank, Trunk, Getränk	3
<i>Fair</i>	gerecht, ausgewogen, unparteiisch	3
<i>Festival</i>	Fest(spiel), Feier(spiel), Film-, Musik-,	

	Theaterfest	5
<i>fit sein</i>	in Form, gesund sein	2
<i>Fitness</i>	Gesundheit, Kraft, Ausdauer	3

(Muhr 2004: 41)

Several comments must be made with regard to this table. First, the number of German lexical equivalents for the 15 English words is 2.8 on an average. That means about three German words are necessary to render the content of an English loanword. This certainly cannot be called a facilitation of communication. Second, words marked with an asterisk (*Alma mater alcoholica* for *Bar* and *Merkling* for *Diskette*) are new creations, and are simply ridiculous. And finally, Muhr (2004: 41f.) shows that some of the German equivalents are inaccurate (those for *Dock*, *Boom*, *Drink*), as they do not render the content of the English word correctly and some are simply wrong (those for *Dress* and *Container*), as their range of meaning is too general. As becomes evident, some of these language societies do themselves a disservice. They “care” about the German language in such a way that they feel obliged to translate or render almost every Anglicism into German with sometimes ridiculous or inaccurate results. Cases in point are *Hingehet* for *Event*, *Klapprechner* for *Laptop*, *Prallkissen* for *Airbag*, *Denkrunde* for *Brainstorming* or *Nachsteller* for *Stalker*. Yet there are also cases where the suggestions should be supported, especially by journalists propagating them in their daily work. Of course, these puristic procedures have a long tradition in German-speaking countries. As is the case today, they have always found their staunch supporters and their fierce opponents.

## 2.0. The Role of the Politicians in Linguistic Matters

Only since very recently have German politicians taken a more active part in discussions about linguistic matters than they had done in the past. Unfortunately, some of their remarks are simply outrageous. In late 2005, the Prime Minister of Baden-Württemberg, one of the 16 states of the Federal Republic of Germany, pleaded on German TV for English to become the working language in Germany, whereas German should remain the language of the family, of leisure time and of the private sphere in general (Paulwitz 2006: 7). In this regard, he was “his master’s voice” and simply reiterated the views of the dominant big industry that strongly favours globalisation.

The politicians’ disregard for their mother tongue is also noticeable in Germany’s cultural policy. Up to last year the annual budget of German cultural institutions had been curtailed every year. In 2003 alone this led to the closing down of five cultural institutions abroad. Ironically, at the same rate as the globalisation folly grew, the German government cut down the financial means to teach German abroad. Whereas the government did not care enough – at least until 2007 - to maintain German abroad and to push the status of the language in international organizations, it showed an abstruse interest in the reform of its orthography with equally abstruse consequences to which I would like to turn now.

### 3.0. Duden, the Nazis, today's Politicians and the Orthographic Reform of German

In 1880 Konrad Duden, then director of a secondary school, published a slim volume entitled *Vollständiges Orthographisches Wörterbuch der deutschen Sprache* [Complete orthographic dictionary of the German language]. He accomplished something that has not been accomplished ever since, namely uniformity of spelling. Duden was very careful with standardizing the orthography; in 1901 he only abolished the *Th*, for instance, in *Thür* 'door' following the Prussian model, that has since been written without *h* and he noted in 1902: 6 "If one had wanted to introduce a thorough reform, one would have lost the ground under one's feet" (translated from German). The vision of so-called German thoroughness, however, remained. Linguistic societies, philologists and poets alike developed systems of their own – often with the use of small initial letters.<sup>1</sup> In 1920, a committee even advocated a "thorough phonetic reform". However, nothing happened until the Nazis came to power. Their plan, far beyond reforming the orthography of German, had a perfidious logic: In order to enslave a people one only had to shatter its cultural pride. The most effective way to do this was to disturb the people's linguistic self-confidence. A complete change of the orthographic system would lead to the downright upsetting of historical consciousness and to the devaluation of the writings of earlier times. Georg Schmidt-Rohr, a linguist who was head of the department of the sociology of language of the SS - the so-called "Schutzstaffel" of the Nazi party (Simon 1986) - , to whom we owe these "insights" was probably thinking of Turkey which had changed to the Latin alphabet in 1928. In any case, he thought something similar could be introduced in occupied eastern Europe. A new orthography for Ukrainian would set in motion a linguistic splitting up of the Russian empire, while in Poland, he thought, a new orthography could break up the Polish people's strong sense of history (on these aspects see Birken-Bertsch & Markner 2004).

However, the linguist's thoughts were not able to win over the Nazi bureaucrats – as some of them pursued similar aims, ironically for German itself. Of course, it was not called a breach with tradition which it actually was, but rather a "national awakening". The new, quite radical rules for the orthography of German were only published in 1944, fortunately too late to have any impact. At Hitler's request thousands of booklets had to be pulped. Yet the same people who worked out the rules for the Nazis continued their work after the war. In 1954 they published demands that were almost identical with those of 1944. For these people, as for some linguists today, orthography is the visible expression of language – if words are pronounced the same, they ought to be written the same. A present-day Swiss linguist formulated: "When someone reads something written, then (s)he transforms it to sound" (Saltzwedel 2004: 162, translated from German). However, if reading were to proceed like this, weeks would be needed to get through a daily paper. All these arguments are nothing but a justification for interfering with a well-established orthographical system and for prescribing new rules.

In 1996 a new attempt was made at reforming the orthography of German. The Ministers of Culture of the 16 German states decreed that the new rules should become compulsory for German schools and for those working in the civil service by August 1, 2005. However, it soon became clear that this was not likely to happen

without many changes. Millions of euros have been invested since 1996 in producing new dictionaries and school books. The Ministries of Culture exerted intense pressure on school book publishers threatening that if publishers remained critical of the orthographical reform no school books would be ordered from them any more. This threat did not remain without effect. In 2004, the new *Duden Rechtschreibung* appeared in its 23rd, completely revised and extended edition. It was reviewed in a leading German daily, the *Frankfurter Allgemeine Zeitung*, under the title “Das unmögliche Wörterbuch” [The impossible dictionary] (Ickler 2004). Some of the strangest rules were abolished there and new ones introduced following a decision of the Ministers of Culture taken in June 2004. The 24th edition of the *Duden Rechtschreibung* followed only two years later. It is quite clear that these changes made all the dictionaries worthless that had appeared between 1996 and - at least - 2004. Authors of literary works never followed the new rules, the daily paper just mentioned, soon reverted to the old spelling and punctuation again and two of Germany’s largest press publishers followed suit. In an opinion poll carried out in September 2004 only 11% of the population were in favour of the reform, 60% were against and 29% were undecided (*DER SPIEGEL* 43, 18 October 2004: 50).

When the politicians installed a Council of German Orthography in October 2004 they saw to it that the opponents of the reform were in the minority. The work of this Council remained patchwork, also because the ministers had decided beforehand what should be dealt with. Aspects of the reform that in their view were not controversial were banned from any discussion. Thus many shortcomings remain, which I cannot deal with here. Problems mainly concern the use of the hyphen, capitalisation, punctuation and the tricky area whether words are written together or separately. Ickler (2006) documents many strange results. I would, however, like to mention one example from the section on how words should be divided: according to the *Duden Fremdwörterbuch* of 2001 *Teenager* can be divided not only as *Teen-ager* ‘a boy or a girl between the age of about 13 and 19’, but also as *Tee-nager* which, taken literally, means ‘a gnawing animal which lives on tea leaves’! This nonsensical division was rectified in the subsequent eighth and ninth editions of the *Duden Fremdwörterbuch* that followed each other in an exceptionally short interval of only one year. All this shows how wise Konrad Duden was over one hundred years ago when he introduced only very few changes in order to preserve uniformity of spelling. The majority of the members of the speech community must find new rules sensible, otherwise they are not prepared to follow them. Decrees alone do not work any more. In the area of German orthography, at least, we find today a “collective disobedience”. There are now two ways of spelling: one of the ministers of culture and one of the people beyond school age and outside the civil service. Almost all German publishing houses today have their list of orthographic exceptions, an altogether impossible situation. This is what happens when politicians meddle in matters in which they are not experts. Rominte van Thiel draws our attention to another unbelievable consequence of the orthographic reform, namely the destruction of culture in German school libraries. She sums up the current situation by saying: “I do not know whether apart from the burning of the books by the Nazi 75 years ago there has been another ‘sorting out’ of books from libraries in Germany to the extent as is happening now” (2008: 4, translated from German).

#### 4.0. Globalisation and Languages

I have already mentioned the globalisation folly. *Globalisation* is a fairly new word. According to the *Oxford English Dictionary* (1989) it was coined in 1961; in the early 1990s it appeared as *Globalisierung* in German. Languages belong to the most important victims of globalisation. The unity of the market, the uniformity of its actors and the monotony of its language form the “survival-kit” with which its survival is ensured. It is, thus, in an unfortunate way consequential that with the increasing globalisation process the interest of the German government in maintaining German abroad diminished. The linguistic norm is English: *one world one language*. This linguistic unitarism is part of an ideology that reduces a complex sociocultural reality to such an extent that a simple “rational” action becomes possible with quick decisions. The only concern of the present-day global players is: How can the unitary language English be imparted to the new generation as early as possible and with the least possible expense? As already noted above, the people for whom this trend is so advantageous have the power to enforce such developments.

#### 5.0. European Union Language Policy

As an option for Europe and as a perspective for the world, multilingualism opens new ways and offers possibilities other than a world-wide uniformity. Let me continue and conclude with some remarks on the language policy of the European Union. On a supranational level, the preservation of European multilingualism has in principle been the aim of the European language policy ever since the 1950s; it is part of the European peace policy. After all, linguistic rights are human rights. The European Union quite consciously propagates a policy of multilingualism, not of bilingualism, because the preservation of many languages means the promotion of individual multilingualism and not of individual bilingualism. Those who are “only” bilingual, who know their mother tongue and English as a second language, tend to enforce the one foreign language they know as the only valid one; in the end they push forward a leading language policy. On the other hand, multilingual speakers who speak more than one foreign language attribute importance also to other languages, not just to one lingua franca. That is why the white book of the European Union postulated that every citizen should master three languages of the Community. That was also the demand made for the “European Year of Languages 2001”. This is the theory, which is nothing but a blue-eyed illusion. According to an opinion poll published in 2001, 47% of the population in Europe spoke no foreign language at all. However behind this average value enormous national differences are hidden ranging from 66% in the United Kingdom over Austria with 48% to Luxembourg with only 2%. In the Scandinavian countries the percentages are relatively low and in southern Europe relatively high.

Also the practice in inter- and supranational communication alone shows that reality differs widely from these self-imposed ideals. The European Council which propagates multilingualism uses only English and French as working languages and largely ignores German which with almost 100 million native speakers comes in first place in the European Union.<sup>2</sup> The same is true of other institutions, for example, the

WEU (Western European Union) in London, the EFTA (European Free Trade Association) in Geneva, the ESA (European Space Agency) in Paris and the broadcasting stations in Geneva.

Thirty-eight percent of the population of the European Union are of the opinion that it will be inevitable to have a common language for the internal communication of the European Union, especially after the enlargement of 2004 – as of January 2007, the European Union counts 27 member states -, but 47% are against that. How the 38% would react should they no longer use their own language, remains to be seen. According to these and other results the single leading language model does not seem to be feasible at present, not even for the internal communication of the European Union.<sup>3</sup> A policy of multilingualism, on the other hand, can only succeed with a conscious language policy and language planning. A laissez-faire policy that leaves the linguistic development to the laws of the so-called free market will in the long run lead to the monopoly of a single lingua franca, namely English. For the British government and the British Council this situation will, no doubt, have a most welcome economic effect, as has been the case up to now. The language issue in Europe is politically so sensitive that the politicians prefer to agree only on bland and fine-sounding platitudes in their policy white papers – statements which Phillipson (2003) dismisses as “EU rhetoric”. Regrettably the European Union has failed to consult the experts. What happens when language issues are left to the politicians on a national level has already been pointed out above. What is badly needed is a neutral European language policy. This debate should also include a discussion of the pros and cons of the use of the neutral planned language Internacia Lingvo, commonly known as Esperanto. Esperanto, for instance, facilitated the communication of the reconciliation talks between Korea and Japan. Also, the fairly new field of eurolinguistics is called upon here to work out a concept of multilingualism that by strengthening communication within and beyond single language families relativizes the absolute dominance of English. Such alternatives deserve to be seriously pursued.

## Notes

<sup>1</sup> See, for instance, an advertisement of Eomund (1907), in Waas (1967: 18), claiming that as soon as a child can pronounce the sounds of German clearly and is able to read, he/she will master orthography perfectly.

<sup>2</sup> In 2003 55% of the documents were published in English, 44% in French and only 1% was published in German. Consequently efforts are now being made on the German governmental level to introduce German as a third working language of the European Union and to place German on the same footing with the other two languages as a language of publication. The German daily *DIE WELT* noted that the German Parliament threatened to deal with European Union documents only when they reach Parliament in German (21 April 2006: 4). Two years later the Commission in Brussels refused to have these documents translated into German (*DER SPIEGEL* 12, 17 March 2008: 20). German politicians ignored far too long to put the status of their language on a par with both English and French on the European level and now it seems to be too late for that.

<sup>3</sup> According to a current opinion poll carried out in Germany only 13% of the Germans favour a common language in the European Union.

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# **Crafting multilingual and intercultural identities in talk: I know a little about your language<sup>1</sup>**

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## **Abstract**

This article examines how the participants indicate multilingual memberships when engaged in talk about Korean language use. Talk about language use occurs when participants engage in talk that indicates that they are teaching/learning about a specific form and/or telling about how language is used. Typically, the introduction of Korean into a conversation involved the participants engaging in metalinguistic talk to make comparisons about the differences between the Japanese and Korean languages. Through this process, the participants construct identities, such as engaging in expert-novice roles and constructing multilingual speaker identity. The analysis will show that the participants are making comparisons about languages which construct various intercultural identities and show when and where the talk led to those occasions.

**Keywords:** Interculturality, Korean learners of Japanese, Identity, Conversation Analysis

## **1. Introduction**

This article will examine how the participants indicate multilingual memberships when engaged in talk about Korean language use. Talk about language use occurs when participants engage in talk that indicates that they are teaching/learning about a specific form and/or telling about how language is used. This was a fairly common subject among the participants and their interlocutors for both Japanese and Korean in this study. While there were occurrences of talk about language that focused purely on the use of Japanese by the participants in this study, this article will focus on occurrences where the use of Korean language was the main topic. The main reason for this is that these forms of talk about language also tended to invoke the participants' intercultural memberships.

Typically, the introduction of Korean into a conversation involved the participants engaging in metalinguistic talk to make comparisons about the differences between the Japanese and Korean languages. The participants then engaged in making comparisons, which led to the construction of mutual understanding about the language form in question. Through the process of making a comparison, the participants constructed various identities, such as engaging in expert-novice roles and constructing multilingual speaker identity. The analysis will show that in this case, the participants are making comparisons about the languages and in one case, indexes the stances of "I know a little about your language." The co-construction of their identities in talk as expert-novices led to indicating the participants' multilingual memberships as well. This article will explore when and where the talk led to those occasions to discover how the participants managed these intercultural moments.

## 2. Language expertise in interaction

One way to construct the identity of multilingual speaker is through orienting to expert-novice roles in conversations. The terms “expert and novice roles” originates from a reaction to the use of the classifications of native speaker and non-native speaker (Cook 1999; Firth & Wagner 1997; Kachru & Nelson 1996; Kasper 1997, 2004a; Rampton 1990; Schegloff, Koshik, Jacoby, & Olsher 2002). These researchers highlight that the field of second language acquisition imported the terms native and non-native speaker from Chomsky’s terminology as a way to categorize participants. Many researchers do not question the use of the categories native and non-native speaker; rather they accept these categories as unproblematic. However, Cook (1999) argues that the terms of native speaker, non-native speaker, and L2 learner are problematic because many researchers have essentialized their meaning, by assuming that the native speaker norm is the goal for L2 competence. In addition, many researchers do not account for the variables in a learners’ competence such as native speakers of one language having the ability to use another.

To avoid essentializing and assuming a speaker’s identity as a native or non-native speaker, Rampton (1990) suggests that researchers utilize the term expertise for categorizing participants. Expertise implies that the expert’s knowledge is not innate; rather participants can acquire or demonstrate his/her expertise through interactions with others. However, the demonstration of expertise in conversation is not symbolic of a speaker’s social group identity (Rampton 1990). This definition avoids the stereotypical understanding of what it is to be a native speaker.

In response to this debate, Conversation Analysis (hereafter CA) researchers’ main criticisms are that any category assigned to the participants prior to examining the talk, rather than seeing how the participants construct identity in conversation is problematic. That is, many non-CA researchers assume that, because the speaker is a non-native speaker, s/he will behave in interactions in a certain way such as making grammatical and pragmatic errors. Recent CA studies have addressed this issue of the categorization of participants as native/non-native identities versus expert/novice in the analysis of discourse (Carroll 2000; Hauser 2003; Hosoda 2002, 2004, 2006; Ikeda 2005; Kasper 2004a, 2004b, 2006; Koshik 1999; Mori 2002, 2004; Wong 2000a, 2000b, 2000c). These studies show that, on occasion, participants orient to their differential linguistic and cultural expertise. However, CA researchers tend to differ in the categories utilized for describing this identity work. Some have categorized the participants in the native-non-native speaker dichotomy (Hauser 2003<sup>2</sup>; Hosoda 2002, 2004; Ikeda 2005; Wong 2000a, 2000b, 2000c). Still others have used the terms expert-novice (Carroll 2000; Hosoda 2006; Kasper 2004a, 2004b). These later studies avoid the terms native and non-native speaker, because they believe that it is not the participants’ social identity as native or non-native speaker that is being orientated to. Rather, the participants are demonstrating differential language expertise (Kasper 2004a).

Hosoda (2006) exemplifies this form of analysis for Japanese with her study on repair in conversations among users of Japanese. She argues for the use of the terms target language expert and target language novice over native and non-native speaker, by demonstrating how language expertise is achieved as a part of the ongoing interaction. To arrive at mutual understanding, participants in conversation will engage in repair sequences when necessary. In segment 1, the participants engage in repair work for

*shigoto kankei no ryokou* ('work related travel').

**(1) Segment 1. From Hosoda (2006, p.20-21)**

**[Dean: L2 Japanese; Toku: L1 Japanese]**

1. Dean: *ano:: sigoto kankei no ryokou wa?*  
uhmm work relation Gen travel Top  
  
'Uhhh, how about work related travel?'
2. Toku: *nn? kankei?*  
Huh relation  
  
'Huh? Relation?'
3. Dean: *a:: sigoto kankei ryoukou a a ano (.) ryoukou zya*  
uhmm work relation travel uh uh uhm travel COP
4. *naku te ano tch e:: nihongo de wa wakan nai kedo*  
Neg and well tch uhm Japanese in Top know Neg but
5. *((cough)) (.) ano::: Osaka: e:: [ka Nagoya e::]*  
uhmm Osaka to or Nagoya to  
  
'Uhhh, work relation travel, uh, uh, uhm, not travel  
but well, tch, uhhh, I don't know {the word} in  
Japanese but uhhh, to Osaka or to Nagoya.'
6. Toku: *[ah syuttyou]*  
oh business trip
7. *desu ne.*  
COP:POL IP  
  
'Oh, you mean a business trip.'
8. Dean: *syuttyou aa SYUTTYOU.=*  
business trip oh business trip  
  
'Business trip, oh, business trip.'
9. Toku: *=syuttyou.=*  
Business trip  
  
'Business trip.'
10. Dean: *=hai. [°syuttyou°]*  
Yes business trip  
  
'Yes, business trip.'
11. Toku: *[u:::~:~:n] syuttyou wa desu nee,*

Hmmmmmmm business trip Top COP:POL IP  
*imanotokoro yotei nai desu ne.*  
for the time being plan NEG COP:POL IP

‘Hmmmmmmm, as for a business trip, for the time being, there is no plan.’

In segment 1, the roles of expert and novice are demonstrated through the repair sequence. Toku has trouble understanding Dean’s question which is signaled by the other- initiated repair in line 2. Dean attempts to self-repair in line 3 and elicits help, which is followed by Toku’s other-initiated repair in line 6. Dean accepts the other-initiated repair (line 8), and eventually the participants return to their original discussion (line 11). This sequence displays that the participants are seeking mutual understanding of Dean’s question.

Segment 1 is a typical example of an expert-novice interaction. This study will adopt the terminology of expert-novice when the participants orient to differential language expertise and will show that the multilingual identity can also be constructed. The use of the categories of target language expert and novice avoid the stereotyping that arises with the terms native and non-native speakers. That is, non-native speakers are always deficient in their language production.

As the analysis will show, there are many places in conversations where the participants are not concerned with linguistic errors. Previous expert-novice studies (Carroll 2000; Hauser 2003; Hosoda 2000, 2004, 2006; Wong 2000a) have typically focused **only** on the repair sequences as a demonstration of the roles of language expert and novice. This article will show that the expert-novice roles are just part of the complex identity constructions that occurred in my data when there is “talk about language.” This article will include more of the interaction than is typically provided in similar studies. This will allow for an analysis of the additional identity work that occurs in the interaction, such as a multilingual speaker identity and the interculturality of the participants.

This article will answer the following questions:

1. How does talk about language play a role in the participants’ negotiation of their identities?
2. Does this provide an opportunity for an orientation to interculturality, and if so, what occurs?

The analysis examines two areas: code shift and non-code shift events. The first example will demonstrate when the participants code-shift to engage in talk about language and indicate the identities of expert-novice and multilingual speaker. The participants accomplish the construction of the stance of “I know a little about your language.” The second example will demonstrate that the participants are engaging in talk about the Korean language without using a code-shift. Despite the lack of a code-switch, one of the participant’s indicates her orientation to her intercultural statuses. However, the participants’ sequential moves shift the talk away from further engagement in talk about language use. For both of the segments, the analysis will demonstrate how the participants’ orient to the category of multilingual speaker and on occasion the formation of intercultural understanding.

### 3. Data and Methodology

This article examined two segments from 45 hours of data, produced by two of the participants, Ji Eun Han and Mi Ran Na. The data was recorded in the Chubu area of Japan with other speakers of Japanese. The participants used mini disk recorders and the researcher was not present. These two segments are just two of many similar segments where the participants engaged in talk about language.

This study used a Conversation Analysis informed perspective for analyzing the data for the construction of identity following the seminal works of Sacks (1972, 1979, and 1992) and the collection of works in Antaki and Widdicombe (1998). Identity is defined as how participants display their orientations toward others in the talk to indicate their relationships and identities (Antaki and Widdicombe 1998). The basis for analysis is the use of Membership Categorization Analysis (MCA). MCA is the examination of the process of organizing and reorganizing people into categories or groups in conversation (Sacks 1992). Antaki and Widdicombe’s (1998) work propose three analytical practices in which identity can be examined. E. Zimmerman (2007) designated these practices as labeling (explicit categorization), description (formulating a category) and “doing” identity. The analysis for this study focuses more on how the participants are accomplishing the identities of expert-novice and multilingual speakers in the talk.

### 4. Code-shift in “talk about language:” Pronunciation comparisons: It sounds like...

This section will show when the participants are working together to work out the use of a Korean language form. This leads to the participants indicating their understanding of how this form works and engaging to “teach/learn” about a Korean phrase. The participants create a space for negotiating language similarities and differences to indicate that they want to know a little about another’s language. The analysis will demonstrate that, in addition to the roles of expert-novice, the participants accomplish further identity work for that of multilingual speakers.

Segment 2 involves a phonological comparison of what a language form sounds like to one of the participants. Ji Eun Han is a main participant, and she is talking with her friend. They are at a Korean restaurant and have just received their order. In the 25 seconds before the beginning of the talk in line 499, a song that contains the phrase *EMMA YA*<sup>3</sup> begins. We can hear clicking of silverware on the plate and chewing throughout the segment.

#### (2) Segment 2. Ji Eun Han MD 7 Track 2 (JH=Ji Eun Han A=a female friend)

498	(25.6) ((song starts in this pause and can hear sounds of them eating and serving up food))	(25.6) ((song starts in this pause and can hear sounds of them eating and serving up food))
499	JH: <i>EMMA YA tte wakaruu?</i>	‘do ((you)) know the ((phrase)) other((in Korean))?’ ((said while mouth full))
500	(1.7)	(1.7)

501-502	A:	<i>honto da tte kikoeru, ha ha ha: honma ya tte kankokugo no honto da tte imi. a:, kankokugo ja nai ya.</i>	'((I) hear it as "really," ((honto da, Standard Japanese)) ha ha ha: it is "really" ((honma ya, Osaka dialect)) in Korean it means "really".((honto da)) a:, not in Korean'
503		(1.3)	(1.3)
504	A:	<i>o:sakaben↑</i>	'O:saka dialect↑'
505		(1.2)	(1.2)
506	JH:	<i>EMMA YA tte iu no?</i>	'((you)) say EMMA YA'
507		(0.5)	(0.5)
508	A:	<i>un, E[MMA YA.</i>	'uh-huh, E[MMA YA.'
509	JH:	<i>[EMMA YA, honma ya. [un un un.</i>	'[EMMA YA, honma ya. [uh-huh uh-huh uh-huh.'
510	A:	<i>[sonna fuu ni kikoeru EMMA YA okaa no</i>	'[(I) hear it that way "EMMA YA" ((means)) mother?'
511	JH:	<i>soo soo. [okaasan?</i>	yes yes. [mother?'
512	A:	<i>[soo yatte itton chau?</i>	'[(you)) say it that way right?'
513		(0.3)	(0.3)
514	JH:	<i>un.</i>	'uh-huh.'
515		(0.3)	(0.3)
516-517	A:	<i>honma: ya tte kikoeru no? hehehe (0.6) honto da to iu.</i>	'I hear it as really ((honma ya, Osaka dialect)) hehehe (0.6) to say really ((honto da, Standard Japanese))'
518	JH:	<i>un.</i>	'uh-huh.'
519		(2.2) ((during this pause, the singer of the song says EMMA YA again.))	(2.2) ((during this pause, the singer of the song says EMMA YA again.))
520	JH:	<i>EMMA YA.</i>	'EMMA YA ((Korean))'
521	A:	<i>un un.</i>	'uh-huh uh-huh.'
522		(9.4)	(9.4)

Segment 2 demonstrates one strategy for making pronunciation comparisons between two languages or dialects. Ji Eun Han and participant A orient to participant A's status of knowing about Korean, the Japanese Standard dialect and the Japanese Osaka dialect. In this segment, Ji Eun Han poses a question in response to a phrase of a song that is being played in background at the Korean restaurant they are eating at.

The segment begins in line 499 with Ji Eun Han directly questions participant A's knowledge of the Korean term EMMA YA ('mother'). Participant A's response in line 501-502, is a pronunciation comparison between EMMA YA ('mother') and *honma ya* ('really,' Osaka dialect). She provides the standard Japanese pronunciation for really (*honto da*) and then the Osaka dialect version. She then claims that the *honto da* is Korean. A 1.3 second pause occurs between this and the next line of talk. This pause is significant in that it indicates that something is not quite right. What follows shows this. Participant A provides a self-initiated self-repair that it is not Korean and then further clarification that it is Osaka dialect. However, this is not enough to fix the possible confusion as indicated by Ji Eun Han's response, which is a second question in line 506 as to whether in Osaka dialect they say EMMA YA. This question is a move for further clarification and denotes Ji Eun Han's confusion with participant A's previous utterance. In line 510, participant A reiterates that she hears EMMA YA as *honma ya* clarifying her position. It is immediately following this that there is an indication that participants finally arrive at a

shared understanding of the meaning in lines 510 and 511 when A suggests that EMMA means *okaa* ('mother') in Japanese and this is confirmed by Ji Eun Han.

The identity construction in this segment is complicated because the identities of expert-novice and multilingual speakers are happening simultaneously. As far as the expert-novice roles are concerned, the two participants share this role. Participant A attempts to show her expertise in lines 501-502 by providing a comparison between the two languages. However, she had to self-repair when she made a mistake in the language she was referencing. The role of expert shifts to Ji Eun Han in line 511 after a question from participant A requests confirmation of the meaning of *EMMA YA* with *okaa*. In this example, it is not a matter of a non-native linguistic disfluency that leads to repair. The repair occurs with the "native speaker." Thus, the expertise constructed here is for comparing language forms in two languages.

In regard to the other identity constructions that occur in this segment, participant A constructs the identity of multilingual speaker for Ji Eun Han by asking for confirmation about the meaning of *EMMA YA* in line 510. Participant A is demonstrating that this is how she hears Korean and therefore Ji Eun Han's language. The identity of participant A is also constructed as a multilingual speaker of two dialects. She not only compares Osaka dialect and standard Japanese despite the repair that occurs in line 502, but she also provides her perspective as to how she hears *EMMA YA*. Through this exchange, the two participants are sharing their respective languages indicating their intercultural memberships. The comparisons of the languages indicate the participants' orientation to arriving at an understanding of the words under discussion. The participants' multilingual speaker identities are made relevant as a part of the comparison making process. In the end, the participants construct the moment as intercultural by showing that "I know little about your language."

## 5. Comparing Japanese and Korean without a code-shift: Talk to move away from talk about language

In the previous section, the analysis explored ways in which a code shift and pronunciation comparisons between Japanese Osaka dialect and the Korean language became the focus of the interaction as a means to discover more about Korean. In turn, various identity constructions evolved from that talk, such as multilingual speaker and expert-novice. This section will also focus on how comparisons are made, but this time, there is no code-shift to a Korean word that occurs. The analysis shows that while one participant wants to move to talk about linguistic practices, the other participant avoids this by indicating his lack of interest. In segment 3, Mi Ran Na and her male friend are driving in her friend's car. Participant B, the male friend, is driving and Mi Ran Na is the passenger. The two participants start to talk about snow after seeing the freshly fallen snow on the ground outside the car window.

### (3) Segment 3. Mi Ran Na MD 11 Track 2 (MN=Mi Ran Na, A=Male friend)

55	MN:	<i>sooka: (0.9) sonna ni tookunaka- [tta</i>	'I see: (0.9) it wasn't that fa[r]
56	B:	<i>[(soo-) yuki ga</i>	'[(yeah-) snow'

57	MN:	<i>oo sugoi:</i>	‘oo wow.’
58		(1.0)	(1.0)
59	B:	<i>yukidaruma tsukureru na:</i>	‘((you/we)) could make snowmen.’
60	MN:	<i>heheh</i>	<i>heheh</i>
61	B:	<i>hehe</i>	<i>hehe</i>
62		(1.0) ((sound of the engine))	(1.0) ((sound of the engine))
63	MN:	<i>yukidaruma da kke?</i>	‘it is snowmen?’
64	B:	<i>un.</i>	‘uh-huh.’
65	MN:	<i>un.</i>	‘uh-huh.’
66	B:	<i>yukigassen mo dekiru.</i>	‘((we)) could have a snow battle ((snowball fight))’
67		(0.7) ((sound of plastic bag rustling))	(0.7) ((sound of plastic bag rustling))
68	MN:	<i>yukigassen (ko)</i>	‘snow battle (ko)’
69	B:	<i>soo soo</i>	‘yes yes’
70		(0.8)	(0.8)
71	MN:	<i>hehehe (0.4) nande yuk- yuki genka to iwanai no?</i>	‘hehehe (0.4) why don't you say sno- snow fight?’
72		(1.6) ((sound of engine))	(1.6) ((sound of engine))
73	B:	<i>(yukigenka?) ((sound of engine))</i>	‘(snow fight?)(sound of engine)’
74	MN:	<i>un. uh-huh</i>	‘uh-huh.’
75		(4.0) ((sound of plastic bag rustling))	(4.0) ((sound of plastic bag rustling))
76	MN:	<i>nande yukigassen desu ka. (0.5) yukigenka janakute,</i>	‘why is it snow battle. (0.5) ((and)) not snow fight,’
77	B:	<i>yukigenka ( )</i>	‘snow fight ( )’
78		(0.3)	(0.3)
79	MN:	<i>datte kankoku:go: de suru [to yuki genka da mon.</i>	‘well if say ((it)) in Korean [it is snow fight.’
80	B:	<i>[u:n↑</i>	‘[uh-hu:h↑’
81		(0.4)	(0.4)
82	B:	<i>a soo na no?</i>	‘a is that so?’
83	MN:	<i>hai.</i>	‘yes.’
84		(2.2) ((sound of plastic bag rustling))	(2.2) ((sound of plastic bag rustling))
85	B:	<i>kassen de,</i>	‘battle,’
86		(1.1)	(1.1)
87	MN:	<i>chigatte yukigenka dat(h)te(h).</i>	‘not ((that)) ((it is)) snow fi(h)gh(h)t.’
88	B:	<i>un. docchi demo ii janai?</i>	‘yes. either is ok right?’
89	MN:	<i>hehe [he .hhh sonna docchi mo ii tte sonna koto.</i>	‘hehe[he .hhh what ((you)) say both are okay what's that.’
90	B:	<i>[hehe</i>	<i>[hehe</i>
91	B:	<i>un. anmari kodawari wa nai yo.</i>	‘yes. ((I)) won't dwell on ((it)).’
92-93	MN:	<i>heheheheheh .hh Hiro san ni kodau- kodawaru kedo sonna koto ni kodawaranai no?</i>	‘heheheheheh .hh Hiro would dwell on such a thing. ((you)) won't dwell on it?’
94	B:	<i>iya ano: he[heh</i>	‘no well: he[heh’
95	MN:	<i>[hehehehe (0.9) .hhh</i>	<i>[hehehehe (0.9) .hhh</i>
96		(2.1)	(2.1)
97	MN:	<i>nani?= =hoka ni kodawaru kana:.</i>	‘what?= =I wonder if ((I)) dwell on: ((things)).’
98	B:	<i>=hoka ni kodawaru kana:.</i>	‘=I wonder if ((I)) dwell on: ((things)).’
99	MN:	<i>kodawatteru: mitai.</i>	‘it seems that((you are)) dwelling.’

100		(0.4)	(0.4)
101	B:	<i>un. kodawaru. (0.2) onaji mono demo yasui mono demo</i>	‘yes. dwelling. (0.29 even similar things or cheap things’
102	MN:	<i>sore wa soo [da kedo ne.</i>	‘that is [true.’
103	B:	<i>[heheh</i>	<i>[heheh</i>
104		(0.7) <sup>4</sup>	(0.7)

Before getting into the analysis of what the participants accomplish here, an explanation of the differences that Mi Ran Na brings to the floor is necessary. Both Japanese and Korean have borrowed Chinese characters (Kanji for Japanese and Hanja for Korean) and a Chinese-like pronunciation for some words. The original Chinese pronunciation in both Korean and Japanese was adjusted to fit the respective languages. South Koreans have for the most part stopped using the Chinese characters except for a few instances such as the print media and names, but the pronunciations remain a part of the language. In Japanese, the word for snowball fight is *yukigassen* (雪合戦) which means in English snow war or battle. Mi Ran Na provides the non-existent word of *yukigenka*, (‘snow fight’) which is the Japanese pronunciation of what she proposes would be the Korean way of constructing the word with Chinese characters. If this were a word, it would be the following characters: 雪喧嘩. The Figure 1 shows a representation of these words.

<b>Snowball Fight</b>	
雪合戦	雪喧嘩
<i>yukigassen</i>	* <i>yukigenka</i>
snow battle	snow fight
(Japanese word)	(Non-existent word in Japanese)
	눈싸움
	<i>nwun ssa wum</i>
	Snow fight
	(Korean word)

Figure 1. Snowball fight

The talk about language here stems from what was seen outside the window of the car (fallen snow). Participant B suggests that they could make snowmen (*yukidaruma*) in line 59 to which Mi Ran Na seeks confirmation of what she had heard in line 63. This exchange is an example of novice seeking confirmation from an expert about a word. From here, participant B proposes another possible snow activity, *yukigassen* (‘a snowball fight’). At first, it appears that Mi Ran Na, as the novice, is seeking confirmation of that word too as seen by participant B’s interpretation and response of *soo soo* (‘yes yes’) in line 69. However, this is where the participants transition from a confirmation check to an instance of a clarification check. Min Ran Na indicates she needs further clarification by asking a question that seeks out why the term is not formed in another way in lines 71-79. She tries to create another opening for an expert-novice exchange about language in line 79 with her reference to Korean’s use of a word that means snow fight. While participant B at first shows interest with his response of *a soo na no?* (‘is that

so?') in line 82, participant B makes clear his indifference about engaging in these roles with a disaffiliative move in line 88 with *docchi demo ii janai?* ('either is okay right?'). In response, Mi Ran Na questions this indifference in line 89. He responds however in line 91 with *anmari kodawari wa nai yo.* ('I won't dwell on it.'). This disaffiliative move thus, shifts the topic from the debate over terminology to things participant B will dwell on.

Thus, the two participants engage for a brief moment in metalinguistic talk when Mi Ran Na brings up the differences between the conceptualization for the compound for snowball fight in Japanese and Korean. Her suggestion for how the word is said in Korean brings to the forefront of the conversation her identity as a Korean speaker. Participant B in response provides a disaffiliative move indicating his indifference and shifts the topic. Mi Ran Na does not challenge this shift in topic and complies by engaging in this new topic. The identity constructions in this segment differ from the previous segment where the two participants mutually engaged in the exchange to discover about the other's language. In this case, Mi Ran Na constructs herself as a multilingual speaker who is trying to find out the differences between Korean and Japanese. However, participant B sequential indicates his unwillingness to engage in the topic and does not work to further explore her identity as this multilingual speaker. Participant B avoids engagement in talk about lexical conceptual differences. While participant B does not work to construct his own interculturality, Mi Ran Na constructs their intercultural differences through this comparison. Participant B's shift to another topic avoids further development of this potential intercultural topical talk.

## 6. Conclusions

These two segments, while both involving talk about language, resulted in different outcomes. Ji Eun Han and her interlocutor arrived at a shared understanding for the term they were discussing. Mi Ran Na and her interlocutor did not pursue finding an answer for her question. There could be a couple of reasons for this. In segment 2, the word in question is a real word that is compared to another real word. In segment 3, however, Mi Ran Na is asking her participant to engage in talk about word that does not exist in Japanese. For him, this is not a matter for pondering because the words are just different. Thus, their talk ends up being redirected to a more concrete topic which is the act of dwelling on something. This is an area that participant B can comment or is willing to comment about because Mi Ran Na is remarking about his personality. Thus, one possible reason for the different results here is the type of word that is being compared. In both segments, the participants construct their expertise and multilingual identities. The outcome of the talk however is shaped by the participants' uptake of the topic.

This analysis demonstrates that more than just expert-novice identities can be constructed in topical talk about Korean language pronunciation and usage. In segment 2, the participants created a space for a pronunciation comparison between Japanese and Korean constructing the multilingual identity as a salient aspect of the talk. The participants' conversational activities for talk about language indicated an exchange of intercultural information and provided an opportunity for the speakers to have an intercultural moment. The talk indicates that the participants are engaging in discussions that broaden their understandings of the language, their cultures, and each other. However, as shown in segment 3, the Japanese participants did not always take up the topic of talk

about language and display interest in the other's language. Instead, the participant B successfully redirects the talk to a topic he will engage in. While the main participant's identity as a multilingual speaker is made salient for a moment, the two speakers do not pursue the topical talk that could develop further intercultural understanding.

The analysis shows that for Ji Eun Han and Mi Ran Na, it was not the non-native status that was relevant for these interactions. Instead, the participants construct, through various conversational practices, the identities of expert-novice, multilingual speaker, topic avoider, and intercultural identities. The talk about language in these two segments indicates that the participants engaged or attempted to engage in discussions that could broaden their understandings of the Korean language. As segment 3 showed, this activity can be sometimes redirected to avoid the topic altogether.

The implication of this study reinforces that researchers must look carefully at the participants' joint productions of identities as produced within the sequential moves of the talk. These findings also suggest that the process of constructing one's identity does not stop at the repair sequence. If the analysis had stopped there, the complex identities that followed would not have been discovered. It also demonstrated that there are various agendas for the talk (segment 2, an intercultural moment, segment 3 avoiding further engagement in intercultural talk). In addition, it also shows that the assumption of identity as found in many identity studies, especially in intercultural situations, could lead to stereotyping and misdiagnosis of the identities constructed by the participants.

Further research is needed in the area of language expertise to discover other ways in which the expert-novice roles can be activated. In this case, the talk about language was one avenue which led to indicating the participants' intercultural memberships. The participants can work to discover more about each other and the target language under discussion through talk about language.

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## Appendix: Transcription Conventions

.	Falling intonation, declarative intonation
,	Falling-rising, continuing intonation
?	Rising intonation, question intonation
-	False start
:	Elongated vowel
=	Latched turn with no gap or overlap, or continuation by same speaker from non-adjacent line
[	Overlap
(0.5)	Length of pause
(difficulty)	Unsure hearings
( )	Unclear speech
(( ))	Comments: laugh, breath out.
°e::tto°	Quieter than rest of speech
ha	Laughter token
(h)	Laughter token within a word
h	Audible outbreath, more letters indicate longer outbreath
.h	Audible inbreath, more letters indicate longer inbreath
↑↓	A shift to a higher or lower pitch

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### Notes

<sup>1</sup> This project was reviewed for the use of human subjects. IRB #12278 University of Hawai'i at Manoa

<sup>2</sup> While Hauser (2003) uses the native/non-native speaker dichotomy for discussing his participants, he does so with the analytical intent of showing these categories are omnirelevant when other correction appears.

<sup>3</sup> *EMMA* means “mommy” while *ya* is a marker used typically with names to indicate familiarity.

<sup>4</sup> The passage continues with the participants discussing things that participant B will dwell on.

# What the emergence of AUTOLINGUALS says about the status of EAGLF in the ubiquitous age

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## Abstract

The eminent status of EAGLF—an acronym of English As a Global Lingua Franca—is often talked about in relation to a threat to linguistic diversity and linguistic inequality between the English-native and English-nonnative worlds. EAGLF is a product of globalized discourse in the ubiquitous age; that is, the rapidly spreading availability of the Internet requires a common language, which, from geographical-historical and socio-cultural reasons, appeared to be English. Ironically, however, the ubiquitous age equipped with advanced information technologies should be able to realize AUTOLINGUALS—another form of global lingua franca, that of computers. It is this cyber lingua franca that will possibly replace EAGLF. After all, we confirm that linguistic diversity is part of human nature.

**Keywords:** EAGLF, AUTOLINGUALS, three Ds of linguistics—diversity, disparity, and divide

## 1. Introduction

The advancement of worldwide communication systems has given rise to a now familiar expression, the ubiquitous society. The ubiquitous society is expected to realize the world knowledge and information accessible to anyone, anytime and anywhere on the globe, provided that the society acquires some common language. From geographical-historical and socio-cultural reasons from the 19th and 20th centuries, English is the language which has achieved its eminent status as a global language (Crystal 1997). This has raised several issues concerning phenomena of attrition and death of minor languages on a global scale, often, though not always, triggered by English as a *killer* language (House 2003).

This paper argues that EAGLF—an acronym of English As a Global Lingua Franca—is a necessary linguistic product of the ubiquitous age. Ironically, however, there will be another form of global lingua franca, that of computers, to be made possible by the ubiquitous age. Given such a technological reality, to be called AUTOLINGUALS, a threat due to English should be diminished, and linguistic equality should be largely realized. The paper confirms that linguistic diversity is part of our universal human nature.

## **2. Three Ds of linguistics—diversity, disparity, and divide—in the ubiquitous age**

### *2.1. Technological ubiquity and language*

The notion of *ubiquity* is often used in terms of the universal availability of today's advanced information technologies. The ubiquitous society, in particular, characterizes today's globalized world interconnected via advanced information technologies. When the ubiquitous society is properly realized, we will be able to enjoy a number of advantages brought by the technologies anytime and anywhere on the globe. While this is the technological side of the ubiquitous age, there is another side that is linguistic in nature. Language and the advanced communication network technologies go hand in hand; they are inseparable from each other. Without language the advanced technologies cannot function. In other words, the ubiquitous society is not a genuine reality until we acquire necessary linguistic means, that is, some *common language*. From geographical-historical and socio-cultural reasons from the 19th and 20th centuries, English appeared to be most representative of such common language (Crystal 1997).

### *2.2. Linguistic diversity, disparity, and divide*

Language is human species-specific, which implies likeness and *diversity*. This is evidenced by the fact that there are more than 6,000 languages currently spoken in the world (cf. Comrie, et al 1996) and that these diverse languages are governed or regulated by coherent patterns (cf. Haspelmath, et al 2005). Out of such *linguistic diversity*, English has achieved its eminent status as a global lingua franca in nearly all areas of human activities (Crystal 1997), including academic conferences, economic activities, international politics, data base, and the media. This is an undeniable fact of today that raises the issue of *linguistic disparity* against the nonnative English world. That is, the

nonnative English world must spend tremendous amount of social cost for English, most obviously time and money. The more the eminent status of English advances, the more is spent on mastering English. This is what is happening in the nonnative English world.

### *2.3. Disparity in social cost on English education*

As globalization proceeds, countries in the nonnative English world are investing tremendous amount of social cost on English education. Take Japan as an example. English has virtually been a mandatory subject of higher education (high schools and universities). Recently English has been seriously considered to be taught much earlier, and it is about to become a subject of elementary education. English is a subject of nearly all high school and university entrance examinations. This makes it a major subject taught in numerous preparation schools throughout the country. Even out of school, English remains a big subject. After schooling, business men in international corporations are required to achieve scores of 800 on the TOEIC for promotion. Before schooling, teaching English to preschool children has become a current fashion. The bookstores throughout Japan confirm such circumstances; various education materials for English occupy great deal of their floor spaces.

More serious is the controversial issue coming up repeatedly among opinion leaders since Mori (1873), that English be Japan's official language. Related to this tendency is Shiga (1946), who spoke for the use of French in place of Japanese. Recently the government advisory committee *Colloquium: the 21st Century Japan's Scheme* has proposed that English be the Japan's second official language.

One estimate reports that annual social cost spent on English is never under 30 billion dollars in Japan alone. Such a situation is more or less a reality in many nonnative English countries. The burden is clearly on the nonnative English world. It is obvious that *linguistic disparity* exists today between the native and nonnative English worlds.

The issue of disparity also exists within the nonnative English world. This is because not all countries can afford such tremendous social cost on English education.

### *2.4. Disparity in achievable English competence*

Even if they can afford the social cost, it is unrealistic to expect that the nonnative English world achieves a level of competence similar to that of the native English world.

If English is taught early enough, powerful bilingualism may be achieved, and we may expect it to be a possible solution for linguistic disparity. However, this may even be questionable, as we see in the report from California Spanish-English bilingual education, that only 6% of the Spanish speaking children enrolled in bilingual classes made it into classes then taught mostly in English and that everyone seems to agree that bilingual education did not work very well (ABC World News Tonight 6/1/1998). Note that this story is from one of the English native countries where people use it in everyday life. We may easily imagine then how hard to gain English competence in the nonnative English world, which is comparable to native speaker's competence.

### 2.5. *Linguistic divide*

Linguistic disparity does not seem to disappear easily. It is obvious that a disadvantage is toward against the nonnative English world. In other words, the ubiquitous society using English as a common language will institutionalize differences in social class outlook between those who have good access to English and those who do not; hence *linguistic divide*, which refers to divide in such a social outlook.

### 2.6. *A chain of three Ds of linguistics*

We see here a linguistic chain of three Ds. A fate due to *linguistic diversity* is *linguistic disparity*, from which *linguistic divide* is induced. A chain of *diversity, disparity, and divide* seems to remain a recurring problem in any issues of globalization (Katada 2002), if no solution comes forth.

### 2.7. *English as a threat to multilingualism*

In short, the importance of learning English keeps increasing, and the world is often concerned about English driving other languages out of existence (e.g. House 2003). Though English is not the only cause of language extinction, some estimate that a half to three-quarters of the existing human languages will disappear in this century, and a backlash is certainly beginning (Crystal 2003).

While such a concern can be well understood (e.g. Nettle and Romaine 2000), I suspect and propose another possibility. That is, the importance of solid knowledge of one's own language be increased; inversely lessened be the importance of learning English. As a result, linguistic equality be largely realized, and multilingualism be saved

accordingly. Section 3 will provide the logic behind this claim.

### **3. The emergence of AUTOLINGUALS**

#### *3.1. EAGLF*

English as a global lingua franca is a product of the ubiquitous age. That is, the rapidly spreading availability of the virtual universe of the Internet has required a common language, which appeared to be English. EAGLF—an acronym of English as A Global Lingua Franca—has now gained its own functions and characteristics distinct from ‘English’ per se. We should first note what EAGLF is all about in the ubiquitous age.

Briefly, EAGLF is a product of globalized discourse in the ubiquitous age. It is supposed to be a means for allowing indirect communication between any language pair (X, Y); EAGLF mediates between language X and language Y, schematically:

(1) Lang X – EAGLF (English-based) – Lang Y

Ironically, however, the ubiquitous age, equipped with advanced information technologies, should be able to realize another form of global lingua franca, that of computers, to be named here AUTOLINGUALS. This will make the story interesting.

#### *3.2. AUTOLINGUALS*

AUTOLINGUALS is another necessary byproduct of the ubiquitous age. Just like EAGLF, AUTOLINGUALS is supposed to serve as a means for allowing indirect communication between any language pair (X, Y), schematically:

(2) Lang X – AUTOLINGUALS (technology-based) – Lang Y

This is not a mere illusion or dream. Among notable technologies advancing day by day reported by Japanese major newspapers are the Universal Networking Language developed by the UNL project at the United Nations University in Tokyo. This is an example of global lingua franca of computers whose aim has been to handle any languages of about 180 countries and areas of the world. When it is satisfactorily

developed, it will no longer be a dream that papers written in French are directly read in Swahili on Internet (The Nikkei 1997).

Portable multilingual automatic interpreters with listening (and speaking) competency are forthcoming at ATR (Advanced Telecommunication Research Institute) in Kyoto (The Nikkei 6/30/1999). This will be a genuine breakthrough for real time language processing.

The ongoing and promising exploitation of wearable computers (The Nikkei 4/25/2003) allows us to feel convincing that the emergence of affordable, portable machine interpreters and translators—AUTOLINGUALS—is deterministic in nature.

For those who are suspicious about the emergence of AUTOLINGUALS, just remember the now widespread cellular phones equipped with incredibly sophisticated functions including those of motion camera, TV, e-mail, and even Internet. Only some years ago, many people did not expect such sophisticated portable communication tools.

### *3.3. AUTOLINGUALS for place of EAGLF*

EAGLF and AUTOLINGUALS perform a very similar function; they both mediate between any language pairs and allow their indirect communication. From a user's point of view, however, they differ in an important respect. EAGLF, on the one hand, is English-based and burdens the nonnative English world since it must spend a tremendous amount of social cost on acquiring English. Today linguistic inequality in terms of social competition is a reality. AUTOLINGUALS, on the other hand, is a machine language, and once satisfactorily developed, it will bring linguistic equality to the world since no user must learn any languages of others. In the ubiquitous age, we may expect AUTOLINGUALS to replace EAGLF.

### *3.4. The need of interlanguage*

Can we then totally depend on AUTOLINGUALS? This question led us to testing of currently available primitive forms of AUTOLINGUALS such as a few translation software packages available at computer shops. The experiment was to see the level of linguistic sophistication of AUTOLINGUALS. We let the software translate Japanese expressions to English and translate the English outputs back to Japanese:

(3) Japanese (Input) → AUTOLINGUALS → English (Output)  
Japanese (Output) ← AUTOLINGUALS ← English (Input)

The expectation should be that the input Japanese and the output Japanese be close enough semantically and being reasonably legible in terms of lexical choice and grammar. This expectation was not borne out. The answer to the above question was negative.

The result was not surprising since AUTOLINGUALS is not a human brain equipped with complex working knowledge of language, despite the belief of scientists that anything humans can do, machines can do. The experiment indicated the following. To obtain reasonably legible results, there are certain forms which better feed into AUTOLINGUALS. A user needs to assist AUTOLINGUALS by providing paraphrases with grammatical clarity maximized and context-dependency minimized. These paraphrases may be called *interlanguage* for AUTOLINGUALS, akin to that introduced by Selinker (1972) for second language acquisition. Schematically,

$$(4) \text{ Lang X (Input)} \rightarrow \text{Interlanguage} \rightarrow \text{AUTOLINGUALS} \rightarrow \text{Lang Y (Output)}$$

(X-based)                      (machine lang)

In the above schema, there is no English involved, though English may be X, one of the source languages, or Y, one of the target languages. Since interlanguage is based on one's own language, in order to maximize the faculty of AUTOLINGUALS, the user must have a solid conscious knowledge of his/her own native language.

In principle, then, under the emergence of AUTOLINGUALS as an alternative form of global lingua franca, the importance of English would be lessened, whereas the importance of one's native language education would be increased. In other words, AUTOLINGUALS will be a possible solution for linguistic divide caused by linguistic disparity.

#### 4. Linguistic diversity as universal quality of human being

Effects of AUTOLINGUALS on three Ds of a linguistic chain is worth noting. Disappearance of linguistic disparity entails disappearance of linguistic divide. In schema (5) a chain between diversity and disparity is cut, and disparity and divide chained together will disappear. What would survive persistently in the end is linguistic diversity.

$$(5) \text{ Diversity} - \text{ } \rightarrow \text{ } - [\text{Disparity} - \text{Divide}]$$

It is worth noting in this respect that, because of its overwhelming success, English is diversified into many dialects that are mutually unintelligible. These dialects may evolve into independent languages. Representative are Ebonics, Spanglish, and Shinglish, among others, whose characteristics are often pleasantly astonishing.

Ebonics spoken in African-American communities in the U.S.A. has African importation of grammatical features. Stress affects meanings as in (6).

- (6)a. She been married. (she used to be married)
- b. She BEEN married. (she is married now)

It also has some grammar which 'standard' English does not have. For example the absence of 'be' indicate a momentary state, where as its presence transforms the meaning to a conventional state, as in (7).

- (7)a. He here. (He is here right now)
- b. He be here. (He is always here)

Spanglish spoken in Hispanic communities in the U.S.A. is another example. Spanglish is a blend language evolved by codeswitching between Spanish and English.

- (8) All right, all right, *recordando una bez mas*, tomorrow night .... Its gonna happen, *en el parque Rosdeo* .... Tejano, Thunder! Accordions burn! Be there. Yes, *mananapore Rosdeo* .....

The last example is Shinglish spoken in Shingapore where, in addition to Chinese, Malay, and Tamil, English has been used as one of the official languages. Shinglish has Chinese and Malay importation of duplication. The following examples are from Honna (2002).

- (9)a. If you go to Seiyu, everything is cheap-cheap.
- b. I like to wear big-big.
- c. Play-play, no money. Work-work, no leisure. Combination is better.
- d. Choose-choose-choose-choose-choose, no buy.
- e. Thursday, can-can.
- f. My friend from China, she likes (to) shop-shop.

These are all examples of diversity emerging in the process toward unification. It is certain that a recursive chain of uniformity-diversity is part of universal human nature.

## 5. Conclusion

To live the globalized world brought about by the advanced communication technologies, we must have a good linguistic preparation, that is, a common language out of *linguistic diversity*. Under the eminent status of English as a global lingua franca, identified as EAGLF, the *linguistic disparity* (disadvantage) is clearly toward the nonnative English world. What is entailed is *linguistic divide* between the two worlds, that of English native and that of English nonnative.

Ironically, however, it will also be the advanced technology that might free the nonnative-English world from the linguistic divide. The solution suspected in this paper is a technological reality, AUTOLINGUALS, an alternative form of global lingua franca of computers. AUTOLINGUALS is claimed to replace EAGLF.

To utilize AUTOLINGUALS, users must provide certain forms of interlanguage that better feed into AUTOLINGUALS. Interlanguage is based on the user's native language. Thus, we may expect this to increase the importance of one's native language education and to lessen the importance of learning English.

Finally, the persistent nature of *linguistic diversity* is confirmed. This reminds us of the policy taken by the European Union. Currency is united under the euro. Language is not; all languages of the member countries are equally their official languages. To say the least, this policy accords with *linguistic diversity* as part of our human nature.

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# The creation of polite mitigation in cyber-dialect in light of the theory of Communities of Practice

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## Abstract

This study targets Computer Mediated Communication defining distinctive language expression using cyber dialects and observes its forming process with reference to the Theory of Communities of Practice. This study mainly analyzes *toiuka* which changes from a functional word into polite mitigation to help smooth communication through grammaticalization. During this process, some variations are derived from the original expression. This paper examines how the usages of these variations characterized the domains on the web and constructed cyber dialect as a kind of social group dialect.

**Keywords:** polite mitigation, cyber-dialect, the theory of Communities of Practice, computer mediated communication.

## 1. Globalization of discourse

Development of information and communication technologies (ICT) has greatly altered human social interactions. In particular, young people enjoy new style of global communication in cyberspace. In this environment, various kinds of mitigation have been created in their conversations. Example include shortened extenders such as *and that* in English (Cheshire, 2007), diminutives such as *-ico(a)*, *-illo(a)* in Spanish (Mendoza, 2007), diminutive such as *-toka* and discourse markers such as *tsuuka* in Japanese (Ootsuji, 1999; Tanabe, 2005). It is explicit that the new global media has expanded its influence beyond the cyber space, exerting enormous influence ordinary resulting in numerous, unique styles of characterized discourse.

This paper attempts to illustrate the grammaticalization of *toiuka* ('rather than') in English and to analyze its variations and changes in computer mediated communication (CMC). *Toiuka* is grammaticalized from a compound phrase particle into mitigation form *tsuuka* via discourse marker (DM): *teka* or *tteka*. While *toiuka* as a compound phrase particle, is located in the middle of utterance, as a DM, it is mostly adopted in the beginning of a sentence. Furthermore, *tsuuka* is located at the beginning position of an utterance when it is adopted as a turn-taking marker (TTM).

Although studies of grammaticalization basically focus on semantic changes, the mitigation of *toiuka* is also accompanied by phonological change. The original form, *toiuka* [toiuka] is transformed into variations of DM, *tteka* [tteka] and *teka* [tekka], etc., and terminates in *tsuuka* [tsu:ka] as TTM. This change shows the tendency for the number of higher vowels to increase as colloquialization progresses.

This present study examines the current situation of Japanese language on the web, characterized by short forms of words, and illustrates the process of globalized language change and the construction of cyber dialect<sup>i</sup>.

## 2. Communities of Practice

This study attempts to explore the construction of the polite mitigation forms *tteka* or *tsuuka* in cyberspace by analyzing the communication in chat rooms and blogs on the Internet with the assumption that Internet domains are communities.

'Communities of Practice' is a concept, which originated from the social theory of learning<sup>ii</sup> (Lave and Wenger, 1991; Wenger 1998), has been examined with regard to its appropriateness as an alternative to other sociolinguistics models such as speech communities and social networks particularly in the area of language and gender. Eckert and McConnell-Ginet (1992, 1995, 1999) attempted to apply this theory to linguistic change and variety in relation to gender research. Eckert (2000) tries to apply this to Belten High school data and other data on adolescent communication.

Davies (2005) argues that the ignorance of hierarchy in ‘Communities of Practice’ and indicates the points which need further thought and development in applying communities of practice to the explanation of language variation. In order to respond to Davies’ proposals and appropriately apply the concept of communities of practice, the present paper will analyze gal’s language especially based upon the three constitutive features of ‘Communities of Practice’: ‘mutual engagement’, ‘joint enterprise’, ‘shared repertoire’. By focusing on these three aspects, ‘communities of practice’ specifically, this study will contribute to verification of the usefulness of applied theory of ‘Communities of Practice’ to explicate the mechanism of construction of cyber dialect<sup>iii</sup>.

### 3. Grammaticalization: *teiuka* from a subordinate marker to mitigation

The change of usage is categorized into four stages depending on the grade, which is determined by the extent to which the usage differs from its original function. Grammaticalization of *teka* has been focus of attention for more than three years although the Sifow’s blog ‘Gal’s revolution’ (<http://blog.livedoor.jp>) is the most effective sample for demonstrating examples of all the stages of *teka* excepting the original *te iuu ka* expression.

Stage 1: Compound phrase particles : *to(te)- iu ka* (rather than)

(Hinds 1982: 301)

(1) *Gakkoo te iu ka puri sukuuru desu ne.*

School rather than preschool copula FP

“Did I say school? I meant preschool.”

Stage 2: Discourse marker/ hearsay marker : *teiukaa* (however)

This is the feedback writing from Sifow to the comment from Konaba.

( Posted by Sifow, February 2<sup>nd</sup>, 2006 )

(<http://blog.livedoor.jp/sifow/archives/13356769.html>)

(2) *Big ni naremasu kasira nee ? ! tteka, naru*

Big P can become wonder FP however become  
*tsumori desu-kedo-tto* ♪(*warai*)  
 am going to be copula-P -P (smile)  
 “I wonder if I could become ‘Big’, however, that is my issue,”  
 (*warai*)  
 (Smile)

Stage 3: Pragmatic marker/ Illocutionary connective: *te-ka* (by the way)  
 ( original blog text February the 2<sup>nd</sup>, 2006)  
 (<http://blog.livedoor.jp/sifow/archives/50377753.html#comments>)

(3) *Sooda! 2gatsu kara enndinngu de nagareru-nn datta!*  
 Ah February from ending P broadcasted I remember  
 “Ah! My song’s gonna be on the ending of that TV program!”  
*Teka moo 2gatsu nanoo!?*  
 By the way already February it is  
 “Well, it’s February already!”

Stage 4: mitigation /(well)

(No record of posting, July 13<sup>th</sup>, 2005)  
 (<http://blog.livedoor.jp/sifow/archives/27884041.html#comments>)

(4) a. *Suimasenn itadenn ni mukatuite dennwa banngoo*  
 Sorry web site P (I) upset telephone number  
*sarashite shimaimashita*  
 open to public be done  
 “I announced the telephone number of the prankster on the web,  
 because I was upset about the prank call.”

( Posted by 暇人(himajinn) July 13<sup>th</sup>, 2005)  
 (<http://blog.livedoor.jp/sifow/archives/27884041.html#comments>)

(4) b. *Tsuuka, dennwa banngo o noseru-tte!*  
 Well telephone number P put it on -P  
*Ikura itazura to omotta-kara-tte.*  
 Even if prank call P think (PAST)- P-P  
 “Well, how could you do that with somebody else’s phone  
 number ! Even if you thought it was a prank call.”

*Kakujitsuni itazura-tte wakatte-kara nara*  
surely a prank call-P understand-COJ when  
*mada wakaru-kedo.*  
Possibly (I) would understand-COJ

“If you are sure that was a prank call, I understand why you did it.”

#### 4. Observation of Sample data

Here the method for quantifying the gradualness rate of grammaticalization, using the colloquialization, occurring in domains on the Internet is described. Data was collected using the Yahoo! search engine. Fourteen domains were included: go.jp, ne.jp, co.jp, plaza.rakuten.co.jp, yahoo.co.jp, www.geocities.co.jp, blog.drecom.jp, blog.livedoor.jp, fc2.com, jugem.jp, thebbs.jp, yaplog.jp, milkcafe.net.

**Table 1** shows frequency of use of *toiuka* and its variations: *toyuuka*, *teiukta*, *tteiuka*, *teyuuka*, *tteka*, *teka*, *tekka*, and *tuuka* ( in order of gradualness of grammaticalization) on Internet. The data collected through the Yahoo! search engines verifies the frequency of use of respective words in each domain. It is assumed that the gradualness rate of grammaticalization in each domain can be quantified by the use-frequency of *toiuka* variations during the process of grammaticalization. The ratios of the hit counts for each variation to total number of hits are listed in **Table 1**.

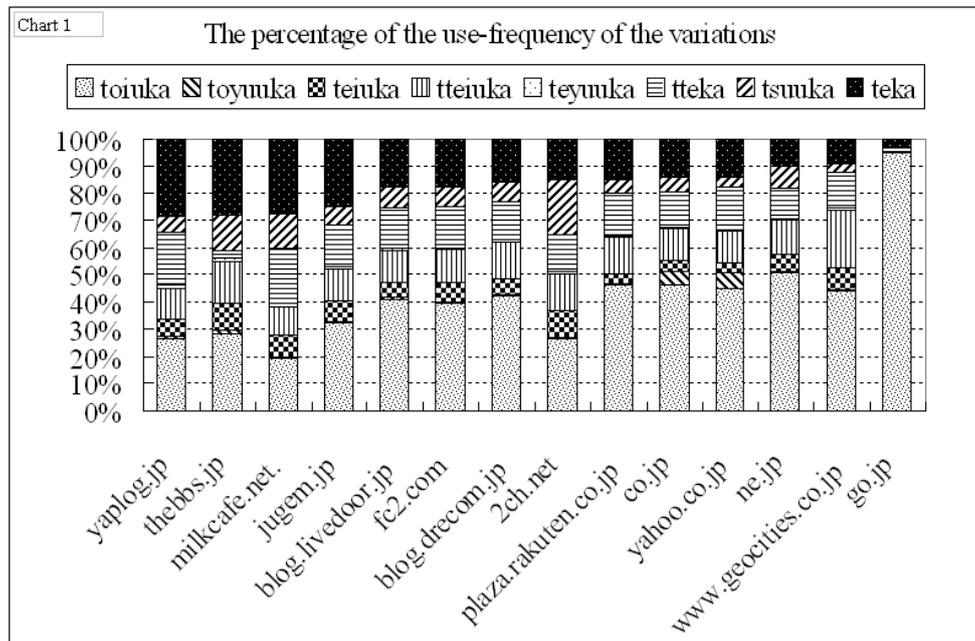
Table 1

domain	toiuka	toyuuka	teiuka	tteiuka	teyuuka	tteka	tsuuka	teka
yaplog.jp	26.48%	0.82%	6.02%	11.66%	1.36%	19.16%	6.03%	28.45%
thebbs.jp	28.25%	1.40%	10.08%	14.87%	1.87%	2.40%	13.31%	27.86%
milkcafe.net	19.47%	0.39%	7.81%	10.34%	1.40%	20.61%	12.57%	27.40%
jugem.jp	32.38%	0.62%	7.53%	11.51%	1.20%	15.51%	6.35%	24.91%
blog.livedoor.jp	41.03%	0.58%	5.53%	11.92%	0.73%	14.89%	7.40%	17.92%
fc2.com	39.65%	0.47%	7.00%	12.12%	0.68%	15.20%	7.10%	17.82%
blog.drecom.jp	42.07%	0.35%	6.43%	13.18%	0.70%	14.41%	7.10%	15.70%
2ch.net	26.32%	0.36%	10.22%	13.25%	1.34%	13.30%	20.29%	14.92%
plaza.rakuten.co.jp	46.14%	0.30%	3.80%	13.79%	0.36%	15.67%	5.01%	14.87%
co.jp	46.23%	5.10%	4.19%	11.29%	0.50%	13.20%	5.10%	14.30%
yahoo.co.jp	44.90%	5.88%	3.75%	11.27%	0.40%	15.94%	3.50%	14.29%
ne.jp	50.69%	0.36%	6.06%	13.04%	0.55%	10.91%	8.00%	10.39%
www.geocities.co.jp	44.18%	0.46%	8.27%	20.43%	1.01%	13.40%	2.98%	9.20%
go.jp	94.97%	0%	0.06%	0.35%	0%	1.49%	0.02%	3.17%

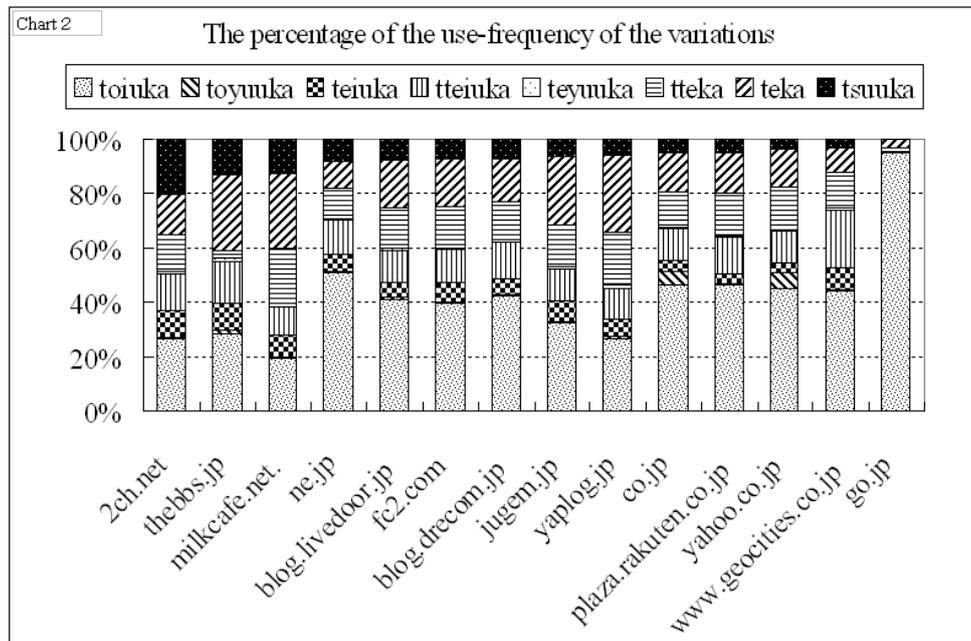
This study focused on the three domains, go.jp, 2ch.net, and milkcafe.net, go.jp is a domain in which government related administrative white papers are released. Accordingly go.jp has a more public function and

consists of higher proportion of text documents and pages. In contrast, 2ch.net and milkcafe.net are popular chat rooms among young people. Their users are expected to communicate as if they were engaging in ordinary face -to- face conversation. Further observation demonstrate that in these two domains *teiuka* which is derived at an initial stage of grammaticalization of *toiuka* is used at roughly the same frequency in these two domains. However, as grammticalization proceeds, variations including long vowels and more pragmticalized functions, i.e. *teyuuka* and *tsuuka* are more often used in 2ch.net. On the other hand, the shortened and double consonant forms, *teka* and *tteka* exceeded the values of frequency of use compared to *toiuka* in milkecafe.net; i.e., that the highly grammaticalized variations are more frequently used than the original *toiuka* form. These observations suggest that, because the domain functions as social group communication between regular users in the domain has colloqualized the ordinary language and created a dialect which characterizes the group.

**Chart 1** shows the percentage in **Table 1** using a bar graph. The results suggest that *teka* and *toiuka* are almost complementary to each other. This is because *toiuka* is mainly adopted in written language and *teka* is frequently used in spoken language. As previously mentioned, go.jp, the domain with the highest percentage of *toiuka* variation, deals with government white papers,while milkcafe.net is a popular blog site among young girls. According to **Chart 1**, milkcafe.net is the most colloqualized of the 14 domains.

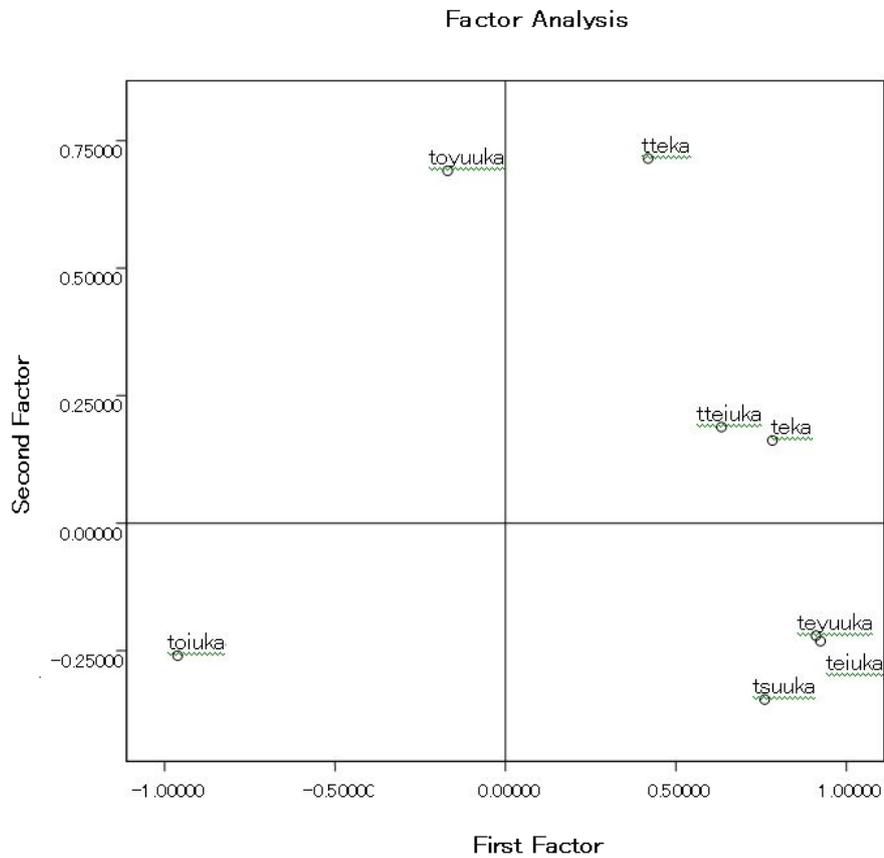


**Chart 2** indicates the descending order of frequency of use of *tsuuka*. The highest percentage domain is 2ch.net and the lowest is go.jp. Along with 2ch.net, the next-highest percentages of *tsuuka* characterization, thebbs.jp and milkcafe.net are highly colloquialized domains as Chart 1 shows. In the contrast, although yaplog.jp and jugem.jp are also more colloquialized, they are located in the middle level of the *tsuuka* use-frequency ratios.



**Figure 1** shows the results of factor analysis of *toiuka* variations. The third quadrant comprises *toiuka* use alone. The first quadrant diagonally across, *teka*, *tteka*, and *tteiuka*, can be used as a measurement standard for degree of colloquialization. The third and fourth quadrants are divided into two areas by the axis: *toiuka* and *toyuuka* on the left side and *tsuuka*, *teyuuka*, and *teiuuka* on the right side. These two areas considered separate groups; i.e., the original *toiuka* form and its *tteka* and *tsuuka* variations.

**Figure 1**

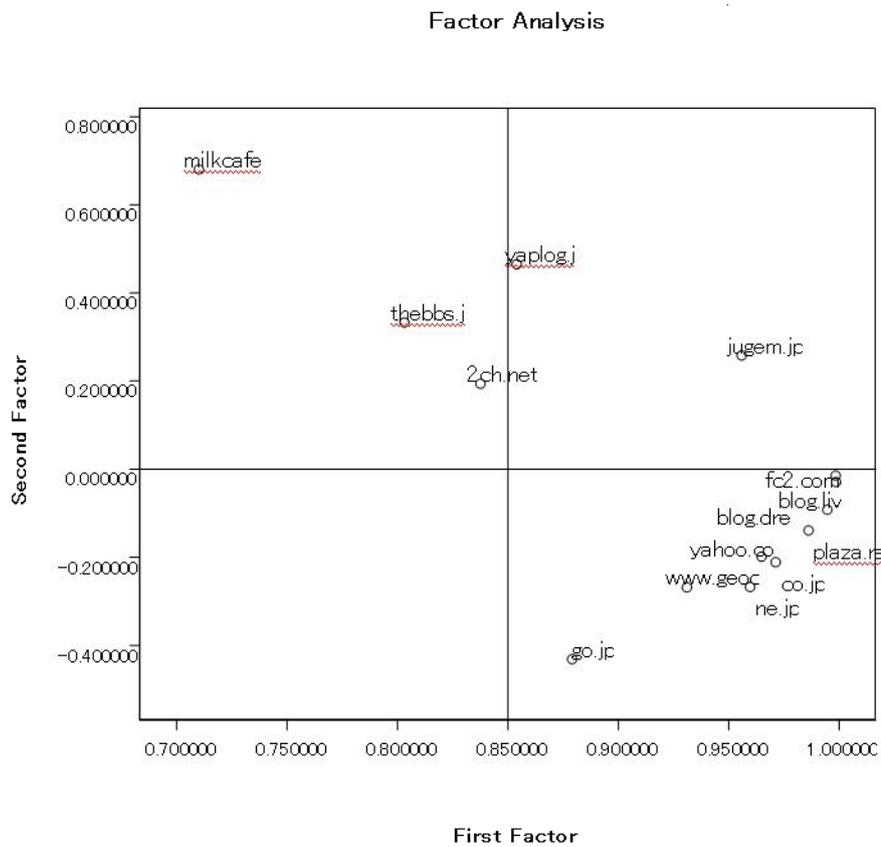


	components	
	1	2
toiuka	-0.96138	-0.2599
teiuka	0.924174	-0.23149
teyuuka	0.91101	-0.22058
teka	0.783189	0.161739
tsuuka	0.760551	-0.34576
tteiuka	0.633807	0.188309
tteka	0.418304	0.714515
toyuuka	-0.16928	0.690644

**Figure 2** shows the results of the factor analysis conducted for each domain. Milkcafe.net, go.jp and jugem.jp are divided into three areas, forming a triangle. This phenomenon is caused by two important factors. First, in the domain, go.jp, *toiuka* accounts for 94.97% while milkcafe.net accounts for

19.47% which is an extremely low value. This enormous difference between two values is remarkable. Secondly, in the jugem.jp, teka, which is a measure degree of colloquialization shows relatively higher value 24.91% than huge domains such as yahoo.co.jp, co.jp while its original *toiuka* form also shows higher value 32.38%. In contrast, value of *tsuuka* which is another measure degree of colloquialization is lower than milkcafe.net.

**Figure2**



	components	
	1	2
blog.livedoor.jp	0.998632	-0.02938
fc2.com	0.998442	-0.01475
blog.dre.com.jp	0.994718	-0.09222
plaza.rakuten.co.jp	0.986195	-0.13919
co.jp	0.971285	-0.21119
yahoo.co.jp	0.964871	-0.19868
ne.jp	0.959713	-0.26759
jugem.jp	0.955895	0.25775
www.geocities.co.jp	0.931091	-0.26833
go.jp	0.879127	-0.43136
yaplog.jp	0.854061	0.464754
2ch.net	0.837624	0.193711
thebbs.jp	0.803187	0.332653
milkcafe.net	0.710108	0.680191

## 5. Application of Communities of Practice

In this section, the concept of Communities of Practice is examined to determine its usefulness as an alternative sociolinguistic model for speech communities and social network. As indicated by Davis (2005), the term ‘joint enterprise’ is rarely used except in certain commercial or business situations. Since ‘Communities of Practice’ was originally a learning theory, it cannot interpret the linguistics phenomena perfectly. However, this theory is significant because it assumes that the concept of ‘communities’ dose not always regard authorities or hierarchies as essential factors, which is particularly relevant to the unregulated nature of cyberspace.

As evidences of ‘mutual engagement’ and ‘shared repertories’, in the blog of “ the Gal’s revolution”, the variation of *teka* and *tteka* have been adopted by supporters and fans of the blog author, Shifow. These two variations have appeared since the blog started. This tendency has been continuing during the four-year history of the blog. If supportive commenters read past blog entries, they will undoubtedly notice that these two expressions are among those most used by Shifow. As a result of this, not only colloquialized form but also the grammaticalized usage of *teka* and

*tteka* has been transformed by both Shifow and her readers.

## **6. Conclusion**

The present paper has examined the applicability of the Communities of Practice theory in analyzing the construction of cyber dialects. The sample blogs and chat rooms examined here were organized by Japanese young users. The frequent interaction on these sites constructs a characteristic speech style depending on the group. Thus, members who feel attached to these cyber communities create an identity as regular visitors. When communicating with other members, these users recognize and learn the authentic speech style created inside the group and consequently strengthen and develop their own speech variation through frequent use of the group style.

The language behavior described above is consistent with the Communities of Practice processes of ‘mutual engagement’, ‘joint enterprise’ and ‘shared repertoire’. In this study, ‘mutual engagement’ was the interaction in cyberspace. Users engage in mutual support and construct human relationships through communication within their favorite cyber community. Many members feel privileged to be included and consider these community relationships to be a form of friendship.

‘Joint enterprise’ was indicated by participation in the movement of changing language. Users enjoy using unorthodox language, which is only adopted inside the domain and is employed to recognized membership. This experience consolidates their identity within their particular cyber community.

Finally, ‘shared repertoire’, the final stage of ‘Communities of Practice’, is identified in the present study as the common use of the authentic group language in the cyber community. Thus, although some modifications are necessary, ‘Communities of Practice’ is significant in developing a theory of analyzing socio-group dialects and can contribute to developing a more elaborate theory.

### Abbreviations

COJ	conjunctive particle	COP	copula
FP	final particle	PAST	past tense
P	particle		

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<sup>i</sup> Sorede(motte) is another example of cyber dialect. It is grammaticalized from conjunction into mitigation, nnde(motte) via sonnde(motte).

<sup>ii</sup> A communities of practice is an aggregate of people who come together around some enterprise.

United by this common enterprise, people come to develop and share ways of doing things, ways of talking, beliefs, values - in short, practice – as a function of their joint engagement in activity (Eckert 2004: 35).

<sup>iii</sup> Within this framework (a spatially aware and theorized framework of CMC activities), questions of who are given individual is in ‘real life’, man or woman, young or old, become less relevant than the exploration of who, with what kinds of resources, and why, ‘they do being’ in terms of sense of self and modes of sociality in the CMC spaces (Georgakopoulou 2006 : 552).

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# **Reinterpreting intercultural moments: A case of peer discussions among foreign graduate students in Japan**

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## **Abstract**

When are the “relevant moments” for interculturality? Why do participants invoke, accept, and collaboratively develop them? When do they resist them? This study explores these questions by examining the case of foreign graduate students in Japan. It examines a series of group discussions held for a graduate seminar course in a Japanese university. This study examines the discourse data drawing on conversation analysis. The analysis of the discourse data shows that while moments of interculturality repeatedly appeared in their talk, these moments were invoked in order for the speakers to pursue trans-cultural social purposes. Put another way, while non-Japanese students invoked their foreign-ness in their talk, they did so *en passant*, not as an ultimate goal.

**Keywords:** interculturality, conversation analysis, category bound activity, narrative, situated identity.

## **1. Introduction**

In the past ten years, discursive-constructionists have explored the notion of interculturality and have shown that moments of interculturality are ephemeral. Interculturality is not an omni-relevant condition of interaction, but is instead something participants negotiate. Even in what seem self-evidently “cross-cultural” contexts, such as conversation exchange tables between Japanese and American students (Mori 2003), a discussion between a Japanese radio host and a foreign student guest (Nishizaka, 1999), or the study-abroad experiences of Korean students in Japan (E.Zimmerman, 2007), detailed conversation analysis of the actual interactions amongst participants shows that the mere fact that the speakers are from different cultural groups does not automatically result in interactionally-relevant self-identifications as culturally “different.”

In other words, moments of interculturality are not present *a priori*; rather, they emerge only when participants decide to treat them as relevant. What makes the interaction relevantly intercultural is neither something outside the interaction or what each participant thinks about each other, rather, it is a form of exchange in the interaction itself.

## **2. The Study**

### *2.1. Research Questions*

In this study, I will first start by detecting the moments of construction of interculturality. The moments of interculturality is understood as the moments when speakers accept intercultural selves, for example, presenting (projecting) self as Japanese, Korean, or Thai, or at a more abstract category, someone from other cultures, in interaction among selves. My stance here is to argue that the fact of being intercultural is itself a social phenomenon (Nishizaka, 1995: 302), and the fact of being culturally different is indeed an achievement in and through talk-in-interaction. The literature before me have already made this point based on various data source (e.g., Nishizaka, 1995; Mori, 2003; E. Zimmerman, 2007).

The ultimate research question in this study is to ask “When do they let others or project from themselves such moments in a particular social context? When are the “moments” for interculturality? How, and why do participants invoke, accept, and collaboratively develop them?” And these questions invoke some further questions to follow.

When we identify the moments in the talk-in-interaction, the next question is to ask how these moments get constructed. Who starts it, and whom is it addressed? How does the addressee treat the projection of intercultural self in their talk? How do the participants present develop the intercultural selves?

Although this is an integral part of my aim in this study, I would like to probe even further, in other words, which is the main research question of my paper. That is, what are these moments for? When in talk, and how are intercultural moments made irrelevant? Why do we go about doing these works?

There are further issues to consider in addition. Participants do not always welcome the moments of interculturality to prolong in their interaction. At times, participants resist, or treat interculturality irrelevant, particularly when such intercultural

selves are proposed to them by someone other than themselves. What are the reasons in the developing talk that they resist (or curtail) the moments of interculturality? When they do so, *how* do they accomplish resisting it through their interaction? And ultimately, what is the social consequence (accomplishment) which such irrelevancy brings to the participants? With these questions in mind, this study will tackle a piece of naturally occurring discourse data in Japanese.

## 2.2. *The Method of Analysis*

I will be adopting a similar set of methodologies to analyze the data for this study as the other presenters in the organized topic, i.e., drawing on Membership Categorization Device (Sacks, 1972, Schegloff, 2007), Category-bound Activities (Jayyusi, 1986) in this paper. Membership categorization device or MCD is composed of two parts, 1<sup>st</sup>, one or more collections of categories, and 2<sup>nd</sup>, some rules of application. I do not have time to explore this entire apparatus today, however, I will point out some most relevant concepts within it for this study, namely, concept of partitioning constancy and inconstancy. I will also draw on conversation analytic approach to storytelling in particular, because the data I collected generated many occasions of personal storytelling.

### 2.2.1 *Partitioning Constancy and Inconstancy*

Within the conceptualization of Membership Categorization, Sacks' lecture has discussed a particular notion which directly indexes what I am after. They are partitioning constancy and inconstancy (Sacks, 1972; Schegloff, 2007: 468). *Partitioning constancy* registers the observation that on a given occasion, with its particular composition of participants, some two membership categorization devices (MCDs) could turn out to partition those participants identically, i.e., the individuals may end up "differently being members of the same categories under the application of alternative category collections." (Schegloff, 2007:468). On the other hand, some two MCDs may have *partition inconstancy*, which means that each partitioning the local population differently than the other does, yielding alternative co-class memberships.

Sacks (1992) provides a specific example: A group therapy session – someone behind the mirror (one-way mirror), categorizable as ['patients' and 'observer,'] but by saying "we are about to start" "Testing" leaning forward to the microphone then they thereby invoke an alternative categorization device- ["performer" and "audience."]

(Sacks, 1972[1992: vol 1:590-594], cited in Schegloff, 2007) These categories parallel each other, i.e., partitioning constancy. All the persons who are patients, then now are performers under the other category collection. However, the two sets refract the scene rather differently (Schegloff, 2007: 468).

With the same example, we also see the bearing of partitioning inconstancy. By reference to [patients and observer] category, these two are different categories within its collection. The same can be said about the alternative category, [performer and audience.] Both partitioning constancy and inconstancy can serve as vehicles for replacing the relevance of one set of category terms by another. And they can thereby “cover or camouflage” identities, activating alternative bodies of common sense knowledge, inference, perception, etc. to conduct and understand in the situation and of the situation (Schegloff, 2007:469). What Schegloff states here is highly relevant for this study because my focus is to see how intercultural moments (which can be considered as two apparently different memberships as [culture A] versus [culture B]) transforms into something else, we can imagine these both cases above are plausible routes which we can witness in the data.

### *2.2.2. Category-bound activities:*

In this paper I also draw on category-bound activities to examine what the speakers are doing in terms of constructing a category. One can allude to a category membership by mentioning an action that is category-bound. The doing of a category-bound action can introduce into a scene or an occasion the relevance of the category to which that action is bound (Schegloff, 2007:470).

One can allude to the category membership of a person by mentioning that person's doing of a particular action, and the doing of a category-bound action can introduce the relevance of category into the scene (470).

### *2.2.3. Narrative Analysis*

The most relevant aspect of storytelling from CA perspective for this study can be summarized as the following (Schegloff, 1997: 103):

- 1) What stories are about, given their recipients and various occasions in which they are told, may be related to the trajectory of telling itself (Schegloff, 1997: 102, Jefferson, 1988).

2) We cannot know what distinctive features of structure or interactional enactment a story will generate in advance (e.g., Labov & Waletzky, 1967). The uptake in the course of telling by the recipients of the story becomes highly crucial for it.

3) Story telling embedded in our everyday communication is often used to “do something” rather than just being told “for their own sake.”

As we will see in this study, the intercultural moments get invoked and resisted encompassing the development of a narrative. The story undertaken by the teller may provide a moment of interculturality, yet the uptakes of the story by the recipients may work against it and transform the interpretation of the narrative to some other matters besides it.

### 2.3. *The Data*

The participants of the talk to be examined in this study are graduate students in Japan. It examines a series of group discussions held for a graduate seminar course in a Japanese university. The regular attendees for the discussions were four native Japanese and six to eight foreign graduate students from other countries (Thailand, Sri Lanka, Taiwan, the People’s Republic of China, and Indonesia). As you can see in the slide, they gathered in a classroom in the university after a graduate class, then talked for approximately 30 minutes with no supervision. The discussion routine was a part of their seminar activity.

They engaged in a round-table discussion every few months and casually discussed various topics related to, but not at all exclusively limited to, their own learning processes as graduate students. Their common language for communication was Japanese. ((Despite more than a few Chinese native speakers present, there was no code-switching to Chinese even during the discussion time.))

The discussions were video- and audio-recorded, and transcribed according to the system commonly adopted in studies that take a conversation analytic approach to discourse (Jefferson, 1984; Schegloff, 2007).

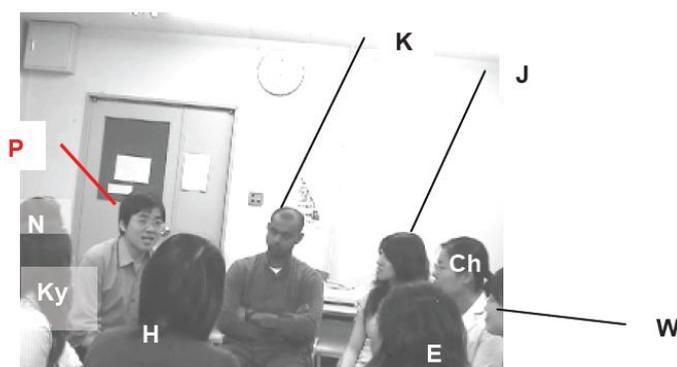
In this study, I will focus on the moments in the data in which these participants invoke intercultural moments, and through such a process they resulted in establishing a *common*, or what I call in this paper *transcultural* identity with their Japanese and non-Japanese peers. The goal of this presentation is to illustrate that in the data examined

here, the moment of interculturality—emergence of “cultural others”—is actually transformed into an opportunity to construct transcultural identity among the participants, which ultimately contribute to re-establish their graduate student-hood with different levels of experience. Along the way, I would like to provide answers to the above mentioned questions on interculturality.

### 3. The Analysis

In this paper, I will discuss one particular example from the data collection. The excerpt contains a personal narrative by so-called foreign graduate students from Thailand. There are 9 participants, P, E, K, Ch, H, Ka, Ky, W, and N. The main focus of this paper is P, a student from Thailand, K, a Japanese student, and H, a student from Indonesia.

Figure 1. Participants of the Group Discussion



#### 3.1. Speaker P's Narrative

Let us first discuss what P has said in the personal narrative. His narrative is composed of two major chronological parts, namely, when he was in Thailand, and then when he first started his graduate program in Japan. He constructs his narrative in a before-after framework, the life in Thai being the before and the one in Japan the after. The appendix A indicates the segment studied here entirely.

Excerpt 1 illustrates the beginning of P's telling.

#### Excerpt 1.

- 1 P: eto watashi ichiban taihen datta no wa desu ne: benkyoo shite
- 2 ita (.) toki no, [supiido to,



activities, invoking [teacher-student ] standard relationship pair to describe both his life styles in Thai and Japan. In the telling about the Thai student life, he says in line 15 *kochira no hoo kara sekkyokuteki ni morao to shinai* “I did not try to obtain anything from my side” and in line 16-17 describing the teacher’s action as *kande kande ataetekureta* “chew and chew, then give (the information) to us.”

Excerpt 3 indicates P’s telling of his student life in Japan. The Thai telling has already established the standard pair and the most category-bound activity, thus the second part was easily understood in the same vein. At the same time, these are also heard as appropriate, category-bound thoughts for particular kind of students, that is, someone with linguistic difficulty (Foreign students).

### Excerpt 3

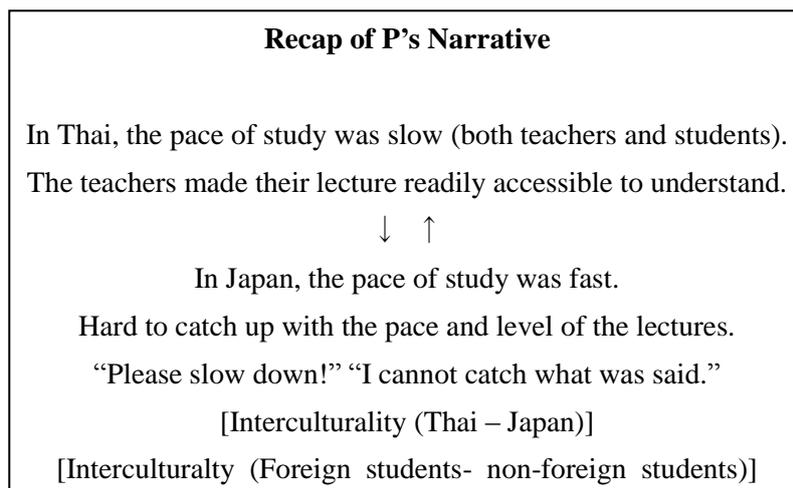
- 22→ P: daigakuin no kenkyuusee no toki wa desu ne: nanka tooji wa (.)  
*"when I was still a research student, at that time,"*
- 23→ nanka kenkyuusee sensee no jugyoo o ukeru koto ga dekiru  
*"well, they were able to audit the professors' lectures."*
- 24→ IMA dame na n desu kedo tooji wa dekite  
*"until now, though, at that time we could."*
- 25 Ka: ((coughs))
- 26→ P: de O-sensei wa irassharanakatta n desu kedo honto ni (.)  
*"so Prof. O was still here and she was really (.)"*
- 27→ nanka shokku tte yuu ka .hh ((looking at Woo))  
*"I was kind of shocked."*
- 28→ Bunpoo wa konna ni kuwashii n da! toka. Honto ni tabun S
- 29→ sensei toka mo honto ni zenzen kikitorenakute /((Ch: nods back))  
*"(Japanese) structure is in this detail! I thought. Really Prof. S too, I was not able to catch what she says at all."*
- 30→ A moo chotto yukkuri shite yo! De honto ni tsuite ikenakatta
- 31→ toki ga atte. (1) hmm. Tte yuu ka.  
*"(I wanted to say) please slow down a bit! So there's time when I could not catch up. (1) hmm I mean."*

On the contrary to what we saw in Excerpt 2, in his telling about Japanese student life he projects it through verbalizing his inner thoughts in self-quotations, as in line 28 *bunpoo wa konna ni kuwashii n da!* “Japanese structure is in this detail!?” and in line 30

*A moo chotto yukkuri shite yo!* “please slow down a bit!” (to Professor S).

Given the telling here, one can examine the contrastive presentation of Thai life versus Japan life, which projects the speaker (P) to have an intercultural self vis-à-vis others present. Figure 3 below illustrates a recap of P’s narrative as discussed thus far.

Figure 3 Recap of P’s narrative



However, this is not quite the way how the participants actually treated the telling. Let us further look at the uptake by his recipients in the next section.

### 3.2. The recipient reactions of P’s personal narrative

Excerpt 4 is immediately after the completion of P’s narrative.

#### Excerpt 4

- 32 H: ((looks at E. E nods deeply and everyone notices her emphatic nods))
- 33 ALL: laughs
- 34→ E: *issho! Watashi ima soo! Ima demo (\*)*  
*“the same! I am that now. Still now. (\*)”*
- 35 ALL: giggles

Focusing on how the recipients of P’s narrative get involved in making sense of the telling. ((narrative and listeners’ interpretation literature)), we notice first that in 32, H turns to E who is sitting next to herself, and eventually all those present gazed at E (see

Figure 4). Then in line 34, E shouts out with emotion “the same!” indicating that she is finding difficult to catch everything the professors say in the classes.

Figure 4 E’s reaction “the same! I am that now. Still now.(\*)”



What does E mean here by saying “the same”? Has she invoked the category-bound activity to index the membership category for foreign students? Not being able to catch (comprehend) everything in the lecture can be treated as a category-bound activity for foreign students. E is a student from Indonesia, just arrived to this country, and struggling to survive in a Japanese graduate program.

Let us see P’s follow-up response to this E’s reaction in Excerpt 5.

#### Excerpt 5

36→ P: hehe iya demo tatoeba Ssensei S sensei no hoo da to

37→ >tatoeba< oshie(.)tai no ga ippai ippai de

*“hehe no but for example to Prof.S, for example,  
She wants to teach (you) so much, so”*

38 E: nods

39→ P: nanka to omotta kaRA ma (.) ((looks at others)) sorenari ni

*“so she thinks, uh accordingly”*

40→ Supiido mo agatte kuru to omoimasu kedo (.) yappari

41→ nagaku iru to (.)

*“speed will improve eventually (.) as one stays longer (.)”*

42→ nantonaku narete kite: (.) ma hayai no mo ma: betsu ni zenbu

*“somehow one gets used to it (.) uh even if it’s fast, if not”*

wakaranaku TEMO pointo o (.) wakaru dake de

*“understand completely, all one needs is to get the points.”*

((H nods while P speaks, towards J, Ch, and W))

43 Ch: ah:: ((sits back))

**"oh::"**

44 W: nods at P

Upon E's comment in line 34, P responds "speed will improve eventually (.) as one stays longer (.)" in line 41, suggesting her listening skills will improve, as she spends more time in Japan. Here we see that [foreign student] category membership was invoked collaboratively.

How this shouting by E gets interpreted must be examined even further in the development of the talk. The rest of the participants giggles and send smiles at E, and P gazes at E saying from line 37 a couple of comments. First he comments that Prof. S wants to teach students so much ( thus she speaks fast, thus it is hard to catch up), and then in 40-41 P says that that one gets used to the speech as one stays (in Japan) longer. P's statements here accept E's projection of newly emerged category membership of [foreign students]. The old intercultural category, Thai vs. Japan has now been faded in the background upon this new category.

### *3.3. Transformation to Transcultural Category*

In addition to the newly developed membership category [foreign students], the further interaction in the group shows there was yet another development of a new membership category. Let us examine Excerpt 5 once more, this time with a careful transcription of the participants' kinetic performance along with their utterances. In line 41-42, P further comments that "even if you cannot get everything, all one needs to get is the main points." Who was this statement addressed to? As P states this, his gaze shifted and drifted off from E, and moved around to J, Ch, and W, then back to E as shown in Figure 5.

Figure 5 Line 41-42. P's eye gaze movements



With this statement, we can also observe something else. In addition, as in Figure 5 while P is making that statement, H, a Japanese doctorate student, also nods and looks at the students whom P has just made an eye contact with. What we see here is a collaborative team work between P and H, and P is representing the message. What was H's entitlement to display her co-authoring of P's statement here? P and H are only two doctorate students in this particular group, and the rest are first year Master's students. Here, we now observe an emerging category in replacement of potential intercultural category-- that is, expert-novice graduate student hood, and the foreign student hood and Thai vs. Japan are all faded out.

Let us recap here what had happened in these few lines in Figure 6.

Figure 6 Recap of recipients' response to P

<p><b>Recap of Recipients' response to P's personal narrative</b></p> <p>P1- "In Japan [compared with how it was in Thai], I was not able to catch up with the professors' speed of lecture first"</p> <p>E- "I am in the same situation"</p> <p>→ Potentially emerging category: intercultural selves ((P &amp; E)) as Cultural Others [Interculturality (Foreign students- non-foreign students)]</p> <p>P2- "All one needs to do is to get the main points of the lecture"</p> <p>H- "nods and displays her co-authoring with P2"</p> <p>→ Newly foregrounded category : ((P &amp; H)) as Senior Students against Novices [ Graduate Student-hood : Senior (expert)—Junior (novice)]</p>
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In this telling, the speaker starts with a comparison of university environment in

Thailand and Japan, which at least provoked his intercultural self that he is cultural other to the present context. However, when we closely examine how he formulates the telling and the inference-work done by the participants in the talk, we learn that the [Thai-Japan] intercultural moment gets very quickly faded out, and a new category was invoked. The foreign student category was projected by a recipient of the telling, but in the following sequence, the responding recipients also dismissed this category and transformed it to an alternative category, graduate student-hood which all the participants are now treated as members. They elevated the reason for the telling through multiple occasions of partitioning constancy (Sacks, 1992), that is, they end up being members of the same, transcultural category under the application of alternative category collections.”(Schegloff, 2007:468).

#### **4. Conclusion**

This study showed how the speakers in this particular context, although they bring in their intercultural selves (D. Zimmerman, 1998) momentarily, or at least invokes potential moments for interculturality in passing, they quickly treat these moments as irrelevant for the on-going talk. The study showed that the participants immediately invoked a new category through mentioning and accepting the category bound activities for the new collection. In the current example, senior-junior graduate student-hood categories (identities) took place over the intercultural self-categorization. We can say that the tellings were ultimately treated both by tellers and listeners to construct a ‘transcultural’ membership category, which they all can be part of in different ways. The participants in the group discussions managed these intercultural potentials and transformed them into the opportunities to re-build who they are vis-à-vis each other, as graduate students in the university. This is not surprising, since the initial purpose of this activity is to have gatherings as such. They are conversation-for-learning graduate student-hood, and such a purpose was understood and worked out in their talk.

To provide an answer to my research questions, namely “When in talk, and how are intercultural moments made irrelevant? And why?” This study can suggest the following: The intercultural moments are made irrelevant in order to achieve some other social purpose for the occasioned talk. The examples I looked at in this study show that they are gathering in order to rebuild and confirm their social relationships within the same membership category, that is, graduate student hood—and their interculturality does not index much significance to this particular co-construction of social identity. By

following through from the emergence of a personal telling until it is received by the listeners of it, and drawing on microanalytic approach to capture the participants' actions, this study described the process by which interculturality gets backgrounded and transculturality comes foregrounded.

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# **Internationalismen in globalen Diskursen am Beispiel des Deutschen und Japanischen**

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## **Abstract**

In German as well as in Japanese a many new words appearing in the languages are borrowed from English, more precisely they are Anglo-American words. This paper will argue that the phenomenon of borrowing Anglo-American words has a lot of advantages for a smoother understanding in worldwide communication. A lot of these words are common in the European languages, some are originally Latin (e.g. *Student, Museum, Exil*) and they can assimilate easily into the most Indo-European languages in both, their form (congruent pronunciation and/or writing), and (almost adequate) meaning. A smooth basic intercultural communication will also provide good support in the field of foreign language acquisition, because the learner already knows a part of the vocabulary of the target language.

**Keywords:** Global Discourse, Internationalisms, German, Japanese

## **0. Einführung ins Thema**

Sowohl im Deutschen als auch im Japanischen tauchen in den letzten Jahren eine Menge neuer Wörter auf, die aus dem Englischen, genauer gesagt Anglo-Amerikanischen, kommen.

Gerade in letzter Zeit ist in Deutschland wieder einmal eine Diskussion über den Einfluss der amerikanischen Fremdwörter in Gang: ich erinnere nur an den unsäglich schlechten Artikel im SPIEGEL (2.10.2006), den nicht zu bremsenden großen Erfolg der Verbreitung einer deutschen Sprachnorm von „Zwiebelfisch“ Bastian Sick, oder etwa den „Anglizismen-Index“ des „Vereins für Deutsche Sprache e.V.“ oder auch den Artikel über die „Bundestagsdebatte zur Situation der deutschen Sprache“ mit dem Foto von Nida-Rümelin (Verein Deutsche Sprache e.V. 2002).

Hier ist ein Feld, wo jeder Sprachteilnehmer oder Möchtegern-Sprachwissenschaftler sich zu äußern berechtigt fühlt, und man sich unendlich und trefflich streiten kann.

Deshalb möchte ich hier einmal auf die lange Tradition und die positiven Seiten von Fremdwörtern und Internationalismen in globalen Diskursen hinweisen. In diesem Aufsatz möchte ich dafür plädieren, dass die Übernahme dieser Wörter in die eigene Sprache eine Menge Vorteile für ein besseres Verstehen in der internationalen Kommunikation hat.

Ich möchte zeigen, dass die Integration von Wörtern aus anderen Sprachen, besonders dem global gebrauchten Anglo-Amerikanischen, der selbst aus einer bunten Mischung verschiedener Sprachen, basierend auf dem europäischen lateinisch-griechischen Wortschatz, besteht, nicht zu Oberflächlichkeit und Verlust der eigenen Sprache führt, sondern große Chancen für die Verständigung in einem globalen Rahmen hat. Dies trifft besonders zu für die Bereiche Business und Technik, aber auch für Spezialgebiete wie Architektur, Mode, Design, Musik.

Im Bewusstsein die gleichen Vokabeln wie die Interaktionspartner zu benutzen

muss man sich nur noch auf die je nach Ausgangssprache der Sprecher unterschiedliche Aussprache einstellen um sich auf internationaler Ebene zu verständigen. Diesen Aspekt möchte ich auch besonders für den FS-Erwerb als wichtig ansehen, denn der Lerner kennt bereits einen Teil des Wortschatzes der Zielsprache. Das möchte ich am Deutschen und Japanischen genauer erläutern.

Da es hier um Diskurse geht, möchte ich zunächst einmal vorstellen, was ich darunter verstehe: Ich möchte mich vor allem beschäftigen mit dem „sprachkritischen Diskurs, der Fragen der rhetorisch-stilistischen Gestaltung von Sprache durch Fremdwörter diskutiert und ein Ideal bzw. eine Ethik der Kommunikation im Zusammenhang mit der Fremdwortverwendung impliziert“ (nach Gardt 2001: 134).<sup>1</sup>

Mir geht es um den Diskurs in der sprachinteressierten Öffentlichkeit, den man in Zeitungen, Zeitschriften, Fernsehen usw. aufgezeichnet findet. Es geht mir explizit nicht um Jugendsprache, E-Mails, den „Stammtisch“, sondern um die Verwendung von international gebräuchlichen Wörtern in Publikationsorganen. Dies sei auch abgegrenzt von wissenschaftlichen Publikationen, besonders linguistischen, da wie Spitzmüller in seinem Buch über die Metadiskurse in Einstellungen zu Anglizismen 2005 feststellt, diese beiden inkompatibel seien. Die Wissenschaft ist idealerweise beschreibend und Neuerungen gegenüber eher offen, die Verwendung bei den Sprechern aber setzt ein kommunikatives Bedürfnis voraus. Bei den anvisierten Diskursen der Öffentlichkeit, die ein relativ starres Sprachsystem hat, spielen die Einstellungen (attitudes) gegenüber der Sprache und deren Elementen und die Identität der (Teil-)Sprachgemeinschaft eine große Rolle „als kollektives „Sozialsymbol“ und zur Identitäts- und Unterscheidungskonstitution<sup>2</sup> in der konkreten erlebten gesellschaftlichen Situation dient“ (Spitzmüller 2005: 363). Für die Sprecher ist die Einstellung gegenüber der Sprache und ihrer Verwendung eine emotionale Angelegenheit, die die Identität der Sprecher wesentlich mitbestimmt.

Die Festlegung etwa, ob es sich bei einem Wort um ein Fremdwort handelt oder nicht hängt im Wesentlichen von der Einstellung der Sprecher (individuell oder kollektiv) ab. Dies lässt sich durch empirische Untersuchungen und Befragungen immer wieder belegen (Werner 2003: 16ff; Hofmann 2002: 246; s. auch Gardt 2001: 32; s. auch dudens-online 318). Der entscheidende Unterschied im Umgang mit Sprache ist also die Nähe des Gebrauchs der Sprecher zu „ihrer“ Sprache gegenüber der per definitionem gegebenen Distanz der Wissenschaft zu einer Sprache.

## **1. Deutsch und Lehndeutsch**

Das Deutsche hat eine lange Geschichte, Wörter aus anderen Sprachen zu integrieren. Als Ergebnis ist das Deutsche heute eine Sprache mit einem reichen Wortschatz und der Möglichkeit sich in feinen Nuancen auszudrücken. Die fremden Wörter können recht leicht assimiliert werden, indem sie eine deutsche Schreibung (zumindest haben die Nomen Majuskeln am Anfang) oder Prosodie erhalten. Es haben sich sogar im Laufe der Zeit eigene Sprachregeln gebildet, z.B. Flexionsendungen wie

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<sup>1</sup> Ich stimme zwar Cameron (1995) zu, dass alle Diskurse auch ideologisch sind, möchte dies hier aber nicht behandeln.

<sup>2</sup> In diese Kategorie gehören auch auch die umfangreichen Komplexe wie Nationalsprache, oder diastratisch-diatopische Unterscheidungsmerkmale.

für die Konjugation von Verben (-ieren)<sup>3</sup>, für Nomen Artikel und Pluralendungen (-s), oder Derivationsmorpheme bei Adjektiven wie -ior oder -abel/ -ibel.

Allerdings leidet das heutige Deutsch keineswegs an einer Überfrachtung mit Fremdwörtern oder Anglizismen, wenn man mit der Vergangenheit vergleicht und die Wörter in Relation zum Gesamtwortschatz setzt.

Der mit rund 2800 Wörtern aufgestellte deutsche Grundwortschatz enthält etwa 6% fremde Wörter. Der Anteil beispielsweise von englischen Fremdwörtern an der Gesamtheit aller verwendeten Wörter lag selbst bei Untersuchung fremdwortintensiver, nämlich werbesprachlicher Textsorten lediglich bei 4%.

Bei einer Auszählung der Fremdwörter in einer Tageszeitung aus dem Jahre 1860 kam man zu einem Ergebnis, das nur wenig unter den heute ermittelten Durchschnittswerten lag. Der Grund dafür liegt u. a. in der relativ schnellen Vergänglichkeit vieler Fremdwörter: Es kommen nämlich fast ebenso viele Fremdwörter aus dem Gebrauch wie neue in Gebrauch. Die alten Fremdwörterbücher machen bei einem Vergleich mit dem gegenwärtigen Fremdwortgut das Kommen und Gehen der Wörter oder ihren Bedeutungswandel genauso deutlich wie die Lektüre unserer Klassiker.

(duden online S. 319)

Es ist allerdings nicht so ganz einfach zu definieren, was ein Fremdwort ist. Der Terminus ist erst seit dem 19. Jahrhundert belegt.<sup>4</sup>

Die Unterscheidung in *Fremdwort* und *Lehnwort* erscheint mir auch weder im Deutschen noch in anderen Sprachen sinnvoll<sup>5</sup> und ich möchte deshalb nur die Bezeichnung „Fremdwort“ verwenden.

Die gängige Unterscheidung zwischen „Fremdwort“ und „Lehnwort“ ist auch empirisch nicht operabel, Polenz (1999) spricht von „Lehndeutsch“. Die Definition wird von den Sprechern (Mikroebene) oder der Sprachgemeinschaft (Makroebene) in der Praxis vorgenommen, durch: Akzeptanz der Ausdrucksseite (Kongruenz) und/oder der Inhaltsseite (Äquivalenz), sowie Verwendung und Verbreitung, was dazu führt, dass Sprachwandel stattfindet und Entlehnungen funktional operieren. Fremdwörter haben oft versachlichende Funktion und ermöglichen dadurch taktvolles Sprechen über heikle, unangenehme oder tabuisierte Themen und ermöglichen eine präzisere Formulierung.

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<sup>3</sup> Die „Rückläufige Wortliste des heutigen Deutsch“ (Brückner/Sauter 1984) enthält mehr als 2.800 Bildungen auf -ieren / -isieren.

<sup>4</sup> „Das Wort *Fremdwort* wurde vermutlich von dem Philosophen und Puristen K.C.F. Krause (1781–1832) geprägt und durch Jean Paul im »Hesperus« (1819) verbreitet; zuvor finden sich meist zusammengesetzte Ausdrücke wie *ausheimisches/ ausländisches/fremdes Wort*. Die kritische Reflexion über den Fremdwortgebrauch ist allerdings mindestens vierhundert Jahre alter als das Wort selbst. Sie findet sich bereits im 15. Jh., in gemäßigter Form z.B. bei dem Humanisten Niclas von Wyle (1478).“ aus : duden online S. 524.  
[http://www.duden.de/downloads/produkte/duden05/fremdwort\\_freund\\_oder\\_feind.pdf](http://www.duden.de/downloads/produkte/duden05/fremdwort_freund_oder_feind.pdf)

<sup>5</sup> S. genauer hierzu Werner (2003, 14 ff).

## 2. Europäismen und Internationalismen

Eine große Zahl der Wörter haben die europäischen Sprachen gemeinsam, die meisten sind griechischen oder lateinischen Ursprungs (*Student, Exil, Aquarium, Museum*) und können sich deshalb gut in die meisten europäischen Sprachen einfügen, sowohl in der Form (Kongruenz) als auch in der Bedeutung (Äquivalenz). Man kann hierbei von „Europäismen“ oder „Internationalismen“ sprechen. Diese sind nach Schaefer (1990: 39f.) wie folgt definiert:

Die einen Internationalismus repräsentierenden Wörter haben:

- die gleiche oder ähnliche Bedeutung (Äquivalenz) und zusätzlich die gleiche oder eine ähnliche Form (Kongruenz),
- sind ohne Übersetzung verständlich,
- sind einer Nationalsprache entlehnt oder durch Wortbildung aus lateinisch/griechischen Morphemen gebildet.

Latein wird gern als „Muttersprache Europas“ bezeichnet (s. Volmert 2002: 23):

...Entwicklung der lateinischen Sprache von der Antike bis in die heutige Zeit: Latein als Volkssprache, als Sprache der Kanzleien und Fürstenhöfe; als Sprache der Klerus in Europa und in der Welt; schließlich als Sprache der Wissenschaften, die in der Zeit der Renaissance europaweit eine neue Blüte erlebte.

Latein kann also als die Basissprache Europas bezeichnet werden, wobei der Einfluss in der Romania nicht zu übersehen ist, aber auch heute davon ausgegangen wird, dass der englische Wortschatz ca. 56-60% romanisches Wortgut enthält (Scheler 1996: 152 ff., zit. nach Volmert 2002: 40). Das Deutsche wurde zwar nicht so stark romanisiert, aber der ständige Kontakt mit dem Lateinischen hat seine Spuren hinterlassen (Volmert 2002: 40). In diesem Zusammenhang ist die Rolle der Internationalismen zu sehen, wobei das Graecolateinische auch seine Einflüsse außerhalb Europas hatte: in Afrika, in Australien, vor allem in Nord-, Mittel- und Südamerika, aber auch in Indien, Indonesien und Ostasien, wie ich unten am Beispiel Japans noch näher erläutern möchte. Weiter schreibt Volmert (2006: 149):

Griechisch und Latein hatten also ... eine Schlüsselrolle bei der Ausbildung dieser europäischen Koiné; aber dies ist nicht zu verstehen im Sinne einer abgeschlossenen historischen Entwicklung, sondern es zeigt sich in einer für die Gegenwart und Zukunft höchst virulenten Aktualität und Produktivität.

Nach Braun (1990) gibt es ca. 3500 – 4000 Internationalismen im europäischen Wortschatz. Um einige Beispiele zu nennen, sei folgende Tabelle auszugsweise angeführt (aus Volmert 2004):

Deutsch	Englisch	Französisch	Italienisch	Polnisch	Russisch
Konfirmation	confirmation	confirmation	confermazione	konfirmacja	konfirmacija
Prädestination	predestination	prédestination	predestinazione	predestinacja	predistinacija
Religion	religion	religion	religione	religia	religija
Reliquie	reliquiae	relique	reliquia	relikwia	relikvija
Testament	testament	testament	testamento	testament	[zaveschanie]
Auditorium	auditorium	auditorium	auditorio	audytorium	auditorija
Definition	definition	définition	definizione	definicja	definitcija
Examen	examen/-inary	examen	esame	egzamin	ekzamen
Kolloquium	colloquium	colloqui	colloquio	kolokwium	kollokvium
Manuskript	manuscript	manuscript	manoscritto	manuskrypt	manuskript
Rektor	rector	recteur	rettore	rektor	rektor
Experiment	experiment	[expérimenter]	esperimento	eksperyment	eksperiment
Extrakt	extract	extrait	estratto	ekstrakt	ekstrakt
Medizin	medicine	[médicinal]	medicina	medycyna	medicina
Operation	operation	opération	operazione	operacja	operacija
Dimension	dimension	dimension	dimensione	[wymiar]	[izmerenie]
Proportion	proportion	proportion	proporzione	proporcja	proporcija
Quadrat	quadrat/-uple	quadrat	quadrato	kwadrat	kvadrat
Quotient	quotient	quotient	quoziente	[iloraz]	kvota
adoptieren	adopt	adopter	adottare	adoptować	adaptirovat'
degradieren	degrade	dégrader	degradare	zdegradować	degradirovat'
Dokument	document	document	documento	dokument	dokument
Justiz	court of justice	justice	giustizia	[sądowictwo]	justicija
Kaution	[bail]	caution	cauzione	kaucja	kaucion
Kontroverse	controversy	controverse	controversia	kontrowersja	kontroversija
Administration	administration	administration	amministrazione	administracja	administracija
Audienz	audience	audience	udienza	audiencja	audiencija
Diktatur	dictatorship	dictature	dittatura	dyktatura	diktatura
Fiskus	fisc/fisk	fisc	fisco	fiskus	fisk
Regiment	regiment	régiment	reggimento	[pułk]	[polk]
Dekoration	decoration	décoration	decorazione	dekoracja	dekoracija
Eloquenz	elocution	elocution	eloquenza	elokwencja	elokvencija
Komposition	composition	composition	composizione	kompozycja	kompozicija
Literatur	literature	littérature	letteratura	literatura	literatura
Perspektive	perspective	perspective	prospettiva	perspektywa	perspektiva
Skulptur	sculpture	culture	scultura	[rzeźba]	skulptura

Fremdwörter und Internationalismen werden von der Parole einer Sprache in die Parole einer anderen Sprache übernommen. Dabei erfolgen Assimilationen im Übernahmeprozess, der längere Zeit, sogar Jahrhunderte anhalten kann, in der Lautung, Schreibung, Semantik und Pragmatik nach der systemlinguistischen Einteilung. Man kann auch von einer Assimilation in der interkulturellen Kompetenz (House 1998: 62ff.)<sup>6</sup> der Sprecher reden. Hier spielen Einstellungen Akzeptanzen und auch

<sup>6</sup> Nach Canale und Swain (1980, zit. nach House 1998, 62) wird die, wie sie hier heißt, *Kommunikative Kompetenz* gebildet aus den vier Bereichen: a) „grammatische Kompetenz“, b)



der Nehmersprache aufgenommen. Es ist offensichtlich, dass die beiden Sprachsysteme, der Geber- und der Nehmersprache, da sie ganz unterschiedlich sind, dem Wort in dem jeweiligen System einen unterschiedlichen Bedeutungs- und Gebrauchsumfang zuweisen.

Dieser Prozess ist vor allem gekennzeichnet durch einen Zeitfaktor. Innerhalb dieser Zeit laufen die diversen vielfältigen Integrationsprozesse ab. Durch dieses Prozess-Verständnis kann man verschiedenen Sprechern/ Hörern oder Gruppen mit ihren unterschiedlichen Gebrauchsbedingungen einfach verschiedene Stadien auf dem Kontinuum zuweisen, so befinden sich eben Jugendliche in einem anderen Stadium auf dem Kontinuum als etwa 60-Jährige, Jugendliche haben das Wort schon ins eigene System integriert, Ältere sind auf dem Kontinuum bei der Stufe Fremdwort. Dieses kann aber wiederum je nach Thema unterschiedlich sein.

Dieses Modell des Prozessverständnisses ermöglicht vor allem eine Einordnung eines Fremdwortes in der Vielfalt der Integrierungsmöglichkeiten, als graphemische oder phonemische, als morphologische oder inhaltliche Integrierung, als schicke Nuance eines Begriffs oder festgelegtes Fachwort. Je nach dem Filter, den es durchläuft, ändert sich das Wort. Es ermöglicht auch, einen sprachlichen Punkt zu beschreiben, bis zu dem ein Fremdwort eingegliedert sein muss, um Kreativität und Kombinierbarkeit mit neuen Elementen oder Neuschöpfungen zu ermöglichen. Jedes einzelne Fremdwort hat ein solches Integrationskontinuum, auf dem die Eingliederungsgeschichte in die entsprechende andere Sprache abläuft.

Ein *Fremdwort* wird aus der Parole der Geber-Sprache, eines bestimmten Sprachsystems, gerissen und in eine andere Sprache gebracht. Die Verwendung ist oft nur auf wenige Gebrauchssituationen in der Parole der Nehmersprache beschränkt, sei es um einem Produkt mehr Attraktivität zu verleihen wie ドリンク aus engl. *drink* oder ライス aus engl. *rice* (ライス ist Reis, wenn er auf dem Teller als カレーライス oder zu einem europäischen Gericht, ご飯, wenn er in der Schale zum japanischen Essen serviert wird), sei es, weil der Ausdruck in dieser Nuance in der Nehmersprache nicht vorhanden ist: スポーツカー, オープンカー, ミルク statt 牛乳 auf alle Fälle für Kaffee-Milch, オイル statt 油, wenn es sich um importiertes Speiseöl handelt. Der inhaltliche Umfang des Wortes ist, zumindest anfangs, immer geringer als der in Gebersprache. Ein Fremdwort muss dann in das neue Sprachsystem eingegliedert werden, wobei es sich wiederum mit neuen anderen Inhalten anreichern kann. Dazu bedarf es Zeit und der Verwendung in der Parole, d.h. einer Aktiviertheit im Sprachgebrauch. Nach einiger Zeit wird das Fremdwort entweder wieder verschwinden, wenn es ein kurzlebiges Modewort oder ein aus aktuellem Anlass gebildetes Wort war, oder es wird in das neue Sprachsystem eingegliedert.

Dieser Prozess ist linguistisch hoch interessant und wie oben ausgeführt sehr vielfältig, und läuft recht unterschiedlich in verschiedenen Sprachen zu verschiedenen Zeiten bei bestimmten Sprechern/ Hörern ab. Für die Beschreibung dieses Prozesses der Eingliederung sind nicht bestimmte Benennungen wie *Fremdwort* oder *Lehnwort* nötig, sondern eine mehrschichtige Beschreibung des Kontinuums. Ein konkretes detailliertes Beschreibungsinstrumentarium steht im Moment noch aus. (Näheres hierzu in Werner 2003).

### 3. Das Japanische

Auch im Japanischen gibt es eine lange Tradition fremde Wörter zu integrieren. Während sich jedoch in der deutschen Sprache über mindestens 2 Jahrtausende hin ein nie versiegender Einfluss von außen bemerkbar machte, gab es in Japan allerdings kein stetige Übernahme wie im Deutschen, sondern verschiedene Wellen aus verschiedenen sowohl sprachsystematisch, als auch kulturell völlig anders strukturierten Sprachen. Die Integration beginnt im 7.Jh mit der Einführung der chinesischen Schrift zusammen mit dem Buddhismus. Im 14./ 15.Jh. erfolgt eine Welle von spanischen und portugiesischen Wörtern zusammen mit den Gegenständen und der Bibel. Nach der langen Abschließung, in der nur wenig einsickert, ist die nächste Welle Holländisch (und Deutsch, da viele Deutsche auf den holländischen Schiffen kommen), die so genannte *Rangaku*, die besonders im Bereich Medizin und den damaligen Erfindungen und Neuigkeiten. In der folgenden Zeit der Öffnung und Modernisierung, der Meiji-Zeit und Taisho-Zeit, flossen massenhaft fremde Wörter nach Japan, z.T. zusammen mit für die Japaner neuen technischen und kulturellen Errungenschaften. Teils wurden die Wörter ins Japanische übersetzt, wie Eisenbahn (tetsudo) oder aber nach der Aussprache im japanischen Silbenschrift Katakana geschrieben, wie ミシン mishin (engl. (sewing) machine = Nähmaschine).

Während und vor dem 2. Weltkrieg war Englisch verpönt und es wurden fast alle Fremdwörter ins Japanische übersetzt, z.B. auch die Fachwörter im Baseball, die heute alle Japanisch sind.

Ab den 1950er Jahren kamen mit den Besatzern und der amerikanischen Kultur und Politik dann ganz verstärkt Anglizismen nach Japan, die heute wie alle Fremdwörter nach einer Verordnung des japanischen Kultusministeriums von 1946 in Katakana geschrieben werden müssen. Nach dem Fremd-Wörterbuch von Motwani ist in den letzten Jahren für ca. 90% der Fremdwörter die Gebersprache Englisch bzw. Anglo-Amerikanisch.

In der Wissenschaft werden die Kango (aus dem Chinesischen eingeführte Wörter) nicht als Fremdwörter eingestuft, und auch in meinem Seminar konnten die Studenten ganz klar durch Umfragen und Interviews herausarbeiten, dass die alten chinesischen Kango der 1. Phase nicht als Fremdwörter empfunden werden.

Weiterhin konnte festgestellt werden (Oda, in Werner 2003), dass Jugendliche Anglizismen nicht als solche empfinden, sondern sie als „Neu-Japanisch“ bezeichnen.

Von der Kenntnis des Wortschatzes her, wurde sowohl im Deutschen, als auch im Japanischen festgestellt, dass das Alter der Sprecher nicht maßgeblich ist. Manche Fremdwörter wurden von älteren Sprechern zu einem höheren Prozentsatz erkannt als von Jüngeren (Hofmann (2002: 246): E-Commerce, Park and ride, Streetworker im Deutschen; Werner (2003: 12): ブルー).

### 4. Zum Eingliederungsprozess

Fremdwörter sind einem Prozess unterworfen, der Wörter einer Fremdsprache zu Fremdwörtern und dann irgendwann zu Wörtern der eigenen Sprache macht. Ich möchte hier Beispiele für das Deutsche anführen:

- (1) le bureau → das Buréau → das Büro  
 (2) Delphin → Delfin

Nach der neuen Rechtschreibung hat man die entsprechende Freiheit, das Wort *Delfin* „eingedeutscht“ zu schreiben.

An Beispiel (1) kann man zudem in der Aussprache eine Verschiebung feststellen vom Französischen zum Deutschen, im jetzigen (End-?) Stadium der Übernahme gibt es beide Aussprache- und Akzentmöglichkeiten.

Gute Beispiele für einen ähnlichen Prozess im Japanischen bieten:

- (3) demonstrashon suru → demosuru → demoru  
 デモンストラーションする → デモする → デモル  
 (4) sabotage suru (belegt Taisho-Zeit aus frz.) → → → saboru  
 サボタージュする → → → サボル

An der Schreibung, der Mischung aus Katakana und Hiragana, sieht man schon, dass die Wörter erst als Nomen plus Verb *suru* eingeführt werden. Wenn man *demosuru* als Verb betrachten will, wie das Beispiel 勉強する (vgl. Kawai 1984: 318ff.), so wird das Fremdwort *demo* als Kernmorph, das im Japanischen einem Nomen gleich ist, mit dem Wortbildungsmorph *-suru* zu einem Verb. Man kann diesen Ausdruck auch als ein Wort empfinden und schreiben (*demoru*, *saboru*) und auch in einem einzigen Katakana-Wort schreiben (デモル, サボル). Das wird m.E. eine gewisse Zeit brauchen, die Einführung wird also zeitlich später liegen.

Ein Kriterium dafür, dass ein Wort als Wort der Muttersprache empfunden wird, ist die „Behandlung“ wie ein muttersprachliches Wort, und zwar grammatisch-morphologisch und/oder in der Aussprache und Prosodie (Phonemik, Akzent oder Längung) oder auch in der Wortbildung. Dies kann am Japanischen sehr klar gezeigt werden.

Am Japanischen lässt sich sehr schön zeigen, dass Wörter einer anderen Sprache zuerst als „Fremdkörper“ des Systems (im Gegensatz zum Gebrauch in der Parole!) empfunden werden und nur sehr zögerlich in das eigene Sprachsystem integriert werden. Gleich welche Wortart das fremde Wort in der Gebersprache hat, es wird als Gegebenes, als nicht Veränderbares ins Japanische aufgenommen. Flektierbar sind im Japanischen Verben und Adjektive. Fremde Wörter werden nie als Verb oder Adjektiv übernommen. Dies hat eine lange Tradition, bis in die Zeit der Übernahme der Kanji-Wörter. Es gibt fast kein Verb oder Adjektiv, das eine sinojapanische, also eine On-Aussprache hat. Verben wie *kanjiru* 感じる oder 感ずる sind mutmaßlich auch aus dem „Fremdwort“ 感 *kan* (On-Aussprache) plus *suru* entstanden und später integriert worden und als muttersprachliches Wort empfunden und konjugiert worden.<sup>9</sup> Eines der bekannten Wörter, das in der Literatur immer wieder auftaucht, ist: 御覧ず *goranzu*. Es kommt in einigen wenigen Formen vor wie 御覧じ (藤原: 1994). Es gibt wenige Ausnahmen von Verben, die in On-Aussprache benutzt werden: 力む *rikimu*, 愚痴る

<sup>9</sup> Im Nelson Zeichenlexikon 1997 wird z.B. *isuru* und *kanjiru* auch unter die Kun-Aussprache eingeordnet.

*guchiru*, 皮肉る *hinikuru* (村木 1982: 221).

Verben und Adjektive haben die autochthone japanische Aussprache behalten. Das heißt andererseits, dass ein Kernmorphem – mit der entsprechenden Lautung – aus dem Chinesischen übernommen wurde, als Nomen geschrieben in verschiedenen Lesungen gebraucht, in Kun- oder On-Aussprachen, auch grammatisch-syntaktisch in einer Kernmorphem-Distribution gebraucht wird. Die Adjektive (Keiyōshi 形容詞) allerdings, die ja ein Basis-Bestandteil einer jeden Sprache sind, flektieren im Japanischen und haben alle das Suffix *-ii* (z.B. 美しい *utsukushii*). Sie werden im Kernmorphem mit Kanji geschrieben, das Flexionsmorphem wird in Hiragana angehängt.

In diesem Fall hat man für die Wörter, die keine Kun-Aussprache haben (z.B. 綺麗), eine neue Wortarten-Kategorie geschaffen, die Keiyōdōshi (形容動詞). Diese flektieren nicht und haben eine andere syntaktische Distribution als die Keiyōshi. Sie bilden z.B. die Adverbform nicht mit *-ku* (美しく), sondern mit *ni* (綺麗に).

Wie wir bereits gesehen haben, werden die fremden Wörter als Nomen ins Japanische eingebracht:

z.B.: インフォメーション aus engl. *information*, メンバー aus engl. *member*, シナリオ aus engl. *scenario*, サービス aus engl. *service*, usw. usw.. Sie werden entweder als Nomen gebraucht oder mit *suru* verbalisiert サービスする. Es gibt einige Adjektive, die zu Keiyōdōshi werden: クールな人 aus engl. *cool*, レッドな... aus engl. *red*, ラッキー aus engl. *lucky*, ja sogar eingeführte Präpositionen werden als Nomen (oder Kernmorphem) gebraucht アップする aus engl. *up*, アバウトする aus engl. *about*. Die Wörter werden ans japanische Aussprachesystem angepasst in Katakana geschrieben.

Der Phantasie sind mit Kombinationen aus üblichen japanischen Lexemen und englischen Fremdwörtern, auch mit neuen Wortbildungen 和製語 und Kombinationen von Abkürzungen keine Grenzen gesetzt. Um einige Kombinationsmöglichkeiten anzuführen: Seit der Meiji-Zeit werden gerne japanische mit fremden Lexemen kombiniert: 豚カツ aus dem Kanji für Schwein und *katsu* aus engl. *cutlet*, 文化センター aus dem Kanji für Kultur und *sentā* aus engl. *center*, コピー機 aus engl. *copy* und dem Kanji für Apparat. das aus dem Englischen stammende Fremdwort ドライバー (aus *driver*) etwa kann man mit dem Fremdwort ペーパー aus engl. *paper* zu der japanischen Neuschöpfung ペーパードライバー (= jd., der den Führerschein hat, aber nicht Auto fährt) zusammensetzen. Man kann auch in der Schreibung beliebig die Schriftsysteme kombinieren: Yシャツ, GETする, TBS テレビ, NHK 教育, u.v.m.. Das Japanische ist damit ausgesprochen produktiv und erlaubt eine fast unendliche Zahl neuer Wörter.<sup>10</sup>

In der Jugendsprache sind diese Kreationen besonders häufig, wenn auch nicht so viele englische Wörter gebraucht werden, wie man hätte vermuten können. Um nur einige kurz anzuführen (Oda 2003): „どたキャン (= absagen im letzten Augenblick),

<sup>10</sup> In Japan werden jedes Jahr dicke Enzyklopädien neuer Wörter herausgegeben, etwa IMIDAS oder 現代用語の基礎知識.

マイブーム (eine Mode, die nur „Ich“ habe)“.

Watanabe (2004) kommt bei einem kontrastiven Vergleich der deutschen und der japanischen Sprache der Jugendlichen zu dem Schluss, dass etwa bei Kurz-Mails, den SMS, in Deutschland wesentlich mehr und vielfach stärker Anglizismen gebraucht werden als bei jungen Japanern. Die absolute Zahl der verwendeten Wörter ist zwar auch in Japan beträchtlich, aber die Zahl der verschiedenen Lexeme nicht sehr hoch. Es werden sehr oft Floskeln wie OK oder TY aus engl. *thank you* mit japanischen Ausdrücken oder Wörtern kombiniert bzw. zusammengefügt (Watanabe):

„おっけです [okdesu], おっけだよ [okdayo], ゲットしといて [getshitoite], ミートウ [me too], さんきゅう [thank you], I don't know, ダッシュで [dashde], オウケイ [ok], ゲットした [getshita], アロハ〜 [aloha], OK です [okdesu], ハーイ [hi], プリーズ [please], バースデー [birthday], ラッキー! [lucky]“.

## 5. Fremdsprachenunterricht

Aufgrund der sprachlichen Gegebenheiten und der graphematischen Tradition, aber auch der Lerntradition in Japan, die beim Fremdsprachenunterricht unbedingt berücksichtigt werden sollten, sollten folgende Punkte die Grundlage wichtiger Überlegungen zur Gestaltung des Unterrichts mit Internationalismen sein:

- Im Japanischen werden Anglizismen ans japanische phonologische System angepasst in japanischer Silbenschrift geschrieben, was den Erkennungsprozess stark erschwert und verlangsamt.
- Japanische Deutsch-Lerner haben Englisch als Fremdsprache gelernt und können daher Anglizismen identifizieren, müssen aber die Aussprache-Unterschiede Englisch/ Deutsch bewusst lernen.
- Die L1 Japanisch ist eine Sprache, die nicht einer größeren Sprachfamilie angehört. Deshalb muss zuerst Basiswissen über die Ähnlichkeiten und Beziehungen der indoeuropäischen Sprachen und des Anglo-amerikanischen vermittelt werden.

Besonders der letzte Punkt scheint mir bisher weder linguistisch, noch didaktisch bearbeitet zu sein. Hier wäre zunächst einmal eine grundlegende vergleichende Beschreibung und auch die Vermittlung an die Lehrerseite wichtig zu sein. Trotzdem oder auch gerade deshalb sollte man als Konsequenzen für den Fremdsprachenunterricht Folgendes festhalten:

- Der Wortschatzerwerb lässt sich durch das Bewusstmachen von Internationalismen zeitsparend, lernökonomisch und motivierend gestalten. Dies stellt eine enorme Lern-Erleichterung dar.
- Doch die Lerner brauchen dabei Hinweise auf die Assimilierung, Kombinationsregeln usw. von Internationalismen oder Fremdwörter in die Ziel- und Ausgangssprache (L1 und L3). Dies ist die Anforderung dabei an die Lehrpersonen, an deren Verständnis und Vermittlungsfähigkeit appelliert wird.

## 6. Zum Schluss

Ist es nicht bemerkenswert, wenn neuerdings im Zuge der Globalisierung selbst in den asiatischen Ländern, wie z.B. in Japan, die zur griechisch-lateinischen Tradition gar keine Beziehung haben, über den Umweg des Anglo-Amerikanischen jetzt Begriffe wie „disukashon“ (aus engl. discussion) oder „paburiku“ (aus engl. public) in den öffentlichen Diskurs Eingang finden?

Fachwörter verschiedener Bereiche (Medizin, Jura, aber auch Musik usw.) haben schon längst, seit über 150 Jahren, ganz verstärkt aber in den Nachkriegsjahren ihren Platz in der japanischen Sprache. Die Übernahme der englischen Wörter via Umweg USA ermöglicht nun einer großen Mehrheit der Bürger sich „international“ auszudrücken. Die wechselseitige Befruchtung der europäischen Länder in kulturellen und wissenschaftlichen, aber auch wirtschaftlichen Bereichen und ihre weltweite Auswirkung spiegelt sich natürlich in der Sprache wider. Cum grano salis ist - auch in Japan - die Küche hauptsächlich französisch besetzt, die Musik italienisch, die Philosophie Deutsch, warum die IT und Computerwelt nicht Anglo-Amerikanisch?

In Japan gibt es zwar auch puristische, sprachpflegerische Tendenzen<sup>11</sup>, aber, da es genau wie in Deutschland keine verbindliche Sprachautorität gibt, werden m.E. die Anglizismen, gut sichtbar in Alphabetschrift oder Katakana-Silbenschrift mit Freude und Enthusiasmus in die japanische Sprache eingebaut.<sup>12</sup> Die Anglizismen werden – wie überall - besonders von jungen Leuten gerne gebraucht, da sie (s.o.) als Sozialsymbol fungieren und zur Identitätsfindung wichtig sind. Anglizismen ersetzen die japanischen Wörter nicht, sondern bereichern die Sprache durch neue Wörter mit differenter Konnotation. Sie drücken Nuancen aus, Moden, aber sie sind auch sehr wichtig als Fachtermini, nicht zuletzt für eine Verständigung im internationalen Rahmen. Die Durchsetzung des japanischen gehobenen öffentlichen Diskurses von japanisierten Anglizismen befindet sich in einer steil ansteigenden Kurve. Mir schient in Japan die starke negative Bewertung von Anglizismen in der Öffentlichkeit nicht oder kaum vorhanden zu sein, die Sprachteilnehmer offener für Innovationen.

Natürlich haben globale Diskurse, wie wir sie in der Wirtschaft oder Politik finden, auch über die Sprache hinaus Auswirkungen auf paralinguistische oder sogar auf interaktionale Handlungs-Einheiten. Es ist mir z.B. bei G8-Gipfel in Toyako in Japan im Juli aufgefallen, dass die Sprache der Teilnehmer untereinander und auch in den offiziellen Pressekonferenzen sehr locker, auch im Japanischen fast ganz ohne Höflichkeitsformeln ausfällt (ohne *gozaimasu* usw.), sodass und auch hier „amerikanische“ Gepflogenheiten Eingang finden; und man konnte im Fernsehen mitverfolgen, dass sich asiatische Führer wie der japanische Ministerpräsident Fukuda, der chinesische Staatspräsident Hu Jintao und der südkoreanische Staatspräsident per Handschlag begrüßen. Dies ist einerseits eine Verringerung der Diversität der einzelnen kulturellen Eigenheiten, aber auf der anderen Seite eine große Chance, damit globale Diskurse überhaupt stattfinden können. Und diese sind heute zur Erhaltung des Friedens

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<sup>11</sup> Die Abteilung Fremdwörter des japanischen staatlichen Sprachinstituts 国立国語研究所 schlägt immer wieder auf veröffentlichten Listen japanische Wörter statt der Anglizismen vor (<http://www.kokken.go.jp/gairaigo/>)

<sup>12</sup> In Japan werden jedes Jahr dicke Enzyklopädien neuer Wörter herausgegeben, etwa IMIDAS oder 現代用語の基礎知識.

und der Umwelt, aber auch eines gewissen Wohlstands unabdingbar.

Die Internationalismen sind das Bindeglied für transkulturelles Handeln. Die Zunahme der Internationalismen im vergangenen Jahrhundert zeugt von zunehmender internationaler Verflechtung von Information und soziokulturellem und politischem Verhalten.

(Corinna Caspar-Terizakis, 2004: <http://www.eurocomcenter.eu>)

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# Is There a “Drift” Towards Universal English-Based Rhetorical Patterns?

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## Abstract

Preliminary research (Eggington 2004, 1987; Millward 1996, Hinds 1980) indicates that the effect of the English language on international discourse communities is beginning to parallel Classical Latin’s and Classical Chinese’s influence in ways other than rudimentary lexical borrowing. In essence, as Latin and Chinese *were*, English *is becoming* -- particularly in those genres/registers concerned with global information dissemination. The purpose of this paper is to address aspects of this claim with respect to rhetorical patterning by examining a number of sub-claims.

**Keywords:** contrastive rhetoric, language drift, discourse communities, global English.

## 1. Introduction

Preliminary research (Eggington 2004, 1987; Millward 1996; Hinds 1980) indicates that the effect of the English language on international discourse communities is beginning to parallel Classical Latin’s and Classical Chinese’s influence in ways other than rudimentary lexical borrowing. In essence, as Latin and Chinese *were*, English *is becoming* particularly in those genres/registers concerned with global information dissemination. The purpose of this paper is to address aspects of this claim with respect to rhetorical patterning by examining the following four sub-claims:

1. Various scientific, academic, bureaucratic and business global discourse communities are developing standardized forms of rhetorical patterning,
2. The predominant cultural and linguistic influence on these standardized or standardizing rhetorical patterns is derived from the Western European, English-based rhetorical preferences,

3. Some “drift” toward a preference for English-influenced rhetorical patterns is evident in the rhetorical patterns in other languages even though the English-based structures and patterns violate linguistic and cultural conventions in these other languages,
4. This drift can be explained by reliance on recently developed exemplar-based models of natural language processing (Skousen 2002, 1996).

After developing these sub-claims, I will attempt to support them by relying on (1) historical precedent, (2) the process of normative standards in written discourse communities and (3) emerging data that tends to verify the third sub-claim. In particular, I will report on recent attempts to move beyond limited anecdotal supporting evidence through expansion of qualitative and quantitative data bases.

We will conclude with a discussion of the tensions created by this global linguistic phenomenon, a phenomenon which can be viewed as either a natural consequence of the English language being the lingua franca of many global discourse communities, or further evidence of linguistic imperialism.

## **2. The Story behind the Research**

A few years prior to commencing my graduate studies in 1980 at the University of Southern California, I lived in South Korea for two years serving as a Mormon missionary. I acquired fairly communicative Korean. This allowed me to claim the Korean language as a language requirement in my graduate program. To complete the requirement, however, I had to pass a Korean language examination set by the University’s graduate program. The examination consisted of translating from Korean to English a linguistics article. I worked with a native Korean professor who would act as my examiner. I chose a Korean language article from a Korean linguistics journal that explored some aspect of Korean syntax using transformational grammar as a theoretical foundation. The author of the article was a native Korean who had recently completed his PhD in Linguistics at an American university. Upon completing the translation, I gave it to my Korean advisor. He read the Korean language article and compared it to my translation. He said my translation was adequate, but wished I had chosen a better article because the article I had selected “didn’t sound Korean.” I pointed out that the article was written by a native Korean. He replied by stating that even though it was

written in Korean, it was structured like an English article, not a Korean article.

This observation intrigued me and led to investigating traditional Korean rhetorical extended discourse structures versus English-influenced Korean discourse structures which in turn led to a 1987 article (Eggington 1987) that claimed that:

In genres and registers used by academic/scientific global discourse communities, the rhetorical patterns of many languages are being affected by the register-specific rhetorical patterns of the English language.

As noted above, the remainder of this paper will explore a number of sub-claims associated with this conclusion.

### **3. Sub-Claim 1: Various scientific, academic, bureaucratic and business global discourse communities are developing standardized forms of rhetorical patterning.**

Beginning with Kaplan's 1966 work in contrastive rhetoric, sufficient evidence has been offered to suggest that each culture exhibits preferences for the ways in which extended discourse is developed for specific registers. Preferences include broad descriptors and concepts such as degrees of directness, direct "linear" development vs. indirect circumlocutions, stripped down vs. elaborate styles, and writer responsible encoding vs. reader responsible decoding. Subsequent studies have shown that "discourse communities," or "communities of practice" also exhibit rhetorical preferences. As Herzberg (1986:1) suggests, "The use of the term 'discourse community' testifies to the increasingly common assumption that discourse operates within conventions defined by communities, be they academic disciplines or social groups." Swales (1990) tells us that a discourse community:

- "has a broadly agreed set of common public goals,
- has mechanisms of intercommunication among its members,
- uses its participatory mechanisms primarily to provide information and feedback,
- utilizes and hence possesses one or more genres in the communicative furtherance of its aims,
- has acquired specific lexis,
- has a threshold level of members with a suitable degree of relevant content and

discoursal expertise” (Swales 1990:24-27).

Obviously discourse communities operate as agents of linguistic standardization. For someone to enter and maintain credibility within such a community, he or she must conform to certain conscious and subconscious behavioral and communicative norms. In broad terms, the academic discourse community exhibits language preferences that include marked or non-normal language at lexical, morphological and syntactical levels. For example, in normal speech, it is natural or unmarked for me to say, “I looked at the ball.” However, in academic discourse, “ball” becomes “spherical object,” “looked” becomes “observed,” and then it is reformulated into the nominalized form, “observations.” Syntactically, passive voice is preferred over active voice thus transforming “I looked at the ball” into “Personal observations were conducted vis-à-vis a designated spherical object.” As we shall discuss below, similar standardization mechanisms exist at the discourse level. As a discourse community expands in both numerical size and geographic reach, its local, then regional, then national and finally global influence expands accordingly – which leads us into the second sub-claim of this paper.

#### **4. Sub-Claim 2: Various scientific, academic, bureaucratic and business global discourse communities are developing standardized forms of rhetorical patterning.**

The spread and influence of the English language has been well documented (Graddol 2006). Currently and for the foreseeable future, English exists as the dominant language within the world’s information storage and retrieval systems. Obviously, much new knowledge is developed and transferred within advanced education systems such as universities. Universities are not only centers of learning, but also dispersal agents for the dominance of English within academic discourse communities. As Graddol shows, all but one of the top ranked 20 universities in the world operates in English (Graddol 2006: 75).

In reaction to the dominance of English within academic discourse communities, many non-English-as-first-language nations have enacted language education policies that foster English language development at all levels of education. For example, a young South Korean will be exposed to English in elementary school, secondary school and at the university level. Indeed, recent changes in Korean language policy have

mandated a significant English presence within higher education to a point where English is the primary medium of instruction in many classes. In summary, probably as a natural consequence of their primary functions, universities foster discourse communities and discourse communities foster standardization. With globalization trends, prestigious academic discourse community English is being spread to non-English speaking nations where young people are receiving a prolonged and intense exposure to the standardizing influence of a powerful English register. This phenomenon begs the question, “How is this English dominance and standardization process affecting other forms of communication, particularly first language performance?” We will address this issue as we discuss the next claim.

**5. Sub-Claim 3: Some “drift” toward a preference for English-influenced rhetorical patterns is evident in the rhetorical patterns in other languages even though the English-based structures and patterns violate linguistic and cultural conventions in these other languages**

As noted above, my early inquiries in this area of investigation resulted in a paper published in 1987. In that paper, I analyzed a Korean letter to the editor of *The Korean Times* that had been written and published in 1983. The letter is reproduced below with paragraph numbers inserted for analytical convenience. Note how the major rhetorical purpose and claims for the letter are provided mid-text in paragraphs 4 – 6. Paragraphs 1 – 3 come at the major claim tangentially. The author then runs away from these claims in paragraphs 7 and 8 while humbly accepting partial responsibility for the problem in paragraph 7. The text concludes with a plea to administrators in paragraph 9.

1. The Ministry of Home Affairs is planning to lengthen the period of training for public officials from 3 days to 6 days per year in order to solidify the spirituality of the public officials. The training is to be conducted at the Spiritual Cultural Institute which is rendered in English as the Institute for Korean Studies.
2. A new meaning of “national” is attached to the word “spiritual.” Perhaps this comes from the term, “Spiritual Culture.”
3. A member of the Korean Alphabet Society complained that the architectural design of the Institute for Korean Studies represents a Buddhist Temple and thus is not Korean. This is not so because Buddhism, though imported from India, is a Korean religion. Likewise Christianity is a Korean religion.

4. Any attempt to label what is national and what is foreign fails.
5. Perhaps too much emphasis on nationalism may do more harm than good.
6. Instead of inspiring nationalism we should be appealing to universal reason and proper moral conduct. The civil spirit must take precedent over the national spirit.
7. I am reminded of this when, changing trains at the subway, I witness the rush to occupy seats on route to the sports center where the Olympic Games are to be held. How do we enhance the nation's prestige through a sports event? As a teacher, I am partly responsible for this situation.
8. Once you catch a taxi you have to listen to the loud radio controlled by the driver.
9. Dear administrators, please do not talk about spiritual things unless you are interested in implementing concrete ethical conduct (as cited in Eggington 1987).

This text is typical of a traditional preferred reader-responsible (Hinds 1987) Korean rhetorical style where one avoids overt directness by circling the claim and then retreats from that claim lest readers consider the writer as being overly aggressive.

In the 25 years since 1983 to 2008, English and Western influence in South Korean culture and within its educational systems has been pervasive. Thus it is not surprising that a recent topical equivalent of the 1983 letter bears little resemblance to the rhetorical structure in the 1983 text. The text below is a letter to the editor published in *The Korean Times*, 13 May 2008. Paragraph numbers are inserted for analytical convenience. Note how the Korean author immediately offers his main claim in paragraph 1. Paragraphs 2 – 4 support that claim through direct and linear logical development that is akin to what may be found in any letter-to-the-editor of any English newspaper in an English-as-first-language nation. In the final paragraph, the author directly and aggressively reasserts and expands his claim concluding with an exclamatory flourish.

Dear editor,

1. Regarding an editorial, "Opulent Officials," published in the April 26-27 edition of *The Korea Times*, I agree with the idea that ethical reform is needed rather than emotional rebukes, because mere emotional rebukes or sharp criticisms alone do not bring any positive changes to society.

2. All of us rightly know that being rich in a capitalistic country like Korea is not to be blamed, but to be admired if it is "lawfully" accomplished.
3. However, though the officials claim that their fortunes are made by legal investments, many people are suspicious about whether or not they have amassed their fortunes through illegal real estate dealings.
4. Illegal speculation is not just a personal crime; it is a serious crime ruining the whole economy of the country. Whether the group, who didn't keep the law, is to be expected to use their power properly to serve people who are weaker and poorer is hard to believe.
5. However, the biggest problem over this matter is that we don't have a concrete solution for implementing ethical reform in the political field. Actually, in my opinion, not only politicians, but the whole society needs to be ethically reformed. These days our society seems to be unashamed of breaking rules. People would rather brag about their accomplishment regardless of its unlawfulness. What a shame!

This letter is also typical of many contemporary Korean texts as well as being one that would fit comfortably in a Western, English newspaper. Perhaps there has been a change or drift in a preferred rhetorical pattern, and the new pattern resembles English-based directness regardless of the original language.

Similar anecdotal evidence is provided for the academic register by various scholars. Widdowson (1979:61) claims that:

Scientific exposition ... structured according to certain patterns which, with some tolerance for individual stylistic variation, imposes a conformity on members of the scientific community no matter what language they happen to use.

In 1981, for German, Michael Clyne states that:

there appear to be some disciplines (e.g., mathematics, engineering) in which German scientists have adopted a basically linear discourse structure. This may be conditioned by the discipline or by leadership in the discipline of English speakers. In other fields of science (e.g., chemistry), the non-linear structure is quite common in German (Clyne 1981:64).

For Japanese:

it has been pointed out that some ESL student writers believe that English is more logical or advanced than their native language. Moreover, the rhetorical patterns employed by Japanese writers and recommended by writing specialists in Japan increasingly model after English” (Hirose, 2003; see also Kubota, 1992, 2002a).

Also for Japanese, Ahn (1996) suggests that:

in spite of differences in writing theory between English and Japanese, the changes in Japanese lifestyle have gradually forced Japanese language teachers to follow or introduce the Western writing methodology, especially over the past 20 years or so (Ahn 1996:69).

Finally, for Filipino:

as a general rule, the techniques employed in Filipino were borrowed from English communicative arts in terms of paragraph development and theme writing, since the skills were considered intuitively transferable from one language to the other (Gonzales and Fortunato 1995:88).

As the evidence provided in this paper suggests, a strong argument can be made for an English-based rhetorical structure that is “trickling” down to other languages even if the English-based structures conflict with traditional styles and cultural values. Some have claimed that this phenomena is a result of linguistic imperialism and that:

the demands that the academic world imposes on speakers of English as a second or other language to be published may lead to privilege English and its characteristics over any other language (Hands and Cosse 295).

This may be the case although an alternative explanation can be found in applying notions of natural language processing through analogical modeling of language as described below in the final claim for this paper.

**6. Sub-claim 4: The drift toward English can be explained by reliance on recently developed exemplar-based models of natural language processing (Skousen 2002, 1996).**

In recent times, the “language-as-rule-based activity” concept has been found wanting in terms of explaining much of what we know about language. Instead, natural language processing studies suggest that analogical modeling of language offers a far more robust accounting of what is actually happening when we process and acquire language.(see Skousen 2002, 1996). As Robinson explains:

Analogical or similarity-based reasoning uses a database of stored examples to draw probabilistic influences directly, without rule induction or (statistical or ‘neural’) learning. Novel instances are classified and outcomes are predicted on demand, based on prior experience of similar situations (Robinson 1995:249).

If we acquire language patterns through surface level processing, then it is likely that we will sub-consciously model frequent and prestigious language patterns. Thus, a Korean student who has been reading English texts containing English rhetorical structures since early elementary school could simply acquire the English rhetorical structures as part of natural language acquisition. In addition, English-based rhetorical patterns could be the only rhetorical patterns overtly taught throughout a student’s educational experience. This conscious and sub-conscious acquisition of English rhetorical structures is a natural consequence of global communicative needs.

**7. Conclusion**

The major claim for this paper has been that:

In genres and registers used by academic and scientific global discourse communities, the rhetorical patterns of many languages are being affected by the register-specific rhetorical patterns of the English language.

I have attempted to support that claim by reviewing four sub-claims that hopefully fulfill their intended purpose. One should note, however, that the evidence I have provided to support this claimed English-influenced drift in the rhetorical structures of

other languages is qualitative and anecdotal. Although the Analogical Modeling concept provides a strong theoretical foundation, the claim needs to be supported by large scale empirical mapping of that drift. One way to accomplish this task would be to choose a specific academic register that has existed across a range of languages for at least 100 years. Then a large historical corpus would have to be created for the register in each of the targeted languages with 10 year samplings. A similar contemporary corpus would need to be developed in each language. Having established comparative corpora, various quantitative and qualitative research instruments could be applied to the corpora in order to track rhetorical drift. Until such a project is undertaken, mapping rhetorical drift and the influences on that drift will be vulnerable to subjective interpretation.

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# **Foreigner Talk at English Corner: An Intercultural Pragmatic Perspective**

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## **Abstract**

Foreigner talk is primarily a topic of study in second language acquisition. The related literature consists of both descriptive and explanatory accounts. In the former case, the researchers are primarily concerned with the formal structure of the simplified register, its differences from motherese, and its various roles in assisting comprehension. In the latter case, scholars try to probe into the factors that trigger the use of foreigner talk as realized in the form of input and interactional modifications and how these functions are performed in native-nonnative conversation. Another line of research, sociolinguistic by nature, dwells on the attitudinal aspect of foreigner talk. A review of the existing studies indicates that researchers' attention has predominantly investigated foreigner talk in classroom settings and its role in facilitating SLA. However, no serious attempt has been made from the pragmatic point of view to address such questions as how the use of foreigner talk can be viewed as a matter of linguistic adaptation that native speakers make to satisfy their various communicative needs; nor is there any study available that addresses the use of foreigner talk to mark the role relationship between the speakers. In this connection, the present paper undertakes an empirical study of foreigner talk in a new setting -- English Corner in China. Through the analysis of the collected data, the author intends to argue that foreigner talk represents a form of multi-facet linguistic adaptation, in that (1) foreigner talk promotes the conversation between native speakers and non-native speakers more as an event of intercultural communication than as an L2 learning event; (2) foreigner talk involving native speakers' conversational dominance is an adaptation to their conversational role; and that identity-laden foreigner talk is found interadaptable with the native speakers' and their Chinese interlocutors' cultural or national identity .

**Keywords:** foreigner talk, intercultural pragmatics, identity, adaptation.

## **1. Purpose of this study**

Foreigner talk (FT for short) has primarily been a topic of study in second language acquisition (SLA). The related literature consists of both descriptive and explanatory accounts. In the former case, the researchers are primarily concerned with the formal structure of the simplified register (e.g. Ferguson 1971; Long 1981a), its differences from motherese (Ellis 1985; Freed 1978, 1980), and its various roles in assisting comprehension (e.g. Ellis 1985; Issidorides and Hulstijn 1992). In the latter case, scholars try to probe into the factors that trigger the use of foreigner talk as realized in the form of input and interactional modifications (e.g. Scarcella and Higa 1981; Long 1981a) and how these functions are performed in native-nonnative conversation. A review of the existing studies indicates that researchers' attention has predominantly concerned foreigner talk in classroom settings and its role in facilitating L2 acquisition. However, no serious attempt has been made from the pragmatic point of

view to address such questions as how the use of foreigner talk can be viewed as a matter of linguistic adaptation that native speakers make to satisfy their various communicative needs; nor is there any study available that addresses “the use of foreigner talk to mark the role relationship between the speakers” (Ellis 1985: 137). In this connection, the present paper undertakes a study of foreigner talk not in classroom setting but at English Corner, a familiar setting in China’s big cities. Within the adaptationist-theoretical framework (Verschueren 1999), the author intends to reveal that foreign talk in this context is a mode of linguistic adaptation oriented towards the promotion of asymmetrical intercultural communication.

## **2. Literature review**

### *2.1 Defining foreigner talk*

The study of foreigner talk can be traced back to Ferguson (1971), who discovers the linguistic similarities among motherese, foreigner talk, and fossilized forms of interlanguage. Ferguson and DeBose use “simplified registers” as a cover term for those varieties of language used by members of a speech community towards those whose knowledge of the language is less than normal (Ferguson & DeBose 1977: 100). There are two major types, one being baby talk (the variety of language that is regarded by a speech community as primarily appropriate used for addressing young children) and the other being foreigner talk (the variety of language used for addressing foreigners (Ferguson & DeBose 1977: 102-103).

It should be noted that in most cases, foreigner talk is quite different from “baby talk”. Baby talk used by adults is characterized mainly by some phonetic traits typical of early child speech (“pwetty boidy,” “wittle wun,” etc.), baby words such as *tum-tum*, lots of repetition, copula omission, and use of third person address instead of first and second person (“baby give daddy a kiss”). By contrast, foreigner talk often possesses some phonetic traits of L1. Instead of using baby words, it remarkably involves grammatical distortions, such as lack of inflection, use of preverbal “no”, drop of articles, and subject-verb disagreement. Thus, it differs from baby talk although both entail some simplifications, including slow speech rate and the use of high-frequency vocabulary.

### *2.2 Foreigner talk and SLA*

Foreigner talk is a common topic of study in second language acquisition (SLA). The existing literature seems to be predominantly concerned with foreigner talk in classroom settings and its role in facilitating SLA. According to Ellis (1985:297), native speakers (NSs) tend to adjust their normal speech when addressing foreign learners in

order to facilitate understanding. These adjustments, which constitute ‘foreigner talk’, may aid acquisition by ensuring that the learners obtain comprehensible input.

Many studies characterize “foreigner talk” on the basis of native speaker’s simplifications including shorter utterances, lower syntactic complexity, or avoidance of low frequency vocabulary (e.g. Arthur et al 1980). However, Long (1983) argues that NSs modify not only their speech to non-native speakers, but also various features of the interactional structure or their conversations with them, by making clarification requests or giving comprehension checks, for example. He labels these inputs input and interactional features respectively (Long 1981a). The input features are of two types: (1) those that involve simplifications within the grammatical rule structure of the language, and (2) those that involve simplifications leading to ungrammatical speech. Interaction features consist of the specific discourse functions performed by native speakers.

The author of this study, however, would not consider the interactional features as essential to the delimitation of foreigner talk. There are two reasons. One is that these features occur in all kinds of conversations. The other is that their frequency does not count so much since there may be too many factors triggering their occurrence. Instead, this paper would extend the notion of foreigner talk in a different direction. Specifically, we would consider its role in defining the relation between the interlocutors and identity negotiation and its relation with identity claim and ascription since it is employed towards people coming from different linguistic and cultural background. “Foreigner talk is not to be thought of a static, fixed set of features, but as dynamic, changing in accordance with various situational factors.” (Ellis 1985: 133) The relational notion of foreigner talk is more of a sociolinguistic issue than of a SLA matter. We will take it up shortly in 2.3.

Thus, our concern would prompt explanations for the use of foreigner talk. We need to consider both why adjustments occur and how they take place. Hatch (1983) suggests that foreigner talk has the same basic functions as motherese. That is, (1), it promotes communication, (2) it establishes a special kind of affective bond between the native speaker and the non-native speaker, and (3) it serves as an implicit teaching mode. Of these, (1) is primary. Our query is that what kind of communication foreigner talk promotes, what kind of bond it establishes between the NSs and NNSs, and to what extent it serves the teaching function.

### *2.3 Foreigner talk and attitude*

The study of foreigner talk is also of great interest to sociolinguists. From the sociolinguistic perspective, foreigner talk, which involves native speakers’ deliberate simplification of their own language when talking to foreigners, is not just easier, slower, louder, or repetitious speech because this universally occurs when one’s interlocutor has difficulties of comprehension. Rather, it is special for its sociolinguistic implications. Often found to be spoken to foreigners considered to be culturally or racially inferior, foreigner talk outside the classroom always carries the implicit and

often explicit connotation of inferiority, baby-talk, or even “monkey-talk” (Lipski 2005) (it is said that in popular culture talking animals or humanoid creatures are often depicted as using the current local versions of foreigner-talk). Thus, it is of the condescending nature, conveying negative attitudes towards the non-natives, such as the superiority of the “self” and the inferiority of the “other”. The latter is shown by the non-natives’ inability to use the L2 language properly (ibid.), which might lead to racial discrimination.

In history, native speakers’ deliberate and insistent use of foreigner talk to underprivileged people including slaves and contract laborers has led to the development of some pidgin and even the formation of many creole languages throughout the world (e.g. Jamaican English creole). The stigmatized variety of the language marks its speakers as less civilized as those who can speak perfect colonizing language.

#### *2.4 Summary*

The preceding review indicates that there are both pedagogical and sociolinguistic studies about foreigner talk. The former are concerned with the formal properties of the simplified register, its differences from baby talk and the role it plays in SLA, whereas the latter explore the sociological connotations of foreigner talk. From the review above, some research gaps emerge:

- a. No serious attempt has been made from the pragmatic point of view to address such questions as how the use of foreigner talk can be viewed as a matter of linguistic adaptation that native speakers make to satisfy their various communicative needs;
- b. Nor is there any study available that addresses “the use of foreigner talk to mark the role relationship between the native speakers and their foreign interlocutors” (Ellis, 1985: 137) ;
- c. The existing studies about foreigner talk generally target its use in classroom setting, which is predominantly a linguistic learning environment, or worksites which involves explicit power relations. However, little attention has gone to settings beyond the classroom, where intercultural communication takes priority over language learning.

Thus, this study locates the use of the foreigner talk at English Corner and probes into its motivation and operation from the pragmatic point of view.

### **3. Theoretical framework of this study**

This study intends to account for the use of foreigners talk within Jef Verschueren’s adaptation theory. According to his theory of linguistic adaptation, conversation, and communication in general, is driven by the goal of satisfying communicative needs (Verschueren 1999:61). Characteristically, talking or using language consists of constantly making linguistic choices, consciously or unconsciously, for language-internal (i.e. structural) and/or language-external reasons (1999):

- a. These choices are made at every possible level of linguistic structure, phonetic, phonological, lexical, syntactic, textual, etc.
- b. These choices also involve communicative or pragmatic strategies, for example, that of politeness.
- c. These choices are made with various degrees of consciousness.
- d. Choices are made from options that are not equivalent.(e.g. “Be quick” is not equivalent to “Can you be quick?”)

According to Verschueren (1999), pragmatics should be capable of relating the linguistic features at every level of linguistic structuring with the contextual features. To make negotiable choices, competent language users must adapt their language use to the context involved. Here the context is inclusive enough to incorporate the temporal-spatial elements of the situation, the interlocutor(s)’ (linguistic) knowledge, expectations, beliefs, etc., the social distance or power relation between the interlocutors, and so on.

In the light of the theory, native speakers’ foreigner talk at English Corner would be reconsidered as a consciously-made adaptive linguistic choice involving adjustments (mainly simplifications) at various levels for multiple purposes (including conversational dominance, cultural dissemination, L2 acquisition enhancement, and the like), the success of which depends supposedly on their adaptation to the contextual factors concerned, such as their Chinese interlocutors’ L2 proficiency, expectations for L2 cultural input, and identity conditions.

## **4. Methodology**

### *4.1 Research questions*

The fundamental question we like to pursue in this study is whether and how native speakers’ foreigner talk at English Corner works as a mode of linguistic adaptation. The specific questions to be addressed are as follows:

- a. To what extent do native speakers of English at English Corner employ foreigner talk? How does their use of foreigner talk serve their goal of communication?
- b. To what identity do the native speakers adapt their simplified speech in their conversation with their Chinese interlocutors at English Corner?
- c. To what conversational role do the native speakers adapt their simplified speech in their conversation with their Chinese interlocutors at English Corner?

### *4.2 Participants*

This study involved three native speakers of English, whose background information is presented in Table 1. Apparently, the foreigners involved came to the English Corner to help the Chinese learners improve their spoken English. However, our informal interview showed that they had other purposes. They liked to meet more

and different Chinese people (apart from the students they taught at schools or universities), from whom they could know China and the Chinese people better.

Although many Chinese speakers had an opportunity to talk to the three foreigners, only 9 of them happened to become the participants in our study. Their background information is presented in Table 2:

<b>Subjects</b>	<b>Nationality</b>	<b>Age</b>	<b>Gender</b>	<b>Background</b>
NS1	British	In his forties	Male	Teaching English to Chinese at various levels in Nanjing for nearly two years; has been to the English Corner many times.
Ns2	Canadian	Around 50	Male	Teaching English in a suburban university of Nanjing for over one year; visits the English Corner frequently.
NS3	American	In his fifties	Male	Teaching English to Chinese at various levels in Nanjing for nearly two years; often visits Corner.

Table 1: Background information of the 3 native-speaker participants.

<b>Subjects</b>	<b>Gender</b>	<b>Background</b>
CS1	Male	Senior school student, frequently visits the English Corner.
CS2	Female	Primary school pupil, frequently visits the English Corner.
CS3	Male	Junior school student, frequently visits the English Corner.
CS4	Female	Primary school pupil, frequently visits the English Corner.
CS5	Female	Senior school student, frequently visits the English Corner.
CS6	Female	Junior school student, frequently visits the English Corner.
CS7	Male	Company clerk, frequently visits the English Corner.
CS8	Male	Company clerk, frequently visits the English Corner.
CS9	Male	Company clerk, frequently visits the English Corner.

Table 2: Background information of the 9 Chinese participants

According to our informal survey, these participants coming to the English Corner had diverse purposes. The primary one was to practice their oral English. Moreover, since there were almost always foreigners present, they liked to talk with them and got to know their countries. However, quite a percentage of them also took this “English club”, so to speak, as a site for social gatherings. Many of them want to make friends with people who speak good English.

### *4.3 Data collection*

Our data were collected at the English Corner at Gulou, Nanjing, which could be dated back to the 1970s. Residents of the city, mostly primary school pupils, middle school students, and young professionals, come to the Corner on Saturday nights to practice their oral English learn foreign culture, or make friends. Foreigners of varying numbers at Nanjing also join them from time to time.

We used a digital recorder for the data collection. Permission was requested of the participants on the condition that the data collected would be used for academic research purpose only and no mention would be made of their personals. Altogether we recorded three foreigners' conversation with their Chinese interlocutors. There were labelled as follows:

NS1-CS1, CS2

NS2-CS3, CS4, CS5, CS6, CS7

NS3-CS8, CS9

In order to gather background information about the participants, informal interviews were conducted after the data in question were recorded.

### *4.4 Data analysis*

We did transcription for the collected data. After that, our job was to identify foreigner talk employed by the native speakers in the data, based primarily on the formal or linguistic features as presented in Table 3. The reason for this is that since interactional modifications are also found in NS-NS conversations and since there was no base-line NS-NS conversation for comparison, this study excluded the interactional modifications as irrelevant. Instead, we were content-wise, concentrating on what underlined the use of foreigner talk.

Conversation at English Corner is characterized by constant topic change. Thus, not all the conversations occurring between the three native speakers and their Chinese interlocutors would be considered in the upcoming discussion part. The following types of recorded conversations were ticked out:

- a. When the recorded speech was not articulate enough;
- b. When the conversation lasted for only one or a bit more turns, to the extent that no coherent discussion about any topic was possible (this happens when a newcomer joins in the current talk by giving mere greetings or throwing a couple of irrelevant questions);

## **5. Results and discussion**

### *5.1 The use of foreigner talk*

From our recording, it is remarkable that all the foreigners involved in this study invariably spoke rather slowly and articulately, pronounced key words with increased

volume, preferred the use of short sentences and the present tense, and used gestures extensively all the way. This observation alone enables us to conclude that the experienced native speakers were aware of the need to adjust their speech, its speed in particular, to facilitate their Chinese interlocutors' comprehension. Indeed, when interviewed they admitted that they already had this concern in mind. This was also evidenced by their general use of high-frequency vocabulary (by and large, the use of less challenging vocabulary is a less explicit manifestation of foreigner talk than slow speech) and using familiar words to paraphrase those that might cause difficulty, as shown below:

(1) NS2: But I have been skating since I was that high.

CS5: Yah.

NS2: Maybe that we know...

CS5: It's very difficult. I will have a lot of troubles, so...

→ NS2: So did I. I had a lot of troubles when I was skating—when I first started. But you **HAVE TO** *persist* (.) and **KEEP** *doing it*. Make mistakes. Fall down. Stand up and keep going. And eventually you know how to skate.

(2) CS7: So, I think in the future the country to develop itself also depends its population.

NS2: Population?

CS7: Population is also a very important resource.

→ NS2: Yes, but it also (..) can be (...) a detriment. Right? *A detriment. A BAD thing.* You can have too many people, then you have trouble feeding them. You have trouble **RAISING** the standard of living (..) for all of those people.

However, we noticed that NS2's effort to use easy vocabulary was not consistent, because he did use some difficult words or expressions, without trying to make them more accessible to the Chinese participants even when the latter made their difficulty clear to him. Here is an example:

(3) NS2: NO, I have a **CANADIAN** wife. Haahaahaaha. She has learned how to make dumplings. So she goes to Shuguo. She buys something in the freezer and then (.) bring them home. So she wants to learn how to make the **REAL** Jiaozi from the **SCRATCH**. So...

→ CS3: *Scratch?*

NS2: So, some student is supposed to come and help us do that, but that student is **NOW** working at an **INTERNSHIP**. So she is a senior. And she now has a **JOB**. So she may not be coming back to camps. So she may not have an opportunity to show us how to make Jiaozi. Some. The beginning...so...

In (3), CS3 had no idea of what "(from the) scratch" meant and showed his puzzle. However, his request for clarification was ignored by NS2, who seemed more preoccupied with his story telling. This suggested that the use of foreigner talk could be affected by some factors other than the interlocutors' L2 proficiency.

The use of foreigner talk by these native speakers is clearly an active adaptation to the interlocutors' linguistic proficiency characterized by relatively poor listening and

limited vocabulary. It had an immediate effect in facilitating the communication between the native speakers and their Chinese interlocutors. Almost no obvious communication breakdowns could be observed. However, we would argue that there was a more fundamental role that the native speakers' use of foreigner talk served, to which we will turn in the next sections.

It is worth mentioning that our data also showed that foreigner talk sometimes went hand in hand with corrective feedback, as exemplified in (4) and (5):

(4) CS3: How do you celebrate this Spring Festival?

NS2: I *celebrated* the Spring Festival here, in Nanjing. I stayed at Youth Hostel. Jasmine Youth Hostel.

CS3: Eh, have you eat the dumplings?

→ NS2: Have I *eaten* dumplings? Yes, dumplings are my FAVORITE Chinese food.

(5) CS6: Which city are you in?

→ NS2: I, I am, I *lived* in Toronto.

CS6: The famous city of North America.

NS2: A very famous city in North America. Yes.

However, these native speakers provided corrective feedback, though infrequently, not because they were language teachers. In actuality, they showed an overwhelming tolerance for the errors their Chinese interlocutors committed. As indicated in (6) and (7), their error correction occurred mostly when misunderstand might be triggered. This is to further suggest, therefore, the native speakers were more concerned with intercultural communication than with L2 teaching.

## 5. 2 Identity and foreigner talk

NS-NNs communication is unique in that it involves identity issues. At English Corner, as the native speakers engaged themselves in the conversations, they actively assumed various identities, their national cultural identity in particular. Our data indicated that they were aware of these facets of identity and consciously adjusted their simplified speech to them.

To start with, the native speakers identified themselves as belonging to a different country or culture from the one their Chinese interlocutors came from, as shown in (6) and (7):

(6) CS1: Do you like football? There is a football championship tonight by English League, no, British League.

→ NS1: I am not a big fan of football. Sometimes I am annoyed when people say English, that's why you corrected it. It's great, but you are wrong this time, it's English league. *We* have three parts in Britain, England, Scotland and Welsh. But *you Chinese* only have one word "yingguo".

(7) CS9: Yes, learning English is great fun.

NS3: Yes, because many... it is changing very quickly. When I first came up here two years ago, I came across a Chinese, 'hello, I am a Chinese, I am a

graduate student, I would...’ one time, because they are shy, afraid of making mistakes. One time, I looked at my watch and he is trying to find the right word, it’s ok, I looked three minutes...

CS9: Before he found the word. (Laugh)

→ NS3: *Americans* do the same thing.

CS9: Sometimes.

NS3: Yeah ...

CS9: When?

NS3: When they try to speak Chinese.

CS9: Oh, I see.

→ NS3: And *we Americans* do not know music, so we go with ‘ni hao ’ (in a strange tone) or ‘xie xie’ (rising tone). You said ‘xie xie’ (falling tone), right? So we are different.

In (6), NS1 drew a clear distinction in national identity between his Chinese interlocutor and himself by using “we” for self-reference whereas “you Chinese” for the addressee. In (7), NS3 identified himself as being an American. Again, the use of an appositive (“we Americans”) was effective in excluding the Chinese CS9 from his national background.

Not only did they explicitly identify their national or cultural identity, they also reacted to their Chinese interlocutors’ pragmatically inappropriate questions in their own way, as shown in (8):

(8) CS9: How old are you?

→ NS3: What do you think?

CS9: I guess you are...

→ NS3: *Two hundred.* (laugh)

CS9: Eighty years old.

→ NS3: Eighty years old? Thanks a lot. *Thirty-nine! (Vow..) Oh, it’s a joke. In America, all the women are afraid to say they are 40 years old, so all women in America assume that they are 39 and stay 39 the rest of their life. So you have a very old woman, ‘how old are you, great grandmother’, ‘I’m thirty-nine’ (laugh). They’re afraid to be forty.*

Age is a generally taboo topic in the Western culture. Being brought to respond to this taboo, NS3 tactfully averted awkwardness by bluntly infringing upon the Maxim of Quality and telling a joke.

Having identified their own nationality, the native speakers chose to speak in favour of their motherland, as shown in (9):

(9) CS6: I think if I was on the street of Canada, I will feel very—I’m afraid of doing this, because there’s so little people (..) walking in the street. We will fell, feel scared. ((laugh)) No people around.

→ NS2: Ah, yah, CERTAINLY *we don’t have as many police or securities as there are here in China.* But, uh, in general, to be where you are, *it is very safe to be, to walk anywhere in Canada.* So, anyway...

CS6: I have friends who lives in Montreal and she told me that Canada is an ideal place for, for people to spend the rest of their lives. Do you think so?

→ NS2: *Yes! Canada was voted as THE BEST country in the world. (..) three, four, five years ago, I forget which. So, it's always up there in one of the best countries in the world to live in.*

CS6: For what, for what?

→ NS2: *FOR EVERYTHING. Yes. In Canada, one of the best places to live.*

In (9), NS2 showed his pride in his country by emphasizing its safety for travelling and suitability for living in.

Secondly, the native speakers chose to adopt their non-Chinese perspective. Meanwhile, understanding that this could be offensive to their Chinese interlocutors, they often played the opt-out policy. Consider (10):

(10) CS6: So, which country are you from?

NS2: What country do you think I'm from?

CS6: Ehh... (..) not USA.

NS2: Not USA

CS6: Because you said China was VERY BIG, right?

NS2: Yes!

CS5: But USA is BIGGER than China.

CS6: So, I think you... ((laugh))

→ NS2: *Ok, <ok, ok>. The REASON WHY United States is considered BIGGER than China is because Taiwan is NOT considered as a part of China. Everybody in China thinks Taiwan is part of China. But the rest of the world, ok, most of the rest of the world thinks Taiwan is not part of China. But I DON'T want to spend time talking about that.*

CS6: But why politicians often agreed... Our conference said Taiwan is part of China.

→ NS2: *I DON'T want to talk about it. ((laugh)) That's a political issue. I don't want to talk about it, 'cause it will be fighting. Hahaha (..) Or you guys will be fighting, not me. ((laugh))*

In (10), NS2 first identified himself as a non-Chinese person who, like other non-Chinese people, had a different view of Taiwan from the Chinese. Aware that this stand would cause confrontation with CS6, he immediately and insistently opted out from the topic.

Thirdly, the native speakers also behaved as individuals like any other participant. When this identity conflicted with their national identity, they would carefully switch between the two, as shown in (11):

(11) CS1: In China, Chaplin is gaining more popularity.

→ NS1: Yes, but again, *I think* this is political.

CS1: What about Rowan Atkinson? The famous comedy actor.

NS1: Yeah. Shall I tell you the truth? I don't know, this is difficult. I have met him a long time ago, Mr. Bean. My girlfriend's sister married a guy who was the manager of a theatre, and Rowan Atkinson is in the play. This was a long time ago, 25 years ago. 1983, 84. Already he was very famous in Britain. He became famous in 1978. I talked to him, and he is very very boring. Very boring. Very nice, very intelligent, very clever, but very boring. But I liked him, I liked him a lot.

CS1: It's contradictory. Smart, but boring?

→ NS1: He was almost deliberately boring, because *I think* he is very shy, *I thought*, very shy. And he is very conscious of the fact that people want him to be funny. They want him to be funny and *I think* he is deliberately not funny, not funny at all.

CS1: The recent movie is about he going from Britain to France. It is funny.

→ NS1: I saw that. *You think so? I didn't think* it is funny, *he is not popular in Britain. People don't like Mr. Bean.* He is not on British TV. Because Mr. Bean is not made for British sense of humor. It's made for China, Southeast Asia. He is very popular in Southeast Asia, in Malaysia, and they make the movies on the shows mainly for those people. *In Britain, no, it's not our sense of humor. We don't like him.* He was on British TV, Mr. Bean a long time ago. But *we* like other things Atkinson has done. He does many different things.

CS1: He is very popular in China, we like his sense of humor.

→ NS1: Yeah, but you see, *we don't*. He made a TV series, *Blackadder*, very good. The 1<sup>st</sup> series is not so good, but the 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> are all very good.

In (11) NS1's switch from "I think" to "we don't" was highly suggestive. On the one hand, it indicated that he adopted an individual perspective on the current topic. On the other hand, it suggested that he was conscious of his being a non-native representing a nation. Naturally, NS1's deliberate appeal to the second role in the later part of the discussion might add force to his argument.

From the analysis above, we could see that the native speakers adapted their simplified talk in a way that was appropriate to their identity of various sorts. Considering that the native speakers' goal was to communicate with the Chinese interlocutors, the use of foreigner talk could be seen as an adaptation to the negotiation of their identity to some extent. It is thus partly suggested the native speakers' identity indication in various ways actualizes the interculturality of their foreigner talk with their Chinese interlocutors.

### 5.3 Foreigner talk and conversational dominance

Understandably, native speakers figured as the centres of communication with their Chinese interlocutors at English Corner. They were generally surrounded by varying numbers of Chinese participants.

Much respected and needed, the foreigners as native speakers were in control of their communication with their Chinese interlocutors, to which their use of foreigner talk partly contributed. This was extensively evidenced by our data. Specifically, their conversation dominance was manifested in the following principal ways.

First, the native speakers had a bigger share of conversational turns, as clearly shown in Table 3. This was most evident when they were engaged in multi-party conversations.

Secondly, the three native speakers made a much bigger proportion of speech, even in dyadic conversation, as shown in Table 4. This was so because they frequently provided extended answers or responses to the explicit or implicit questions their Chinese interlocutors raised to them, as exemplified in (12):

(12) CS1: Can you read China Daily?

NS1: Yes, *I use China Daily in class sometimes.*

	Recording 1			Recording 2						Recording 3			
Speaker	NS1	CS1	CS2	NS	CS3	CS4	CS5	CS6	CS7	NS3	CS8	CS9	CS10
Turns of speaking	60	53	7	105	13	10	35	36	16	39	5	28	4
%	50.0	44.1	5.9	48.8	6	4.7	16.3	16.7	7.4	51.3	6.6	36.8	5.3
Total turns	120 (100%)			215 (100%)						76 (100%)			

Table 3: Turn-taking in the NS-CS conversations

	Recording 1	Recording 2	Recording 3
Native speakers	NS1	NS	NS3
Total number of responses	59	68	32
Number of extended responses	50	53	25
Extended responses (%)	84.7 (100%)	77.9 (100%)	78.1 (100%)

Table 4: Native speakers' use of extended responses

Note: Not all the native speakers' turns of speaking were responses; they did initiate conversations sometimes, as shown in the upcoming examples (13) and (14).

In the Chinese participants' eyes, the native speakers were the sources of both authentic linguistic input and cultural information. As supported by our informal

interview, the Chinese participants expected to know the culture of the English-speaking countries and were curious about how foreigners thought about some issues of interest to them, regardless of the fact that some of them might be taboo topics. The native speakers carefully adapted to their expectation and as a result were frequently overinformative.

The fact that the native speakers were respected and needed gave them the freedom and room to say as much as they would, which in effect turned their Chinese interlocutors into listeners as well as initiators most of the time. This again challenged the supposition that the latter came to English Corner with the primary goal to practice their oral English.

Thirdly, the native speakers' conversational dominance was shown by their right of speaker nomination, as shown in (13), by their solicitation of questions, as shown in (14) and (15), and by their refusal to be interrupted or repeat what had just been said, as shown in (16) and (17):

(13) → NS2: *Nice to meet you!*

CS3: Nice to meet me? Yes, thank you!

(14) → NS2: *Hello. COME CLOSER. I don't BITE. So, what's your question?*

CS4: Still, I don't know how to ask you any question.

→ NS2: Well, TRY.

(15) CS4: Excuse me, where are you come from?

NS2: I come from Canada.

CS4: Which city?

NS2: Toronto. It's Canada's largest city.

CS4: Yes, it's a very beautiful city. And I think Toronto...

→ NS2: *Questions. I won't talk unless you ask questions.*

CS3: Yeah.

→ NS2: *So you have to ask questions.*

(16) CS6: Hello.

NS2: So...

CS6: Good evening.

→ NS2: *Yes, I just want to finish my vacations' story. So I came back from Sichuan, Kunming. I came here. It was February, 3<sup>rd</sup>. Then we went to CELEBRATE the Spring Festival at the hostel here in Nanjing. And then on February 12<sup>th</sup>, we went to (.) Hangzhou—the most beautiful city in China. Right?*

(17) CS6: So, what are you talking about?

NS2: My trips. We are talking about my trips around China for the last year.

CS6: You have been in China for one year?

NS2: One year. Yes.

CS6: So, which place have you been to?

→ NS2: Oh, I just did all that. *You are TOO LATE.* (laugh)

Last but not least, the native speakers demonstrated their superiority by giving criticisms or lessons of some sorts, as shown in (18), and (19):

(18) CS1: Because Chinese are very shy. They are good listeners but not good speakers.

→ NS1: Yes. I think it's many things. You got one thing. Chinese culture is quite shy. But I am not sure how true that is. Sometimes Chinese are not shy at all. But I think also it's the way language is taught in China. *You are taught in a very formal way, not conversational. I think it's a mistake.* I hope it's changing. Also it's because they are not used to foreigners. And it's the same when I learn French, German or Russian. You feel more shy when you talk to somebody who is from that culture. You know that he doesn't speak your language, so you must speak English. *My job is to take away these barriers.* Sometimes it's not easy, sometimes it's easy.

(19) (A little girl told a joke)

→ NS3: ... This brings up an idea. *If China learns humour, how to make tourists laugh, then in the next fifty years, you will make billions of more dollars.*

CS9: I agree, I really agree.

→ NS3: Maybe China has a little bit unhappiness during one hundred or two hundred years. So I think, *I seriously, you can teach humour, how to tell a joke, how to make a foreigner laugh.*

From the analysis above, it should be clear that the native speakers were conscious of their conversational role. The use of foreigner talk did not reduce their Chinese interlocutor's respect for them; rather, it served to facilitate their role as authentic sources of cultural input. The native speakers took advantage of their conversational dominance in various ways, which defined the talk at English Corner as a typical example of asymmetrical communication.

## 6. Conclusion

This paper undertook a study of foreigner talk at English corners in a China's big city. Recordings of a sizable quantity of NS-NNS conversation were made and transcribed, with special attention to how native speakers used foreigner talk to manage conversation and how they adapt their simplified speech to identity issues.

The following findings emerged from the analysis of the cleaned data.

-- Foreigner talk facilitated the native speakers' English-corner conversation with their non-native speakers, which was more of an intercultural dialogue than of an L2 learning event, as the native speakers involved were frequently culturally engaged (i.e., conveying cultural information about English-speaking countries) rather than pedagogically oriented (i.e. teaching English vocabulary or grammar). In general, the use of foreigner talk indicated that they cared more about whether the conversation could go on smoothly than whether the non-native speakers could learn authentic and idiomatic L2.

-- The use of foreigner talk by the native speakers at English Corner made it possible for them to distinguish themselves culturally from their Chinese interlocutors. While they adapted their simplified speech primarily to their cultural or national identity, they also showed concern for that of their interlocutors. Moreover, the interculturality of foreigner talk is constructed rather than predetermined.

-- The use of foreigner talk does not impair but facilitates the native speakers' role as authentic sources of cultural input. It helped to define their relation with their Chinese interlocutors as an asymmetrical one. In effect, the native speakers were generally conscious of their conversational dominance and were active in taking advantage of their privilege as native speakers. Thus, it might be suggested that the foreigner talk at English Corner was also characterized by native speakers' superiority in conversational management.

Thus, we would contend that foreigner talk as found at English Corner is not just a matter of linguistic simplification, but is also characterizable in terms of, at the risk of proliferation, native speakers' identity awareness (which serves to distinguish their "self" from "the other") and conversational dominance (which marks their relation with their Chinese interlocutors as asymmetrical).

This research suffers some limitations. First, only three native speakers were involved in the study so that the generalizability of the findings is suspicious. Second, the identification of foreigner talk was based largely on the speech rate of the native speakers' talk. No measurement had been made of that with which they talk to other native speakers. Thus, it was impossible to know whether they talked significantly more slowly to the Chinese participants than to other natives. Thirdly, the Chinese participants were taken as coming from the same population of L2 learners. In fact, there were important individual differences among them in terms of their L2 proficiency. It might have been explored whether the native speakers varied their use of foreigner talk according to the proficiency of specific Chinese interlocutors.

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# How bad is "bad data"? In search for the features of orality in Early Modern English legal texts

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## Abstract

The paper demonstrates that old texts are useful provided they represent a high degree of orality, and thus document the spoken idiom of the past. The legal texts analysed here (courtroom records, depositions and wills) vary as to the number of the exponents of orality: The features which I search for include structural characteristics (turn-taking, meta-comments) and pragmatic categories (speech acts, discourse markers). It turns out that while all these are characteristic of courtroom discourse and depositions, wills are limited to other pragmatic categories, like performative formulae and deictics. My study reveals that it is both the properties of the data and what the analyst makes of them that determine whether the data can be judged as good or bad.

**Keywords:** historical language data, orality, courtroom records, depositions, wills.

## 1. Introduction

My analysis is a reaction to a similar question posed by Kytö and Walker (2003) in their paper “How bad can bad data be?” However, my approach differs from theirs in a number of ways. While they look at trial proceedings and depositions from *Corpus of (Early Modern) English dialogues 1560-1760*, I deal with three selected genres of Early Modern English legal texts: courtroom records, depositions, and wills. Kytö and Walker address the issue of “textual transmission over time”, whereas I focus on the question of orality of the analysed texts. What I am arguing for in my paper is that, contrary to

Labov's claim, the so-called bad data is not too bad, provided some conditions are met. This is especially true of the historical language materials which have preserved a high degree of orality so that they do not only document the spoken idiom of the past but are also sources of socio-historical information. The features of orality which I will search for in selected Early Modern English courtroom records, depositions and wills include structural characteristics (e.g. turn-taking, legal meta-comments) and pragmatic categories like discourse markers or speech acts.

## 2. Some methodological assumptions

Even a cursory look at Labov's writings reveals a certain contradiction as to the value which language data have for the analyst (interestingly, Labov himself has often pointed to various contradictions and paradoxes in linguistics). One would expect that his claims concerning "bad data", for obvious reasons, apply to historical language materials only. However, his remarks about the nature of and methodological problems with synchronic data are not much more optimistic. So the question arises whether any data is reliable and if so, to what extent. Let's have a look at some relevant statements from Labov's writings:

In *Principles of linguistic change* Labov starts his discussion of the problems with the interpretation of historical data with the following remark:

Historical linguistics rests firmly on the objective and wide-ranging character of its data. But the data that are rich in so many ways are impoverished in others. Historical documents survive by chance, not by design, and the selection that is available is the product of an unpredictable series of historical accidents. The linguistic forms in such documents are often distinct from the vernacular of the writers, and instead reflect efforts to capture a normative dialect that *never* (my emphasis) was any speaker's native language. As a result, many documents are riddled with the effects of hypercorrection, dialect mixture and scribal error, Labov (1994: 11).

He then relaxes his position by coming up with his famous statement to the effect that "historical linguistics can be thought of as the art of making the best use of bad data" (ibid.). Thus, the first methodological question is:

### *2.1. How useful is historical data for the analyst?*

Compare Labov's stand on historical data with the hardly more encouraging statement concerning contemporary language data. He enumerates five methodological axioms which allegedly lead to a methodological paradox and the solution to this paradox is the central methodological problem. The five axioms (concerning the interviewed speakers) are:

- a. amount of attention paid to by the speakers to their speech ;
- b. the vernacular (not every style is of interest to the analyst);
- c. formality of the interview setting, which hinders the observation;
- d. finally, he mentions good data and claims that the only way to obtain good data on the speech of an individual is through systematic observation, cf. Labov (1972: 208-9).

These considerations again raise an important methodological question:

### *2.2. How useful (adequate, precise, representative, statistically significant) is synchronic data for the analyst?*

The answer to this query will be left out here since it is not directly relevant to my topic. One can only speculate that if synchronic data also raise many methodological issues as to their validity, the problem might be even more acute with historical data. Contrary to Labov's claims, my hypothesis is that historical data is a valuable source of socio-pragmatic and historical information. I will demonstrate below how my hypothesis is borne out by data from various types of legal texts (courtroom records, depositions, and wills). I have selected the three genres since they have been shown to represent a varied degree of orality, hence they should relatively adequately reflect the spoken idiom of the past, in this case the Early Modern English period. Moreover, the three genres represent the language of the law, thus they share a certain socio-pragmatic domain, with its special vocabulary and, above all, special patterns of socio-pragmatic behaviour. Let's examine some excerpts from the sources of interest here for the occurrence of two selected features of orality: turn-taking (and possibly the use of discourse markers) and speech acts.

## **3. Analysis**

### *3.1. Turn-taking and the use of discourse markers*

3.1.1. Courtroom records: *The Trial of Titus Oates* (henceforth *TO*) and *The Trial of Lady Alice Lisle* (henceforth *AL*), cf. *Hargrave* (1730)

In the courtroom proceedings the participants mainly used three discourse markers to mark new turns: *well*, *now*, *well then*, e.g.

- (1) *L.C.J.* Have you any other questions to ask her, Mr. Oates?  
*Oates.* No, my Lord, I have not. She was a witness before at *Whitebread's* Trial, and was not believed there.  
*L.C.J.* Well, make your Remarks by and by, and let them now go on with their Evidence. (*TO*)
- (2) *L.C.J.* Now, my Lord, we shall go to our Evidence to prove, that all this is absolutely false. For *Ireland* went out of Town into *Staffordshire*. (*TO*)
- (3) *L.C.J.* Who was that other person?  
*Mr. Carpenter.* I did ask his Name, but he said, he did not know him.  
*L.C.J.* Well then, when they came there on the *Tuesday night*, how did you receive them? (*AL*)

The quantitative data given in Table 1 below shows that, as can be expected, it was the interrogators who performed most of the turns and were in control of the discourse. The statistics refer to the entire text of the trial and include the usual interrogators like Lord Chief Justice, Attorney General and Solicitor General, as well as Titus Oates who, despite being the defendant, was allowed to defend himself due to his high social position (an Anglican priest with a doctoral degree):

<i>The interrogators:</i>			<i>The interrogated:</i>		
Lord Chief Justice	93	= 21.9 %	Mrs. Anne Ireland	26	= 6.1%
Titus Oates	67	= 15.8 %	Lord Aston	16	= 3.7%
Attorney General	60	= 14.1 %	Mrs. Duddle	15	= 3.5%
Solicitor General	35	= 8.2 %	Mrs. Graves	11	= 2.6%
			Mr. Richardson	10	= 2.3%
			Mrs Keeling	10	= 2.3%
			Mr Fowler	9	= 2.1%
			Mrs Fowler	9 <sup>i</sup>	= 2.1%

Table 1: The number of turns performed by the main participants of *The Trial of Titus Oates*

As can be seen in Table 2 below, a somewhat different situation held in the case of *The Trial of Lady Alice Lisle*, where like in *The Trial of Titus Oates*, the majority of turns were performed by one of the interrogators (Lord Chief Justice Jeffreys). However, it was not the prosecutor, Mr. Pollexfen, who was the second most active participant in the proceedings, but the chief witness Dunne (29% of the overall turns).

<i>The interrogators</i>			<i>The interrogated</i>		
Lord Chief Justice	137	= 48.5%	Dunne	82	= 29%
Mr. Pollexfen	6	= 2.1%	Mr. Carpenter	26	= 9.2%
			Lady Lisle	17	= 6.02%
			Mrs. Carpenter	14	= 4.9% <sup>ii</sup>

Table 2: The number of turns performed by the main participants of *The Trial of Lady Alice Lisle*

### 3.1.2. Depositions: *Edmund Robinson: Pendle, Lancashire 1634, cf. Cusack (1998: 138f)*

Even though depositions should be similar to courtroom records, it seems that the turns in depositions can be detected only indirectly from the accounts in reported speech (as put down by the scribes). However, notice the use of *videlicet*, a discourse marker introducing an amplification, more precise explanation, or specifying list, cf. Moore (2006: 246ff). Thus, depositions would be departing from the relatively authentic "good data" like courtroom records towards "worse data", where the interventions of the scribes are much more obvious, as in the following excerpt (notice also the beginning remarks).

- (4) The examination of Edward Robinson sonne of Edward Robinson of Pendle Forest Mason taken at Padian before Richard Shuttleworth and John Starkey Esquires two of his mates Justices of the peace within the county of Lancaster the 10th day of Februarie Anno domini 1633
- Who informeth vpon oath beinge examined touchinge the grete meetinge of the Witches of Pendle, saith: That upon All Saintes day last past, Hee this Informer beinge with one Henrie Parker a neere doore-neighbour to him in Wheatley, who desired the said Parker to give him leave to get some Bullas, which hee did, in which tyme of getting Bullas hee sawe two Grey houndes *videlicet* a blacke and a browne one come running over the next field towards him, Hee verilie thinketh

the one to bee M'Butters and the other to bee M'Robinsons, the said M'Butter and M'Robinson then haveinge such like.

Notice that although turn-taking is only marginally present in the examined deposition, another exponent of orality detected here is the occurrence of deictic expressions (time and place deixis, e.g. *All Saintes day last past*).

### 3.1.3. *Wills : The original will of Elisabeth Whipp, Midwife (1645-6), cf. Ostovich and Sauer (2004: 43-46)*

All the above-mentioned features of orality are even less traceable in wills, which, by definition, are narrations without any obvious characteristics of orality. The exception here is the closing formula, which is an example of formulaic language characteristic of wills only, i.e. the speech act of bequeathing to be discussed in the next section devoted to performatives. Notice also the use of *and* as a turn-taking device. Finally, it should be emphasized that due to their peculiar syntactic structure (a list of items to be bequeathed), wills provide us with invaluable socio-cultural information about the times when they were written.

(5) and my redd petticote with two gold laces Item I give to my daughter Siday A paire of Holland sheetes A fine childbed sheete a flaxen table cloth, a dozen of naptkins a payre of course sheetes A course table cloth a dozen of naptkins fower towels and my watered Tabbee gowne and my crimson satin petticote with small silver laces Item I give to my sonne George Whip...

...And soe revokeing & making voyd all former wills & bequests by me att any time heretofore made willed or given doe make & ordeyne their presentes to bee my last will & Testament & none other nor otherwise In witness whereof I the said Elizabeth Whipp have hereunto sett my hand & seale the day & yeare above written.

## 3.2. *Speech acts*

### 3.2.1. *Courtroom records*

Another crucial component of orality are speech acts. Assuming after Arnovick (1999) that diachronic speech act theory is possible, let's try to identify some illocutions

in the texts of the two trials. The task is not difficult, and this is for a few reasons. In the genre analysed here, i.e. courtroom records, the act of questioning (most often a request for information) is the main means of conducting trial proceedings. It is hardly disputable that the right to ask questions constitutes an important instrument of power in court, or as Culpeper and Kytö have put it: "Questioning is central to courtroom discourse, not only in terms of frequency, but also as a way of controlling the discourse", cf. Culpeper and Kytö (2000:62). Moreover, the formal language used by the interrogators creates social distance from the interrogated and enhances the power which the former have over the latter. Finally, since the use of performatives and formulaic expressions clearly contributes to the fragmentation, spontaneity and directness of the ongoing discourse, the occurrence of these features provides additional evidence concerning the orality of my data, cf. Ong (1982). Even a short glimpse at the texts of the two trials reveals a few instances of speech acts. Some of the performative formulae employed in the Early Modern English period do not differ from those used in the modern legal jargon to mark new turns, e.g. *Swear X* or *ask*, cf. (6) and (7), respectively. However, some other expressions are now marked as archaic, to mention only the obsolete use of the verb *desire* in *I desire to know*, cf. (8):

- (6) *Mr. At. Gen. Pray swear Mrs.Duddle, and Mrs. Quino.  
Which was done. (TO)*
- (7) *L. C. J. My Lord, I ask you this Question; you say, you have a general  
Apprehension,  
that he did go with you to Tixhall. (TO)*
- (8) *Oates. Pray, my Lord, I desire to know what Religion he is of. (TO)*

Performative utterances were among the linguistic means used as instruments of power in the Early Modern English legal system. Language could be subject of conscious manipulation by the interrogators especially when they exercised their authority in order to elicit information and to achieve their ultimate goal, e.g. making the defendant plead guilty. A pertinent example of such a usage of performatives is (9), where the verbal behaviour of the infamous Judge Jeffreys perfectly agrees with his reputation. He uses his position of power to humiliate the defendant, Lady Alice Lisle, in order to make her plead guilty by means of the (pragmatically very effective)

escalation of his verbal actions from expressing pity through prayer to begging in the name of the defendant's welfare:

- (9) *L.C.J.* I pity thee with all my Soul, and pray to God Almighty for thee to forgive thee, and to the blessed Jesus to mediate for thee; and I pray for thee with as much earnestness, as I would for my own Soul; and I beg of thee once more, as thou regardest thy own eternal Welfare, to tell all the Truth (*AL*)

In some cases the interrogator's position of power could become even more prominent. When he was getting impatient or angry in the course of the interrogation process, he would try to force his interlocutor to confess. (10) is an excellent example of an exchange, where Lord Chief Justice Jeffreys is questioning Dunne, the chief witness in the trial. Since Dunne was particularly uncooperative and recalcitrant, the judge tries to corner the witness by employing utterances of increasing directness and a careful fragmentation of the discourse. Thus he starts with a speech act of polite invitation/request (*come*), then passes on to an indirect request (*let me ask you...*), and through a direct request preceded by *prithoe* (normally used as a politeness marker), he culminates his plea with *prithoe* followed by an order. It must be added that apart from fragmentation and directness, the excerpt below bears another feature of orality, i.e. spontaneity, traceable especially in the speech of the obviously infuriated Lord Chief Justice, e.g. in the frequent repetitions (*come*), or a somewhat ironic use of *prithoe* combined with an order in the last sentence:

- (10) *L. C. J.* Was there nothing of coming from beyond Seas, who came from thence, and how they came? Come, I would have it rather the Effect of thy own Ingenuity, than lead thee by any Questions that I can propound; come, tell us what was the Discourse.  
*Dunne.* I do not remember all the Discourse.  
*L. C. J.* Prithee, let me ask thee one Question, and answer me it fairly; Did'st not thou hear *Nelthorp's* Name named in the Room?  
*Dunne.* My Lord, I cannot tell whether he were called *Nelthorp*, but it was either *Crofts* or # *Nelthorp*, I am sure one of them.  
*L. C. J.* Prithee be ingenuous, and let's have the Truth on't? (*AL*)

Finally, another property of the discourse in (10) is of importance for the present analysis. The Lord Chief Justice's appeal to the witness' ingenuity takes the discourse

outside its canonical frame of the utterance and transforms the appeal into what call elsewhere a *legal meta-comment*, cf. Kryk-Kastovsky (2002: 248ff). Such a meta-comment can be considered another instantiation of orality mentioned in Ong (1982), i.e. the closeness of the discourse to the socio-cultural context. In view of the above, it can be concluded that courtroom records are examples of very good data, reflecting the idiom of the past and supplying an abundance of valuable socio-historical information.

3.2.2. *Depositions: The deposition of Margaret Christmas "Suttill contra Suttill", Canterbury Consistory Court Deposition Book (1589-92), cf. Ostovich and Sauer (2004: 19-23)*

As can be expected, depositions do not employ performative formulae. The only obvious exponents of orality are deictic expressions indicating the spatio-temporal location of persons and events. Frequently, the points in time were not marked by dates but by descriptions of events that happened parallelly, e.g. "the great wind". Notice also the reference to persons and places by means of the expression *the said*.

(11) Ad xiii articulum dicit that a week or fortnighte after the great winde last past aliter diem aut tempus non recolit ut dicit she this deponent being servant to the articulate Alice Suttill was commanded by her to go & seke in a vawte of the said howse wher wood lye for a pece of paper written & this depondentsoughte and finde a pece of paper ...

3.2.3. *Wills: The original will of Elisabeth Whipp, Midwife (1645-6), cf. Ostovich and Sauer (2004: 43-46)*

As mentioned before, at least one performative formula occurs (and is in fact obligatory) in wills. Consider the following excerpt from *The original will of Elisabeth Whipp, Midwife (1645-6)*. As was the case in (5) above, the actual will is an enumeration of items and the persons to which they should go. Since this is irrelevant for a speech act analysis, I will quote only a few lines of the will and concentrate on the closing formula. The formula starts with *And* which makes it performative, hence contributes to the orality and/or authenticity of the document. It is worth noting at this point that the performativity of the (closing formula) of wills has been noticed before by e.g. Danet and Bogoch (1994), de Lungo Camiciotti (2002).

- (12) ...And soe revokeing & making voyd all former wills & bequests by me att any time heretofore made willed or given doe make & ordeyne their presentes to bee my last will & Testament & none other nor otherwise In witness whereof I the said Elizabeth Whipp have hereunto sett my hand & seale the day & yeare above written.

Sealed published declared & delivered by the said Elizabeth Whipp As & for her last will & Testament the day of the date hereof in the presence of

The marke of Alice Dugdale and Ellen Linton

Henry Arnold Scrivener

The marke of the said Elizabeth Whipp (Mark where she placed her seal)

Parish of St. Ethelburga

This will was probated 26 February 1645 in the presence of Robert Wyseman, Doctor of Laws, surrogate, by Hester Whipp, executrix, under oath.

#### **4. Conclusion**

To conclude, I hope to have shown on the example of the three genres from the Early Modern English period, i.e. courtroom records, depositions and wills, that the question asked in my title "How bad is bad data" can be answered "Not too bad", provided that data with an appropriate amount of orality is selected. Then it provides not only linguistic information about the discourse of the past, but additionally introduces us into the world of the Early Modern English society and provides rich historical and socio-cultural information.

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## The 3<sup>rd</sup> Person Singular Exception in Slavic

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In many Slavic languages, the 3<sup>rd</sup> person Sg represents an exception with regard to the sequence of object clitics and auxiliaries (1); the deviation from the otherwise canonical order of Auxiliary + Clitic (a) to Clitic + Auxiliary (b) is obligatory, it appears automatically and can lead to interesting syntactic and phonological effects, as shown in (1’);

(1) Slovenian:

- a) 1.P. *Videl sem ga.*  
ppa m aux1 cl. Him  
‘I have seen him.’
- b) 3.P. *Videl ga je.*  
ppa m cl. him aux3  
‘He has seen him.’

(1’)

- a) 1.P. *Videl sem GA.*  
ppa m aux1 cl. Him  
‘I DID see him.’
- b) 3.P. *Videl ga JE.*  
ppa m cl. him aux3  
‘He DID see him.’

Although this positional irregularity is acquired as a self-evident property within the paradigms and references to its existence may be found somewhere, there is still no corresponding explanation available in relation to its origin, nor can we point to a specially significant linguistic interest in this respect. Three recent approaches will be presented and discussed within the scope of this consideration, aiming to explain the exceptional position of the 3<sup>rd</sup> Person Sg within the paradigmatic system in Slavic, mainly based on historical material found in several Slavic languages; whereas Bošković refers to its phonological nature, Phomola tries to derive its origin from a reconstructed stage of morphological underspecification in older Eastern and Church Slavic, referring additionally to archaic constructions of some West Slavic dialects, and Migdalski associates it with the third person auxiliary as a number marker on the base of a syntactically motivated change with evidence from Polish and South Slavic. However, the 3<sup>rd</sup> Person Singular exception does not seem to be an isolated phenomenon in Slavic, in general; in many other languages and language families, the 3<sup>rd</sup> Person (Sg) is more likely to be associated with quite numerous irregularities, when compared to the rest of the paradigms (Dvořák) – a fact leading to the speculation that it often represents an older stage of conjugation, eventually based on the connection of what could be considered as the very origin of the inflectional categories at the interface of the nominal and verbal systems (Haudry). The discussion will also apply to concomitant phenomena of the 3<sup>rd</sup> person-irregularity in several Slavic languages, including the reflexive and other copulaless constructions.

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# **Language history meets typology: Relevance-driven Change in German Verbs**

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This article discusses morphological changes undergone by German verbs over the course of the language's history and demonstrates that Bybee's (1985, 1994) relevance principle, which was originally established for synchronic purposes, may be applied to diachronic data as well. It will be shown that after many centuries of only phonological changes, dramatic morphological changes took place in the Early New High German period, starting with the formal weakening of the less relevant verbal categories (person and number) and ending with the strengthening of the most relevant ones (mood and tense). Strengthening the tense category can be considered the most important process through the history of grammatical change in German in contrast to other Germanic languages. Thus, there is a strong interdependency between language history and language typology in the sense of a "dynamicization of typology" (Croft 1990: 203ff).

## **1 Determinants of Inflectional Expression: Relevance and Generality**

Bybee (1985) investigated a sample of 50 typologically different languages that were neither genetically nor geographically related. In her attempt to find out how these languages expressed grammatical meaning, focused on verbal categories. The most common verbal categories in the languages of the world are person, number, mood, tense, aspect, voice, and valence. We will concentrate on the four different inflectional

categories found in German: person, number, mood, and tense. Aspect is expressed periphrastically, not through verbal inflections. The order of the different affixes is governed by two semantic principles, relevance and generality:

A meaning element is **relevant** to another meaning element **if the semantic content of the first directly affects or modifies the semantic content of the second**. If two meaning elements are, by their content, highly relevant to one another, then it is predicted that they may have lexical or inflectional expression, but if they are irrelevant to one another, then their combination will be restricted to syntactic expression.” (Bybee 1985: 13)

Number and person are less relevant to the verbal action than other categories, as they only refer to the agent(s) and not the action itself. Furthermore, both categories are usually expressed through the nominal or pronominal subject of the sentence. Therefore, Bybee calls them “agreement categories” (Bybee 1985: 28). In contrast, tense and aspect refer to the temporal structure of the action, either externally (tense) or internally (aspect). They are highly relevant to the lexical stem and are therefore usually expressed closer to the stem than the other two categories. The following quotation emphasizes diagrammatic iconism, which refers to a correlation between meaning and form, i.e. the closer in meaning two categories are, the closer to each other the forms expressing them will be: “The degree of relevance predicts the likelihood of lexical or derivational expression of the grammatical category, the order of affixes with respect to the stem, and the degree of morphophonological fusion between the gram and the stem” (Bybee et al. 1994, S. 22). Before we turn to the different types of expression, we will present the second principle, generality:

The second factor that needs to be taken into consideration in determining what can be an inflectional category is *lexical generality*. By definition, an inflectional category must be applicable to all stems of the appropriate semantic and syntactic category and must obligatorily occur in the appropriate syntactic context. In order for a morphological process to be so general, it must have only minimal semantic content. If a semantic element has high content, i.e. is very specific, it simply will not be applicable to a large number of stems“ (Bybee 1985: 16/17)

Person and number express minimal semantic information; they only provide information about the number of agents and whether the agent is the speaker, the hearer,



is so relevant that it is mostly expressed derivationally in German using special prefixes (which include many allomorphs) such as *er-*, *ver-*, *ein-* and *aus-*, e.g. *blühen* 'to bloom, to be in flower', *erblühen* 'to start blooming', *verblühen* 'to wither'. The main difference between derivation and inflection is the degree of obligatoriness of the category and predictability of the meaning of the whole word based on its parts. Both criteria are less valid in the case of derivation. Other ways to express aspect in German are periphrastic constructions (which belong to the “free grammatical” category) such as *anfangen*, *etwas zu tun* 'to start doing sth.', *dabei sein*, *etwas zu tun*, 'to be doing sth.', *aufhören*, *etwas zu tun* 'to stop doing sth.'. Whereas Bybee primarily considers the degree of fusion (located on the syntagmatic level), allomorphy (located on the paradigmatic level) seems to be linked with relevance as well.

## 2.2 Token frequency

We will now turn to the last factor that influences the relation between meaning and form: the role of token or text frequency. There are two types of token frequency. One is lexical frequency, which is the frequency of a stem expressing the lexical meaning, such as *geb-* 'give' in NHG. *geben* 'to give' which is the twelfth most frequently used verb (including auxiliaries and modals). A similar idea can be expressed by *überreichen* 'to hand over', whose lexical frequency is very low. The other is category frequency, which is the frequency of a grammatical category. It is self-evident that the present tense is used more frequently than the past tense or even the future tense. Since high token frequency usually correlates with short forms, zero expression is typically found in present tense forms. Although they are completely unrelated, both types of high token frequency have the same effect as high relevance: a higher degree of morphophonological fusion (with suppletion as an extreme) and to shorter forms. This impact is best seen by considering the past tense forms of two superficially similar verbs, NHG. *beben* 'to tremble, quake' and *geben* 'to give', *beben* being rather infrequent compared to *geben*. It is no accident that *beben* belongs to the (generally less frequently occurring) weak verbs that add a special preterite suffix to the stem, whereas *geben* belongs to the strong verbs that form their preterite through a stem vowel change (ablaut), see Figure 3.

Figure 3: The different preterites of NHG *beben* 'tremble' and *geben* 'give'

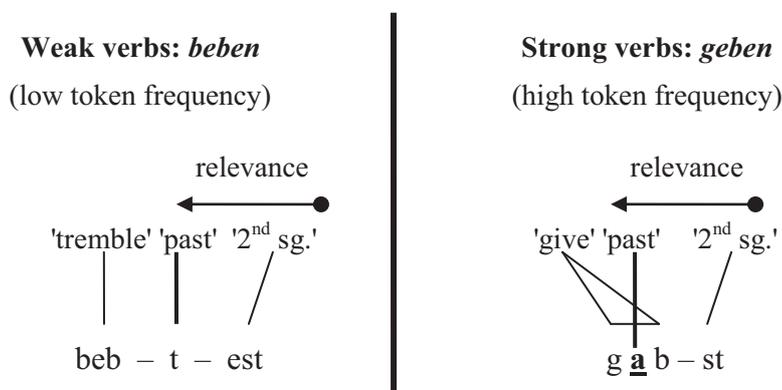


Figure 3 shows that the past tense morpheme, which has the same (high) degree of relevance in both verbs, is realized as a separate suffix in the case of the less frequently occurring *beben* 'tremble', whereas the same morpheme is completely integrated into the stem in the case of *geben* 'to give'. As a direct consequence, the preterite of *geben* is shorter than that of *beben*: the former is *gab* (one syllable) and the latter is *bebte* (two syllables). This is a consistent difference between strong and weak verbs. In contrast, the less relevant person/number information follows the tense information as a suffix in both cases. Interestingly, only in the case of weak verbs does *-(e)st* '2<sup>nd</sup> sg.' have to be realized as a syllabic allomorph, *-est*, after [t] (*macht-est* 'you made'); this is not obligatory in the case of strong verbs ending in [t], where a non-syllabic *-st* may follow, c.f. *riet-st* '(you) guessed' and *riet-est* (from *rat-en*, strong verb). This option does not exist for weak verbs (*\*macht-st*).

### 3 German Language History: The Weakening of Less Relevant Categories and the Strengthening of More Relevant Ones

In order to understand the dramatic morphological changes that have occurred since the Early New High German (ENHG) period (1350-1650), it is important to know that for many centuries German language change consisted solely of phonological changes that disturbed, disordered and even destroyed morphology. In the Old High German (OHG) and Middle High German (MHG) periods, extending from the eighth to the fourteenth century, the most important changes were phonological in nature and they were quite often reductive. Only three of them will be mentioned here:

a) fronting (i-umlaut): every velar vowel was fronted when followed by a syllable containing [i(:)] or [j], e.g. OHG (*du*) *bund-i* 'you (2<sup>nd</sup> sg.) bound' > (*du*) *bünd-i* > MHG/ENHG *bünd-e*. This phonological rule led to the integration of 2<sup>nd</sup> sg. markers into the stem. At the end of the MHG period, number and person information were integrated into the stem, leading to an inappropriate position according to Bybee's principles.

b) reduction and even loss of unstressed vowels (syncope, apocope): in many cases this reductive sound law led to the loss of morphological information.

c) Due to many assimilations, the rather regular ablaut system of strong verbs lost its transparency and became opaque. An example is the OHG verb *queman* 'to come', which belonged to the fourth ablaut class and underwent a singular assimilation: the *e* was rounded to *o* due to a preceding [w] which later disappeared: *q[w]eman* > \**q[w]oman* > *koman* > NHG *kommen*. This exceptional assimilation produced a unique ablaut pattern that isolated this verb from the former system of seven ablaut classes. So far, no analogical levelling has taken place. Such singular developments occurred with many strong verbs.

### 3.1 Weakening of Person and Number

Centuries of phonological change had a destructive effect on morphology. Not until the beginning of the ENHG period did morphological restructurings and improvements begin. These are displayed in Figure 4, which provides an overview of the most important verbal changes in the history of German. To some extent, it is like a chain reaction going from right to left.

Please insert Figure 4: Overview of the relevance-driven weakening and strengthening of verbal categories in German

For lack of space, we will only discuss three categories: person, number, and tense. For the development of mood and aspect, see Nübling/Dammel (2004). What is most important is the fact that this process of relevance-driven reordering starts with the least relevant category, person. The 2<sup>nd</sup> sg. category even affected the stem vowel of the lexematic root due to umlaut, as in MHD *bünde* '(you) bound', which was shown above. On the one hand, this category formally behaved like an extremely relevant one; on the other hand, it could be expressed through three different, morphologically conditioned allomorphs depending on inflection class (Table 1).

Table 1: Weakening of person by reducing allomorphy: 2<sup>nd</sup> person singular

	2 <sup>nd</sup> person singular		
inflection class/ category	strong verbs/ past tense	preterite present verbs present tense	elsewhere
MHG allomorphs	{ <b>ablaut in pl., umlaut + -e</b> } <i>(du) b<u>ü</u>nd<u>e</u></i>	{ <b>-t</b> } <i>(du) wil<u>t</u></i>	{ <b>-st</b> } <i>(du) gib<u>st</u></i>
NHG morpheme (uniform)	{ <b>-st</b> } <i>du band(e)<u>st</u>, will<u>st</u>, gib<u>st</u></i>		

In NHG, only *-st* remains, as can be seen in the last row of Table 1, and stem vowel changes have been abolished. Thus, allomorphy was replaced by a uniform suffix following the stem and, in the case of weak verbs, the preterite marker *-t-*: *(du) mach-est* '(you) made'.

As a consequence of the change from MHG *bünde* > ENHG *band(e)st*, strong verbs acquired an unchanging singular stem in the preterite, and this can be interpreted as an (automatic) strengthening of number because it led to a clear-cut opposition, of number ablaut as can be seen in Table 2.

Please insert Table 2

Table 2: The Upgrading and Downgrading of Number in ENHG

past		MHG (11 <sup>th</sup> -13 <sup>th</sup> cent.)	ENHG (14 <sup>th</sup> -17 <sup>th</sup> cent.)	NHG (18 <sup>th</sup> cent.-today)
Sg.	1.	<i><b>bant</b></i>	<i><b>band</b></i>	<i><b>band</b></i>
	2.	<i>b<u>ü</u>nd-<u>e</u></i>	<i><b>band-(e)st</b></i>	<i><b>band-(e)st</b></i>
	3.	<i><b>bant</b></i>	<i><b>band</b></i>	<i><b>band</b></i>
Pl.	1.	<i>bund-en</i>	<i>bund-en</i>	<i><b>band-en</b></i>
	2.	<i>bund-et</i>	<i>bund-et</i>	<i><b>band-et</b></i>
	3.	<i>bund-en</i>	<i>bund-en</i>	<i><b>band-en</b></i>
		no clear system (plural relatively homogenous)	weakening of person > strengthening of number (clear number ablaut): <i>b<u>ü</u>nd</i> vs. <i>b<u>u</u>nden</i>	weakening of number (levelling) > strengthening of tense: <i>b<u>ü</u>nden</i> vs. <i>b<u>u</u>nd</i> vs. <i>geb<u>u</u>nden</i>

This ENHG number opposition was, however, soon eliminated by the number levelling that occurred in the preterite forms of the strong verbs. This was a far-reaching and very important morphological change that marks the boundary between ENHG and NHG (Solms 1984, Chrita 1988, Nübling 1999). In the case of the (third) ablaut class of *binden* 'bind', it was the 2<sup>nd</sup> ablaut stage (used for the singular) that was generalized - in the case of other ablaut classes, it was the 3<sup>rd</sup> ablaut stage (used for the plural). In every case, ablaut thus became a mono-functional marker of tense (c.f. Wurzel 1994). This restriction of ablaut stem alternation to tense alone led to an indirect strengthening, or upgrading, of this category.

### *3.2 Strengthening of Tense*

Thus, there are at least three ways of strengthening tense that have already been mentioned and will be summarized here:

(1) number levelling in the preterite forms of the strong verbs, as indicated in Figure 4 by the arrow starting at number and ending at tense; this upgrading of tense resulted from a downgrading of number and is therefore part of the above mentioned chain reaction. Tense was concentrated in the root of the verb, whereas number and person were moved from the root to the periphery: they were realized before the root as obligatory subject pronouns, and behind it as person/number endings.

(2) mono-functionalization of a tense marker: Since ablaut was no longer used as a number marker, it developed into a mono-functional tense marker. The use of an exclusive marker, which is furthermore closely integrated into the lexical stem, has to be considered a strengthening of the category affected, which is tense;

(3) the splitting up of the ablaut classes from only seven in OHG to more than 40 in NHG (Augst 1975, Hempen 1988). Interestingly, in most cases, it was phonological change that led to a dramatic increase in allomorphy. This huge amount of allomorphy was tolerated or even used by not being levelled out morphologically. This process is independent from other morphological developments and therefore indicated by the long arrow at the bottom to the word "Tense" in Figure 4. We consider allomorphy to be an indicator of high relevance (see Figure 2) because the same information can be expressed through different affixes. Thus, high relevance correlates with at least two formal phenomena: on the syntagmatic level, with closeness and even fusion of (at least) two semantic units, and on the paradigmatic level with allomorphy. It is no coincidence that it was the tense category that was strengthened this way and that it is the most frequently used strong verb class affected by this process. As can be seen in

Figure 3, the less frequently used weak verbs do not show this degree of fusion and allomorphy. Thus, token frequency is a very influential factor in explaining morphology. Interestingly, the aspect category has not survived as an inflectional category, and this distinguishes German from the other Germanic languages (see Nübling/Dammel 2004: 198/199). Finally, mood is a rather relevant category which has been strengthened (in the case of strong verbs) as well as weakened (in the case of weak verbs) in German language history. Further details can be found in Nübling/Dammel (2004).

#### **4 Summary**

The diachronic development of German verb inflection strongly confirms the validity of the morphological parameters described by Bybee (1985, 1994) and Bybee et al. (1994) for typological purposes: relevance, generality, token frequency and their correlation with special types of expression. Structures that are most widespread typologically are reconstructed and restored if phonological change has had a destructive influence on morphology. This was the situation at the beginning of the fourteenth century in German. It has been shown that chronologically, the process of “repair” started with the least relevant category and ended with the most relevant one. Furthermore, it was shown that there is a complex interdependency between these processes: The weakening of one category can indirectly lead to the strengthening of another.

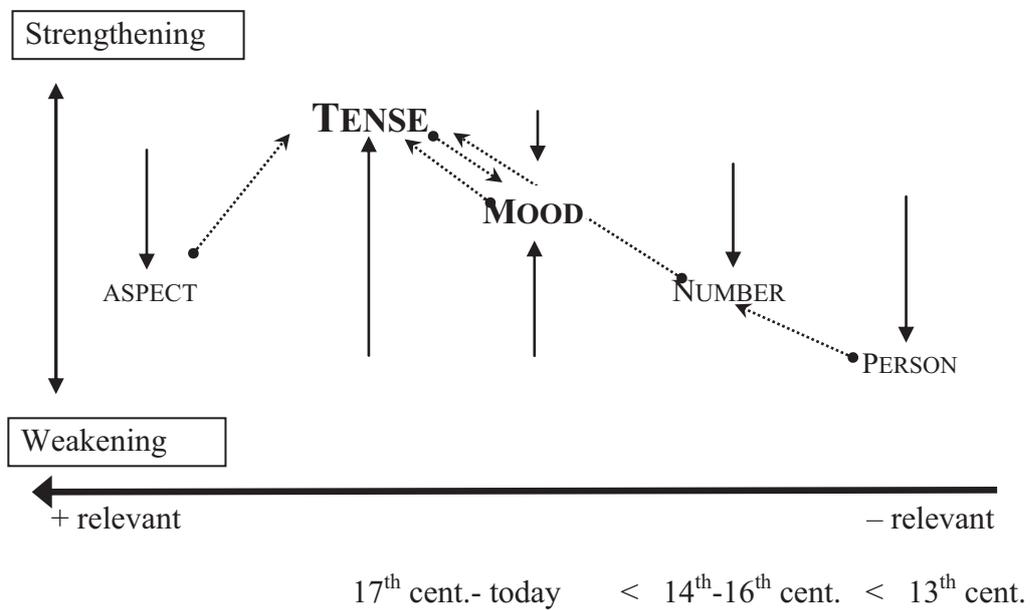
Of course, it is obvious that synchronic structures must have arisen historically. Such cases (as for example the dental suffixes of weak verbs) are often discussed from a grammaticalization perspective: it is shown that syntactic units are ordered according to relevance considerations even before they are morphologized (c.f. the position of subjects and objects near the verb). In contrast, the aim of this paper was to show that pre-existing morphological information can be reordered according to typologically principles related to the frequency of different structures, and how that happens.

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Figure 4: Overview of the relevance-driven weakening and strengthening of verbal categories in German



# English word-formation, combining forms and neo-classical compounds: a reassessment<sup>1</sup>

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## Abstract

The constituents of formations such as *astr-o-naut*, *agr-i-culture*, *galvan-o-scope*, *phon-o-logy* etc. have been termed "combining forms" and "terminal elements" in the *OED*. However, the *OED* did not provide any criteria on the basis of which these elements could be distinguished from affixes, stems or clipped lexical items. Consequently, the notion of "combining forms" remained diffuse and controversial. In the present paper it will be suggested that this "category" is not really needed, and that a cline of increasing boundness (dependence) with genuine word-based compounding, stem-compounding, affixation, clip-compounding and blending as prototypical processes, needed outside the combining form domain, is sufficient to account for these formations. This is based on the assumption that English word-formation not only involves word-based but also stem-based processes.

**Keywords:** affixation, blending, clipping, clip-compound, combining form, compounding, lexeme, linking vowel, stem, stem formative, terminal element, word form, word

## 1. Introduction

It is estimated that about 70 % of the English vocabulary as recorded in the *Oxford English Dictionary (OED)* are loans, the lion's share coming from French, Latin and Greek and what has been called Neo-Latin, i.e. the variety of Latin used as *lingua franca* in the Middle Ages and the Renaissance, which was a mixture of Latin and Greek vocabulary. This massive borrowing has resulted in the incorporation of non-native word-formation patterns into English. Of the 66 prefixes listed in Marchand (1969), 56 are of non-native origin, and of the 81 suffixes, 48 are foreign, i.e. both prefixation and suffixation is more foreign than native. These patterns have been assimilated – i.e. nativised – to various degrees, which has resulted in a heterogeneous morphological system (cf., e.g., Marchand 1969: 5-8, 131-134, 215-220; Kastovsky 1994) with fuzzy edges between native, nativised and non-native patterns. Thus, e. g. the loan suffix *-able* operates at the native level in forms such as (1 a) without morphophonemic alternation, but at a non-native level with stress shift and morphophonemic alternation in (1 b):

- (1) a. *lovable*, *desirable*, *ad'mirable* /æd'maɪrəbl/ (< *ad'mire*), *navigatable* (< *navigate*)  
b. *'admirable* /'ædmɪrəbl/, *navigable* (< *navig(ate)*)

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<sup>1</sup> I would like to thank Hans-Jürgen Diller and the participants in the Historical Section for helpful comments, and Corinna Weiss also for her help with some of the sources.

A neat, categorical separation of these morphological levels as is proposed in some varieties of lexical phonology is therefore rather problematic, cf. also e.g. Dalton-Puffer (2002).

A similar demarcation problem, also connected with the borrowing of non-native word-formation patterns, arises with formations such as those in (2):

- (2) a. *astr-o-naut, cosm-o-naut, Mars-naut, astr-o-physics, astr-o-bio (expert), bio-sphere, noo-sphere, agr-o-chemical, agr-i-culture, patr-i-cide, galvan-o-scope, Amer-i-phile*;  
b. *hyper-active, hyper-super-fast, hyper-aemia, omn-i-'present, omn-'i-scient, super-natural, extra-ordinary, ex-o-centric, mult-i-parous, pol-i-geny*;  
c. *diamond-i-ferous, hepat-itis, wakeup-itis, Winston-Churchill-itis, slug-fest, tech-talk-fest, astr-o-logy, phon-o-logy, ex-o-bio-logy, poly-logue, megal-o-mania, star-mania, scribble-mania*.

These are partly established lexical items listed in dictionaries, and partly neologisms collected primarily from science fiction novels, the latter illustrating the productivity of the processes involved, and also demonstrating that not only Neo-Latin elements are involved, cf. *slug-fest, talk-fest*.

It is such formations that will be the subject of this paper. Their constituents have been called "combining forms" and "terminal elements" by the *OED*, but the status of such formations and their constituents is far from clear and has been the subject of extensive controversy. In (2 a), the formations overlap with compounding, in (2 b) with prefixation, and in (2 c) with suffixation, and attempts to find criteria for a delimitation of combinations containing combining forms and these other word-formation processes (cf., e.g., most recently Prčić 2005, 2007, 2008) have so far not been very successful.<sup>2</sup>

The terms "combining form" and "terminal element" apparently go back to the *OED*, or, rather, the *New English Dictionary (NED)*, as it was originally called, and have been adopted by many scholars dealing with English word-formation as a viable descriptive device. Any criticism of these categories should of course bear in mind that they were proposed when morphological theory was in its infancy. Thus, although notions such as prefix, suffix, stem were used in the *NED*, there were no really precise definitions of these morphological categories beyond that of classical Neogrammarian philology, the then current theoretical framework, which had a profoundly historical bias (cf. Kastovsky 2000). The constituents of formations like those illustrated in (2) did not really fit these traditional categories, which is why the fathers of the *NED* invented the – unfortunately undefined – categories of "combining forms" and "terminal elements", without providing a systematic delimitation from notions such as "word", "stem", "prefix" or "suffix". After more than a century of research in derivational morphology it might therefore be high time to re-assess the usefulness of these categories and either come up with a more precise definition and delimitation of them, or decide to discard them as unsatisfactory red herrings. It is the latter stance that will be taken in the following.

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<sup>2</sup> For a more detailed review of Prčić's approach, cf. Kastovsky (in press b).

## 2. Problems with combining forms

2.1. The most serious problem with these foreign elements termed "combining forms" or "terminal elements" is their delimitation from any of the other types of constituents such as stem or affix, which in the *OED* was rather unsystematic and arbitrary, cf. the following quotations from the *OED* (1989 edition; emphasis D.K.):

- (3) *Astro*-[...] repr. Gr. *ἀστρο-* **stem and comb. form** of *ἀστρον* 'star'...  
*Bio*- [...] repr. Gr. *βίο-* **stem and comb. form** of *βίος* 'life, course or way of living'...  
*Neo-* **combining form** of Gr. *νίος*, new [...] common in recent use as a **prefix** to ads. and sbs.  
*Micro-* [...], before a vowel *micr-*, repr. Gr. *μικρο-*, **combining form** of *μικρός* small, used chiefly in scientific terms.

Obviously, there was no systematic principle behind the classification of such elements as combining forms or affixes, cf. the dual affiliation assignments with *astro-*, *bio-*, and *neo-*. This is corroborated by a comparison with the classical handbook on English word-formation by Marchand (1969), which attempts a more rigorous definition of categories such as word, affix, etc. There, neither *astro-* nor *bio-* show up, whereas *micro-* and *neo-* do, but are listed as prefixes. Nevertheless, all four of them are regarded as "combining forms" by the *OED*, and would thus seem to have equal status, except that *neo-* is "common in recent use as a prefix", i.e. is classified both as a combining form and as a prefix. We may therefore want to ask: "what is it – a combining form or a prefix, or are prefixes identical with combining forms and vice versa?" This indeterminacy is of course not really surprising when one realises that the original *NED* edition did not contain any definition of "combining form" and also did not list it as a lexical entry. It is only in the 2nd edition of 1989 that we find a lexical entry for "combining form" with an appropriate quotation, cf.

In Latin and other languages, many words have a special combining form which appears only in compounds (or only in compounds and derivatives). [...] The foreign-learned part of the English vocabulary also shows a number of special combining forms; cf. *electro-*, combining form of *electric*, in such compounds as *electromagnet*. (*OED*, 2nd ed.1989, CD-Rom version 2004, s.v. *combining*, vbl.n.)

It is a noteworthy curiosity that the quotation is from Bloch & Trager (1942), a popular introduction to linguistics at the time, which apparently captures the practical *OED* use of the term, but does not provide specific criteria for delimitation and identification either, but at least attempts a definition of the term. Since the *OED* usually provides the earliest quotation of the respective entry, it should have quoted itself.

In the *Shorter Oxford English Dictionary* (Brown 1993), we find the following entry, but also without any more specific criteria for delimitation and identification: "a form of a word used (only) in compounds, as *Indo-* repr. *Indian* in *Indo-European*" (*Shorter Oxford English Dictionary*, s.v. *combining*, Comb. *combining form*).

2.2. It is not surprising, therefore, that Marchand in his handbook (Marchand (1969) criticised the relatively unsystematic practice of the *OED* as exemplified in (3); but, unfortunately, he was far from consistent either, as the following examples show. Thus, with regard to morphemes such as *ante-*, *extra-*, *intra-*, *meta-*, *para-*, etc., he says:

The patterns of coining are Neo-Latin (though some of the types are already Old Greek or Ancient Latin). With these **particles** [my emphasis] there is a practical difficulty. They may represent 1) such elements as are prefixes [...] in Latin or Greek, as **a-** (*acaudal*, etc.), **semi-** (*semi-annual*), 2) such elements as exist as prepositions or particles with an independent word existence, as **intra**, **circum** / **hyper**, **para**, 3) such as are stems of full words in Latin or Greek, as **multi-**, **omni-** / **astro-**, **hydro-**. This last group is usually termed 'combining forms' (OED, Webster). In principle the three groups are on the same footing from the point of view of English word-formation, as they represent loan elements in English with no independent existence as words. That **macro-**, **micro-**, and others should be termed combining forms while **hyper-**, **hypo-**, **intro-**, **intra-** and others are called prefixes by the OED, is by no means justified

Only such particles as are prefixed to full English words of general, learned, scientific or technical character can be termed prefixes. [...] We cannot, however, undertake to deal with all the prepositive elements occurring in English. Such elements as **astro-**, **electro-**, **galato-**, **hepato-**, **oscheo-**, and countless others which are used in scientific or technical terminology have not been treated in this book. They are of a purely dictionary interest in any case. In the main, only those particles have been considered that fall under the above groups 1) and 2). But we have also included a few prefixes which lie outside this scope, as prefixes denoting number (**poly-**, **multi-**), the pronominal stem **auto-** [...] and particles which are type-forming with English words of wider currency (as **crypto-**, **neo-**, **pseudo-**) (Marchand 1969: 131-132).

Thus, on the one hand he criticises the *OED* for treating elements like *a-*, *semi-* (= original prefixes) and *intra-*, *hyper-* (= original particles) as against *multi-*, *astro-* (= original stems) as different categories, viz. as affixes and combining forms. According to him, these should all have the same status in Modern English, viz. they should be treated as foreign bound forms. On the other hand, his "practical" solution is not consistent either. Thus, he regards as prefixes only such particles as are prefixed to "full English words" and excludes elements like *astro-*, *electro-*, *galato-* *hepato-*, *oscheo-*, etc. from treatment in his book because they are of a "purely dictionary interest" – a questionable argument in view of their frequency, at least in certain registers. But then he includes among the prefixes elements such as *poly-*, *multi-*, *auto-*, *crypto-*, *neo-*, originally either prefixes, stems or particles, all of which are subsumed under combining forms in the *OED*.

The same is true of Marchand's treatment of suffixes. Here the category of combining form again crops up, this time in the guise of the *OED*'s "terminal elements", which have either been "suffixes in Greek or Latin" or "such final elements as are really second-words of Latin respectively Neo-Latin compounds" (Marchand 1969: 218ff.).

Clearly, Marchand's main criterion is whether these elements – prefixes or suffixes – can "be prefixed [or suffixed, D.K.] to **full words** without, however, being

**independent words** themselves in English" (Marchand 1969: 132 [my emphasis]). It is this exclusively word-based analysis which creates the classification problem. This can be solved by accepting a non-native stem-based type of word-formation alongside the native word-based type, as will be shown in the next section.

The same problems, incidentally, also arise in Stein (1978), Bauer (1983), and Plag (2000), who recognise the problems involved in Marchand's treatment of these formations, but do not question the legitimacy of the category "combining form" and consequently cannot really provide a viable alternative.

Let me just mention that the distinction between combining forms and terminal elements has now been replaced by the distinction between "Initial combining forms" (ICF) and "Final combining forms" (FCF), introduced by Bauer (1983). Bauer himself in a later article (Bauer 1998), however, voices some doubts as to their status: although basically accepting the categories as such, he views them as having something in common with compounding on the one hand, and blends on the other, a position that I will extend below to a scale of free and dependent elements in word-formation, which makes the category of "combining form" superfluous.

2.3. The most recent attempt to come to terms with the category of "combining forms" is a series of papers by Prčić (2005, 2007, 2008), who has tried to establish criteria that supposedly allow a neat separation of combining forms and affixes. These are: (1) Category membership, (2) Distinctive form, (3) Co-occurrence restrictions, (4) Syntactic function, (5) Head-modifier relation, (6) Semantic meaning, (7) Morphosemantic patterning, (8) Productivity.

The net result of this attempt, however, is that Prčić has to admit that there is no hard and fast boundary between prefixes and ICFs, because these criteria always apply to a greater or lesser degree. Moreover, many of the criteria are problematic in themselves, for which cf. Kastovsky (in press b). Ultimately, the reason for this indeterminacy is the heterogeneous origin of the "combining forms", which go back to

- (4) a. Latin/Greek stems with and without stem-formatives or linking elements (as in *astr-o-naut*, *astr-o-logy*),
- b. curtailed stems (*Eur-asia*, *Eur-o-crat*),
- c. particles (*hyper-active*),
- d. affixes (*a-moral*).

### **3. The independent/dependent scale and morphological typology: a solution**

3.1. In view of these problems, and especially the heterogeneous source of the "combining forms", it is arguable that this category as a synchronic cover-term creates more problems than it solves. Instead, I will propose that notions such as compounding, affixation, clipping, and blending are sufficient to take care of these formations. These word-formation processes should be regarded as prototypical patterns arranged on a scale of progressively less independent constituents ranging from word via stem, affix, to curtailed words/stems to so-called splinters (cf. Lehrer 1998), i.e.

- (5) compounding (word) > stem compounding (stem) > affixation (word-/stem-based)  
> clipping compounds (clippings) > blending (splinters)

This scale interacts with the typological heterogeneity of the English word-formation system. I assume that one of the factors that characterise the typological status of a morphological system is the morphological status of the input to morphological processes, which need not necessarily be homogeneous (cf. e.g., Kastovsky 1992, 1994, 2006). In this respect, we can distinguish three types of input which represents a lexical item or "lexeme" as the starting point of inflectional and derivational processes.

3.2. The central notion in this framework is the "lexeme", which has now been adopted by many European morphologists instead of "word" as a cover term for more specific morphological representations, because of the ambivalence of the latter. Following Matthews (1974) and Lyons (1977), this can be defined as:

- (6) Lexeme: a simple or complex dictionary entry, i.e. an abstract entity as part of the lexicon of a language, e.g. *DO*, *DOER*, *UNDO*, *HELP*, *HELPER*, *HELPLESS*, *CHILD*, *CHILDLIKE*, *CHILDBED*, etc.

Lexemes can have three different types of basic representations, viz. "word", "stem", or "root". These can be defined as follows:

- (7) Word: an independent, meaningful syntactic element, susceptible of transposition in sentences, i.e. a "free form"; it may be simple or complex, uninflected or inflected, and is thus the concrete realisation of a word-form in an utterance, e.g. *do*, *does*, *did*, *do-er(-s)*, *undo*, *help*, *help-s*, *help-er(s-)*, *or*, *the*, etc.
- (8) Stem: a word-class specific lexeme representation which cannot on its own occur as a word but has to combine with additional derivational and/or inflectional morphemes to function as a word, i.e. a "bound form". It may itself contain derivational affixes or so-called stem-formatives, which determine the inflectional category, cf. G *bind<sub>V</sub>-*(*en*, *-e*, *-est*, etc.), OE *luf<sub>V</sub>-*(*ian*, *-ie*, *-ast*, *-od-e*, etc.), *luf<sub>V</sub>-estr<sub>N</sub>-*(*e*) 'female lover', Mod. E. *scient<sub>N</sub>-*(*ist*) vs. *science*, *dramat<sub>N</sub>-*(*ic*) vs. *drama*, Lat. *am-ā<sub>V</sub>-*(*re*), *hab-ē<sub>V</sub>-*(*re*), where *bind<sub>V</sub>-*, *luf<sub>V</sub>-*, *dramat<sub>N</sub>-*, *am-ā<sub>V</sub>-*, *hab-ē<sub>V</sub>-* are stems.
- (9) **Root**: an element that is left over when all derivational, stem-forming and inflectional elements are stripped away, and which needs morphological material to become a stem, to which further morphological material has to be added for the stem to become a word. Such roots can either be affiliated to a particular word-class, or they can be word-class neutral. In this case the word-class affiliation is added by a word-formative process, cf. IE roots like *\*gVn-* (the source of L *genus*, *gignere*, *cognatus*, E *kind*, *cognate*), *\*mVd-* 'measure' (cf. OE *metan*), *\*CVd-* 'eat' (cf. OE *etan*), *\*wVr-* 'turn' (cf. Lat *uer-t-ere*, *uer-m*, OE *weor-þ-an*, *wyr-m*, etc.), or Semitic *k.t.b.* 'write'.

On the basis of this, we can distinguish three basic types of morphology: word-based, stem-based and root-based. For the present purpose, only the first two are relevant. Root-based morphology seems to have been the characteristic feature of the Indo-European parent language, but was replaced by stem-based morphology in the various daughter languages.

Note that I use the terms "stem" and "root" in a specific way, which is geared to the history of the IE languages. Thus, as has just been stated, IE at some stage was root-based and needed morphological material to build stems – the so-called stem-formatives or other derivational material – to which then the actual inflectional nominal or verbal endings were added to form words. In the later stages of the IE languages, root-based morphology was superseded by stem-based morphology, since the stem-formatives were gradually lost as distinctive entities, merging with the roots or the inflectional endings. This resulted in a bound stem followed by an inflectional ending. This state of affairs characterises among others the older Germanic languages (cf. Kastovsky 1992, 1996, 2006). At this stage, the distinction between roots and stems lost its relevance, and morphology became stem-based. Eventually, thanks to the progressive loss of inflectional endings, these languages gradually develop also a word-based type of morphology. This dominates in Modern English inflection, whereas German is still a mixture of stem-based and word-based morphology (verbs are stem-based while nouns and adjectives are word-based).

Unfortunately, there is quite a bit of terminological confusion, since the terms "stem" and "root" are often used interchangeably or in a different sense than used here, cf. among others Bauer (1983: 20-21; 1992: 252-253), Giegerich (1999) or Huddleston and Pullum (2002: 1624-1625). A more detailed discussion of this terminological problem is not really relevant to the present topic and will therefore not be attempted. Suffice it to repeat that I will use the term "stem" as defined in (8) for what some linguists might prefer to call "root" also with reference to English or German, i.e. for a lexical element which is bound and which can only occur as a word with additional inflectional or derivational morphological material. The term "root" will be restricted to the Indo-European parent language and will not play any role in the following.

3.3. Looking at English from this point of view, Old English inflection was both stem- and word-based. But in Modern English, inflectional morphology is purely word-based (save for some foreign plurals such as *alumn-i*, *phenomen-a*, *apendic-es*, etc.). This is due to the drastic loss of inflection since OE, which led to the emergence of an unmarked base form. This form can be used as a word in the above definition (7) without any morphological material having to be added. This also holds for word-formation on a native basis of coining, both as regards compounding and affixation, cf. *book*, *bookish*, *booking*, *bookstore*, *rebook*. The influx of French and in particular Latin and Greek loans in late Middle English and Early Modern English reintroduced stem-based derivational morphology again, because both inflectional and derivational morphology in these languages had been primarily stem-based, and the imported patterns preserved this property, unless they became fully nativised. Thus, a level of non-native stem-based word-formation was introduced. No clear-cut boundary exists between these levels, as has been mentioned at the beginning, cf. (1). The input to such formations are actual or potential stems of corresponding lexical items in the source languages or their adaptations in English. If two such stems are combined we get stem-

compounds instead of word-compounds, cf. (2 a). If they combine with affixes, we get stem-based affixation (cf. 2 b, c). We thus simply have to acknowledge the fact that English word-formation is not exclusively based on "full words", but on words and stems, the latter operating at the non-native level. There is no reason, therefore, to exclude formations such as *astr-o-naut*, *mult-i-parous*, *pol-i-gey*, *part-i-cide*, *galvan-o-scope*, *socio-logy*, *hepat-itis*, etc., from a treatment of English word-formation because of their non-word-based foreign properties, as Marchand has postulated. Such formations have become increasingly frequent in Modern English and therefore deserve to be regarded as part of the English (though non-native) system.

3.4. The notion of stem as used here needs some additional clarification in the light of the original situation in Greek, Latin and Neo-Latin. As all Indo-European languages, Greek and Latin were originally based on a tri-partite structure, viz. root + stem-formative + inflection. In derivational morphology, including compounding, the root (or first element of a compound) was followed by a stem-formative, as in *agr-o-nomia*, but also, at least in compounding, could also be followed by a composition vowel which goes back to an inflectional ending, as in *agr-i-cultura* (cf. Kastovsky forthcoming b), since this type of formation resulted from lexicalised phrases involving case marking. But in the course of time, the stem formatives as well as the original inflectional endings became opaque, in Latin more so than in Greek, and these morphological elements can no longer be identified with any inflectional material but have to be re-interpreted as linking elements functioning in the same way as the German "Fugenelemente" in *Universität-s-bibliothek*, *Liebe-s-heirat*, *Kind-er-garten*, etc. They were imported in the same function into English, where they show up even with native material, cf. *kiss-o-gram*, *speed-o-meter*, *Kremlin-o-logy*. Their distribution and the mechanism that triggers them still need systematic investigation.

3.5. It has always been recognised that native prefixes and suffixes have developed from first- and second-members of compounds (cf. *fore-*, *out-*, *-dom*, *-hood*, *-monger*, *-wise*), which results in a synchronic cline between compound constituents, semi-affixes (sometimes called "affixoids") and genuine affixes, cf. Marchand's (1969) analysis of *-like*, *-monger*, *-wise* as semi-suffixes. But the same kind of development happened to first and second members of non-native stem-compounds, whatever their origin, e.g. *neo-*, *crypto-*, *multi-* or *-logy*, *-nomy*, *-itis*, resulting in the same kind of cline between compounding and affixation as with native word-formation. There is thus no need for undefined terms such as "combining forms" or "terminal elements", once we treat the notion of "stem" as defined above as part of English morphology. The real problem that is at issue here, and that has rarely been thematised, is the demarcation of compounding and affixation, where synchronically a strict dividing line does not seem to exist. Rather we have to assume a cline both with regard to formal (phonological and/or morphological) and semantic behaviour. For the latter, a more refined definition of "lexically specific" (for words and stems) and lexically non-specific (= general, abstract, etc. for affixes) would be necessary. But whether such a distinction is really viable in view of the fact that affixes can have very specific meanings, cf. *-age* 'fee' in *anchorage*, *corkage*, and lexemes can have very general meanings like *thing*, *place* is arguable. In any case, this would be the task of a more systematic word-formation semantics, which is still a desideratum.

This solution postulating stem-based compounding and derivation works well for those instances where we can reconstruct a non-native stem as the starting point of the modern formation, as in *astro-naut*, *Mars-naut*, *Anglo-phile*, *audio-metry*, *bibliography*, *dramat-ic*, *scient-ist*, etc. But there is another category, where the foreign stem is shortened. Take the case of *Euro-* in *Eurocentric*, *Eurocrat*, *Eurocity* (*train*), let alone the *Euro* as the currency, where the shortened stem has become a lexeme. The classical stem is *Europ-(a)*, but this has lost its final consonant in the respective formations. Such shortenings happen with native lexemes as well and lead either to simple clippings or clipping compounds, sometimes also called stub compounds. Examples are:

- (10) *telegram* (*cable* + (*tele*) *gram*), *paratrooper* (*para* (*chute*) + *trooper*), *Amerindian* (*Amer* (*ican*) + *Indian*), *news stand* (*news* (*paper*) *stand*), *breathalyser* (*breath* + (*an*) *alyser*), *boatel* (*boat* + (*hot*) *el*), *guesstimate* (*guess* + (*es*) *timate*).

Such formations have to be analysed as consisting of one part which is the result of clipping, which is combined with another constituent having word status. There may also be a partial phonological overlap between the constituents as in *boatel*, *guesstimate*. Such compounds have become relatively frequent in the last decades. Again, we do not have to have recourse to a category "combining form" for their description, since clipping is a process also affecting simple lexical items such as *bus* < *omnibus*, *plane* < *aeroplane*, *taxi* < *taxi cab*, etc.

There are also instances where both parts are clipped, such as

- (11) a. *Chunnel* (*Channel* + *tunnel*), *motel* (*motor(ist)* + *hotel*),  
 b. *Oxbridge* 'the universities of Oxford + Cambridge', *transceiver* 'transmitter + receiver'

Such combinations again are rather heterogeneous. On the one hand, they echo the structures of compounds: thus *Chunnel*, *motel* are clipped versions of determinative compounds, i.e. the *Chunnel* is basically a *tunnel* operating underneath the *Channel*, and a *motel* is basically a *hotel* for *motorists*. *Oxbridge*, *transceiver* are clipped dvandva compounds, which denote a combination (union) of the respective referents, as in *Austro-Hungary* 'an entity which consists of both Austria and Hungary', *concavo-convex* 'having the property of being both concave and convex', similarly G *taubstumm* 'deaf-mute'. This compound type is an innovation in English, which was borrowed from Latin and Greek (cf. Hatcher 1951), because English had lost this old Indo-European compound type. In OE there are two examples, *apumswerian* 'son-in-law and father-in-law', *suhtorfædran* 'nephew and uncle', which also have to be interpreted as 'entity which consists of x and y', but otherwise the type was dead. The combinations in (11) are often regarded as examples of "blending", defined as "merging parts of words into one new word", e.g. by Marchand (1969: 451), who puts them together with

- (12) *smog* = *sm-(oke)* + (*f*)-*og*, *brunch* = *br-(eakfast)* + (*l*)-*unch*, or Lewis Carroll's *Jabberwocky* words *slithy* (*slimy* + *lithe*), *chortle* (*chuckle* + *snort*), etc.

But there is a difference between (11) and (12). The combinations in (11 a) follow the usual determinant/determinatum schema of determinative compounds, except that both constituents are clipped, i.e. a *Chunnel* is basically a *tunnel*, etc. The combinations in (11 b) resemble exocentric compounds such as *hunchback*, *paleface*, where the determinatum is not overtly part of the formation itself and might be interpreted as zero, i.e. *paleface/Ø* = 'someone (= Ø) having a pale face'. Similarly, *Austro-Hungary* can be interpreted as 'entity (= Ø) which consists of both Austria and Hungary'. But none of these interpretations applies to (12). These formations usually denote a referent which is a mixture or crossbreed of the referents of the constituent lexemes and therefore constitute real blends. They have no direct counterpart in compounding and represent the endpoint of the scale suggested in (5) above. Such formations seem to be a relatively recent development, which extended the range of compounding considerably.

#### 4. Conclusion

To sum up: I have tried to show that the notion of "combining form" introduced by the *OED* is not necessary. The categories of "word", "stem", "affix", "affixoid", "clipping" and "blending" necessary in word-formation for independent reasons are sufficient to deal with the formations in question. Therefore, the notion "combining form" is something like a red herring in lexicology, because it creates more problems than it solves and should therefore be given up

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# The Role of Prosody and Morphology in the Evolution of *C'est-clefts* in Medieval French\*

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## Abstract

We will discuss the evolution of *c'est-clefts* in medieval French and the consequences of their development on the grammar of French. We will show that *c'est-clefts* can be found as early as the 12<sup>th</sup> c. and examine the impact of the loss of word stress and concurrent morphological changes in their evolution. The OF form *ce sui je* became *c'est moi* in Middle French and a similar evolution was noted in Middle English where *it am I* was replaced by *it is I* and finally by *it is me* and yet English has kept word stress. We are proposing that the development of clefts is not only related to prosodic factors but also to due to changes in morphological features that occurred in French during the Middle Ages.

**Keywords:** cleft; focus; prosody; morphology; Medieval French

## 1. Introduction

In this paper we address the problem of the evolution of cleft sentences in Old French. We examine the role of word stress languages and conclude that there is no direct link between the loss of V2 in Old French and the rise of cleft constructions in

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*c'est ... qui, c'est ... que.* We give a brief description of the stress system of Old French.

Note that since cleft sentences are found in texts of early Old French (see Rouquier 2007). We will show how one can refer to the use of the left periphery to account for the changes in the expression of FOCUS and the need to provide a dynamic analysis where the pragmatic reading of a sentence is read on the syntactic structure.

### 1.1 Old French: Topic initial V2 language with pro-drop

It has been shown that Old French is a Topic initial Verb-Second (V2) language with pro-drop.

- (1) *Cele nuit pensa li rois Artus assez a ce que Agravains li avoit dit,*  
 This night thought the King Artur enough as to what Agravains to him said  
*mes ne le torna pas granment a son cuer, car il ne creüst pas*  
 but not (it) worry about much in his heart because he (NEG) believe not  
*legierement que ce fust voirs. Au matin s'apareilla por aler au*  
 quite that this was true. In the morning (he) got ready to go to the  
*tornoient.*

tournament

“That night King Arthur thought for a long time about what Agravain has said to him, but he did not worry too much about it because he did not quite believe that this was true. In the morning he got ready to go to the tournament.”  
 (Artu, 13<sup>th</sup> c.)

V2 is an instantiation of a Topic-Comment structure where the Topic is the entity about which something is being said and the Comment, the part of the sentence that says something about the Topic. In example (1), *au matin* is the topic and the rest of the sentence describes what King Arthur did during the morning, that is, getting ready for the tournament. As Marchello-Nizia (1999 : 47) observes, the information structure prevails over the syntactic structure in Old French.

Following Dupuis (1988), we are proposing to derive the V2 structure in example (1) as follows.

- (2) [<sub>CP</sub> Au matin [<sub>C</sub> s'apareilla [<sub>IP</sub> pro] <sub>I'</sub> t [<sub>VP</sub> t [<sub>PP</sub> t [<sub>PP</sub> por aller au  
 tornoient]]]]]]

The V2 structure results from the verb *s'apareilla* moving from its initial position to C. Any other maximal projection – in this instance *au matin* – can move to [<sub>Spec</sub> CP], that is, the Topic position.

### 1.2 Accentual structure of Old French

Old French has a double accentuation: a sentence initial and a sentence final accent (Adams 1987, de Bakker 1997). For Adams, the verb moving to C as in (2) does not tell the whole story about the V2 effect. She observes that V2 languages have also sentence initial (Germanic) accents. It is that combination of verb movement to C and strong initial accent, Adams argues, that distinguishes V2 languages from Verb-First languages like Celtic.

The sentence initial accent makes it possible to focus an element by putting this element in first position as in (3) (de Bakker 1997, Wehr 2005).

(3) ***HALT** sunt li pui e li val tenebrus.*

High are the mountains and the valleys dark.

“The mountains are high and the valleys are dark”

(Roland, 12<sup>th</sup> c.)

Moreover, Wehr (2005) notes that Old French could allow a stress accent— *jo* being a stressed pronoun in example (4).

(4) *-Dunez m' en, sire, le bastun et le guant, / **EJO** irai.*

Give to me it sire the staff and the glove / and I (stressed) will go

*al Sarazin espan*

to the Saracen Spanish

“Give me, sire, the staff and the glove, and I will go to the Saracen of Spain.”

(Roland, 12<sup>th</sup> c.)

According to Wehr, speakers of Old French had no need to use clefts because of the free word accent and the possibility to put focused elements into sentence initial position as it is the case in the previous sentences.

This paper is organized as follows: in section (2), we present a brief review of the previous accounts of the cleft structure in Old French; we examine the relationship between word order change and the development of *c'est*-clefts in section (3). In section 4 we discuss the impact that prosodic changes had on the evolution of clefts. In section (5) we examine the evolution of clefts with respect to changes in the left periphery.

## 2. Previous Accounts for Cleft *c'est ... qui/que*

In her comprehensive study of the evolution of French, Marchello-Nizia (1999) argues that *c'est*-clefts emerged at the end of the 13<sup>th</sup> c. and became more widely used in the 14<sup>th</sup> c. She links the development of clefts in Middle French to the loss of V2 between 1350 and 1500 due to the grammaticalization of the ‘verb-object’ (VO) order in the 13<sup>th</sup> c. and the subsequent grammaticalization of the ‘subject-verb’ (SV) order

starting in the 14<sup>th</sup> c. Once VO is grammaticalized, OV becomes a marked word order in the 13<sup>th</sup> c. and is used to focus an object. Moreover, linear order cannot be used for focusing subjects. Clefts thus offer an alternative to linear order for marking focus.

For Wehr (2005), the rise of the cleft constructions in French is linked to the loss of the single word accent. “The decisive factor is, in my opinion, the change from an autonomous single word to the *mot phonétique*, in which the word stress have been lost.” (Wehr 2005: 369) Wehr states however that it is difficult to pinpoint when this change began.

Although clefts constructions are not part of Adams (1988) study, in a more general approach of the evolution of French, she argues that word order change is not sufficient in itself to explain the loss of V2; rather, it is the loss of sentence initial accent starting in the 13<sup>th</sup> c. combined with the increasing frequency of the SVO order that led to the loss of V2. This follows from Adams’ hypothesis that V2 effects are the result of verb movement to C and the presence of a strong initial accent.

We are calling into question these analyses because we can attest the existence of *c’est*-clefts like in (5) and (6) in the 12<sup>th</sup> c. (see also Kunstmann 1990, Muller 2003 and Rouquier 2007).

- (5) *A sa soeur l’ a moustré au doi, / belement li dist en secroi:*  
 To her sister (she) him pointed to wiht finger / softly (she) him said in secret  
 “*C’est Athes que je la voi...*”

It is Athos that I there see

“To her sister she pointed to him and softly she said in secret:

“It is Athos that I see there...” (Thèbes, 12<sup>th</sup> c.)

- (6) *C’est Huelin qui vos meisele.*

“It is Huelin that mistreats you.” (Gormont, 12<sup>th</sup> c.)

We are proposing that the development of clefts is not only related to prosodic factors but also to other changes that occurred in French during the Middle Ages in the left periphery of the sentence.

### 3. Is word order change responsible for the development of clefts in French?

To answer the above question, we have examined 46 medieval texts in prose and verse from the 12<sup>th</sup> to the 16<sup>th</sup> c. These texts were drawn from the *Base de Français Médiéval* (BFM) – ENS-Lyon and the *Middle French Corpus* of the Centre de syntaxe historique de l’Université du Québec à Montréal (CASH). We were able to attest the existence of clefts as early as the 12<sup>th</sup> c. well before the loss of V2 (see also Kunstmann

1990, Muller 2003 and Rouquier 2007).

(7) *C'est Ysmaine qui parole !*  
“It is Ysmaine who speaks! (Thèbes, 12<sup>th</sup> c.)

(8) *C'est Huelin qui vos meisele.*  
It is Huelin that you mistreats  
“It is Huelin that mistreats you.” (Gormont, 12<sup>th</sup> c.)

Besides clefts, we have identified two other types of *c'est...qui/que* construction in our corpus: complex NPs (ex. 9) and PPs (ex. 10).<sup>1</sup>

(9) *Ne savez vous pas qui il est? C'est Jhesu c' on dit qui est filz de.*  
NEG know you not who he is? it is Jesus that they say who is son of  
*Joseph*  
*Joseph*

“Don't you know who he is? It is Jesus that they say who is the son of Joseph.”  
(Miracles, 14<sup>th</sup> c.)

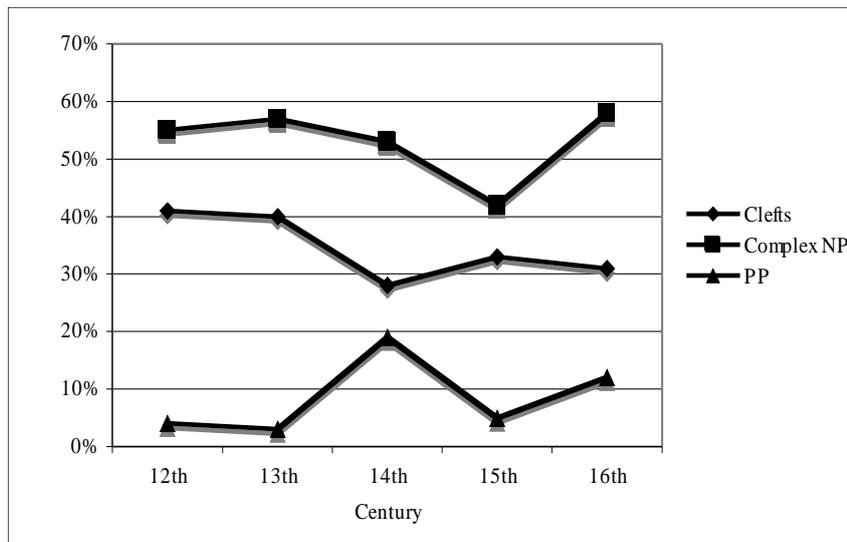
(10) *Ç o est de Basan et de sun frere Basili / Dunt pris les chefts as puis de Haltoïe.*  
“It is about Basan and his brother Basil / of-whom (I) cut the heads in the  
mountains of Haltoie.” (Roland, 12<sup>th</sup> c.)

Figure 1 traces the evolution of these constructions. We believe that the high proportion of clefts in the 12<sup>th</sup> and 13<sup>th</sup> c. samples could be due to a difference in sample stratification; these two samples are mostly composed of texts in verse. We found that on average, texts in verse contain a greater proportion of *c'est...qui/que* constructions than those in prose (58% compared to 42%).

### Figure 1 – The evolution of *c'est...qui/que* constructions

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<sup>1</sup> Bouchard (2007) argues that sentences such as (9) could hardly be as clefts because the second part of the cleft is a heavy constituent. As for example (10), they are difficult to analyze since they are not very frequent in the beginning of the language.



Clefts rise from 28% to 33% and PPs from 19% to 25% between the 14<sup>th</sup> and 15<sup>th</sup> c. The proportion of clefts stays about the same between the 15<sup>th</sup> and 16<sup>th</sup> c. (from 33% to 31%). PPs on the other hand decrease from 25% to 12%. We propose that this decrease results from the cliticization of *ce* due to the loss of the strong deictic. The decrease of complex NPs from 53% to 42% between the 14<sup>th</sup> and 15<sup>th</sup> c. is linked to the loss of the strong deictic along with the loss of the Topic position [Spec CP]. One reason for the lesser impact of the cliticization of *ce* on clefts could be that the demonstrative acts as quantifier.<sup>2</sup> We will come back to the issue of the cliticization of *ce* in the next section.

Nevertheless, our data show that there is no dramatic rise of clefts with the loss of V2 as we would have supposed if word order change was the determinant factor in the evolution of clefts.

On comparative grounds Ball (1991) notes a similar difficulty in linking the emergence of the *it*-cleft in English to word order change.

The shift in base order from verb-final to verb-medial, in progress from Old English through Early Middle English, had little direct impact on the cleft sentence. It is manifested chiefly as a change in order within the complement. Verb Final structures are rare in the cleft data after Early Middle English; the last examples are found in verse, where the exigencies of rhyme and meter continue to justify grammatical phenomena that are no longer fully productive (Ball 1991: 512)

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<sup>2</sup> We follow the analysis of Davidsen (2000) who sees *ce* in clefts as imposing a quantificational value on its complement.

If there is no clear causal relationship between word order change and the rise of clefts, then what motivates the emergence of that construction?

#### 4. Are prosodic changes responsible for the development of clefts in French?

According to Lambrecht's formal motivation for the occurrence of clefts, "[t]he occurrence of cleft constructions in a language correlates with the degree of positional freedom of prosodic accents and syntactic constituents in that language." Lambrecht (2001: 488)

We recall that Old French has a double accentuation pattern — a sentence initial and a sentence final accent — as well as word stress. Middle French saw the loss of sentence initial accent and the loss of word stress (Adams 1987, de Bakker 1997, Wehr 2005). What evidence do we have for those prosodic changes? The prosodic changes are evidenced by the loss of nominal flexion, the cliticization of subject pronouns (Adams 1988, de Bakker 1997) and the loss of sentence initial accent (Adams 1988).

These important changes seem to support Lambrecht's formal motivation since French has developed a rigid prosodic structure.

##### 4.1 Loss of nominal flexion

Old French's nominal flexion system consists of the nominative and the accusative/oblique where *-s* marks the singular nominative as in *li rois* in example (11a) and the plural oblique as in *les chevaliers* in example (11b).

(11) a. *Ce est li rois qui me vient afoier.*

It is the king<sub>nom.</sub> who me is coming to hurt

"It is the king who is coming to hurt me." (Ami et Amile, 13<sup>th</sup> c.)

b. *Li gentiz cuens les chevaliers esgarde.*

The noble count the knights<sub>acc.</sub> looks at

"The noble count looks at the knights." (Ami et Amile, 13<sup>th</sup> c.)

According to Buridant (2000), the loss of nominal flexion happened in two stages: (1) the disappearance of the +/- *s* alternation under the influence of the lenition of final *s*; and (2) the decline of the determiner's flexion system where only number is marked as illustrated in (12) and (13).

(12) *ce fut le deable qui le fist pour vous departir d'ensemble.*

it was the devil who him made for you to leave one another

"it was the devil who made her leave you." (Quinze joies, 15<sup>th</sup> c.)

(13) *ce sont choses qui leur touchent*

these are things that to them touch

“These are things that touch them” (Commynes, *Mémoires*, 15<sup>th</sup> c.)

An analysis of the nominal flexion in our corpus reveals that the demonstrative *ce* was mostly an attribute in the 12<sup>th</sup> c. as in (14). The change between the 12<sup>th</sup> and the 15<sup>th</sup> c. is interesting for the analysis of cleft sentences since it reveals that the function of the demonstrative *ce* has changed as it can be observed in the preceding examples.

(14) *Et l'empereres li demande / se çou est voirs que on m' a dit.*

and the emperor him asks / if it is the truth that one to me told

“And the emperor asks him /if it is (the) truth that they told me.”

(Gautier d'Arras, *Eracle*, 12<sup>th</sup> c.)

Figure 2 below maps the evolution of *ce* in subject position.

**Figure 2 – The evolution of *ce* in subject position in *c'est...* *qui/que* constructions**

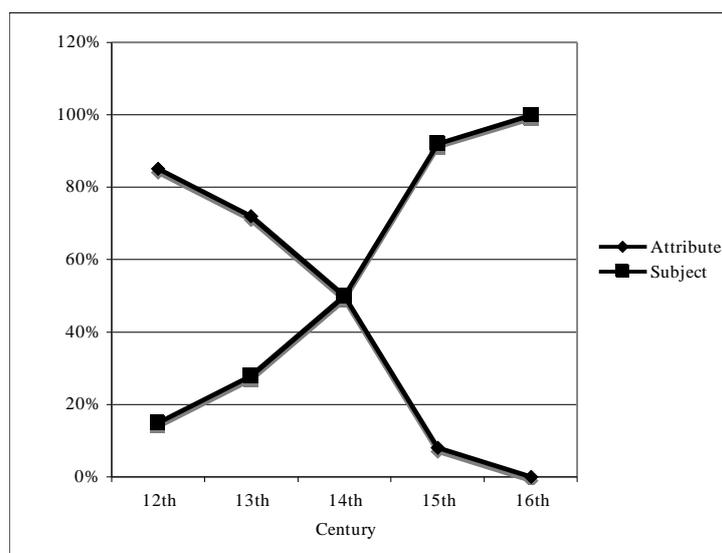


Figure 2 shows three phases in the evolution of *ce* in subject position:

1. The emergence of a new dialect with cliticization of *ce* subject during the 13<sup>th</sup> c.;
2. The rise of that dialect during the 14<sup>th</sup> c.; and
3. The disappearance of the V2 dialect during the 15<sup>th</sup> c.

The evolution of *ce* in subject position follows the move towards the cliticization of subject pronouns in French (Dufresne & Dupuis 1994, Dufresne 1995). Let us now turn to the question of the cliticization of subject pronouns.

#### 4.2 Cliticization of subject pronouns

Subject pronouns in Old French were stressed pronouns (see Moignet 1973, Buridant 2000).

(15) **Jo?** *fait li peres.*

“Me? says the father.” (Aucassin cited by Adams 1988, p. 28)

According to Adams (1988), one of the first manifestations of the cliticization of subject pronouns is the emergence of a new pattern during the 13<sup>th</sup> c. – stressed nominative pronoun followed by the unstressed nominative pronoun as in (16).

(16) *Renars respont: “**Jou je** n’irai.”*

“Renard answers: “Me I won’t go.”

(Cour, Renard cited by Adams 1988, p. 29)

The demonstratives in Old French are stressed pronouns like *jo* (see Moignet 1973, Buridant 2000). Bouchard (2007) observes that the following spellings are found in the *c’est... qui/que* constructions in the 12<sup>th</sup> and 13<sup>th</sup> c.: *ço est, çou est, ce est* and *c’est*. However, only the form *c’est* is attested from the 14<sup>th</sup> c. onward suggesting that the cliticization of the demonstrative is underway.

#### 4.3 Lenition of sentence initial stress

With sentence initial stress, weak pronouns appear to the right of a verb in first position (Adams 1988).

(17) *Cuides **me** tu por si pou esmaier?*

Believe-you me for so little frighten

“Do you believe that I am frightened by so little? ”

(cited by Adams 1988, p. 25)

Scholars of Old French note that early 13<sup>th</sup> c., weak object pronouns start appearing in first position as in (18) indicating the lenition of sentence initial stress.

(18) ***Le me** creantez vos, fet ele, come loiax chevaliers?*

It me pledge you, says she, as loyal knight

“Do you pledge it to me, she says, as a loyal knight? ”

(Queste cited by Adams 1988, p. 26)

#### 4.4 Consequences of the prosodic changes

As a result FOCUS can no longer be associated with Topic as in (3) shown as (19) nor can it be marked by intonation in situ as in (4) shown as (20).

(19) **HALT** *sunt li pui e li val tenebrus.*

“The mountains are high and the valleys dark.” (Roland, 12<sup>th</sup> c.)

(20) *-Dunez m'en, sire, le bastun et le quant,/ E JO irai al Sarazin espan.*

“Give me, sire, the staff and the glove, and I [stressed] will go (to) the Saracen of Spain.” (Roland, 12<sup>th</sup> c.)

These consequences follow Lambrecht (2001: 490) for whom “In many languages, the preverbal subject position is reserved for topical material, resulting sometimes in a complete ban on focus constituents in this position, hence in increased necessity to resort to the use of clefts.”

Since clefts are part of the grammar in French, they can thus replace V2 focus marking strategies such as (19) and (20).

## 5. Changes in the left periphery

The emergence of clefts as a preferred strategy for focus marking in French is linked to substantial transformations between the 12<sup>th</sup> and the 13<sup>th</sup> c. In this section, we will show that this phenomenon is part of changes in the left periphery based on an analysis by Rouveret (2004).

Rouveret (2004) distinguishes two periods with different structural properties: in Early Old French, that is, before 1200/1220, one can find V1 declaratives (21), V2 structures including imperatives (22) and the Tobler-Mussafia effect (23).

(21) *Vait s'en Brandan vers le grant mer*

go refl-loc Brendan towards the big sea

“Brendan goes away towards the sea.” (Brendan, 12<sup>th</sup> c.)

(22) *-Dunez m'en, sire, le bastun et le quant.*

“Give me, sire, the staff and the glove.” (Roland, 12<sup>th</sup> c.)

(23) *Jol vos parduins ici e devant Deu.*

I-it you forgive here and before God.

“I forgive you here and before God.” (Roland, 12<sup>th</sup> c.)

The second period after 1220 sees no V1 declaratives. Moreover, only declaratives and partial interrogations have a V2 structure. The Tobler-Mussafia effect ceases to be observed (Rouveret 2004: 201).

To account for the loss of the Tobler-Mussafia effect, Rouveret proposes that enclisis as in (23) is only possible if the feature [tense] does not depend on a Quantifier/Modal (Q/M) feature. Moreover, he postulates that Force has a Q/M feature in all the structures into which it is projected. Hence, enclisis can only be realized in structure where Force is not present. Accordingly, enclisis would disappear along with

the Tobler-Mussafia effect once V1 structures acquire ForceP. Rouveret further argues that the Tobler-Mussafia is a syntactic phenomenon, not a phonological given that enclisis is also found in structures where the finite verb is not in first position, that is, XP V CL structures like (24).

- (24) *Cil de Ceila liverunt me il as mains Saül?*  
 Those of Ceila leave-FUT me they to hands Saul  
 “Those of Ceila will they leave me in Saul’s hands? ”

(cited by Rouveret 2004, p. 199)

Rouveret proposes to analyze sentences such (24) as structures where the first constituent occupies the specifier of an external project distinct from Force, which he calls a dislocated Phrase or DisP as in (25).

- (25) [<sub>DisP</sub> XP [<sub>Dis</sub>] [<sub>Force</sub> ...] [<sub>FinP</sub> [<sub>Fin</sub> V-CL] [<sub>IP</sub> SUBJECT...]]]

Structures like (25) indicate that all the elements of the V2 structure of Old French are found in the periphery’s lower end along with the tensed verb. Spec,ForceP is where Focus expressions as in (26) can be found.

- (26) [<sub>ForceP</sub> **HALT** [<sub>Force</sub> e ] [<sub>FinP</sub> t [<sub>Fin</sub> sunt] [<sub>IP</sub> t t t li pui e li val tenebrus ]]]].  
 “High are the mountains and the valleys dark.” (Roland, 12<sup>th</sup> c.)

The analysis developed by Rouveret is interesting since it allows us to link two observations. First in Early Old French (EOF), Focus is closely related to the sentence initial stress, and second Focus may be obtained by dislocation. That may explain why cleft constructions are so rare in OF. Spec ForceP can also be the locus for Topic expressions as in (27).

- (27) *Ce est li rois qui me vient afoier.*  
 “It is the king who is coming to hurt me.” (Ami et Amile, 13<sup>th</sup> c.)

The major change observed between the 12<sup>th</sup> [Early Old French (EOF)] and 13<sup>th</sup> c. [Old French] is that Extended Projection Principle [EPP] is a property of INFL in EOF. In order to understand the data under study, we observe that this corresponds to the period where V1 or V3 structures can easily be found. EPP is a property of FIN in OF and this corresponds to the strict V2 period of French. Our study shows that the OF period corresponds to the change we observed in the behaviour of the pronoun *ce* in *c’est...qui/que* constructions.

## 6. Conclusion and summary

We saw that there are many factors motivating the emergence of clefts in French. The following prosodic changes have played a key role in French:

1. The loss of the sentence initial accent entails that it is no longer possible to associate TOP with focus;
2. New information appears at the end of the clause as per the intonation pattern of modern French; and
3. The cliticization of *ce*.

The loss of prosodic means to mark FOCUS during Middle French requires recourse to strategies other than stress under TOP thus leading to the use of a structure already available in Old French - clefts. The cliticization of *ce* allows for the emergence of a new “présentatif”: *c'est*.

Our study allows us to conclude that in a language where FOCUS is expressed by intonation, the use of a syntactic pattern is marked; this explains the relatively low percentage of clefts in EOF. Finally the FOCUS reading of an element in French implies a syntactic movement to the left periphery while in a language such as English where FOCUS can be expressed in situ, FOCUS is a matter of the prosodic structure.

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# A formal model of grammaticalization in Slavic past tense constructions

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## Abstract

The compound past tense in modern Slavic languages traces back to a copular construction in Common Slavic. The original construction has undergone different degrees of grammaticalization, giving rise to structures with strikingly diverse properties. This study provides a formal account of the evolution of the Slavic past tense in which grammaticalization is modeled as a succession of overlapping reanalyses. The analysis is formalized using representations inspired by Head-driven Phrase Structure Grammar, and the languages considered are Common Slavic, Serbo-Croatian, Czech, Polish, and Russian (from least advanced to most advanced stages of grammaticalization).

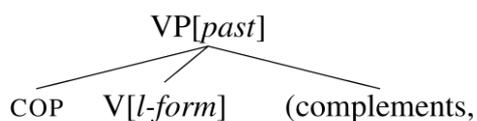
**Keywords:** Slavic languages, auxiliaries, syntactic heads, clitics, grammaticalization

## 1. Introduction

### 1.1. Basic schema

This paper examines the development of the Common Slavic perfect construction, which corresponds to an all-purpose past tense in most modern Slavic languages. The construction involves the so-called “*l*-participle” form of the verb, (usually) accompanied by an element historically derived from the present tense copula. Both elements agree with the subject: the *l*-form agrees in number and gender, the copular form in person and number. The following tree illustrates the general VP schema.

(1)



The label COP is used as a convenient abbreviation, without suggesting anything about the synchronic identity of this element. Similar, I use the term “*l*-form”

for the morphological form of the main verb, in order to avoid presupposing its syntactic function (originally participial, but now a finite form in some of the modern languages). Finally, the diagram above is intended only to indicate syntactic constituency, not the relative word order of the daughters. In other words, COP can also appear after the *l*-form verb. A number of examples are given in (2).

- (2) a. Mi smo vid(j)el-i Mariju. (Serbo-Croatian)  
 we COP.1PL saw-M.PL Mary  
 ‘We saw Mary.’
- b. Koho jsi viděl? (Czech)  
 who COP.2SG saw[M.SG]  
 ‘Who did you see?’
- c. Już widział-a-m ten film. (Polish)  
 already saw-F.SG-COP.1SG that film  
 ‘I have already seen that film.’
- d. Ty spal-a. (Russian)  
 you slept-F.SG  
 ‘You slept.’

It is apparent from these examples that the basic construction in (1) has given rise to distinct structures in the various modern Slavic languages. The copular element COP in particular exhibits different degrees of reduction, up to and including total loss (2d). This paper presents a formal approach to the comparative modeling of the grammaticalization of the Slavic past tense construction as a progression of overlapping reanalyses.

## 1.2. From Common Slavic to modern Slavic

Before delving into the formal analysis, I provide a brief presentation of the languages that will be considered (a more detailed overview of the modern languages can be found in Tseng & Kupść 2007). The data itself are neither new nor controversial; the basic facts about the construction of the past tense are quite well established for each language, with the exception of Common Slavic, where detailed claims about syntactic structure are necessarily speculative. I will not discuss the morphological formation or the phonetic evolution of the *l*-form. For the purposes of this study it is sufficient to note that all of the languages in question have a distinctive *l*-form, exhibiting gender and number agreement with the subject.

### 1.2.1. Common Slavic

I use the label “Common Slavic” to refer to the latest hypothetical stage of the shared Slavic proto-language (hence the roughly equivalent term “late Proto-Slavic”), before the period of dialectal differentiation leading eventually to the development of the modern Slavic languages. There are no full texts from this period (7th to 9th centuries), but it is possible to reconstruct a perfect construction consisting of a full tensed form of the copula (identical to the present tense forms of *byti* ‘be’ in all persons: *jesmĭ, jesi, jestĭ, ...*) and the *l*-form, along with any complements or modifiers. The following constructed example corresponds to the structure shown above in (1):

- (3) *jes-mĭ*            *privezl-ŭ vody*  
COP-1SG            brought-M.SG water  
‘I have brought water.’

Common Slavic is believed to have had extremely free word order. In a sentence such as (3), the *l*-form tends to appear clause-initially or clause-finally, and the copular element is often (but not systematically) found in second position (Press 1983, Meillet 1965: §§283, 550). The following attested examples from some of the earliest Slavic texts (Old Church Slavonic, 10th–11th century) give an idea of the variety of possible word orders:

- (4) a. *Otrokovica nĕs-tŭ            umrŭl-a    nŭ    sŭpitŭ.*  
girl            NEG.COP-3SG    died-F.SG    but    sleeps  
‘The girl has not died, but is sleeping.’ (Mark 5:39)
- b. *Se bo bĕ            znamenĕ    dal-ŭ.*  
PRT    CONJ    COP.3SG    sign            gave-M.SG  
‘For behold he had given the sign (to them).’ (Luke 22:47)
- c. *jakože blagoslovilŭ jesi            vĭsĕ pravĭdĭnikŭi tvoje*  
as            blessed-M.SG    COP-2SG    all    just            yours  
‘as you have blessed all yours who are just’ (*Wenceslas*)

The accepted view is that COP in the Common Slavic perfect construction (and pluperfect, as in 4b) was a finite auxiliary verb. Although it showed some signs of acquiring clitic status in this period, it must still be considered a morphosyntactically autonomous element at this stage, capable for example of hosting the negative proclitic *ne* (cf. 4a, see also Meillet 1965 §540).

### 1.2.2. Modern languages

Earlier stages of Slavic maintained a relatively rich inventory of verbal forms with past tense meaning: the simple aorist and imperfect, and the compound perfect and

pluperfect. The compound forms, originally used only to express perfective aspect, gradually developed into a general past tense, largely supplanting the simple forms, whose endings were insufficiently distinctive. Furthermore, the perfect construction (with the present tense of *byti* as an auxiliary) progressively replaced the pluperfect (cf. 4b above, using the imperfect of *byti*). As a result, in all of the modern languages studied here, the perfect construction is now the primary, all-purpose past tense (although the other forms can still be encountered in certain situations). I will therefore restrict my attention in the rest of this discussion to the descendants of the Common Slavic perfect construction.

#### 1.2.2.1. Serbo-Croatian.

In modern Serbo-Croatian the copular element COP appears in all persons, and has two series of forms, identical to those of the copula *biti*. In most cases COP has enclitic status and appears in the second position clitic cluster along with other auxiliaries (conditional, future) and weak pronouns (5a).

- (5) a. Vidi-o sam Mariju.  
 saw-M.SG COP.1SG Mary  
 ‘I saw Mary.’
- b. Jesi li vidi-o Mariju?  
 COP.2SG INTERR saw-M.SG Mary  
 ‘Did you see Mary?’
- c. Nisam vidi-o Mariju.  
 NEG.COP.1SG saw-M.SG Mary  
 ‘I did not see Mary.’

As shown in (5b,c), however, COP also has autonomous (non-clitic) full forms that can be stressed and negated, just like COP in Common Slavic.

#### 1.2.2.2. Czech.

In contrast, COP in Czech has only clitic forms (appearing in second position). Negation must appear on the *l*-form (6b).

- (6) a. Dnes jsem znovu viděl tento film.  
 today COP.1SG again saw[M.SG] this film  
 ‘Today I saw this film again.’
- b. Ne-viděl jsem tento film. (\*Viděl ne-jsem ...)  
 NEG-saw[M.SG] COP.1SG this film saw[M.SG] NEG-COP.1SG  
 ‘I haven’t seen this film.’

- c. Viděl (\*je) někdo tento film?  
 saw[M.SG] is.3SG anyone this film  
 ‘Has anyone seen this film?’

Moreover, as we can see in (6c), there is no COP element in the 3rd person; the past tense is expressed by the *l*-form alone. The paradigm of COP is thus distinct from that of the copula *být*, which can be negated (e.g. *nejsem* ‘I am not’) and which does have 3rd person forms (singular *je*, plural *jsou*).

#### 1.2.2.3. Polish.

The COP forms in Polish have undergone further grammaticalization to become suffixes (an instance of morphologization), attached most often to the *l*-form (as in example 2c above). In the recent history of the language, however, COP was a clausal clitic, and traces of this status can be seen in examples where the suffix appears on another word to the left of the *l*-form (Andersen 1987).

- (7) a. Dlaczego-ś tak długo nie pisał?  
 why-COP.2SG so long NEG write[M.SG]  
 ‘Why haven’t you written in so long?’  
 b. widział (\*jest) już ktoś ten film?  
 saw[M.SG] is.3SG already anyone this film  
 ‘Has anyone already seen this film?’

In (7a), the 2nd person suffix is attached to the *wh*-word and not to the verb (cf. *pisał-ś*). We can also see from this example that negation appears on the *l*-form. As in Czech, there is no COP element in the 3rd person singular or plural (7b). The Polish copula *być* has a complete paradigm of full forms (including 3rd person forms *jest*, *są*), but as indicated in (7b) these cannot be used in the past tense.

#### 1.2.2.4. Russian.

Finally, the grammaticalization of COP has reached the absolute extreme in Russian, where the past tense is expressed with the unaccompanied *l*-form in all persons.

- (8) a. Ja/Ty/On videl fil’m.  
 I/you/he saw[M.SG] film  
 ‘I/you/he saw the film.’

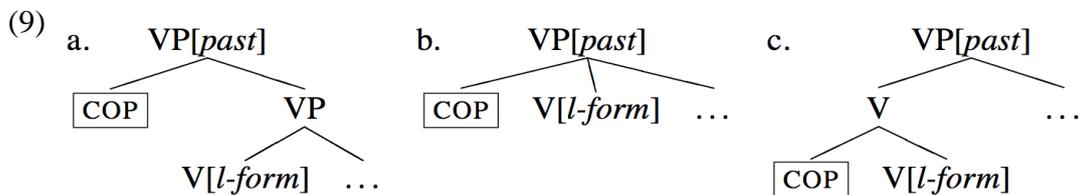
Intermediate stages can be documented in the evolution of Russian; I will return to this issue in section 3.2 below.

## 2. Auxiliary analysis and reanalysis

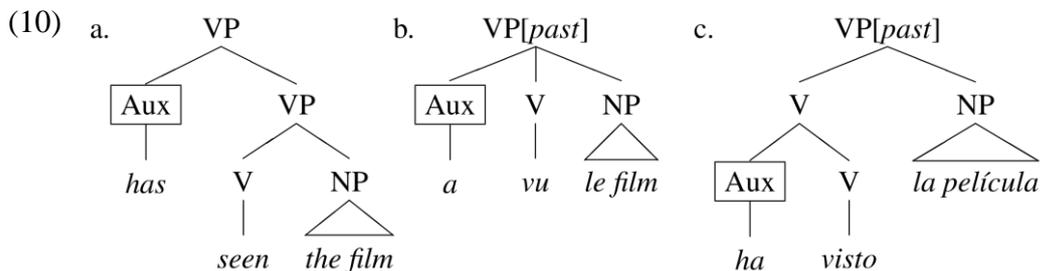
The COP element in the past tense can be analyzed as an auxiliary verb in Common Slavic and in Serbo-Croatian: it appears obligatorily in all persons, and it can carry negation. In this section I present a formal analysis of auxiliary verb constructions using a simplified version of Head-driven Phrase Structure Grammar (HPSG, Pollard & Sag 1994), and then I discuss possible paths of reanalysis leading to further grammaticalization.

### 2.1. Complementation

Cross-linguistically, auxiliary verbs are associated with a number of distinct complementation patterns. The basic schema in (1) can correspond to three possible structures: a VP-complementation structure (9a), a non-hierarchical (flat) structure (9b), or a “complex predicate” structure (9c). (The box around COP in these and all following tree diagrams indicates the syntactic head.)



VP-complementation is found, for example, in English auxiliary constructions (10a). Abeillé & Godard (2003) propose a flat structure for the compound past tense in French (10b), and a complex predicate analysis for the same construction in Spanish (10c):



Arguments for a particular structure come from word order facts and tests for constituency. No strong syntactic claims can be made for Common Slavic, of course, but its highly flexible word order rules out the complex predicate structure in (9c). Given such a structure, we would expect COP and the *l*-form to appear adjacently and always in the same order, and the examples in (4) show that this was not the case in early Slavic. Choosing between (9a) and (9b), on the other hand, is less straightforward.

It seems plausible that the perfect construction originally involved a participial projection consisting of the *l*-form and its complements, transformed into a finite predicate by combining with the copula (i.e. a VP-complementation structure like that of English auxiliaries). If the *l*-form projection appeared in other contexts, for example as a modifier of an oblique NP or in combination with other predicative verbs (‘seem’, ‘remain’, etc.) we would have strong evidence for this analysis, but unfortunately the perfect construction is the only context that can be reconstructed for the *l*-form in Common Slavic. In other words, by this period, the *l*-form appears only in the nominative case and only in combination with COP. In the absence of strong arguments for hierarchical constituent structure, the flat structure in (9b) should be preferred.

Both structures (9a) and (9b) can be modeled formally by assuming valence-sharing in the lexical entry of COP. VP-complementation is generated by the following lexical entry:

$$(11) \left[ \begin{array}{l} \text{SUBJECT} \quad \langle [1] \rangle \\ \text{COMPLEMENTS} \quad \left\langle \text{VP} \left[ \begin{array}{l} \text{VFORM} \quad l\text{-form} \\ \text{SUBJECT} \quad \langle [1] \rangle \\ \text{COMPLEMENTS} \quad \langle \rangle \end{array} \right] \right\rangle \end{array} \right]$$

The complement of the auxiliary is the projection of an *l*-form with all of its complements (i.e. no elements left unrealized in the COMPLEMENTS list), but with an unrealized subject, indicated by the tag [1]. The auxiliary shares this SUBJECT valence with its VP complement, meaning that the unexpressed subject of the *l*-form will eventually be realized as the subject of the auxiliary (subject-to-subject raising).

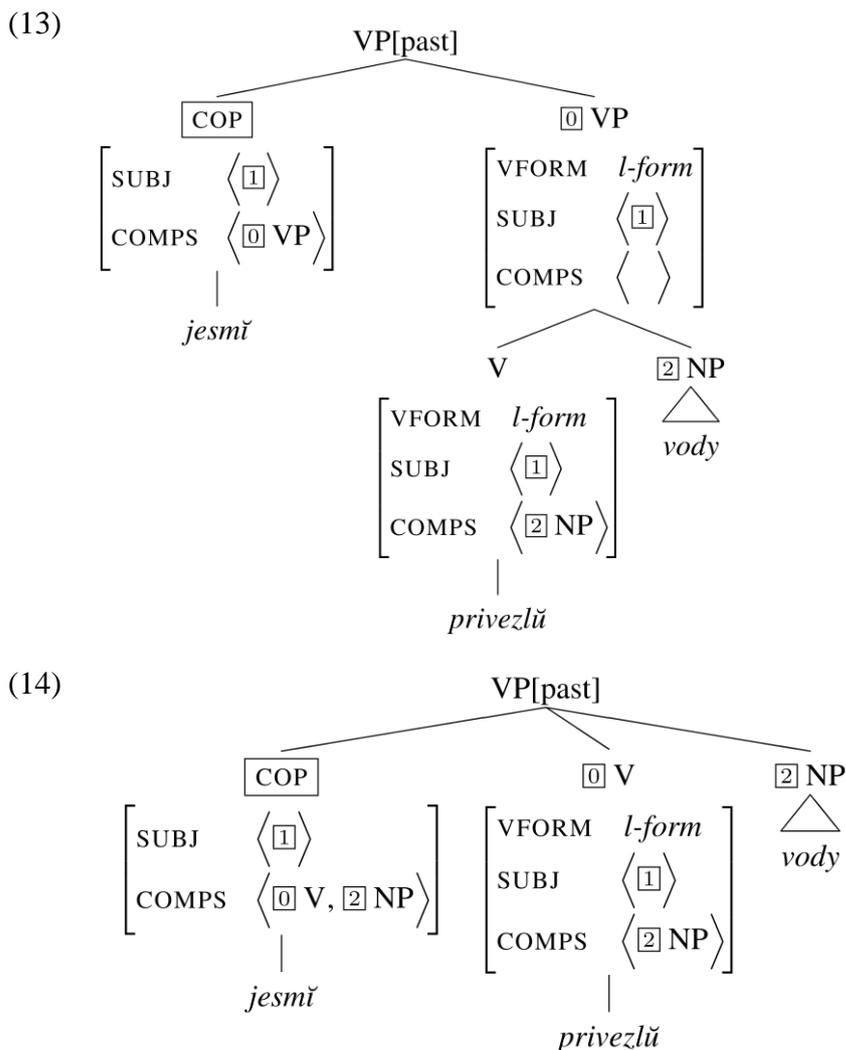
The auxiliary can additionally raise all of the complements of the *l*-form. A lexical entry of this type is shown in (12).

$$(12) \left[ \begin{array}{l} \text{SUBJECT} \quad \langle [1] \rangle \\ \text{COMPLEMENTS} \quad \left\langle \text{V} \left[ \begin{array}{l} \text{VFORM} \quad l\text{-form} \\ \text{SUBJECT} \quad \langle [1] \rangle \\ \text{COMPLEMENTS} \quad [2] \text{ list} \end{array} \right] \right\rangle \oplus [2] \end{array} \right]$$

Here the *l*-form complement must be a non-projecting ( $X^0$ ) element whose subject and complements are all still unrealized. These valence specifications, tagged [1] and [2] in (12), are then inherited by the auxiliary itself. In other words, in addition to subject-to-

subject raising, the auxiliary imposes object-to-object raising. A lexical entry of this type could in fact also be used (in combination with additional constraints) to generate the complex predicate structure shown (9c).

If we assume that the lexical entry of *jesmĭ* in the Common Slavic example in (3) evolved from the type in (11) to the type in (12), we can model the presumed transition from a VP-structure (13) to a flat structure (14):



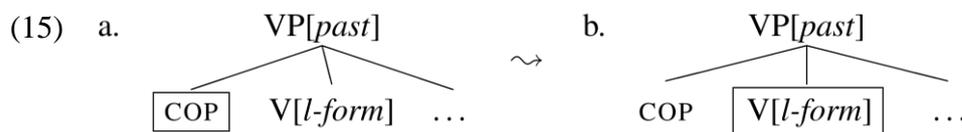
The two analyses of the auxiliary sketched in (11) and (12) overlap, in that they generate the same surface strings. It is likely that (13) and (14) co-existed for some time in covert variation during the early Slavic period.

## 2.2. The case of Serbo-Croatian

As discussed in section 1.2.2.1, the past tense in Serbo-Croatian is essentially a continuation of the Common Slavic construction, if we consider the stressed/negated

forms of COP (*jesam/nisam, ...*). In principle, then, we have the same choice of analyses as for Common Slavic, but in fact there is little evidence for the hierarchical structure in (13) with an intermediate VP constituent. The COP auxiliary in Serbo-Croatian thus has a lexical entry of the type shown in (12), giving rise to the flat structure in (14).

The flat structure also allows for an account of the further grammaticalization of COP reflected in its unstressed, enclitic forms (*sam, si, je, ...*). I suggest that the reduction of phonological and morphosyntactic autonomy indicates a change in grammatical function made possible by the change in syntactic structure. In the hierarchical structure (13), the status of COP as the syntactic head is quite secure, because in combinations involving a word and a phrase, the word is typically the head (Zwicky 1993). In (14), on the other hand, COP and the *l*-form are sisters, both of word rank, and a redistribution of grammatical functions becomes possible.



In other words, COP loses its syntactic head status and becomes a dependent of the *l*-form, which can now be considered to be the finite verb.

The transition shown in (15) is again a covert reanalysis, and both analyses may currently co-exist in Serbo-Croatian. Grammaticalization effects targeting COP, however, provide limited evidence in favor of the assignment of grammatical functions in (15b). I have already mentioned cliticization, which is typical of dependent elements like pronouns. Although COP cannot be plausibly analyzed as a complement, it could have the status of a clause-level marker like the interrogative enclitic *li*. Interactions with other items in the second position clitic cluster can cause COP to be left unrealized. Specifically, the 3rd person singular form *je* is omitted after the reflexive clitic *se*, and less systematically after the 1st and second person pronouns *me* and *te*. These facts are not a priori incompatible with the assumption of syntactic head status for COP. Phonologically empty heads can be accommodated in the formal analysis, even in a surface-oriented framework like HPSG, if adequately motivated.

Finally, an affirmative answer to a past tense yes/no question can consist of the *l*-form alone, without COP:

- (16) Q: Jesi li poje-o? A: Poje-o.  
 COP.2SG INTERR ate-M.SG ate-M.SG

‘Q: Have you eaten? A: Yes.’

Contrast this with the ungrammaticality of the English past participle as a short answer: \*Yes, eaten. The significance of the observation in (16) can of course only be

determined within the context of a complete treatment of the syntax of short answers in Serbo-Croatian. Stressed COP forms can also be used as short answers (*Jesam / Nisam*, cf. English *Yes I have / No I haven't*).

We can conclude that while there are some first indications of the reassignment of grammatical functions represented in (15b), the auxiliary analysis in (15a) still dominates in the Serbo-Croatian past tense, for both stressed and unstressed paradigms of COP forms.

### **3. Further grammaticalization**

#### *3.1. West Slavic*

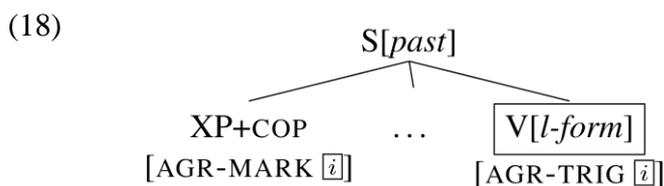
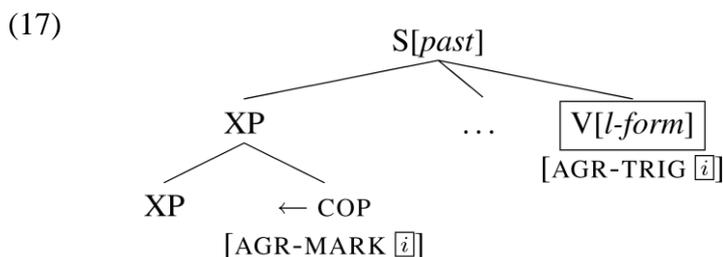
The switching of grammatical functions shown in (15) has reached completion in the development of Czech and Polish. As a result of this reanalysis, COP has lost its verbal head properties in these two languages. As we saw in 1.2.2.2 and 1.2.2.3, COP does not have full, stressed forms and it cannot carry the negation prefix. Its status as a syntactic non-head contributing no lexical semantics makes it a target for further grammaticalization. The absence of relational content also makes reanalysis in the opposite direction (“degrammaticalization” from 15b back to 15a) unlikely, even though the change involved is quite minor. The *l*-form is a stronger candidate for head status, on semantic grounds (Zwicky 1993).

The head-complement dependency in (15a), with the auxiliary selecting the *l*-form, is replaced by an agreement marking dependency in (15b), operating in the other direction. During the transitional period, there was mutual selection between the two elements in the past tense construction. The eventual loss of the auxiliary structure in (15a) was therefore a covert change, since COP and the *l*-form still co-occurred systematically.

In the history of Czech and Polish, however, *l*-forms with 3rd person subjects then relaxed their selectional constraints, and 3rd person COP agreement elements became optional, then erratic, and finally ungrammatical. The reasons for this change must still be determined, through a full examination of historical data. Frequency effects were no doubt a factor, although what is important is the relative frequency of 3rd person reference in the spoken language, which can only be indirectly established on the basis of textual evidence.

In the modern languages, COP forms still appear obligatorily in the 1st and 2nd

persons. Kupść & Tseng (2005) develop an HPSG analysis of agreement marking in Polish, extended to other languages in Tseng & Kupść (2007). The agreement dependency is encoded with a pair of matching list-valued attributes, AGREEMENT-TRIGGER and AGREEMENT-MARKING, allowing the *l*-form to select the appropriate COP form. The second position clitic status of COP in Czech can be (very rudimentarily) represented as in (17), while COP is a suffix in Polish, as sketched in (18).

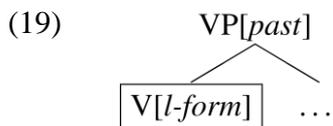


The grammaticalization step of morphologization connecting (17) to (18) is a relatively minor one (corresponding again to a period of competing overlapping analyses). In fact, the Polish “floating” agreement markers as in example (7a) exhibit varying degrees of morphophonological fusion (or “compaction”) with their hosts, and the plural forms (-*śmy*, -*ście*) may be better analyzed as clitics. As mentioned above in 1.2.2.3, a development specific to Polish is the suffixation of the COP element to the *l*-form, as in (2c). This structure does not require the AGR-TRIG/AGR-MARK dependency mechanism, and now accounts for the overwhelming majority of past tense constructions in Polish. The configuration in (18) is now found in less than 10% of past tense examples according to Andersen (1987). Here again there appears to be an asymmetry between the singular and plural suffixes, with the latter occurring more frequently as floating markers. Polish may have followed two separate paths of grammaticalization in parallel, with the suffixed *l*-forms (e.g. *widział-em* ‘I saw’) derived via univerbation of a complex predicate structure of the type illustrated in (9c).

### 3.2. Russian

Russian is the most advanced of all the Slavic languages with respect to the grammaticalization of the past tense: COP is altogether absent in all persons, and the past

tense is a simple tense consisting of only the *l*-form verb.



Data from Old Russian texts suggest that earlier stages of the language resembled what have just seen for West Slavic, with COP forms in the 1st and 2nd persons, but not in the 3rd. Issatchenko (1940) dates the loss of the 3rd person forms to the early 12th century. 1st and 2nd person COP forms were only lost some 200 years later, a change Issatchenko claims was made possible by the increasingly systematic use of overt subject pronouns in this same period. But increased pronoun use could have been the effect, and not the cause. Gardiner (1961) argues that the 1st and 2nd person forms were artificially preserved in written Old Russian and that they must in fact have dropped out of the spoken language at the same time as, if not earlier than, the 3rd person forms.

A final observation about Russian is that all other present tense conjugated forms of the copula *byt'* also disappeared. Here also, the 3rd person singular appears to have received a different treatment: but instead of being lost first, it was preserved the longest. The form *jest'* was recategorized as an invariable existential predicate. It can also be found as an emphatic present tense copula with all subjects:

- (20) počemu my/vy/oni takije, kakije my/vy/oni jest'  
 why we/you/they such such we/you/they is  
 'why we/you/they are the way we/you/they are'

As Gardiner (1961) explains, this use of *jest'* must be an innovation of modern Russian (after the 17th century).

#### 4. Concluding remarks

The evolution of the Common Slavic perfect construction can be modeled formally as a succession of overlapping reanalysis steps. It is assumed to have developed from an original [Aux + VP] structure, similar to that of modern English auxiliary constructions. This hierarchical structure gave way to a flat structure before the end of the Common Slavic period. This change meant that the main verb (*l*-form) was no longer structurally subordinate to the copular form, and allowed a reversal of the dependency relation, with the auxiliary (formerly the syntactic head) becoming a dependent of the main verb.

From this point onwards, the modern languages have advanced at different speeds

through subsequent stages of grammaticalization. Serbo-Croatian maintains the old auxiliary construction, but the auxiliary often appears as an enclitic form. There are only minor indications that the reassignment of grammatical functions just described may be underway. In Western Slavic, the former auxiliary is now an agreement marker, clearly distinct from the copula, and appearing only in the 1st and 2nd persons. In Czech the marker takes second person enclitic forms, while in Polish, grammaticalization has gone further and the agreement markers behave like suffixes in most cases. Finally, in modern Russian, the agreement markers have disappeared altogether, so that the old compound past tense is now fully reduced to a simple tense.

This paper is presented as a diachronic study, but in fact it relies on very little historical data. We are fortunate in that the modern Slavic languages appear to provide a series of snapshots of the development of the past tense, from the most conservative to the most innovative, as if there were a single evolutionary route, and each language simply got off at different stop. While this picture is compelling, and useful for a first study, it is obviously an oversimplification. At every given point, there are several possible paths for further grammaticalization, and more than one path can be followed at the same time by the speakers of the language. This leads to the existence of “layers” in the grammar of each language. This concept was briefly alluded to in the discussion of Polish, but the synchronic facts and the historical record of each language must be examined for a full understanding of the evolution of the Slavic past tense.

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# **Cross-linguistically unusual features of Welsh are declining**

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## **Abstract**

Welsh has several features which are crosslinguistically very unusual. This paper looks at five such features of the grammar. Each has been stable for over a thousand years, but counts in corpora of spoken and written Welsh, along with published research, show that the textual frequency of each has declined greatly over the last generation or two. The paper briefly asks why. The intensive bilingualism of present-day Welsh-speakers is one reason: cross-linguistically unusual features are inherently more susceptible to loss in a contact situation because they are by definition unlikely to appear in the contact language. On the other hand, English influence so far been largely in vocabulary and idiom. Other grammatical features different to English remain unaffected.

## **1. Background**

Welsh is a Celtic language native to Wales on the western side of Great Britain. There are about 600,000 speakers in Wales, another 100,000 in neighbouring England, and some thousands in the old Welsh settlement in Patagonia.

Forty years ago the great majority of people over the geographically greater part of Wales lived their daily lives in Welsh. One could walk from the north coast of Wales to the south coast through areas where more than 80% of the population were Welsh-speakers and where the language of daily life was Welsh. Since then the number of Welsh-speakers has hardly changed, and their proportion in the Welsh-born population has been stable, but they have become more thinly spread, more evenly mixed with people whose first language is English. As a result, those parts of Wales which until recently were thoroughly Welsh speaking have become bilingual.

Though Welsh had been legally suppressed since Wales was annexed to England in 1536, pressure on the British government from the 1960's on brought about a change in government policy and in public perceptions of the language resulting in widespread official use of Welsh in education, in the media, and in public administration. The city of Cardiff had recently been made the capital city of Wales, and so most of this new official and media activity relating to Welsh has been established in Cardiff — most recently the Welsh Assembly, which works bilingually. Cardiff, in the extreme south-east of Wales, is in an area which has been English-speaking since mediæval times. Much of the rest of south-east Wales became English-speaking in the latter half of the nineteenth century as a result of large-scale immigration into the developing coalfields there, incidentally making the south-east the most populous part of Wales. Hence the last thirty years have seen an explosion of job opportunities for Welsh-speakers in an area without native Welsh-speakers. The result has been that many Welsh-speakers

from the north and west have moved to fill the gap.

At the same time, for reasons not relevant to the present paper, there has been immigration across the border from England into north and west Wales, to the extent that more than a third of the present population of the area were born outside Wales. Over large areas more than half the population were born outside Wales. These recent immigrants are almost all native speakers of English, and they rarely learn Welsh.

As a result of the demographic changes, Welsh-speakers have become more evenly spread over the country. Where there had for centuries been a fairly sharp divide between the part of Wales where Welsh was dominant and the fringes where there were few Welsh-speakers, in the space of a generation the whole country has become bilingual to some extent. Almost all Welsh-speakers now use English extensively in their daily lives, needing English at work and to communicate with neighbours, shopkeepers, etc. Evidence suggests that the average Welsh speaker speaks far more English than Welsh outside the home, and that the proportion of English is increasing quickly.

Although it is difficult to measure the amount of Welsh spoken directly, two indirect measures are available. The first is a statistical calculation from the density of speakers: census data can be used to find the likelihood that a person a Welsh-speaker meets will be another Welsh-speaker (Jones, 2007, pp. 25–26). This gives an idea of the proportion of a Welsh-speaker’s conversations with random interlocutors which could be in Welsh. The second is based on answers to a question in a survey on language usage conducted in 2004 for the Welsh Language Board (Bwrdd yr Iaith Gymraeg, 2006, p. 15). The question asked about the language of the respondent’s last conversation with someone not a member of their family.

<i>Which language will people speak outside the home?</i>	<i>Year</i>	<i>Welsh</i>	<i>Other language</i>
<i>Probability (from density of speakers)</i>	1991	44.3%	55.7%
	2001	37.4%	62.6%
<i>Proportion (from survey)</i>	2004	39.4%	60.6%

Both measures suggest rather similar proportions: the average Welsh speaker outside the home speaks about 40% Welsh and 60% English (the proportion in languages other than Welsh and English is negligible: only 0.2% in the survey). The probability measure suggests that the proportion of Welsh fell 16% between the censuses of 1991 and 2001.

In this environment of intensive bilingualism, where Welsh-speakers are constantly switching between English and Welsh, day in day out, the Welsh language is changing. The language of many younger people is noticeably different to that of older generations. One striking part of the change is that Welsh is losing those crosslinguistically unusual features which make it of particular interest to linguists.

Welsh is a linguistically interesting language. Although it has no unique features, it has several which are cross-linguistically unusual, and some of these, such as consonant

mutation, vigesimal counting, and conjugation of prepositions, have attracted considerable attention in the literature. Below, change in five such cross-linguistically unusual features is examined quantitatively. All five had been stable since the earliest records, well over a thousand years ago. In the space of a generation their use seems to have declined greatly, particularly in the speech of the younger generation.

Evidence for change comes both from recent published studies of Welsh usage, and from frequency counts in five corpora. The five are

1. An example of earlier written Welsh: 24,313 words in four traditional stories from a fourteenth century manuscript (Williams, 1930). The inconsistent spelling of this manuscript restricts use for phonology.
2. Modern formal Welsh: a recent (1988) Welsh translation of the 839,905 words of the Bible (Beibl Cymraeg Newydd, 1988).
3. Modern written Welsh: *Cronfa Electroneg o Gymraeg*, (Ellis, 2001) a sampled corpus of one million words of recently published written Welsh. The corpus is comparable to the LOB corpus of British English or the Brown corpus of American English.
4. Contemporary adult speech: *Cronfa Bangor* (Deuchar, 2004, 2006), a corpus consisting of 52,404 words of unscripted radio interviews and unscripted conversation in equal proportions.
5. Contemporary children's speech: *Cronfa Cymraeg Plant* (Bob Morris Jones, 2006). 133,841 words of unsupervised conversation between seven-year-old children at play. Other comparable studies (Jones, 1998; Thomas, 2007; Thomas & Gathercole, 2005, 2007) have used children of seven, arguing that by this age they have command of the relevant points of grammar.

In general it cannot be assumed that formal written language accurately preserves features of earlier spoken usage. However, the history of the particular features under examination here is well understood, and there is every reason to think that they were as much a part of spoken as of written Welsh in the past. With this in mind, written corpora are taken as representative of traditional Welsh in the corpus counts below.

## 2. Five cross-linguistically unusual features

**2.1. Consonant mutation** The system of word-initial consonant mutation found in all the Celtic languages is well known to linguists. Just how many languages have comparable, grammatically-conditioned alternations is controversial. Phonologically-conditioned alternations are not uncommon, and these can sometimes be quite complex, as that of Nivkh (Shiraishi, 2004). Syntactically and morphologically conditioned consonant alternations are probably found only in the Celtic languages and in northern languages of the West Atlantic family, spoken in West Africa. The Celtic type though shows features of pure syntactic conditioning not found anywhere else.

In Welsh there are three mutations, so words can have up to four alternate forms depending on their initial consonant:

<i>Base</i>	p	t	k	b	d	g	ɸ	ɾ	m	n
<i>Soft</i>	b	d	g	v	ð	∅	l	r	v	
<i>Nasal</i>	m̥	n̥	ŋ̥	m	n	ŋ				
<i>Aspirate</i>	f	θ	χ						(m̥)	(n̥)

(Aspirate mutation of /m/ and /n/ is regular in spoken Welsh but is not part of the written standard.)

There are three types of mutation trigger: (1) specific words, (2) the feminine gender, and (3) specific syntactic positions.

(1) Certain words trigger mutation of the immediately following word. Triggers are closed-class grammatical words: possessive pronouns, prepositions, numerals, particles. The mutation triggered is a lexical property of the triggering word, independent of phonological form or meaning, as in the possessive pronouns /və/+nasal ‘my’, /də/+soft ‘your’, /ei/+soft ‘his’, /ei/+aspirate ‘her’.

	<i>‘head’</i> pen	<i>‘nose’</i> truɪn	<i>‘ear’</i> klist
<i>my</i>	və m̥en	və n̥ruɪn	və ŋ̥list
<i>your</i>	də ben	də druɪn	də gl̥ist
<i>his</i>	ei ben	ei druɪn	ei gl̥ist
<i>her</i>	ei fen	ei θruɪn	ei χlist

(2) Welsh has gender: a noun is either masculine or feminine. The main exponents of gender are anaphoric pronouns and mutation. A feminine noun undergoes soft mutation after a definite article, and itself triggers soft mutation of a following dependent adjective.

(3) Certain syntactic positions trigger soft mutation of the initial word of a noun phrase. Mutated constituents include the object of a finite verb, a noun phrase used adverbially, a vocative, and a phrase which has been moved rightwards.

The following example shows three tokens of soft mutation:

ɾo·iθ	John	liθ	ver	vore	maurθ
give·FUT		lecture	short	morning	Tuesday

*‘John will give a short lecture on Tuesday morning’*

The mutations are: /ɸiθ/ ‘lecture’ → /liθ/ because it is the direct object of a finite verb; /ber/ ‘short’ → /ver/ because it is an adjective dependent on the feminine noun /ɸiθ/; and /bore/ ‘morning’ → /vore/, the first word of a noun phrase used adverbially.

Mutation is unstable in present-day spoken Welsh. For younger speakers in particular, it has become optional. Ball’s study of mutation in the spoken Welsh of adults in two Welsh-speaking areas thirty years ago suggests that Welsh-dominant adults then mutated pretty much as descriptive grammars of Welsh claim they do. Of the soft mutation for instance, he writes ‘The full study records no noticeable change in soft mutation triggering’ (Ball 1993, p. 203). Jones’ study of the use of Welsh in two bilingual towns ten years ago found a very different picture. Of the soft mutation she

writes ‘while still used in a historically appropriate way by two-thirds or more of adult informants, the soft mutation was far more unstable amongst the younger generation who, in most cases, omitted it altogether.’ (Jones, 1998, p. 59). A more recent study of mutation (Thomas & Gathercole, 2005) in the spoken Welsh of adults and children in the north west, where the concentration of Welsh-speakers is highest, found somewhat higher rates of mutation than Jones, but still nowhere near 100%.

All three of the studies referred to above counted the proportion of words mutated in the context of a specific trigger, for instance the proportion of adjective tokens mutated after a feminine noun. A different way of quantifying change in mutation rates is simply to count the proportion of mutated words (tokens) in a corpus. One can count either mutated words as a proportion of all words, or mutated words as a proportion of words beginning with a mutable consonant.

<i>Proportion of words productively* mutated</i>	<i>all words</i>		<i>words beginning /p,t,k,b,d,g,m,t,r/</i>	
	Bible	17%		42%
	modern written	15%		40%
	adult speech	9%		25%
	children’s speech	3%		10%

Looking at words beginning with mutable consonants for instance, about 40% are mutated in written Welsh. We can take it that this is approximately the traditional incidence of mutation. Present day adult speech has an incidence somewhat less than two-thirds of this; children’s speech has a quarter.

These figures complement and re-inforce the impression gained from earlier research, that mutation has become optional in speech and is becoming rarer.

**2.2. Voice opposition in Welsh consonants** Welsh has a voicing contrast which includes Welsh’s three plosive, three fricative, two liquid, and three nasal consonants. A voicing contrast is crosslinguistically common with plosive and fricative consonants, but rare with liquids and nasals. To have the contrast over the full range, as in Welsh, is very rare.

	<i>plosive</i>			<i>fricative</i>			<i>liquid</i>		<i>nasal</i>		
<i>voiceless</i>	p	t	k	f	θ	χ	ɬ	ɾ	m̥	n̥	ŋ̊
<i>voiced</i>	b	d	g	v	ð		l	r	m	n	ŋ

The voiceless lateral is rather special. It is well known to the inhabitants of neighbouring countries as it is frequent in place names (such as *Llanelli* /ɬan'elɨ/ or *Pwllheli* /puɬ'heli/). Welsh-speakers too are self-conscious about it, considering it unique to Welsh and a symbol of Welshness. The attitude is typified by an article from the main English-language daily newspaper in Wales entitled *Rare Welsh tongue-twister turns up in Nigeria* (Rees, 2005). The report begins ‘The double ll sound that makes

\* *Productively mutated* means that the word is mutated in response to a trigger. A number of common words have a permanent mutation in the modern colloquial language and these are not counted. Examples are interrogative words such as *beth* ‘what?’, from *pa beth* ‘what thing’, and *gyd* ‘all’, as in *gyd o mw* ‘all of them’, from *i gyd* ‘together’.

Welsh special, yet so difficult for others to pronounce, is not so unusual after all. It has now emerged the tongue-twisting sound is also used in a Nigerian language.’ The voiceless lateral seems unlikely to disappear, but frequency counts show that the other unusual voiceless consonants are becoming increasingly rare in spoken Welsh, due both to voicing of originally voiceless consonants, and to changes in the grammar which conspire to make voiceless nasals rarer.

If a word-initial voiceless rhotic is used in a context triggering soft mutation, it will be voiced: /r̥oi/ is ‘give’, but /urθ roi/ is ‘whilst giving’. In the present-day spoken language, /r̥/-initial words which are often subject to mutation may be re-analysed as /r/-initial. A count of the commonest such words in the spoken corpus (/r̥iu/, /r̥əubəθ/, /r̥oi/, /r̥oid/, /r̥əuin/, /r̥aid/, /r̥əule/) showed that /r/ was used 68% of the time where /r̥/ would have been expected.

Yet other /r̥/-initial words rarely or never occur in contexts triggering mutation. The demonstratives /r̥ein/ ‘these’, /r̥eina/ ‘those’, /r̥eini/ ‘those’ are examples. There are few tokens of these words in the adult conversations, but plenty in the children’s corpus where they have initial /h/ in about half the examples — i.e. the pronunciation is /hein/, /heina/, /heini/. Personal experience suggests that this pronunciation is not confined to children’s speech.

The voiceless nasals occupy a special position in Welsh phonology, in that they are closely connected with the system of consonant-initial mutation. Few words have a radical voiceless nasal: most voiceless nasal tokens in traditional Welsh result from nasal or aspirate mutation triggered by a preceding word or prefix. The word /kəmr̥i/ ‘Wales’ often turns up in text in its mutated form /ŋəmr̥i/; the opposite of /klod/ ‘honour’ is /aŋlod/ ‘dishonour’. With the decline of the mutations, it is to be expected that the frequency of voiceless nasals in speech will decline, and corpus counts suggest that this is the case. The number of voiceless nasals (m̥, n̥, ŋ̥) per 10,000 words, excluding the word /ŋu/, is

Bible	86
modern written	93
adult speech	28
children’s speech	3

Adults use voiceless nasals at about a third of the traditional rate (represented by the written corpora); children hardly use them\*.

The counts above exclude the colloquial third person plural pronoun /ŋu/. This word, which has a radical /ŋ̥/, is not found in the Bible and is comparatively rare in written Welsh in general, but common in informal speech. It occurs frequently in both the spoken corpora but in the children’s speech the initial nasal is voiced in 98% of tokens. Again personal experience suggests that this pronunciation is not confined to children’s speech.

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\*It is not that children cannot produce voiceless nasals: there are examples in the speech of 31 of the corpus’ 85 children.

**2.3. Vigesimal counting** The traditional counting system of Welsh is vigesimal. The number 158, for instance, is expressed as ‘seven twenties and eighteen’:

Tair    ar    bymtheg    a    saith    ugain  
3        on    15            &    7        20            =158

Fifty years ago this was the natural way to express numbers in Welsh. A biographical note mentions a ‘mountainous farm of about 140 acres’ *fferm fynyddig o ryw saith ugain cyfer* (Bywgraffiadur Cymreig, 1953, under *Ellis Pierce*); a report on a meeting talks of ‘about 140 to 160 young people’ *rhyw saith i wyth ugain o bobl ifainc* (Morgan, 1957: 13) — literally ‘seven or eight twenties’.

Over the past half century, an invented decimal counting system, introduced first in schools, has spread in Wales to the extent that the traditional system is now hardly used, and is probably not understood by many younger speakers. In a recent article on counting systems Bernard Comrie (2005, p. 210) notes that “we live in a basically decimal world.” About the languages used for the *World Atlas of Language Structures*, he writes: “Not only are most of the languages in that sample decimal, but the decimal system is also dominant in nearly every single macro-area of the world.” He goes on (p. 228) to discuss Welsh: “the traditional vigesimal numeral system of Welsh [...] has been replaced for most purposes for most speakers by an artificial transparent decimal system.” Comrie’s comments on Welsh are supported in detail by Roberts (2000), who also traces the origins and spread of the new decimal counting system.

**2.4. Inflected prepositions** The prepositions of Celtic languages conjugate for person and number in a similar way to verbs. Portmanteau forms combining an adposition and a pronoun are found in a few other languages, but usually are transparent combinations of adposition and pronoun. Conjugation of prepositions with paradigms similar to those of verbs is crosslinguistically very rare.

Paradigms for two common prepositions belonging to different conjugation classes, /o/ ‘from, of’ and /urθ/ ‘to, by’, are shown:

	<i>singular plural</i>	<i>singular plural</i>
<i>1</i>	ohonov ohonom	urθiv urθim
<i>2</i>	ohonot ohonoχ	urθit urθiχ
<i>3m.</i>	ohono ohonint	urθo urθint
<i>3f.</i>	ohoni	urθi

Failure to conjugate is ungrammatical in traditional Welsh: there is not a single example in any of the three written corpora. Loss of the conjugations though is a striking feature of present-day colloquial Welsh, particularly with younger speakers, and particularly in parts of the country where English is dominant. Jones (1998, pp. 71 & 176) notes very low levels of conjugation in her South-Walian subjects, somewhat higher with the Northerners. The oldest speakers in both areas have levels close to 100%.

Counts in the spoken corpora support Jones’ results. Jones gives only aggregate percentages for prepositions as a whole; the corpus counts show that the details are different for each preposition. Some prepositions, such as /o/, generalise a base form:

typical examples are

dui o nu	đui o ni
two of them	two of us

where traditional Welsh would have /dui ohonint/, /đui ohonom/. Other prepositions, such as /urθ/, generalise an inflected form: typical examples are

urθo mami	urθo hi
to Mummy	to her

where traditional Welsh would have /urθ vami/, /urθi/.

With regard to frequency of conjugation, the five commonest prepositions fall into two groups: with /gan/, /wrth/ and /o/ between 65% and 75% of relevant examples used a generalised form; with /am/ and /ar/ about a quarter of relevant examples used a generalised form, the conjugations being better maintained.

It seems that conjugation has become optional for younger speakers, and unusual for at least some of the commoner prepositions.

**2.5. Equative adjectives** As well as a comparative and superlative form, Welsh adjectives have an equative form made with a suffix or by irregular change or suppletion. Morphological comparatives and superlatives are common in Europe but rare elsewhere; a morphological equative is very rare, being found in only a few languages other than Welsh (Cuzzolin & Lehmann, 2004; Haspelmath & Buchholz, 1998).

In Welsh the regular equative suffix is /ed/.

<i>Positive</i>	<i>Equative</i>	<i>Comparative</i>	<i>Superlative</i>
'təuiɪ	tə'uəɪed	tə'uəɪaχ	tə'uəɪav
<i>dark</i>	<i>as dark so dark</i>	<i>darker</i>	<i>darkest</i>

Stress is regularly on a word's penultimate syllable, so moves predictably in the example; the vowel change /i/ → /ə/ is also regular. Typical examples of the equative from written corpora are

aeθ ər hoɪ le kɪn dəuəɪ.ed a r avagðɪ  
 went the whole place as dark-EQ as the utter dark

'The whole place went as dark as pitch'

ni wel-ai r turv ɾag təuəɪ.ed ə nos  
 NEG see-IMPF the commotion because dark-EQ the night

'He couldn't see the commotion because the night was so dark'

Corpus counts suggest that while the comparative form remains fully productive in present-day Welsh, the equative form, though of frequent occurrence and standardly used for equative comparison in the past, is very much less common in present-day written Welsh, and is hardly used in speech. Its place has been taken by a construction similar to that of English.

<i>Proportion of inflected forms in total inflectable comparisons</i>		<i>Comparative</i>	<i>Equative</i>
	old written	100%	100%
	modern written	93%	48%
	adult speech	97%	11%
	children's speech	81%	0

### 3. Why are these features falling out of use?

If one asks why it is that equative forms of adjectives are falling out of use when comparative forms remain productive, there is no very clear answer. Obviously English influence has something to do with it. Present-day Welsh speakers find themselves in a state of intensive bilingualism. The average Welsh-speaker is switching between Welsh and English, depending on interlocutor, over and over again, day in day out. As has often been pointed out in the past, the mental burden can be lightened by bringing the two languages closer to each other (see the discussion in Ross, 2007). Since English is externally fixed, it is Welsh that must change to become more like English. English adjectives have a comparative form so there is no problem there, but since the equative form is peculiar to Welsh, bilingualism would be less of an effort if Welsh used a periphrastic equative construction like that of English. Hence the change.

These sorts of arguments are commonly found in studies of language change due to contact, but seem to give only a partial answer in the Welsh case, since they do not explain why it is specifically the cross-linguistically unusual features of Welsh that are changing. Though recent decades have seen much influence of English on Welsh in vocabulary, word senses, idiom, and modes of expression, there has so far been comparatively little influence on syntax and morphology. It is very easy to produce examples of morphology or syntax where Welsh differs from English and where the Welsh construction seems independent (from the viewpoint of typology or language universals) of other parts of the grammar, and so could easily mimic English, but does not. Three simple examples follow.

(1) In the second person pronouns, translating English *you*, Welsh has a TV system. The familiar singular pronoun is /ti/ and the plural is /chi/, also used as a respectful singular. One might expect /ti/ to fall out of use and leave /chi/ as an exact translation of *you*. In fact the present tendency, with the informality of modern society, is to extend /ti/ to a wider range of singular contexts.

(2) Welsh uses a singular noun with numbers, e.g. /iŋ ʰiθ/ 'one lecture', /dui liθ/ 'two lectures'. (The number triggers soft mutation, voicing the initial lateral.) The English-style use of the plural with numbers other than *one* is not found.

(3) Unlike English, Welsh has no indefinite article. This is a particularly interesting feature, because other languages in similar contact situations have very often developed indefinite articles, almost always based on the number one (Heine & Kuteva, 2006, §3.1). In Welsh there is no sign of /iŋ/ 'one' taking on the functions of an

indefinite article. Neither does any other semantically appropriate word such as /r̥i+u/ ‘some’, as in /r̥i+u liθ/ ‘some lecture or other’, seem to be extending its range of use.

Cross-linguistically unusual features will always be prime candidates for contact-induced change, simply because they are cross-linguistically unusual. They are statistically unlikely to be present in a contact language, so that influence from a dominant language will almost always oppose a cross-linguistically unusual feature. Amongst the features discussed above, this is clearest with the counting system. Not only English, but also the Arabic written notation which all Welsh-speakers must master, are decimal. All modern Welsh-speakers need to be at home with decimal counting, both for English and for writing in figures. Converting between vigesimal and decimal numbers is difficult, so that maintaining both systems is a considerable mental burden: the result is the demise of the vigesimal system.

Some cross-linguistically unusual features are inherently unstable, which is why they are unusual in the first place. Voiceless nasals for instance have little acoustic energy and are hard to hear. Cross-linguistically they have a tendency to drop out or fall together with their voiced counterparts (Blevins 2004, p. 30). The reason why they have remained stable over a long period in Welsh is probably that they have a grammatical function as part of the system of mutations. Blevins (2004, pp. 204-209) adduces examples from several languages of normally unstable phonological contrasts which seem to be maintained because they have a grammatical function, suggesting that “the grammatical role of phonological contrasts can inhibit otherwise common instances of phonetic mergers” (p. 205). In Welsh, with the decay of mutation, voiceless nasals no longer have a grammatical role, and since their functional load is otherwise small, and they do not exist in English, the way is open to change.

Of course this begs the question of why the mutations are decaying. The Welsh mutation system is the result of an unlikely combination of individually unexceptional changes, which happened in the distant past. Mutation is cross-linguistically rare because it is unlikely to arise, not because it is unstable once it has arisen. Except for a few minor analogical changes, the Welsh system has been stable for fifteen hundred years or so. The same is true of inflected prepositions and equative adjectives. Surely the fact of linguistic rarity in itself can have nothing to do with a feature’s demise.

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# **THE PROBLEM OF THE INTERPRETATION OF THE BORROWED CHARACTERS IN OLD KOREAN LITERATURE, THE HYANGGA**

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## **Abstract**

In this paper I have discussed some fundamental problems in the interpretation of Hyangga by demonstrating the critical role of the content-oriented interpretation and advocate a systematic linguistic analysis of each character. The analysis of the syntactical environment of a character, i.e. its position in the sentence and its combinable features with other characters, can provide plausible evidence to support its syntactical and semantic functions. In order to avoid the repetition of incorrect decipherment of the Hyanch'al script, it is necessary to strictly follow the principle to first finish formal linguistic analysis, and only then start interpreting.

**Keywords:** Old Korean, Hyangga, Hyangch'al, borrowed characters

## **1. Introduction**

This paper aims to demonstrate the problems of the interpretations of the borrowed characters in Old Korean literature, the Hyangga and suggests a method of an analysis of a character or clusters of characters in its position and syntactical environment, in which they occur.

Hyangga, literally to be translated “songs of our Land”, means the songs of Shilla (?-935) in contrast to those of T'ang - China. A total of 25

Hyangga is handed down; 14 of which come from Shilla and the other 11 from Koryo (935-1392). The Hyangga are written in the so-called Hyangch'al script.

In the Hyangch'al writing system letters borrowed from Chinese characters have been read according to the sound (phonogram) or the meaning (semantogram) of the original Chinese character. Unfortunately the reading/writing tradition of Hyangch'al was broken off, presumably in the middle of the Koryo period. As a result in many instances it is not clear how the text has been read originally. For the deciphering the knowledge about various usage of Chinese character provides only a semantic or a phonetic clue, and there is no reference whether a given character represents a morpheme or a sound. Scholars maintain that a certain sequence of Chinese characters stands for a certain word having this or that meaning and having been pronounced in a certain way. Due to the small volume of surviving Hyangga it is not easy to find multiple spellings of many words, morphemes and sounds which would support hypothetical readings.

Although since the beginning of 20<sup>th</sup> century many attempts have been made to decipher the surviving texts, many of the details of the Hyangga

remain still in darkness, unexplained. Especially the character which has a grammatical function, its syntactic and morphological features are not totally identified.

In following I will present some fundamental problems in the interpretation of a character or a sequence of the characters in Hyangga.

## **2. Interpretation of the characters representing a word, which is lost**

The inherent difficulties involved in the decipherment of Hyangch'al are due to the small number of the Chinese characters used. Much of the traditional reconstruction of Hyangga shows a methodical shortage in the reconstruction of the sound or meaning of the character. In reading Hyangga the middle Korean phonology, lexis and grammar are drawn arbitrary without any fundamental linguistic analysis.

For example, the line of the Koryo-Hyangga '*Ch'ingch'an Yorae ka*' 稱讚如來歌 "A Song of Glorification of the Tathāgatas" reads;

際于萬隱德海兮

Yang Chudong (1957) reads this line 際于萬隱 德海兮 kas öpsün tök patalhal “the endless Sea of Virtue” making a break between 際 \*kas and 于萬隱 \*öpsün, while Yu Ch’anggyun (1994:901) 際于 萬隱 德海兮 öuru mön tök patalhal “the far away detached Sea of Virtue” between 際于 \*öuru und 萬隱 \*mön.. While the two scholars agreed to the interpretation of the graphs 德海兮 “Sea of Virtue” they differ in their interpretations of the first four graphs 際于萬隱.

Yang interprets 際 as a semantogram representing Old Korean \*kas ‘end, border’ and the sequence of the graphs 于萬隱 \*öpsün as a word stem representing the meaning ‘to not be there’ and reads them like Middle- or Modern Korea. Thus the graphs 際于萬隱 are interpreted as an adjective phrase meaning “boundless, endless, without border”. In contrast, Yu reads 際于 as an adverbial meaning ‘very’ and 萬隱 as a phonogram representing \*mön ‘far, distant’, again stems from Middle- and Modern Korean. Both scholars deciphered 隱 ‘hidden’ as a phonogram representing the Old Korean particle \*-n.

Though in regard of contextual relation, Yang’s semantic interpretation sounds plausible, but he could not provide any linguistic cues which would confirm his interpretation. The first character 際 can be confirmed by me as

a semantogram meaning ‘end, border’ because the character 際 occurs 3 times in Koryo Hyangga and it represents the same in all these occurrences.

Furthermore, the result of my study on the negation in Old Korean confirms the meaning of 于萬隱 ‘not to be there’, but there is no way to know for sure that the Old Korean word can be read \* öpsün. 于萬隱 might have represent some other lost Old Korean word meaning ‘to not be there’. Even if the Old Korean word were cognate to later Korean öps-, there is no guarantee to have been phonological identical. The sound of the letters then must be reconstructed on the basis of the historical phonology of Chinese and the arbitrary reading based on Middle-Modern Korea should be avoided.

### **3. Literary interpretation versus morpho- syntactical analysis of the characters**

Secondly, the scholars tend to decipher the meaning of unknown words by combining it to their background knowledge of Middle- or even Modern Korean and often neglect the graphic display in the text, the environment and the position of a grapheme and the sequences of graphemes as a basement of linguistic analysis of the source.

To my observation many of the scholars who interpret Hyangga rely highly upon the previous concept-oriented interpretations rather than on the original textual data, so that the incorrect interpretation of the source is repeated. For example, observe the following line of the Silla-Hyangga *`che mangmae ga'* 祭亡妹歌 “A Song for the Deceased Sister”

彌𡇗刹良逢乎吾道修良待是古如

As for the segmentation of the line into meaningful units the scholars' opinions are controversial. They differ in their opinion, as to with which character the sentence ends or begins. One group (see Yu Ch'anggyun 1994:732), the majority of scholars, punctuate after the character 吾 as a final ending and take the character 道 as the initial letter of the following sentence.

Mitach'al ae maspol na 彌𡇗刹良逢乎吾 “I, who will meet [S] at the

Temple of Mita”

To tasara kituri goda 道修良待是古如. “following the Bodhi-Path

and waiting”

Another group of scholars (see Hong Kimun 1956: 266) reads 乎 as a final ending and 吾 as the initial letter of the following sentence.

Mitach'alae maspoho 彌𡇗刹良逢乎 “for the reunion with Amitaba”

Na To taka kitri koda 吾道修良待是古如 “following the Bodhi- Path

I will wait [for the reunion]”

Because the segmentation in the line is not based on the morpho-syntactical analysis but on intuitive, mainly concept-oriented knowledge of Buddhism, they cannot provide plausible linguistic evidences for supporting their opinion, whether the character 吾 could be seen as a last element of a sentence or the first letter of the following sentence. It goes without saying that this leads to different interpretations of the meaning of the song.

吾 \*’I’ appears 8 times in the Silla-Hyangga and it is always used initially and comes neither in second nor in final position. Considering the semantic value of the character 吾 \*’I’ and its position in the line, it is not difficult to confirm the grammatical function of 吾 \*’I’ as a pronoun representing ‘I’, which is the subject of a sentence.

#### **4. Interpretation of the variant of a character:**

##### *4.1. Sentences with the character 賜*

The character 賜 occurs 13 times in Silla-Hyangga and 12 times in Koryŏ-Hyangga. In all occurrences 賜 follows a character or a cluster of

characters representing an action or an attribute of a person and functions as a honorific marker, equivalent to -si- in Modern and Middle Korean. The character 賜 was attached directly to the characters representing a verb stem.

法界 滿賜隱 佛體 “the Buddhas who *fill* the Dharmarealm”

佛體頓叱 喜賜以留也 “the Buddhas will also *rejoice*”

佛影 不冬 應爲賜下呂 “Will the Buddha’s Image not *be mirrored* there?”

In Hyangga a Chinese character functioning as a grammatical morpheme is normally a phonogram. The reconstructed pronunciation of 賜 in Early Middle Chinese, which is the language of the *Qieyun* rhyme dictionary of 601 A.D., is [siə<sup>h</sup>] or [si<sup>h</sup>] (Pulleyblank 1991:292).

Up to now the Korean scholars (see Yu Ch’anggyun 1994:1072) claim that the honorific morpheme 賜 in Hyangga has a variant, namely the character 事, and that 事 features the same phonetic and morpho-syntactical functions. This claim should be corrected by reason of my analysis below. In following I will examine the sentences with these characters in terms of their morpho-syntactic, phonetic and semantic functions and correct the previous misinterpretations of the sentences.

#### 4.2. Sentences with the character 事

The character 事 does not occur in Silla-Hyangga but it appears 3 times in Koryŏ-Hyangga.

- 1) 舊留然叱爲事置也 (普皆廻向歌)
- 2) 又都佛體叱事伊置耶 (摠結无盡歌)
- 3) 伊留叱餘音良他事捨齊 (摠結无盡歌)

In example 2) and 3) 事 functions as a noun, i.e. as a semantogram meaning ‘work/task’, thus 2) 佛體叱事 is to be interpreted as “works of Buddha” and 3) 他事 ”other works”. In these two cases it is clear that the character 事 is not a honorific marker.

The sentence, in which 事 is considered as a variant of the honorific marker 賜, reads 1) 舊留然叱爲事置也 “In the past it has done always thus”. In this sentence 事 follows the verb 然叱爲 \*kürōha “to do thus” and precedes the final endings, thus as a pre-final ending it is assumed to be a phonogram.

However, the pronunciation of the character 事 in Early Middle Chinese is reconstructed as [dzi<sup>h</sup>] or [dzi<sup>h</sup>] (Pulleyblank 1991:284) and shows a wide difference in its phonetic value when it is compared to [si<sup>h</sup>] or [si<sup>h</sup>] for 賜. In contrast to the honorific marker 賜 with voiceless sound, 事 is voiced. In

addition, the context of the text supports that 事 is not a honorific marker but a noun meaning ‘work/task’ as that of the other two examples.

Resulting from above analysis it can be ascertained that 事 is not a variant of the honorific morpheme 賜. In other words, there is no other variant of the honorific 賜 in Hyangga which bears the same morpho-syntactical functions.

## 5. Conclusion

In this paper I have discussed some fundamental problems in the interpretation of Hyangga by demonstrating the critical role of the content-oriented interpretation and advocate a systematic linguistic analysis of each character. The analysis of the syntactical environment of a character, i.e. its position in the sentence and its combinable features with other characters, can provide plausible evidence to support its syntactical and semantic functions. In order to avoid the repetition of incorrect decipherment of the Hyanch'al script, it is necessary to strictly follow the principle to first finish formal linguistic analysis, and only then start interpreting.

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## **Classical Studies and the Emergence of Comparative Linguistics: What was lost and what was gained?**

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One might rightly claim that the study of Classical languages, over the long range of centuries during which it evolved and matured, had attained by the beginning of the 19<sup>th</sup> century a status of excellence that was difficult to match and outright impossible to surpass. (For greater details cf. Jankowsky 2001a). Occasional periods of stagnation were dealt with effectively, sometimes without delay, sometimes in a rather leisurely fashion. Those intermittent periods of reduced productivity could, however, in no way detract from the exalted position of Classical Studies, since the foundations of their widely acknowledged excellence were solidly laid and for a considerable time had proven to be well beyond the reach of any challenging criticism. After all, along with ancient Hebrew, Classical Greek and Latin were the original languages of the Bible, and hence for centuries had been regarded as the “Three Holy Languages” (cf. Jankowsky 2001b: 1182). Subsequent investigations of languages other than those three throughout the Middle Ages and beyond were greatly impeded by the somewhat dogmatic belief originating in the 3<sup>rd</sup> century A.D. (cf. Jankowsky, *ibid.*) that Hebrew, the oldest of the Biblical languages, qualified as the mother of all other languages, a misconception that only Gottfried Wilhelm Leibniz (1646-1716) could undertake to dispel. Leibniz approached this topic repeatedly, stating in one case that “[t]o say the Hebrew language is original is like saying that the trunks of the trees are original” (‘Linguam Hebraicam primigeniam dicere idem est ac dicere truncos arborum esse primigenios.’ [Quoted after Feller 1718: 80]). He continued that for him there was no reason to believe that Hebrew was any closer to an assumed original language than any of the other related languages.

Equally damaging was the contention that a thorough study of those “Holy Languages” would yield results vastly surpassing all insights that could be derived from the study of any and every other language. It sanctioned, as it were, the disregard of, or even contempt for, all vernacular languages, even though Wilhelm von Humboldt’s

(1767-1835) work *Über die Verschiedenheit des menschlichen Sprachbaues und ihren Einfluss auf die geistige Entwicklung des Menschengeschlechts* (*On the Diversity of Human Language-Structure and Its Influence on the Mental Development of Mankind*), published in 1836, had at long last removed every possible justification for such an attitude.

On the European scene, the experience of being exposed to advanced Classical Studies was expected to have, for the members of the privileged minority being provided with university education, a lasting impact on their personal as well as their professional life. And in most instances this was indeed the case, as is convincingly demonstrated, e.g., by an account that Karoline von Wolzogen (1763-1847), sister-in-law of Friedrich von Schiller (1759-1805), gave on the effect that the comprehensive training in Classical Studies had on the life of this great German poet:

Schiller sagte einst in einer schwermütigen Stimmung: ‘Wenn man auch nur gelebt hätte, um den dreiundzwanzigsten Gesang der Ilias zu lesen, so könnte man sich nicht über sein Dasein beschweren.’ (Schiller once said [to me] in a melancholic mood: ‘If one had only lived to read the 23<sup>rd</sup> stanza of the Iliad, one could not complain about one’s existence.’ [Wolzogen 1882: 276]).

Friedrich Gottlieb Welcker (1784-1868), the first professor of Greek literature and Archaeology at a German university, who had been private tutor in the family of Wilhelm von Humboldt from 1806 to 1807 at Rome, referring to Schiller’s enthusiastic admiration for the Iliad, asserts that Schiller “ware ohne die Alten nicht Schiller gewesen” (‘would not have been Schiller without the Ancients’ [Welcker 1861: 4]). He also quotes Friedrich Gottlieb Klopstock’s (1724-1803) statement made when at an advanced age: “Die Alten waren und sind meine Lehrer.” (‘The Ancients were and are my teachers.’[3]).

The extraordinary influence of Classical Studies was by no means restricted to the special group of creative writers. Walter Jens (b. 1923), appointed Professor of Classical Philology at Tübingen in 1950, refers in 1974 to an amazing development (1974:69): “... the utopia of the 16<sup>th</sup> century, a world of Latin-speaking dentists, Homer-reading

lawyers and Sophocles-quoting merchants, had become a reality around 1850.” This truly extraordinary achievement was obviously not to last. Classical University Studies and the teaching of Latin and Greek at the high school level did not fare, during the subsequent century, as well as Classicists had hoped it would, especially “... when one considers that well into our century education and culture were identical with mastery of classical humanities” (68). Jens continues with a gloomy verdict on the 1950s and beyond:

... how much obsolete baggage is still being purveyed in the schools of the Federal Republic [of Germany], handed on from class to class, only because that is what tradition and the curriculum demands! Generations of pupils bored by Ovid’s *Metamorphoses*, Latin lessons started with Caesar, Greek lessons with Xenophon (77).

The meaning, he asserts, “matters not ... for what is at stake is the gerund” in Latin texts, “and the pupils are practicing the verbs ending in -mi” (77), when dealing with Greek literature.

For some high schools this is of course too dismal an assessment, but a less gloomy verdict would still seem to be the exception rather than the rule. The beginning of that unfortunate development has to be traced back to the second half of the 19<sup>th</sup> century when most of the leading scholars of Classical Studies and Comparative Linguistics were either incapable or unwilling to look critically and objectively into the long-range development of their own specialized discipline and that of their potential partner’s. Admittedly, there must have been a multitude of reasons behind those extensive adverse changes, many of them extremely complex and some entirely beyond the control of single individuals. But it is hard to believe that changes of this magnitude could not have been influenced for the better, had there been in place a functioning cooperation of all responsible forces.

Among the classical scholars who contributed most significantly to the redefinition and revitalization of the field in Germany during the outgoing 18<sup>th</sup> and beginning 19<sup>th</sup> centuries, special praise is due to Friedrich August Wolf (1759-1824). In his *Darstellung der Altertumswissenschaft nach Begriff, Umfang, Zweck und Wert* (*Portrayal of Classical Studies according to Its Concept, Range, Purpose and Value*)

(his term *Alterthums-Wissenschaft* may also be translated as: *Archaeology*), first published in 1807, he emphasized that the main objective of *Alterthums-Wissenschaft* “ist ... kein anderes als die Kenntniss der alterthümlichen Menschheit selbst” (‘is ... nothing else but [gaining] knowledge of ancient mankind itself’ [1986: 124-125]). Such knowledge would be obtained “aus der durch das Studium der alten Ueberreste bedingten Beobachtung einer organisch entwickelten bedeutungsvollen National-Bildung” (‘from the observation, based on the study of the ancient remnants, of an organically developed, meaningful national education’ [125]). Wolf’s definition of “Alterthums-Wissenschaft”, for which he also uses the term “Philology”, is, as we can see, rather comprehensive. As a matter of fact, his list comprises 24 sections of philology (143-145). Apart from all aspects of language and literature, he also wants included, among other subjects, history, geography, mythology, archaeology, art, and numismatics. While his predecessors dealt more or less exclusively with the investigation of grammar as well as textual and literary criticism, Wolf would aim at the investigation of human activities in their entirety. It was, in the words of Ada Hentschke (b. 1942), Wolf’s most original achievement,

das neue Menschenbild zum Bildungsziel und Leitprinzip für die Philologie zu erheben: Die Philologie übernimmt wiederum die Rolle als führende Bildungsmacht und dies zu einer Zeit, als sie sie endgültig verloren zu haben schien (to elevate the new image of humanity to become the educational objective and guiding principle of philology: Philology assumes again the role as leading educational force, and this at a time, when it appeared to have lost that role for good [1972:82]).

Of Wolf’s contemporaries and immediate successors some were convinced of the need to continue along those lines – for instance, August Boeckh (1785-1864). For Boeckh, the true objective of philology is “das Erkennen des vom menschlichen Geist Producirten” (‘to recognize what has been produced by the human intellect’ [1966: 10]). “Der adäquateste Ausdruck der Erkenntnis ist die Sprache.” (‘The most adequate expression of recognition is the language’ [11]), which mandates the meticulous investigation of language, not as an object in itself, but as an essential tool in the pursuit of higher objectives. One of his younger colleagues was Karl Otfried Müller (1797-

1840), whom Sandys describes as “the most brilliant and versatile, and the most widely influential” (1967: 213). He was a prolific writer and gained early recognition even by scholars from abroad. Several of his works appeared in English translations (cf., e.g., Müller 1830).

Others, such as Gottfried Hermann (1772-1848), restricted their attention primarily to the study of language. Hermann led a group of scholars, for whom a thorough investigation of the language constituted the first and foremost precondition for accomplishing the ultimate objective of philology: comprehension of the writings of classical antiquity (cf. Bursian 1880: 175). That the two approaches are complementary by their very nature, is quite apparent to us and was most likely not overlooked by those two parties either. Nevertheless, the contenders pursued their specialized research rather independently, perhaps not because of plain stubbornness, but because they were convinced of the predominance of their particular subject area. The *avoidable* damage for both sides was considerable.

During the time of Wolf, Hermann, and Boeckh, enormously important changes had occurred outside the field of Classical Studies, changes bound to cause the restructuring of language studies in general and of the study of Latin and Greek in particular.

As attentive observers from a safe distance in time, we can hardly refrain from wondering about the almost deafening silence that prevailed in Classical Studies circles during the first decades following the emergence of Comparative and Historical Language Studies and the rather hostile attitude which thereafter continued to be displayed for quite some time.

Friedrich von Schlegel (1772-1829) had alerted the scholarly world in 1808, with the publication of his amazingly influential work *Ueber die Sprache und Weisheit der Indier (On the Language and Wisdom of the Indians)*, that a new era in language study was about to begin. The following programmatic statement amounted to an urgent call for immediate groundbreaking action:

Jener entscheidende Punkt aber, der hier alles aufhellen wird, ist die innere Structur der Sprachen oder die vergleichende Grammatik, welche uns ganz neue Aufschlüsse über die Genealogie der Sprachen auf ähnliche Weise geben wird, wie die vergleichende Anatomie über die höhere Naturgeschichte Licht verbreitet hat. (But that decisive point which here will throw light on everything is the inner structure of the languages or the comparative grammar that will provide us with entirely new insights on the genealogy of the languages in a similar way as the comparative anatomy has spread light on the higher natural science [1808: 28]).

Franz Bopp (1791-1867) seemed to have been waiting for just such a cue to start his revolutionary work. In 1816 his treatise *Über das Conjugationssystem der Sanskritsprache (On the Conjugational System of the Sanskrit Language)* appeared, 17 years later the first volume of his *Vergleichende Grammatik (Comparative Grammar)*. During the years in between a large number of studies on language comparison by other scholars, but also by Bopp himself, presented a fairly comprehensive picture of what the new science was all about and what it could be expected to achieve. A favorable article in the *London Magazine* “veranlasste Bopp zu einer englischen Bearbeitung seines Erstlingswerkes” (‘induced Bopp to arrange for an English edition of his first work’ [Lefmann 68]).

Classical Studies was suddenly put on notice to take stock of what had been accomplished or was about to be accomplished *intra muros philologiae classicae – et extra (inside and outside Classical Philology)*. The results of this soul-searching endeavor are difficult to assess in detail, since written accounts on this topic are scarce. But the absence of ample written documents does not preclude to assume the existence of lively discussions at the time among classical scholars. In any case, it seems safe to conclude that the general consensus at the initial stage had been: There is no need for us to respond. The matter is not important enough for us to be concerned and take action.

When the first reactions appeared in print, a largely negative tone prevailed, signaling unmistakably that Classical Philology by and large had no use for the new approach. The time-honored practices of the proven experts in Latin and Greek were considered vastly superior to what the promise of a young, unproven procedure *might* deliver. And what during the first few years had been produced was not exactly convincing either. Gottfried Hermann, for instance, pronounced (“Prefatio” to *Acta*

*Societatis Graecae*, XIII) in 1836: "... ex paucis non satis cognitarum linguarum vestigiis quae Graecorum et Latinorum verborum vis sit explanare conantur." ('They undertake to explain from a few remnants of not sufficiently understood languages what the essence of Greek and Latin words [verbs?] might be' (cf. Freund, 1874.I: 15), a statement, ridiculed by K. O. Müller (cf. *ibid.*). Other, equally dismissive evaluations could be cited.

In a different category belongs a group of classical scholars who simply disregarded or failed to examine seriously the new accomplishments. Georg Curtius (1820-1885), one of the few scholars trained in Classical Studies who wholeheartedly embraced Comparative Linguistics (for greater details about his work see Jankowsky 1986) without losing sight of what was valid in the old established approach (cf., e.g., Clemm 1872: 24-25), on the one hand has ample praise for Philipp Karl Buttmann (1764-1829):

Kein gleichzeitiger Philolog hat die Schäden der grammatischen Tradition so durchschaut wie er und die Behandlung der griechischen Sprache als eines naturwüchsigen Ganzen so vielseitig gefördert. (No contemporary philologist has figured out the damages of the grammatical tradition like he has and advanced the treatment of the Greek language as a naturally grown entity in so many ways [1858: 18]).

His point of reference is Buttmann's *Lexilogus* of 1836. He continues, on the other hand, reproachingly: "Unleugbar hat er sich dabei auch in viele Irrthümer verstrickt." ('In this he also has indisputably become entangled in numerous errors' (*ibid.*)).

Hier rächte es sich, dass Buttmann noch im Jahre 1825, also 6 Jahre nach der ersten ... Auflage von Grimm's Grammatik, 9 Jahre nach Bopp's Conjugationssystem aus diesen Epoche machenden Werken nichts gelernt hatte. (Here Buttmann had to face the negative consequences that even in 1825, that is, 6 years after the first ... edition of Grimm's grammar, 9 years after Bopp's *Conjugationssystem*, he had learned nothing from those epoch-making works" [19]).

Curtius' verdict is echoed, almost verbatim, in a statement by Benedikt Mette, high school teacher of Latin in Brilon (1873: 4, note 1). His entire article on "Die vergleichende Sprachforschung in ihrer Bedeutung für die klassische Philologie"

(‘Comparative Linguistics in Its Significance for Classical Philology’) serves to show that the discussion on the significance of the new approach was not restricted to the theoretical sphere, but was put to practical use on the high school level.

Another pedagogue, Julius Lattmann, director of a high school in Clausthal, reports that at various Philological Congresses extensive discussions were held on the “von der Wissenschaft längst verlangte Reform der Unterrichtsmethode” (‘reform of the instructional method that has long been demanded by the academic discipline’ [Lattmann 1871: 2]). According to him, the following resolution was finally passed in 1867 by majority vote: “Die Schule ist verpflichtet, für den griechischen Unterricht von den Resultaten der vergleichenden Sprachforschung ... Gebrauch zu machen.” (‘The school is obligated to incorporate the results of comparative linguistics ... in the teaching of Greek’ [ibid.]).

The number of purely appreciative assessments of Comparative Philology began to grow slowly but steadily starting with the 1850s. It should be no surprise that we find voices of approval in either camp, i.e., followers of Hermann constituting, in the words of John Edwin Sandys (1844-1922), the “*grammatical and critical school*” as well as of those of Boeckh, referred to in the same source as “*historical and antiquarian school*” (1967.III: 89). We shall look at some representative selections after turning to Friedrich Max Müller (1823-1900) as an example of unrestricted endorsement from outside Germany. This German-born Indo-Europeanist had studied Sanskrit at Leipzig under Hermann Brockhaus (1806-1877), Latin with Gottfried Hermann, and also attended lectures by Franz Bopp in Berlin. In 1847 he moved to England, where he introduced Comparative Linguistics and popularized it there and in numerous other countries like nobody else before and after. In his *Lectures on the Science of Language*, presented in 1861 at the Royal Institution in London, published in numerous editions and translated into many languages, Müller stresses the independence, and implicitly the mutual interdependence, of the two approaches. He also argues forcefully for the need to study any type of natural language since all languages are of equal value:

It will not be difficult to show that, although the science of language owes much to the classical scholar and though in return it has proved of great use to him, yet comparative philology has really nothing whatsoever in common with philology in

the usual meaning of the word. Philology, whether classical or oriental, whether treating ... of cultivated or barbarous languages, is an historical science. Language is here simply treated as a means. The classical scholar uses Latin and Greek ... as a key to an understanding of the literary monuments which by-gone ages have bequeathed on us. ... In comparative philology the case is totally different. In the science of language, languages are not treated as a means; language itself becomes the sole object of scientific enquiry. ... We do not want to know languages, we want to know language (1866:32-33). ... Nor is the language of Homer of greater interest, in the scientific treatment of human speech, than the dialect of the Hottentots (81).

It should be obvious from the foregoing that difficult steps of adjustment were required and that it could be expected to take time for both sides to recognize the advantages of even partial cooperation and anticipate the potential damages if cooperation was rejected. Christopher Stray's comment of 1998 is to the point: "Much of the scholarly opposition to the rise of comparative philology can be ascribed to its implicit demotion of Greek and Latin in favour of Sanskrit" (1998: 108).

Ludwig Lange, Professor of Classical Philology in Prague, gives an account of how by 1855 the world had changed for his field of study. There are now numerous other philologies, Germanic launched by Jacob Grimm (1785-1863), Romance by Friedrich Diez (1794-1876), and Slavic by Franz Miklosich (1813-1891). Many other philologies, he is aware, will undoubtedly follow:

... keinem Volke ist es zu verdenken, dass es auf dem allen Völkern gemeinsamen Wege zur wahren Humanität vorzugsweise gern in die Schätze seiner eigenen Vergangenheit zurück greift, und das, was Vaterland, Muttersprache und Geschichte ihm theuer macht, in der Humanität zu bewahren strebt. (... no people can be blamed for their preference – on the way to true humanity, common to all people – to draw on the treasures of their own past and strive to preserve in the humanity what fatherland, mother tongue and history make dear to them [1855: 10]).

He tries to make the best of the new powerful forces having entered the scene, by calling those new philologies "jüngere Schwestern" ('younger sisters'), "weil sie als Nachahmungen der klassischen Philologie erscheinen" ('because they appear as imitations of Classical Philology' [9]), and insists that Classical Philology "wird ... nicht bloss die Stelle der ältesten Schwester einnehmen, sondern auch ihrem Werthe nach die

erste sein und bleiben” (will ... not merely assume the position of the oldest sister, but also, according to its value, be and remain the first among them’[9]). But he realizes nevertheless:

Es ist z. B. klar, dass die klassische Philologie die Prinzipien für die wissenschaftliche Behandlung der griechischen und lateinischen Sprache der allgemeinen Sprachwissenschaft entnehmen muss. (It is, for instance, clear that Classical Philology has to take over from the general linguistic science the principles for the scientific treatment of the Greek and Latin language [8]).

By the 1850s, most classical philologists are ready to embrace whatever help Comparative Linguistics can provide to facilitate and improve their language analysis. Some doubts and misgivings still linger on. In the words of Conrad Bursian: “Ja es fehlte auch nicht an lautem Widerspruch gegen die Methode und die Resultate der jungen Wissenschaft” (‘Sure, there was no shortage of loud protest against the method and the results of the young science’ [Bursian 1883: 972]), and he cites as one example Ludwig Ross’ (1806-1859) 97-page treatise on *Italiker und Gräken: Sprachen die Römer Sanskrit oder Griechisch? (Italics and Greeks: Did the Romans Speak Sanskrit of Greek?)*, followed a year later by a 2nd edition enlarged to 258 pages, where protest is dished out “mit mehr Humor als Sachkunde” (‘with more humor than specific knowledge’ [ibid.]). Bursian also provides an interesting afterthought:

Es wäre eine entschiedene Ungerechtigkeit, wenn man die Schuld an diesem Verhältnis ausschliesslich den Vertretern der classischen Philologie, der Beschränktheit ihres Gesichtskreises, ihrem zähen Festhalten am gewohnten Schlendrian und ihrer hochmüthigen Geringschätzung andersartiger Bestrebungen zur Last legen wollte. (It would be a definite injustice, if one would assign the blame for this situation entirely to the representatives of Classical Philology, to the narrowness of their scope of view, to their tenacious adherence to the habitual jog trot and their arrogant contemptuousness of different aspirations [Bursian 1883: 972]).

He subsequently points out that the initial endeavors of the comparativists were prone to raise in the minds of “Philologen strikter Observanz Bedenken und Misstrauen gegen die Solidität der neuen Gründung” (‘philologists of strict observance concerns and suspicion as to the solidity of the new beginnings’), because of their “anfangs noch ziemlich unsichere[n] und tastende[n] Methode” (‘initially still rather insecure and

groping method' [ibid.]). But he acknowledges that by the time of his writing, in 1883, even the Classical scholars had joined the general chorus of acceptance of Comparative Linguistics. The trend now was irreversibly set. In 1893 the prominent classical scholar Ulrich von Wilamowitz-Moellendorff (1848-1931) accurately captures the main features in the ongoing development. Mentioning the excellent work of Philipp Buttmann (1764-1829) on Greek accentuation and "die Vereinigung logischer Strenge und echt griechischem Sprachgefühls" ('the combination of logical rigor and of genuine flair for the Greek language' [1893: 470]) that [Gottfried] Hermann possessed, he reminds his readers that both achievements were on record, "ehe es eine vergleichende Sprachwissenschaft gab" ('before there was a Comparative Linguistics' [ibid.]), yet goes on to admit:

Aber es lässt sich doch nicht bestreiten, dass die Heranziehung des in seiner Fülle so viel durchsichtigeren Sanskrit samt der Einsicht in die Verwandtschaft der indoeuropäischen Sprachen wenigstens Laut- und Formenlehre von Grund aus umgestaltet hat. Die Sprödigkeit und das Misstrauen auf der einen, der Ueberschwang an Zuversichtlichkeit und Versprechungen auf der anderen Seite sind schliesslich durch die versöhnende Kraft der Wahrheit überwunden. (But it can, nevertheless, not be disputed that utilizing Sanskrit, in its abundance that much more translucent, together with the insight into the relationship of the Indo-European languages, has radically reshaped at least the phonology and morphology. The reserve and the mistrust on the one side and the exuberance in matters of self-confidence and promises on the other side have finally been overcome by the reconciling power of the truth [470]).

Georg Curtius more than anyone else at his time had proven, through his teaching and research, that Classical Studies and Comparative Linguistics can indeed, to their mutual benefit, work closely together and produce results not achievable if the two sides go their separate ways. He was trained in Bonn by the Classicist Friedrich Ritschl (1806-1877), the founder of Old Indic Philology August Wilhelm von Schlegel (1767-1845), and Schlegel's associate Christian Lassen (1800-1876), the founder of Indian Classical Studies, whom Schlegel had introduced to Indic Studies. During his two years at Berlin he took courses with Franz Bopp, since 1821 – through Wilhelm von

Humboldt's intervention – Professor of Oriental Literature and General Philology, and with the Classical Philologist August Boeckh.

In addition to implementing his theoretical framework through his many publications, Curtius discussed his position in a number of specific papers. The earliest, *Die Sprachvergleichung in ihrem Verhältnis zur classischen Philologie (Language Comparison in Its Relationship to Classical Philology)*, first published in 1845, offered a description of the methods employed and the results achieved by historical language comparison and their significance for Classical Studies. He also made a passionate plea for the utilization of the riches of Classical literature in his inaugural address at the University of Prague in 1849:

Durch viele Jahrhunderte hindurch sind die Werke der Griechen und Römer, ihre Sprachen wie ihre Schriften, das Hauptbildungsmittel der Jugend. (Throughout many centuries, the works of the Greek and Romans, their languages as well as their writings, have been the main resource for the education of the youth' [Curtius 1849: 91]).

Curtius, not surprisingly, also reaped occasional harsh criticism. Most notable is the attack by Karl Wilhelm Krüger (1796-1874), who was enraged that his own *Griechische Sprachlehre für Schulen (Greek Grammar for Schools)* of 1843 could not gain acceptance by the school systems in German lands because of the predominant position that the grammar of Curtius had won and easily maintained for many decades. Krüger, according to John Edwin Sandys, “declined to recognise in his Grammar any of the results of Comparative Philology, and he even attacked the principles followed in the Greek Grammar of G. Curtius (1852) ... the bitterness and violence of which can only be excused by the author's many misfortunes”(1967.III: 119). Ernst Windisch (1844-1918), in his obituary note on Curtius, just briefly mentions Krüger's aggressive criticism:

Wer von der indogermanischen Sprachwissenschaft nichts wusste, der konnte auch den Werth dieses Buches nicht erkennen. Die unwürdigen Angriffe von K. W. Krüger können wir heute auf sich beruhen lassen. (He who did not know anything about Indo-European Philology, certainly could not recognize the value of this book

[Curtius' *Greek Grammar*]. The derogatory attacks by K. W. Krüger we can altogether disregard today [quoted after Sebeok 1966 I: 353]).

Before starting his academic career, Curtius had taught Latin and Greek from 1845 to 1848 at a high school in Dresden. It was during this time that he thought about writing a Greek grammar which would incorporate the insights of Comparative Linguistics into the Greek language teaching methodology at the high school level. After gaining his *venia legendi* – prerequisite for teaching at the university level – he obtained a professorship in Classical Linguistics at the University of Prague in 1849. His work on the Greek grammar was completed there. First published in 1852, the book was immediately adopted by the Austrian high school system and not much later also by schools in several German provinces. Its success was amazing. In 1884, a year before the author's death, the grammar had gone through 16 editions, and there was no end in sight. The latest of the revised editions, prepared by a succession of scholars, that I could track down was number 38, issued in 1962.

Curtius did not deliver Classical Philology to Comparative Linguistics. He made, instead, by his consistent endeavors, Comparative Linguistics palatable to the Classical scholar. In 1862, when the worst of the struggle was over, he could rightly assert:

Die Wichtigkeit der vergleichenden Sprachforschung für die Philologie ... ist nach einem lang anhaltendem Kampf mit eingerosteten Gewohnheiten und hartnäckigen Vorurtheilen in neuester Zeit mehr und mehr in das Bewusstsein der Philologen übergegangen. Wenigstens dem Princip nach möchte diese Wichtigkeit von keiner Seite mehr ernsthaft bestritten werden. (The importance of Comparative Linguistics for Philology ... has, after a long-lasting fight against inveterate practices and pertinacious prejudices, in most recent times more and more gained entrance into the consciousness of the philologists. At least on principle no side would now want to seriously contest this importance any more [1862: 16]).

Does this imply that what was missed during the years of excessive specialization could now be recouped and that damages incurred by non-action or misguided action could now be made undone, with the assurance that all future damages could be safely avoided? That is, of course, a rhetorical question which may be seriously asked only from a position of rather unrealistic wishful thinking.

What, then, was lost and what was gained? *Plenty*, and that on both counts and applying to both disciplines.

*Classical Studies*: Its reorientation, in large part put into motion by the findings of Comparative Linguistics – which mandated (1) that language analysis can and must be dramatically refined and (2) that the notion of Greek and Latin as uniquely superior to all other languages had to be replaced by the notion that all languages are created equal – was in itself potentially much more of a gain than a loss. Part 1 is generally implemented, and its value almost universally acknowledged. Here a significant loss occurred due to the delay and the slowness in adopting the new procedure. It negatively affected whole generations of high school and university students. Part 2, however, suffers to this very day from something like a triple jeopardy. First, Classical Scholars would have to devise a national philology for Latin and Classical Greek, using as models the successfully created, now beautifully flourishing modern philologies. However, those models have something that Latin and Classical Greek certainly do no more have: living speech communities. That leads us to the second problem. The vast treasure of knowledge that owes its existence to ancient Greek and Latin humanity can continue to be accessed and easily be restored, it is true, now even much better than ever before. But this does not erase the vexing problem that still needs to be tackled and solved: for what current speech community can the singular achievements of the world of ancient Greek and Rome be demonstrated as currently relevant, as having even today a significant impact on the life of the highly educated, and perhaps even for the average citizens? Modern Greeks and Italians will surely be proud of their ancestors' unique accomplishments, but that feeling alone is not likely to have a decisive impact on their everyday life.

The third problem is tied to the position of unprecedented predominance which Classical Philology had reached on the university and high school levels in central Europe by the 1850s and its steady decline ever since. A realistic assessment would in all likelihood arrive at the conclusion that the decline could not have been averted, but that its extent might have been drastically curtailed, and one may rightfully, though somewhat optimistically, believe that it still can. Comparative Linguistics, by the creation of national philologies, has shown the way, how the cultural and intellectual

accomplishments of the past can become a valuable, in some manner even essential part of a nation's heritage. The revolutionary new approach has also provided the incentive for a particular nation to value the historical achievements of other nations, especially in case of shared historical developments. Western cultures are built on foundations for which Classical Greek and Roman antiquity furnished the most essential components. Many of these components can become part of the treasured historical wealth of a particular nation, provided the relevance of those components for contemporary life is convincingly established and effectively propagated. On this basis, Classical Scholarship enjoyed its peak development in Germany during the 1850s. Established values, however, may lose – and, as we saw, have lost – their relevance over time. The failure to put to work timely remedies is bound to trigger inescapable, but foreseeable consequences. This was true in the 1800s and 1900s, as it is true today. Classical Studies can be restored even in our time to some of its former greatness, but – quoting Walter Jens (81): “The possibilities are great, the hope that they might be put to use is slight.”

*Comparative Linguistics:* Its emergence in the early 19<sup>th</sup> century constitutes unquestionably the century's most important event in language analysis. The scholars instrumental in launching Comparative Linguistics adapted their methodology, inherited from their classical teachers, in accordance with their specific objectives: (1) to define the genetic relationship of languages assumed to have a common ancestor, by analyzing their grammatical structure as well as their lexicon; (2) to determine the grammatical and lexical components shared by all languages investigated and accumulate data on language universals. The investigation at the outset was restricted to Indo-European languages. It was soon expanded with equal success to other individual languages and language groups, potentially including – as general linguistics – each and every natural language and thus becoming effectively a universal tool.

Comparative Linguistics derived beneficial strategies from Classical Studies over and above the mentioned initial methodological guidelines. For both disciplines, language analysis is an aim in itself, but also a means to another, more important objective: to comprehend the cultural and intellectual life of the people who speak that particular language. We have seen how magnificently Classical Studies succeeded in

securing for Greek and Latin a volume of instruction at, for instance, German high schools and universities which had never been reached before. Here too, Comparative Linguists should have applied the immensely successful model of their Classical colleagues in their own arena, with the good likelihood that they could have equaled, perhaps even surpassed what the Classicists had achieved.

That did not happen. To my knowledge, no serious attempt has ever been made in any of the modern philologies to channel the secured specialized knowledge on language into the educational system. Scholars are used to primarily present their research to other scholars, and their publications might occasionally also be read by a small number of inquisitive people among the general public. But this could do little to offset the negative effect of what was left undone: To substantially reorientate language education in the school system, especially on the high school level, in a way that would do full justice to the enormous influence which language exerts on practically every aspect of our lives.

Jacob Grimm, in an introductory section of his *Deutsche Grammatik (Germanic Grammar)*, part 1, of 1819, had cautioned against dealing in schools with the German language grammatically, because so much could easily go awry. He insisted that by the wrong type of grammatical instruction “die freie entfaltung des sprachvermögens in den kindern gestört ... werde” (‘the free unfolding of the faculty of speech in the children would be interfered with’ [Grimm 1966: 30]). In his opinion, there is “keine Grammatik der einheimischen sprache für schulen und hausbedarf” (‘no grammar of the native tongue for schools and domestic use’). Each German,

der sein deutsch schlecht und recht weiss, d. h. ungelehrt, darf sich ... eine selbsteigene, lebendige grammatik nennen und kühnlich alle sprachmeisterregeln fahren lassen (‘who knows his German pure and simple, that is, untaught, may call himself ... a self-owned living grammar and may boldly dispense with all schoolmaster rules altogether [31]).

The only feasible study of grammar must be “ein streng wissenschaftliches und zwar der verschiedenen richtung nach, entweder ein philosophisches, kritisches oder historisches” (‘a strictly scientific one, and this, according to the different orientation, either a philosophical, critical, or historical study’[(31)).

We can agree with Grimm's differentiation between the natural growth of the mother tongue in a child and the scientific study of historical language development, the pursuit of which will have no direct impact on the children's advancement in language proficiency.

But what is at stake is another type of language knowledge which ought to have been placed on the language teaching agenda more than a hundred years ago: How is the faculty of language, as the most important criterion that separates man from all other specimens of creation, being used by the native speakers to perceive and process what is encountered by us in the world at large at any given moment of our lives? What are some of the most striking differences from one language to another as far as this perception and processing is concerned?

Comparative Linguistics and its various most modern branches have discovered a multitude of facts which, however, to a great extent, unfortunately stay within the research community, because there was not – and there is not – any overarching design to prepare those facts for widest possible dissemination. Feeding those facts in an appropriate way into every level of education would have been a worthy modern counterpart to the predominance of Classical Studies in the educational system around the 1850s.

The practitioners of Comparative Linguistics, apart from prudently discarding a great deal of unproductive and aberrant procedures, learned so much from their colleagues in the Classical Studies camp, but they failed to learn one most particular lesson: to recreate for their own field of research the greatest accomplishment of their distinguished predecessors. That great feat could – and undoubtedly would – have been the most precious jewel in their jewel-studded crown.

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[Translations, mostly from the German, in text and references are mine (KRJ)]

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# Rendaku Immunity and Prosodic Size

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## Abstract

Research carried out over the past two decades has shown there to be a robust relationship between the mora and prosody in Modern Japanese. If the prosodic unit of the foot is taken to consist of two moras, a number of phonological and morphological structures may be generalized, including compound and loanword clipping, hypocoristic formation, accentuation patterns in compounds, reduplication in mimetics, and jazz argot. Also proposed, although not as yet independently evaluated, has been a prosodic size rule governing the well-known allomorphic phenomenon of rendaku, by which non-initial elements in compounds may undergo initial voicing under certain conditions. It is claimed that the prosodic size rule flags a native Japanese noun as being rendaku immune, a condition for which no empirical verification has hitherto existed. In this paper the author will show that, although slight modifications taking account of certain diachronic issues of obsolescence are necessary, a prosodic size rule for flagging rendaku immunity is indeed a reality and that rendaku also may now be added to the list of phonological and morphological structures generalised by the relationship between the mora and prosody.

**Keywords:** rendaku, sequential voicing, prosody, mora, Japanese phonology, compounding

## 1. Rendaku

In Japanese, non-initial elements in compounds may undergo initial voicing under certain conditions, an allomorphy known as ‘rendaku’ or sequential voicing. The readily apparent irregularities exhibited by rendaku have meant it has undergone extensive research – indeed, descriptions or analyses of rendaku form some of the earliest extant research on the Japanese language in both Japanese (Motoori 1790-1822) and English (Lyman 1894). While the volume of ink expended on the subject has been too great to allow all previous work to be reviewed here (see, however, Suzuki 2005 for a thoroughgoing bibliography), what is worthy of note is that a literature devoted to the origins of rendaku and to describing the phenomenon from a diachronic perspective (Yamada 1904; Ogura 1910; Okumura 1952; Nakagawa 1966; Vance 1982, *inter alia*) has gradually – in line with the North American academic *zeitgeist* – come to be overtaken by a literature seeking to explain the causes and apparent irregularities of rendaku within synchronic theoretical frameworks (Itô & Mester 1986; Itô, Mester & Padgett 1995; Takayama 1999; Fukuzawa & Kitahara 2001; Rosen 2001; Irwin 2005, etc.).

A brief exposition of rendaku will show that in many cases what were initially considered to be irregularities have turned out not to be so at all. The basic phonological condition under which rendaku may occur is that the non-initial element in a compound begin with a voiceless obstruent (*k t s h*)<sup>1</sup> as in:



	fake		[raccoon dog soup]			‘fake [raccoon dog soup]’
b.	[ <i>nise</i> + <i>tanuki</i> ] [fake raccoon dog]	+	<i>siru</i> soup	>	<i>nisedanukiziru</i>	‘[fake raccoon dog] soup’

Here, rendaku can only be triggered when an element is on the right branch of a constituent tree, with rendaku blocked by Lyman’s Law for the *tanuki* element of (4a).<sup>iv</sup>

Japanese vocabulary is generally divided into three main strata: native vocabulary (*wago*: henceforth NJ), a Sino-Japanese stratum (*kango* or *jiongo*: henceforth SJ), and foreign vocabulary (*gairaigo* or *shakuyōgo*: henceforth FJ).<sup>v</sup> Providing the non-initial element is a voiceless obstruent, and bearing in mind the constraints outlined in (2-4) above, rendaku ought to occur in any of the three strata. In reality, however, the phenomenon of rendaku cuts across the vocabulary strata to hugely varying degrees: it occurs with only exceptional rarity in FJ (Vance 1987:141; Takayama 2005:178-181); with a frequency of approximately 10-20% in SJ (cf. (1c) where the second element is SJ), depending on whether the SJ element is a binom (Vance 1996:25, App. 2) or a monom (Irwin 2005:140-145); and at a level of around 87% in NJ (Vance 1996:30-34).

Finally, rendaku exhibits differing degrees of irregularity depending on word class: its frequency in inflected compounds (compounds which are themselves verbs or adjectives, regardless of the parts of speech to which their elements belong) is low when both elements are verbs (5a), but much higher when the initial element is a noun (5b), or one (5c) or both (5d) elements is an adjective.

(5) a.	<i>ki</i> wearing	+	<i>kaeru</i> change	>	<i>kigaeru</i> ‘change clothes’
b.	<i>kuti</i> mouth	+	<i>hasiru</i> run	>	<i>kutibasiru</i> ‘blurt out, blab’
c.	<i>hara</i> belly	+	<i>kuroi</i> black	>	<i>haraguroi</i> ‘scheming, malicious’
d.	<i>usu</i> being thin	+	<i>kurai</i> dark	>	<i>usugurai</i> ‘dim, gloomy’

The voicing rates by vocabulary stratum cited in the previous paragraph apply to uninflected compounds (compounds which are nouns) and these may include deverbal noun elements (6a), deadjectival noun elements (6b), and ‘pure’ uninflected noun elements (1-2) in any combination. These different types of uninflected noun compound also exhibit differing levels of rendaku (Vance 2005).

(6) a.	<i>naka</i> inside	+	<i>tati</i> standing	>	<i>nakadati</i> ‘mediation’
b.	<i>yasu</i> being cheap	+	<i>sake</i> saké, alcohol	>	<i>yasuzake</i> ‘rotgut’

Additionally, it should be noted that in Japanese a compound string can consist of an infinite number of elements and *rendaku* may operate in any or all of the non-initial elements (cf. (4b)). In this paper, however, I will restrict my definition of ‘noun’ to those which are not morphologically derived and my definition of ‘noun compound’ to a compound which is itself not morphologically derived and is composed of two such noun elements: examples (1-3) above are typical. Further, since to which vocabulary stratum the initial element in a noun compound belongs has no bearing on the triggering of *rendaku* (Ohno 2000:155), the term ‘NJ noun compound’ shall henceforth refer to the stratal provenance of the final element. Thus, both the SJ-NJ compound (1b) and the FJ-NJ compound (2d) I label NJ noun compounds.

## 2. Rendaku Predilection and Rendaku Immunity

Despite the constraints described in (1-4), cases where *rendaku* fails to be triggered in sequentially voiceable NJ noun compounds remain numerous, something which has been remarked upon since the beginning of the literature and has doubtless been a major contributory factor towards the proliferation of research into the phenomenon.

The vast majority of sequentially voiceable NJ nouns which appear as a second element in a noun compound – in numbers sufficient to make a statistical analysis significant – exhibit predilectory behaviour. In other words, although *rendaku* is sometimes triggered and sometimes not, a clear tendency towards or away from *rendaku* is apparent. Into which camp a sequentially voiceable NJ noun falls may be described by use of the terms ‘*rendaku* lover’ and ‘*rendaku* hater’. Consider examples (7-8) below, where all initial elements are bimoraic NJ nouns free of voiced obstruents, where the first element in (a) has the same accentual pattern<sup>vi</sup> as the first element in (b), and where the second element in (a) is semantically parallel to the second element in (b):

(7)	a.	<i>tani</i> valley	+	<i>soko</i> bottom	>	<i>tanisoko</i> ‘valley floor’
	b.	<i>kawa</i> river	+	<i>soko</i> bottom	>	<i>kawazoko</i> ‘riverbed’
(8)	a.	<i>asi</i> leg	+	<i>kuse</i> habit	>	<i>asikuse</i> ‘gait’
	b.	<i>kuti</i> mouth	+	<i>kuse</i> habit	>	<i>kutiguse</i> ‘pet saying’

The second element (7) *soko* ‘bottom’ is a *rendaku* lover while the second element (8) *kuse* ‘habit’ a *rendaku* hater: the *rendaku* behaviour evinced in (7a) and (8b) is thus unusual for these two nouns.

Rosen (2001:40) defines *rendaku* lovers as exhibiting *rendaku* in 66% or more of compounds where both elements are bimoraic<sup>vii</sup> and *rendaku* haters as exhibiting *rendaku* in fewer than 33% of such compounds, stating further that the former are considerably more frequent than the latter. Moreover, he claims there are only two

nouns, *kawa* ‘skin’ and *hara* ‘field’, which appear to be neither haters nor lovers, since the proportion of compounds in which they voice lies in the middle tertile. This ‘apparent tendency for a noun to either strongly prefer to voice, or else to resist voicing, with almost no nouns occupying a middle ground between the two tendencies’ (ibid.), if schematized, represents the logistic curve (S-curve) familiar from diffusionist hypotheses (Wolfram & Schilling-Estes 2003).

Employing the terms ‘native speaker reference’ and ‘native speaker memorization’, Ohno (2000) has argued that *rendaku* is dependent on speaker-internal references to semantically and/or phonetically parallel pre-existing compounds. Some of Ohno’s (ibid., 160) semantically parallel and phonetically parallel examples are shown in (9) and (10) respectively:

(9)	a.	<i>kuro</i>	+	<i>kami</i>	<i>kurokami</i>	‘black hair’
	b.	<i>shiro</i>	+	<i>kami</i>	* <i>shirokami</i>	‘white hair’
	c.	<i>hana</i>	+	<i>ti</i>	<i>hanazi</i>	‘nosebleed’
	d.	<i>mimi</i>	+	<i>ti</i>	* <i>mimizi</i>	‘earbleed’
(10)	a.	<i>waka</i>	+	<i>kusa</i>	<i>wakakusa</i>	‘young grass’
	b.	<i>aka</i>	+	<i>kusa</i>	* <i>akakusa</i>	‘red grass’

The second element in (9a), *kami* ‘hair’, is a *rendaku* lover but in this particular compound does not voice, while the second element in (9c), *ti* ‘blood’, is (it is claimed by Ohno) a *rendaku* hater which in this compound voices. When offered the nonce compounds (9bd) and asked how to read them in an experimental situation with no reference to the forms in (9ac), the majority of his native speaker subjects offered pronunciations which are predilectorily contrary to expectation but semantically parallel to existing compounds. Ohno found the same results applied to phonetically parallel forms such as (10) – *kusa* ‘grass’ is a *rendaku* hater – where the majority of subjects offered the pronunciations of the nonce word such as (10b) based on the phonetic similarity of forms such as (10a). It should be noted, however, that the compounds in (9ab) and (10) contain deadjectivals as their initial elements and it may be this factor rather than semantic parallelism which accounts for Ohno’s results. Similarly, while a brief perusal of any dictionary would seem to confirm Ohno’s claim that *ti* ‘blood’ is a *rendaku* hater, most of the compounds of which *ti* forms the second element also have deadjectivals as initial elements: noun compounds as defined in this paper are probably too few to make a judgement as to the predilection of *ti*. That said, while problems with Ohno’s theory clearly still remain, it should be borne in mind that no other convincing explanation for *rendaku* predilection and S-curve clustering has as yet been forthcoming.

Whether *rendaku* is a productive process which admits of lexical exceptions or simply the lexical property of specific words is, as Kubozono (2005:5) remarks, ‘difficult to assess’ because of its extreme productivity (1) on the one hand and the significant number of exceptions (7-8) on the other. Ultimately, he suggests (opus cit., 6-7) that work by Fukuda & Fukuda (1999) on Japanese native speaker children with specific language impairment (SLI) provides strong evidence for a lexical property in the case of common vocabulary but a productive process in the case of novel

compounds: ‘what remains unclear is the boundary... between “frequent” and “non-frequent” compounds’.

Predilection is not the only clearly identifiable behaviour to be exhibited by sequentially voiceable NJ nouns: some appear never to undergo rendaku, a fact which has been observed and, to varying degrees, catalogued by Vance (1979:86, 1980b:251), Martin (1987:114-115) and Rosen (2001:254-256) *inter alia*.<sup>viii</sup> Those cited as ‘rendaku immune’ in at least two of the aforementioned three studies are listed in (11):

(11)	<i>sio</i> tide	<i>tuti</i> earth, soil	<i>himo</i> <sup>ix</sup> cord, string
	<i>kase</i> shackle	<i>kasu</i> dregs, lees	<i>kemuri</i> smoke
	<i>saki</i> tip, point	<i>hime</i> princess	<i>tuyu</i> dew

It should be stressed that none of the above rendaku immune candidates has been proposed based on any empirical test or empirically verifiable criteria. While acknowledging that the overwhelming majority of the nouns in (11) do indeed appear to be rendaku immune, their inclusion is based on the fact that the compilers were unaware of any exceptions: significantly, only the first three nouns in (11), *sio*, *tuti* and *himo*, are listed by all three. Beginning in the following section, I shall show that an empirical test is in fact possible and, in the final section, revisit and revise the issue of rendaku immune nouns.

In closing this overview of rendaku immunity, one final observation should be made. It has frequently been noted that rendaku immune nouns possess homonyms (e.g. *tuti* ‘earth’ v. *tuti* ‘mallet’) which exhibit standard predilectory behaviour. What is more interesting is that the same circumstances exist with respect to polysemy. The immune *sio* ‘tide’ is probably polysemous with *sio* ‘salt’, but the latter is a rendaku lover; immune *saki* ‘tip, point’ is almost certainly polysemous with *saki* ‘cape, promontory’ and probably polysemous with *saki* ‘ahead’, but, once again, their rendaku behaviour differs. In the grey area between polysemy and homonymy (see discussion in Martin (1987:558)) we find the immune *tuyu* ‘dew’ contrasting with *tuyu* ‘rainy season’ and *tuyu* ‘broth’. It is interesting to speculate whether Japanese orthography, which unlike, say, English orthography, generally assigns different spellings not just to homonyms but also to polysemes (e.g. 潮 ‘tide’ v. 塩 ‘salt’) might historically have played a part in this behaviour in the minds of the literate.

### 3. Prosodic Size

Although the syllable is by no means irrelevant in Japanese morphology and phonology (Vance 1987:56-76, Kubozono 1999:42-55), Japanese is held to be a moraic language (Trubetzkoy 1969:8) with the mora (μ) ‘function[ing] as the unit of length... [and] the length of a phrase roughly proportional to the number of moras it contains’ (McCawley 1968:131). Its role in temporal regulation and phonological length and also as a unit of segmentation and perception is indisputable (Kubozono 1999:32-42).

Of critical importance in the context of this paper, however, is the relationship between the mora and prosody in Modern Japanese. If the prosodic unit of the foot is taken to consist of two moras (Poser 1990), then, as Kubozono (1999:40) points out, ‘many phonological and morphological structures [in Japanese]... can be generalized’.

These include compound clipping (Shibatani 1990:254-256), the formation of hypocoristics (Mester 1990; Poser 1990:81-93), accentuation patterns in compounds (Tsuji-mura & Davis 1987; Kubozono & Mester 1995; Aldrete 1999), loanword clipping (Itô 1990; Loveday 1996:138-152), reduplication in mimetics (Poser 1990:94-95; Hamano 1998:25-38) and the jazz argot *zūjago* (Tateishi 1985, cited in Poser 1990; Tateishi 1989; Itô, Kitagawa & Mester 1996; Kubozono 2002).

Related to this is the concept that the optimal word length in Modern Japanese is bimoraic (2μ) – one foot – and indeed the majority of NJ roots are of this length. By extension, we can therefore state the optimal length of two-element NJ compounds to be four moras, two feet, or one colon, and Rosen (2001) claims to have shown that this prosodic size, with one further condition (hereafter ‘PS’), plays a decisive role in marking NJ nouns for rendaku immunity. Rosen defines PS as being when ‘both members of the compound exceed one mora and at least one of the members of the compound exceeds two moras’ (opus cit.:28) and restricts membership to NJ nouns. In other words, in a N<sub>1</sub>-N<sub>2</sub> compound, both N<sub>1</sub> and N<sub>2</sub> must be at least one foot and N<sub>1</sub>-N<sub>2</sub> must exceed one colon. Rosen maintains that rendaku lovers and haters exhibit their usual predilectory behaviour when this PS is not attained (in ‘PS-fail’ compounds), but that when it is (in ‘PS-pass’ compounds) these same nouns undergo rendaku without exception. Ergo, a noun which does not exhibit rendaku in a PS-pass compound must be rendaku immune. Rosen’s principle can be summarized below, where (12) *kasu* ‘dregs’ is rendaku immune, (13) *kumo* ‘cloud’ is a rendaku lover and (14) *kusa* ‘grass’ is a rendaku hater (examples are from Rosen (2001), although English glosses are mine):

(12)	a.	PS-pass:	<i>iwasi</i> sardine	+	<i>kasu</i> dregs	>	<i>iwasikasu</i> ‘sardine meal’
	b.	PS-fail:	<i>sake</i> saké	+	<i>kasu</i>	>	<i>sakekasu</i> ‘saké lees’
(13)	a.	PS-pass:	<i>kinoko</i> mushroom	+	<i>kumo</i> cloud	>	<i>kinokogumo</i> ‘mushroom cloud’
	b.	PS-fail:	<i>yami</i> darkness	+	<i>kumo</i>	>	<i>yamikumo</i> ‘haphazardness’
	c.	PS-fail:	<i>yoko</i> side	+	<i>kumo</i>	>	<i>yokogumo</i> ‘cloud bank’
(14)	a.	PS-pass:	<i>hituzi</i> sheep	+	<i>kusa</i> grass	>	<i>hituzigusa</i> ‘water lily’
	b.	PS-fail:	<i>mizu</i> water	+	<i>kusa</i>	>	<i>mizukusa</i> ‘waterweed’
	c.	PS-fail:	<i>no</i> field	+	<i>kusa</i>	>	<i>nogusa</i> ‘wild grass’

In (12) *kasu* appears without rendaku as the second element in the 3 $\mu$ -2 $\mu$  PS-pass compound (12a) which, if Rosen's principle is correct, flags *kasu* as rendaku immune. This does indeed appear to be the case and (12b) is an example of *kasu* appearing without rendaku in a PS-fail compound (note that *kasu* appears in (11) above). On the other hand, both *kumo* and *kusa* exhibit rendaku in the PS-pass compounds (13a) and (14a), flagging them as predilectory. This is indeed, once again, the case, as (13bc) and (14bc) attest. Rosen's rendaku PS rule (RPS rule) has not yet been tested independently in print: the purpose of the following section. We shall see that some tweaking is required for an amended, and at last accurate, version of (11) to make itself known.

#### 4. Rosen's RPS Rule Assessed: I Analysis

Japanese dictionaries do not overtly mark headwords for vocabulary stratum, meaning the most swift and effective method of creating a NJ noun database, delimiting the contents of an electronic dictionary, is denied us. For this reason, I have turned to Martin's (1987:376-599) compendium of NJ nouns, the same corpus used by Rosen (2001:1). STEP 1 in assessing the validity of the RPS Rule was to excise the following nouns from Martin's compendium:

- (i) Those whose initial was not a voiceless obstruent (*k t s h*) – see (1) above.
- (ii) Those which contained a voiced obstruent anywhere in the non-initial element – see (2) above.
- (iii) Those consisting of only one mora – cf. Rosen's PS criteria.
- (iv) Those very few nouns marked by Martin as borrowings (e.g. *sata* 'tidings, news' from Chinese). However, those whose status as borrowings was indicated as questionable (e.g. *sake* 'salmon' from Ainu?) were retained.
- (v) Deadjectivals and deverbals. The latter may refer to an action (e.g. *hanasi* 'a talk, a speech' < *hanasu* 'to talk, to speak') or a concrete object (e.g. *hurui* 'sieve, strainer' < *huruu* 'to sift').
- (vi) Synchronically transparent compounds, whether the initial element be apophonic<sup>x</sup> (e.g. *hunani* 'ship's cargo' < *hune* 'ship' + *ni* 'cargo') or not (e.g. *kusomusi* 'gold beetle' < *kuso* 'dung' + *musi* 'insect'). Those nouns whose synchronic status as a compound was indicated as questionable through having been rendered obscure by phonological change (e.g. *haraka* 'kind of trout' < *hara* 'belly' + *aka* 'red?') were retained.<sup>xi</sup>

This left a residue of 498 sequentially-voiceable NJ nouns, of which 2 (0.4%) were 5 $\mu$ , 21 (4.2%) were 4 $\mu$ , 146 (29.3%) were 3 $\mu$  and 329 (66.1%) were 2 $\mu$ .

STEP 2 in the assessment was to ascertain whether each of these remaining nouns appeared in non-rendaku form as the second element in a PS-pass compound, thus marking it as rendaku immune. This was done as follows. Since (1) rendaku shows some degree of variability across native speakers as well as across dictionary entries and (2) this assessment is a synchronic one seeking as much as possible to avoid interference from obsolete vocabulary, it was decided to employ three different dictionaries, all of which should reflect the modern language on as large a scale as possible. The three dictionaries selected were the well-respected *Kōjien* (Shinmura

2003), *Daijisen* (Matsumura 1995) and *Daijirin* (Matsumura 2002), whose headword counts are approximately 240,000, 220,000 and 238,000 words respectively. Electronic versions of these dictionaries, whose software interfaces were equipped with wild-card functionality, allowed swift searching of second elements. The following criteria were employed in the STEP 2 search process:

- (a) The compound was PS-pass.
- (b) The second element had a voiceless initial and was thus not sequentially voiced.
- (c) The initial element was NJ.
- (d) The initial element was an underived noun, i.e. neither a deverbal nor a deadjectival.
- (e) The initial element was not itself a synchronically transparent compound (including compounds containing apophonic elements – see (vi) above). Where an initial element’s synchronic status as a compound was questionable through having been rendered obscure by phonological change, the compound was retained.
- (f) The compound was not dvandva – see (3) above.
- (g) The compound was listed in all three dictionaries (*Kōjien*, *Daijisen* and *Daijirin*) and was not listed with a rendaku alternative.
- (h) The compound was neither a toponym nor an anthroponym.<sup>xii</sup>

Of the 498 sequentially voiceable nouns remaining after STEP 1, 31 were found to appear as sequentially voiceless second elements in PS-pass compounds after the STEP 2 criteria (a)-(h) had been applied. These 31 were composed of four 4 $\mu$ -nouns, eighteen 3 $\mu$ -nouns and nine 2 $\mu$ -nouns and are listed in Table 1 below. Where a noun appeared in five or more PS-pass compounds, I have refrained from listing them all and have instead marked the ‘PS-pass compound(s)’ column as ‘5+'. It should be noted at this juncture that some of the NJ nouns and PS-pass compounds in Table 1 are obsolete – this issue shall be dealt with further below.

NJ noun	English gloss	PS-pass compound(s)
harakara	sibling	kotoharakara
hasi	edge	nisikihasi
haya	dace	aburahaya
himo	cord	usirohimo, siramihimo, haorihimo
hotaru	firefly	umihotaru
hotori	neighbourhood	katahotori, miyakohotori
humoto	foot of mountain	okahumoto
hutokoro	bosom	tanihutokoro, yamahutokoro
kamome	seagull	yurikamome
kaNna	plane	mizokaNna
kasu	dregs, lees	aburakasu, iwasi <del>kasu</del> , nisi <del>n</del> kasu
kata	person	omotekata
katati	shape	5+
katura	judas tree	tamakatura
kemuri	smoke	5+
konosiro	gizzard shad	tubamekonosiro
koomori	bat	aburakoomori, iekoomori, kanikoomori
koori	ice	kanakoori
koromo	gown	karakoromo
kuina	water rail	fuyukuina
kusiro	bracelet	isikusiro, suzukusiro, tamakusiro

kususi	physician	yabukususi
simo	frost	hadaresimo
sita	underneath	kanmurisita, yagurasita
sitomi	lattice shutters	yokositomi
sumire	violet	ezosumire, akanesumire, tubosumire
susuki	Japanese pampas	5+
take	mushroom	5+
tosaka	cockscorn	umitosaka
tukasa	official, office	takatukasa
tuki	cup	yusurutuki

Table 1: NJ nouns occurring in sequentially voiceless PS-pass compounds

STEP 3, the final step in the assessment of the RPS Rule, is an examination of the logical corollary of Rosen's claim that rendaku lovers and haters exhibit exceptionless rendaku in PS-pass compounds: that NJ nouns which do not exhibit rendaku in PS-pass compounds (the 31 nouns in Table 1 above) are rendaku immune. This was done by utilizing the same three dictionaries as in step two and employing the following criteria in the search process:

- (α) The noun appeared sequentially voiced as the second element in a compound of any prosodic size.
- (β) The initial element of such a compound was NJ.
- (γ) The initial element was an underived noun, i.e. neither a deverbal nor a deadjectival.
- (δ) The initial element was not itself a synchronically transparent compound (including compounds containing apophonic elements). Where an initial element's synchronic status as a compound was questionable through having been rendered obscure by phonological change, the compound was retained.
- (ε) The compound was listed in all three dictionaries (*Kōjien*, *Daijisen* and *Daijirin*) and was not listed with a sequentially voiceless alternative.
- (ζ) The compound was neither a toponym nor an anthroponym.

Of the 31 nouns in Table 1 only 11 appeared in any compounds conforming to the criteria (α)-(ζ) above. These 11 were composed of one 4μ-noun, five 3μ-nouns and five 2μ-nouns and are listed in Table 2 below along with the compounds in which they appeared.

NJ noun	English gloss	sequentially voiceless PS-pass compound(s)	sequentially voiced compound(s)	Group
hasi	edge	nisikihasi	hasibasi	I
sita	underneath	kanmurisita, yagurasita	sitazita	I
koromo	gown	karakoromo	5+	II
simo	frost	hadaresimo	tuyuzimo	II
tukasa	official, office	takatukasa	5+	II
tuki	cup	yusurutuki	sakaduki	II
hotaru	firefly	umihotaru	tutibotaru	III
hutokoro	bosom	tanihutokoro, yamahutokoro	utibutokoro, sotobutokoro	III
kanna	plane	mizokanna	nakaganna, wakiganna, yariganna	III
kata	person	omotekata	5+	III
koori	ice	kanakoori	tanagoori, hanagoori, hatugoori	III

Table 2: Expected *rendaku*-immune nouns occurring in sequentially voiced compounds

Once again, ‘5+’ in the sequentially voiced compound(s)’ column indicates that a noun was found in five or more PS-pass compounds. Although these 11 nouns fail Rosen’s RPS Rule in its current form, they can be clearly grouped into three types, indicated as I to III in the righthandmost ‘group’ column. These groupings and the implications they have for a modification of the RPS Rule will be discussed in the following section.

## 5. Rosen’s RPS Rule Assessed: II Discussion

Although the 11 nouns listed in Table 2 may at first glance appear to have negative implications for the integrity of the RPS Rule, I shall show in this section that a reformulation, by way of additional conditions, is possible.

Before, however, proceeding to a description and analysis of Groups I – III, some caveats. It should be noted that Table 2 is not necessarily complete. It must be borne in mind that only three dictionaries were used and, although the author remains confident as to his selection of dictionaries and criteria for noun and compound inclusion, different dictionaries and/or the application of laxer or more stringent criteria might have produced a slightly different outcome. Moreover, it must be remembered that Martin’s NJ noun compendium was created for the purposes of historical reconstruction and contains nouns attested in Old and Middle Japanese sources.

It is also necessary to point out that the nouns listed in Table 2 do not appear to have anything in common that would allow us to postulate an obvious exception to or extension of the RPS Rule. There would appear to be nothing of statistical significance as far as the initial obstruents or moraic composition of the NJ nouns are concerned, nothing of statistical significance as far as the PS of the sequentially voiced compounds is concerned, and, further, nothing of statistical significance when it comes to the suprasegmental patterning of either (both the nouns and compounds in Table 2 are of varying accentual patterns). Other factors appear to hold the key.

The two nouns in Group I, *hasi* and *sita*, both appear in the reduplicative compounds *hasibasi* ‘odds and ends’ (lit. ‘edges’) and *sitazita* ‘underlings, those below one’. As noted in (3c), reduplicative compounds are technically *dvandva*, and *dvandva* compounds have always been treated as a special case in the literature. It was because *dvandva* compounds in general are expected not to exhibit *rendaku* that they were excluded from the STEP 2 dictionary search (criterion (f)) and not included as a criterion in the STEP 3 search. It is now clear that this latter decision was in error. *Dvandva* compounds, whether reduplicative or not, must be taken out of the equation altogether (and an additional STEP 3 criterion disallowing *dvandva* compounds added) for Rosen’s RPS Rule to hold.

Group II is composed of four nouns: *koromo*, *simo*, *tukasa* and *tuki*. The issue of obsolete vocabulary has already been alluded to above. Although the three dictionaries employed for the assessment in §4 were selected based on the belief that their focus on the modern language was appropriate for a synchronic analysis, there remained two problematic areas which I have delayed discussing until this juncture. The first is that none of these three dictionaries (in fact, Japanese dictionaries in general) overtly mark a headword as ‘obsolete’ or ‘archaic’. There exists no objective method of gauging a

word's defunct status in modern Japanese beyond (a) noting that the dictionary definition is brief and ends with a citation from a classical Japanese text; or (b) laboriously cross-checking against Japanese-foreign language dictionaries which tend to eschew archaisms. Neither of these methods can provide hard empirical data. The second problem is that Martin's (1987) NJ noun compendium, due to its very *raison d'être*, includes a number of such archaic nouns. This absence of any objective criterion for obsolete status meant naturally that none was applied at either STEP 1, 2 or 3 and that a small number of archaic words and compounds have slipped into Table 2. By the two, admittedly empirically weak, objective methods just outlined, as well as after consultation with native speakers, I have judged the noun *tuki* to be obsolete, as well as its compound *yusurutuki*, and the three PS-pass compounds *karakoromo*, *hadaresimo* and *takatukasa*. Rosen's RPS Rule must be applied in a robustly synchronic fashion and archaisms ignored in order to hold.

Group III is the problematic residue: its five members, *hotaru*, *hutokoro*, *kaNna*, *kata* and *koori* all present, to a greater or lesser extent, a challenge to Rosen's RPS rule. Nonetheless, a number of speculative analyses are possible, the first of which is semantic. A total of five Group III compounds, *utibutokoro* 'breast pocket, bosom of a kimono, true circumstances, true intentions', *sotobutokoro* 'bosom of a kimono', *nakagaNna* 'trying up plane', *wakigaNna* 'grooving plane' and *omotekata* 'theatre staff' have locational first elements: *uti* 'inside', *soto* 'outside', *naka* 'inside', *waki* 'side' and *omote* 'front'. While in the context of the five Group III nouns only, such locational initial elements are heavily represented, in the context of Table 2 as a whole they appear elsewhere only in *sitazita* and (arguably) in *hasibasi*. Although admittedly highly speculative, positing some kind of restraint on such locational elements would deal with both *hutokoro* and *kata*, as well as (arguably) obviating the need for a separate Group I. With *koori*, we find that, while the compound in which it appears, *kanakoori* 'an extremely cold object' ('icicle' in some modern dialects), is not obsolete, it is certainly infrequent and probably non-standard. Both *hotaru* and *kaNna* still remain, however. With the latter, although the tentative locational element hypothesis puts pay to *nakagaNna* and *wakigaNna*, *mizokaNna* 'base plane' still remains. The situation with *hotaru* is also inexplicable: *umihotaru* 'sea firefly' and *tutibotaru* 'glowworm' exhibit an identical 2 $\mu$ -3 $\mu$  PS-pass prosodic size but contradictory rendaku behaviour. All that can be said here is that although not listed in any of the three dictionaries employed for the purposes of this assessment, *mizogaNna* and *umibotaru* do appear online in sequentially voiced form. While the latter is outgoogled by its sequentially voiceless partner by a ratio of approximately 70 to 1, the former actually outgoogles its sequentially voiceless partner 6 to 1.<sup>xiii</sup> Clearly, for *mizokaNna*, there is a large gulf between internet usage and dictionary listings.

## 6. Implications and Conclusions

The analysis carried out in §4 and its discussion in §5 allow me to now present a modified RPS Rule. My modifications are in italics, the remainder is condensed from Rosen (2001, 2003):

- Nouns are defined as non-deverbals and non-deadjectivals, are restricted to the native Japanese vocabulary stratum, *are not names and must be synchronically 'live', i.e. not obsolete.*
- N<sub>1</sub>-N<sub>2</sub> compounds are defined as those which are composed of two such nouns, *but which are neither dvandva nor reduplicative compounds.*
- If a sequentially voiceable N<sub>2</sub> occurs as sequentially voiceless AND both N<sub>1</sub> and N<sub>2</sub> are each at least one foot (2 moras) in length AND N<sub>1</sub>-N<sub>2</sub> exceeds one colon (4 moras) in length, THEN N<sub>2</sub> is rendaku immune in all N<sub>1</sub>-N<sub>2</sub> compounds regardless of prosodic size.

One implication of this modified rule is that a highly robust list of rendaku immune nouns can now be put forward. Those nouns in Table 1 which did not feature as potentially problematic cases in Table 2 number 20 in total and are listed in (15) below. Those rendaku immune candidate nouns which I believe to be obsolete are in bold, while those which occur only in PS-compounds which I believe to be obsolete are underlined.<sup>xiv</sup>

(15)	<u>harakara</u>	<i>haya</i>	<i>himo</i>	<u>hotori</u>	<i>humoto</i>	<i>kamome</i>
	<i>kasu</i>	<i>katati</i>	<i>katura</i>	<i>kemuri</i>	<i>konosiro</i>	<i>koomori</i>
	<i>kuina</i>	<b><i>kusiro</i></b>	<b><i>kususi</i></b>	<i>sitomi</i>	<i>sumire</i>	<i>susuki</i>
	<i>take</i>	<i>tosaka</i>				

If we remove these 4 NJ nouns, we are left with 16 NJ nouns demonstrably rendaku immune by the modified RPS rule:

(16)	<i>haya</i>	<span style="border: 1px solid black; padding: 2px;"><i>himo</i></span>	<i>humoto</i>	<i>kamome</i>	<span style="border: 1px solid black; padding: 2px;"><i>kasu</i></span>	<i>katati</i>
	<i>katura</i>	<span style="border: 1px solid black; padding: 2px;"><i>kemuri</i></span>	<i>konosiro</i>	<i>koomori</i> <sup>xv</sup>	<i>kuina</i>	<i>sitomi</i>
	<i>sumire</i>	<i>susuki</i>	<i>take</i>	<i>tosaka</i>		

Of these, we find that only three, *himo*, *kasu* and *kemuri* (boxed in (16)), appear in the list of rendaku immune nouns previously proposed in (11) and restated (though reordered) below:

(11)	<span style="border: 1px solid black; padding: 2px;"><i>himo</i></span>	<span style="border: 1px solid black; padding: 2px;"><i>kasu</i></span>	<span style="border: 1px solid black; padding: 2px;"><i>kemuri</i></span>	<i>sio</i>	<i>tuti</i>	<i>kase</i>	<i>saki</i>	<i>hime</i>	<i>tuyu</i>
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Of the remaining six nouns in (11) two (*sio*, *tuti*) did occur sequentially voiceless in PS-pass compounds but never across all three dictionaries, while the other four (*kase*, *saki*, *hime*, *tuyu*) did not occur in any PS-pass compounds whatsoever. While there is no empirical evidence for these six nouns' rendaku immune status, there is equally nothing to deny it. As Martin (1987:114) has noted in connection with rendaku immunity in general: 'failure to indulge in rendaku may be accidental: some nouns have few compounds, and others offer only a single rendaku example, often obsolete or archaic'.<sup>xvi</sup> While this is not true for the remaining six nouns in (11) – the very reason why they have been cited frequently in the literature as rendaku immune – it is certainly the reason why those nouns in (16) but not in (11) have not been cited to any degree before. It has taken the empirical approach demonstrated here to lure them into the open.

Another implication of the modified RPS Rule is that the mora now appears to play a role not just in clipping, compound accentuation, mimetic reduplication and the other phonological and morphological phenomena mentioned in §3, but in rendaku immunity also. The author acknowledges that despite the refinements to Rosen's RPS Rule stated above, five nouns, *hotaru* 'firefly', *hutokoro* 'bosom', *kaNna* 'plane', *kata* 'person' and *koori* 'ice' remain problematic. The history of rendaku research has shown that an ultimate solution to its conditioning factors has proceeded in a series of small steps. Each of these has sought to further deepen our understanding of the allomorphy, but each has left a miniscule trail of apparent exceptions in its wake. Viewed in this wider historical perspective, the five exceptions just cited are merely another such miniscule trail which the author feels sure future research will resolve.

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### Endnotes

<sup>i</sup> The one other voiceless obstruent in Modern Japanese, *p*, occurs word-initially only in foreign (e.g. *pasuta* ‘pasta’) and mimetic (e.g. *piQtari* ‘snugly, perfectly’) lexemes, neither of which can undergo rendaku – see further below.

<sup>ii</sup> As Vance (2007:155) notes, ‘the difference between the voiced phoneme and the voiceless phoneme is more than just the presence or absence of voicing’. In (1a) *g* may actually be realised [ŋ] by some speakers; in (1b) *tu* is [ts]u, while *du* is generally [z]u; and in (1d) morpheme-initial Modern Japanese *h* derives from an earlier /p/, hence the *h*-*b* allomorphy (cf. Kiyose 1985; Martin 1987:10-13ff; Rothaug 1991:19ff; Numoto 2007).

<sup>iii</sup> Variations on the ‘Lyman’s Law’ constraint, and their history, are discussed in Vance 1980b, 2007. Exceptions to the Law are discussed in detail by Martin 1987:115. See also Tamura 1972:143; Kindaichi 1976:5; Vance 1979:App. 1.

<sup>iv</sup> See, however, Vance (1980a:234) and Kubozono (2005:12-15) for criticism. In addition to (1-4), Haraguchi (2001) lists some 23 factors which he claims regulate rendaku. Martin (1987:115-116) also lists some other ‘unusual cases of rendaku’.

<sup>v</sup> Although NJ, SJ and FJ, as well as mimetic and hybrid strata, have all been proposed, few scholars would acknowledge the existence of all five. The vast majority note three (e.g. Martin 1952; Gottlieb 2005) or four (e.g. McCawley 1968; Vance 1987; Shibatani 1990). A few scholars (Rice 1997; Ota 2004) are sceptical as to the existence of lexical stratification in Japanese at all. Further, rather than models based on lexical strata, Itô & Mester (1995, 1999), Fukuzawa, Kitahara & Ota (1998), Fukuzawa & Kitahara (2005) and others posit core-periphery or set-inclusion models.

<sup>vi</sup> Here, and elsewhere in this paper, pitch patterns are those of ‘standard’ Tokyo Japanese.

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<sup>vii</sup> Rosen's (2001) database includes a few deadjectival initial elements, but no deverbals.

<sup>viii</sup> Other scholars have, of course, cited and commented upon NJ nouns which fail to undergo rendaku, both pre- and post-Vance (1979), including Rosen (2003). One such seminal paper is Nakagawa (1966) who coined the Japanese term *rensei* 'sequential voicelessness' to describe such behaviour. Here, however, I limit my citations to those scholars who have published lists of such nouns.

<sup>ix</sup> The well-documented (e.g. Martin 1987:31-32) presence of variation between the word-internal labials *-b-* and *-m-* in Old and Middle Japanese, to a lesser extent across Modern Japanese dialects, and to a lesser extent still within Modern Standard Japanese (e.g. *sabisii* ~ *samisii* 'lonely') means, as Nakagawa (1966) pointed out, that rendaku immunity may have developed due to the former presence of the voiced obstruent *b* (cf. (2)). The two nouns in (11) whose internal *-m-* is underlined have, according to Martin, earlier attestations with *-b-* and thus highly likely to exhibit rendaku immunity due to 'Lyman's Law'.

<sup>x</sup> A small group of nouns with variation in their final vowel: a free (or 'exposed') form and a compound (or 'covered') form. The most common variation is between final free *-e* and final compound *-a*. Though no longer productive, apophonic variation is synchronically transparent. See, *inter alia*, Frellesvig & Whitman (2004: 284-285) for a more detailed description.

<sup>xi</sup> Although quite a number of nouns in Martin's compendium are obsolete and do not even appear in modern dictionaries these were not excluded – to check once for obsolescence (and, moreover, to have to define 'obsolescence') and then again for their appearance in a compound would have been inefficient.

<sup>xii</sup> Cross-linguistically names often exhibit aberrant behaviour and rendaku is no exception: see, for example, Sugito (1965), Nakagawa (1978), Hirano (2000) and Zamma (2005).

<sup>xiii</sup> When the compounds were searched as both a *hiragana* and *katakana* 'exact wording or phrase' on 15 March 2008. The combined *kana* voiced-voiceless 'Google approximate hits' were approximately 215 against 35 for *mizogaNna* / *mizokaNna* and 1,600 against 112,000 for *umibotaru* / *umihotaru*.

<sup>xiv</sup> No rendaku immune candidate nouns occurred in reduplicative PS-pass compounds, or only in PS-pass compounds with locational initial elements. In other words, the only proposed modification to Rosen's PS Rule, tentative or otherwise, which has any impact on rendaku immune candidates is archaism.

<sup>xv</sup> Like *kemuri* and *himo*, *koomori* too may be rendaku immune due to the former presence of a voiced obstruent *b*: see endnote 9.

<sup>xvi</sup> Rosen (2003:14) lists a group of NJ nouns which occur in 'only a few compounds', thus rendering them 'either rendaku-immune or rendaku-resistant [rendaku-haters]'.

# Passive morphology relating Korean to the Transeurasian languages

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## **Abstract**

The present paper discusses the historical development of passive morphology in Korean and the other Transeurasian languages. The term “Trans-Eurasian” is used in reference to Japanese, Korean, the Tungusic languages, the Mongolic languages and the Turkic languages. In the first section a cross-linguistic framework for the grammaticalization of passives is introduced. In the second section etymologies are proposed for three passive formants lexicalized in Korean, relating them to verbal morphemes in the Transeurasian languages. The etymologies reflect two common pathways of grammaticalization: the passive markers are derivable from causatives or from reflexives and anticausatives. In the conclusion the significance of shared passive morphology for the affiliation question of the Transeurasian languages is underlined.

## **1. Introduction**

In many languages across the world, passive markers are not restricted to this function but can have other uses, such as causative, reflexive, reciprocal, anticausative and potential passive (Langacker and Munro 1975, Shibatani 1985, Haspelmath 1990: 32-37 among others). This polysemy finds its explanation in the historical development of passive morphemes. Their diachronic source largely falls apart in four possible pathways of grammaticalization (Haspelmath 1990: 54), the latter two of which are relevant for the present study.

1. A plural pronoun or a general person noun enters a generalized subject construction where it takes a desubjective meaning and, it finally grammaticalizes into a passive. This is reminiscent of French desubjective *on* constructions, where *on* is cognate with Latin *homo* ‘man, person’.

2. Auxiliaries such as ‘become’, ‘go’, ‘fall’, ‘undergo’, ‘suffer’, ‘eat’ etc. grammaticalize into passive morphemes. The Korean auxiliary *ci-* ‘grow, become’, for instance, enters passive constructions such as with *phulta* ‘loosen, untie’ in *phule ci-* ‘get loose, become untied’.

3. Causative markers can develop into passive markers. The pathway of this development involves a permissive, a causative of the ‘let’ type (Johanson 1974, 1975; Keenan 1985: 262-263; Babby 1993; Malchukov 1993) and a reflexive-causative construction (Haspelmath 1990: 46-49). Example (1) illustrates the transition with English examples.

- a. I make Marc embrace the child. (factitive caus.)
- b. I let Marc embrace the child. (permissive caus.)
- c. I let Marc embrace me. (coreferential caus.)
- d. I have myself embraced by Marc. (reflexive caus.)
- e. I am embraced by Marc. (passive)

A semantic difference between causative and passive is that the former denotes two situations, whereas the latter denotes only one situation. A syntactic difference is that the initial subject becomes the direct object of causation, whereas it becomes the indirect object of the passive construction. The permissive occupies a common ground between the two categories. Semantically it denotes two situations (in b. I did not do sth. and Marc embraces because of that) like the factitive causative (in a. I did sth. and Marc embraces because of that), but the causation in b. is due to a nonoccurrence of an action. Only one action occurs. On this point the permissive is similar to the passive. Syntactically the initial subject can become the indirect object of the permissive construction. In Japanese, for instance, the causative conversion of intransitives transforms the initial subject into an indirect object with *ni* for permission and into a direct object with *wo* for coercion (Martin 1988: 292-293).<sup>1</sup> Malchukov (1993: 372) illustrates how in causative constructions of Even transitives, the initial subject occupies an indirect object position with permissives and a direct object position with factitives. The examples c. and d. differ from b. in that the subject is both the causer and the affected entity. Semantically they are closer to the passive to the extent that the subject is also affected by the event. The coreferential causative construction in c. has double agency (I and Marc) whereas the reflexive-causative construction in d. has only one agent (I). When the agentive subject is demoted to the patient role as in d., it gives rise to a passive construction.

4. Reflexive markers take up an anticausative meaning and finally develop into a passive marker. German *Er wäscht sich* ‘He washes himself’, for instance, uses an independent stressed pronoun *sich* for reflexive meaning. In *Die Tür öffnet sich* ‘The door opens’, the pronoun *sich* has developed into a clitic for anticausative use. The reflexive use is restricted to clauses with an agentive subject. Dropping the agency restriction leads to the anticausative

use. But the anticausative sense is restricted in another way: it denotes a spontaneous process without an implied agent. The main difference with respect to the passive is that in the passive an agent is implied and can often be expressed in an oblique phrase. German *sich* has not yet been generalized to passive use. In German actions that imply an agent, such as *schreiben* ‘write’, cannot take the pronoun *sich*: \*\**Der Brief schreibt sich* is ungrammatical. In Russian, on the contrary, the reflexive *-sja* can indicate the passive in addition to the anticausative, e.g. *Pis'mo pišet-sja* ‘The letter is written’.

The present paper proposes etymologies for three Korean passive formants in relation to verbal morphology in the Transeurasian languages. The etymologies reflect the latter two pathways: the passive morphemes are derivable from causative markers or they are relatable to reflexive, reciprocal and anticausative markers. The term “Trans-Eurasian” is used instead of the more common label “Altaic”, in reference to a vast zone of geographically adjacent languages stretching from the Pacific in the East to the Black Sea in the West. At most the label covers five linguistic families: Japanese, Korean, Tungusic, Mongolic and Turkic. At least it constitutes a single linguistic family by itself. The very question of genealogical relationship of the Transeurasian languages is among the most disputed issues of linguistic history. The controversy does not involve any paucity of linguistic similarities; it rather lies in how to account for them. The main obstacle is whether all shared properties are triggered by language contact or whether some of them are the result of genetic retention.

Shared passive morphology can be particularly telling in this matter. Bound passive suffixes are relatively stable in language and therefore diagnostic of genetic retention. Cross-linguistically it is observed that languages tend to copy nouns more easily than verbs, free lexemes are more copiable than bound morphemes, and derivational morphology is less stable than inflectional morphology. The description of copiability as a relative tendency leads to the assumption that bound, inflectional, verbal morphology provides rather reliable evidence to demonstrate common ancestorship. Johanson (1992, 1999, 2002) has further refined our notion about borrowability -and hence genetic stability- defining a restricted core of verbal inflectional affixes that is highly telling in matters of genetic relatedness. Johanson (1999: 8) finds that “In the verbal flexion, suffixes closest to the primary stem, markers of actionality and diathesis, seem relatively little susceptible to copying. It would be a strong clue to a common origin if this ‘intimate’ part of verbal morphology exhibited systematic correspondences of materially and semantically similar morphemes with congruent combinational patterns”. Comrie (1995: 394; foreword to Johanson 2002: xi) confirms Johanson’s findings: “... in particular the extreme resistance to copying of the positions closest to the verbal stem might provide a more reliable tool than many of those used in the

past to whether there are indeed shared elements that testify to genetic relatedness, ..., among the groups of languages that constitute Altaic”.

## 2. Etymologies for passive markers

As a consequence of their relative conservatism, the diathetical suffixes compared in this study are no longer fully productive: they have lexicalized into verb stems. Since diathetical markers have a high semantic content, they will according to Bybee (1985a/b) easily lexicalize. The asymmetric relationship between a verb and its formally derived counterpart preserves relics of earlier inflection. The reconstruction of suffixes is supported by verb pairs consisting of a verb of neutral diathesis, along with its derived counterpart. The counterpart is preceded by the symbol =>. The asterisk \* is used for reconstructed forms.

For Japanese, Korean, Mongolic and Turkic we use material from the eldest unambiguously written stages: Old Japanese (8th C), Late Middle Korean (15th-16th C), Middle Mongolian (13th-17th C), Written Mongolian (13th C - present) and Old Turkic (8th-14th C). For the historical study of Tungusic languages it is unfortunate that written records are rather scarce for most of the languages. Although we have extensive literature that is written in Manchu, when the Manchus were in power in China during the Qing dynasty (1644-1911), this language is highly sinicized. Because it does not always preserve crucial parts of morphology, I make additional reference to the contemporary Tungusic languages: Evenki, Even, Solon, Negidal, Nanai, Ulcha, Orok, Oroch, and Udehe.

For the transliteration of linguistic forms, the present paper uses the Yale system for Japanese and Korean. The Old Japanese vowel distinctions are referred to as  $i_1$  versus  $i_2$ ,  $e_1$  versus  $e_2$  and  $o_1$  versus  $o_2$ . The Middle Korean unrounded vowels [ə] and [ɨ] are represented by  $o$  and  $u$  respectively, while  $wo$  and  $wu$  are used for rounded [o] and [u]. The notation  $ẓ$  is used to represent the now obsolete Middle Korean triangle grapheme Δ. The capitals  $W$  and  $G$  are used for two other obsolete consonants for which the phonological interpretation is probably [β] and [ɣ]. The dots in the Middle Korean words represent the distinctive pitch of the following syllable: one dot for high, two dots for rising, and unmarked syllables are treated as low.

The transliteration rules for transcribing the individual Tungusic languages follow the romanization proposed by Gorelova (2002) for Manchu, Nedjalkov (1997) for Evenki (with the modifications  $c, j, y, ñ, i$  for Nedjalkov's notations  $ch, d', j, n', y$  respectively), Benzing (1955b) for Even (with the modifications  $j, y, ñ, i$  for Benzing's notations  $ʒ, j, n, ə$  respectively), Nikolaeva (1999) for Udehe (with the modifications  $j, y$  for Nikolaeva's

notations *z, j* respectively) and a romanization based on Avrorin's (1961) Cyrillic transcription of Nanai. The logic that underlies the modifications is a consistent use of *c, j* for the palatal fricatives, *y* for the palatal glide and *ñ* for the palatal nasal.

The transliteration of the Written Mongolian forms follows Poppe's (1954) conventions with the modifications *c, j* for Poppe's notations *č, ĵ*. For Middle Mongolian Rybatzki (2003) is followed with the exception of *š, γ* for Rybatzki's notations *sh* and *gh*. The transcription of the Turkic forms follows Johanson & Csató (1998) except for the probably reduced vowel type *°* for which the notation *X* is used. For all languages a collon placed after a vowel is used to indicate length.

### 2.1. *pK \*-ki-*: from causative to passive

*Korean.* In (Middle) Korean we find the causative-passive suffixes K *-ki-*, *-hi-*, *-i-* MK *-ki-*, *-Gi-*, *-hi-*, *-i-* that are derivable through velar lenition as allomorphs from *pK \*-ki-* (Ramstedt 1939: 133-137, Lewin 1970: 14, Martin 1992: 221-225, 623, Yeon 2003: 142-146). The causative alternation is attested in verb pairs such as K *olm-*, MK *wolm-* 'move (intr.)' => K *olmki-*, MK *wolm·ki-* 'move (tr.)', K *swum-*, MK *swum-* 'lie hidden (intr.)' => K *swumki-*, MK *swum·ki-* 'conceal (tr.)', K *ip-*, MK *nip-* 'wear' => K *iphi-*, MK *nip·hi-* 'cause to wear' and K *mek-*, MK *mek-* 'eat' => K *meki-*, MK *me·ki-* 'feed'. The passive alternation is present in pairs such as K *a:n-* 'embrace (tr.)' => K *a:nki-* 'embrace (tr.), get embraced (intr.)', K *ccic-* 'tear (tr.)' => K *ccicki-* 'be torn', K *ttut-* 'bite, graze (tr.)' => K *ttutki-* 'cause to graze (tr.), get bitten (intr.)' and K *elk-*, MK *elk-* 'tie (tr.)' => K *elkhi-*, MK *el·khi-* 'get tied (intr.)'.

*Japanese.* A plausible cognate is present in the Japanese causative-passive suffix *-(C)i-*, that derives bigrade verbs from quadrigrade counterparts. It is referred to by Unger (1977: 131) that "changes endo-active verbs into exo-active and vice versa", by Martin (1987: 672) as a "formant making transitive/ intransitive forms" and by Vovin (2001: 187-189) as a "transitivity flipper". The verb pairs below illustrate that the suffix can also derive causatives from transitives and passives from intransitives. This argues for the description causative-passive rather than reverse transitivity of the base. The causative alternation is attested in verb pairs such as OJ *ak-* 'open (intr.)' => *ake<sub>2</sub>-* 'open (tr.)', OJ *uk-* 'float (intr.)' => *uke<sub>2</sub>-* 'float, let float (tr.)', OJ *ap-* 'meet, fit, agree (tr.)' => *ape<sub>2</sub>-* 'join (tr.)', OJ *pak-* 'slip (sth.) on, wear (tr.)' => *pake<sub>2</sub>-* 'have/let (so.) wear (tr.)', while passive pairs are attested in OJ *ok-* 'put (tr.)' => *oki<sub>2</sub>-* 'arise (intr.)', *sak-* 'rip, split (tr.)' => *sake<sub>2</sub>-* 'get ripped, split (intr.)'. Intransitive quality verbs such as OJ *aka-* '(be) red' => *ake<sub>2</sub>-* 'get bright, dawn' and OJ *puru-* '(be) old' => *puri-* 'get old' are transformed into passives with the suffix *-(C)i-*.

As far as the formal reconstruction is concerned, quadrigrade verbs (e.g. OJ *uk-* ‘float’, *ok-* ‘put’) with bigrade counterparts (e.g. OJ *uke<sub>2</sub>-* ‘let float’, *oki<sub>2</sub>-* ‘arise’) can be derived from vowel final roots (pJ *\*ukV-*, *\*okV-*). The exact nature of the vowel (pJ *\*uka-*, *\*oko-*) becomes clear from covert derivations including the roots (e.g. OJ *ukab-* ‘float’, *okor-* ‘rise’, *okos-* ‘raise’). It is confirmed by the quality of the bigrade vowel (e.g.  $e_2 < *ai$  in *uke<sub>2</sub>-*,  $i_2 < *oi$  in *oki<sub>2</sub>-*). This supports the derivation of OJ *uke<sub>2</sub>-* ‘let float’ from pJ *\*uka-* ‘float’ and causative *-(C)i-* and of OJ *oki<sub>2</sub>-* ‘arise’ from pJ *\*oko-* ‘raise’ and *-(C)i-* passive. More problematic than the vowel is the consonant in pJ *\*-ki-*. Since there are no strings of two subsequent vowels in Old Japanese (Martin 1987: 64-65), Japanese *-(C)i-* must go back to a consonant initial suffix, but evidence for the exact nature of the consonant is missing. However, velar elision before a high front vowel is sporadically attested in Japanese. It occurs word-internally as for instance in *tuitati* ‘first day of the month, new moon’ that is derivable from *tuki* ‘moon’ and a deverbal noun from *tatu* ‘stand’. Velar elision is also found on suffix boundaries as in the adjective attributive OJ *-ki* that developed into contemporary *-i* in for instance the attributive form OJ *taka-ki* for J *taka-i* ‘high’. For reasons explained in Robbeets (2005: 53-55) I do not reconstruct voice distinction in proto-Japanese.

*Tungusic.* The comparison further includes a denominal creative suffix pTg *\*-ki-* ‘make, create’ in Tungusic, such as in Evenki (Nedjalkov 1997: 301, Konstantinova 1964: 198) *gule* ‘house’ => *guleŋ-* ‘build a house’, Evk. *a:cin* ‘nonexistent, absent’ => *a:cinŋi-* ‘liquidate’, in Even (Benzing 1955b: 34) *hulta* ‘fish meal’ => *hultak-* ‘produce fish meal’, Even *hotoran* ‘road, way’ => *hotarag-* ‘pave a way, make a road’ and in Udehe *xokto* ‘road’ => *xoktoŋi-* ‘make a road’, Ud. *aŋa* ‘night shelter’ => *aŋaŋi-* ‘make a night shelter’. The suffix pTg *\*-ki-* also occurs as a deverbal causative such as in Evenki (Vasilevič 1940: 93, Nedjalkov 1997: 230) *jalup-* ‘get filled (intr.)’ => *jalupki-* ‘fill (tr.)’, Evk. *kese-* ‘suffer (intr.)’ => *kese:gi-* ‘torture (tr.)’, in Even (Benzing 1955b: 43) *hi:l-* ‘suffer, worry (intr.)’ => *hi:lgi-* ‘harm, bother, plague (tr.)’, Even *ha:n* ‘be smoky’ => *ha:mŋi-* ‘fumigate, smoke (fish, meat) (tr.)’ and in Nanai *u:n-* ‘melt, thaw (intr.)’ => *u:nŋi-* ‘melt, thaw (tr.)’, Na. *ure-* ‘grow (intr.)’ => *uji-* ‘nurse, feed, raise (tr.)’.

Benzing (1955a: 1065, 1070) treats the denominal suffix pTg *\*-gi-* ‘machen’ and the deverbal causative suffix pTg *\*-gi-* as distinct markers. The present study, however, takes the position that the causative and the auxiliary ‘make’ are internally related through a common process of grammaticalization. As far as the formal reconstruction is concerned, pTg *\*ki-* is preferred to Benzing’s pTg *\*gi-*. The distribution in the Tungusic languages is suggestive of the original variant allomorphy of the suffix. Voiceless *ki-* voices to *-gi-* after the liquid *-r-* and assimilates to *-ŋi-* after the dental nasal *-n-*. In longer sequences the suffix vowel can be omitted.

*Mongolic.* As an independent verbal root for ‘do, make’ pMo \**ki-* is attested in the Secret History as SH MMo. *ki-*, in the literary language as WMo. *ki-*, and it preserves reflexes across all contemporary Mongolic languages: Khal. *xij-*, Bur. *xe-*, Kalm. *ke-*, Ordos *ki:-*, Dong. *kie-*, Bao. *ke-*, *giə-*, Dag. *ki:-*, *xi:-*, *ši:-*, Mgr. *gi-*, *gə-*, Mogh. *ki-*.

*Turkic.* An independent root pTk \**kil-* ‘do, make’ is reconstructable in Turkic. In the Orkhon inscriptions and Old Uighur we find OTk. *kil-*, Karakhanide has *kil-* and Middle Turkic *qil-*. In the contemporary Turkic languages we find Tk. *kil-*, Tat. *qil-*, Uzb. *qil-*, Uigh. *qil-*, Az. *gil-*, Tkm. *qil-*, Khak. *xil-*, Shor *qil-*, Chu. *əs-xəl* ‘deed’, Tuva *qil-*, Kirg. *qil-*, Kazakh *qil-*, Nog. *qil-*, Bash. *qil-*, Karaim *qil-*, Karakalpak *qil-*, Kumyk *qil-*.

## 2.2. pK \*-pu/o-: from reflexive to passive

*Korean.* The Korean passive pK \*-*pu/o-* has lexicalized in pairs such as MK *alh-* ‘suffer from, ail’ => MK *alpo-* ‘be painful’, MK *ceh-* ‘fear’ => MK *cephu-* ‘be fearsome’, MK *ich-* ‘tire, make tired’ => MK *ispu-* ‘be tired’, MK *pach-* ‘rush, busy oneself with’ => MK *paspo-* ‘be busy’, MK *mit-* ‘believe’ => MK *mit-pu-* ‘be credible’, MK *sulh-* ‘grieve over’ => MK *sulphu-* ‘be sad’ (Ramstedt 1952: 157-160, 1939: 128; Ramsey 1978: 218-220; Martin 1992: 760-761).

*Japanese.* A plausible cognate in Japanese is pJ \*-*pa-*. It has lexicalized as a deverbal passive in pairs such as OJ *atar-* ‘hit, touch, be equal, apply to’, *ate-* ‘apply, hit, succeed’ => *atap-* ‘be suitable, be possible’, OJ *kate-* ‘join, unite, blend’ > *katap-* ‘become intimate’, OJ *tute-* ‘communicate, transmit’ > *tutap-* ‘be communicated, be transmitted’, OJ *yasum-* ‘rest’ > *yasumop-* ‘be rested’, OJ *um-* ‘give birth’ > *umapar-* ‘be born’. It derives fientives from adjectival verbs such as in OJ *ita-* ‘painful’ > *itapar-* ‘fall ill, be pressured’, and OJ *yuru-* ‘slack’ > *yurup-* ‘become slack, relax’. There is a homophonous suffix \*-*pa-* that can be distinguished from the passive marker on the basis of its semantics and its position in the suffix chain. It has an intensive-iterative or re-iterative meaning (Unger 1977: 138) and it occurs more to the right in the chain, following the anticausative marker \*-*ra-*, such as in OJ *nagare<sub>2</sub>-* ‘flow’ ~ *nagas-* ‘let flow’ => *nagarape<sub>2</sub>-* ‘live on, live long’, OJ *motopos-* ‘make go back’ ~ *motopor-* ‘go back’ => *motoporop-* ‘crawl around’ and *utur-* ‘move, change (intr.)’ ~ *utus-* ‘move, transfer (tr.)’ => *uturop-* ‘change, shift’, whereas the passive precedes \*-*ra-* (e.g. OJ *itapar-* ‘fall ill, be pressured’, OJ *mazipar-* ‘get mixed’, OJ *umapar-* ‘be born’).

*Tungusic.* On the basis of reflexes such as Ma. *ø*, Na. *-p-*, Olč *-p-*, Ud. *-p-*, Evk. *-p-* and Even *-b-*, Benzing (1955a: 1070) reconstructs a suffix pTg \*-*p-* which he tentatively labels ‘reflexiv?’. Phonologically the reconstruction is legitimate, but since the majority of the derived verbs lack an agent role rather than marking coreferentiality of agent and patient, the

label ‘anticausative’ is more appropriate. The suffix has lexicalized in verb pairs such as Evenki *mana-* ‘finish (tr.)’ => *manap-* ‘finish (intr.)’, Evk. *ula-* ‘soak (tr.)’ => *ulap-* ‘soak (intr.)’, Evk. *sol-* ‘mix up’ => *solip-* ‘become mixed up, confused’; Even *ma:-* ‘kill’ => *ma:b-* ‘kill oneself’, *iri:-* ‘boil (tr.)’ => *iri:b-* ‘boil (intr.)’, *biri:-* ‘lose’ => *biri:b-* ‘get lost, disappear, die’ and Nanai *xoji-* ‘complete, end (tr.)’ => *xojip-* ‘end, come to an end (intr.)’, Na. *xuede-* ‘lose (tr.)’ => *xuedep-* ‘get lost, disappear (intr.)’, Na. *kala-* ‘change (tr.)’ => *kalap-* ‘change, undergo a change (intr.)’.

*Mongolic.* There is a small number of verb pairs in Written Mongolian that seem to suggest a reflexive-anticausative marker \*-*bu-* or -*if* devoiced in the liquid cluster- \*-*pu-* (Ramstedt 1912: 67- 73, 1952: 157-160, Poppe 1972: 128-134), but the evidence is too scarce to be convincing. Relics including this element \*-*bu-* may be found in pairs such as WMo. *juɣul-* ‘pull out, pluck out (tr.)’ => *julbu-* ‘shed skin, lose hair, escape’, WMo. *ura-* ‘tear, rip, bite (tr.)’ => *urba-* ‘turn back, break away from (intr.)’, WMo. *nila-* ‘smear, rub (tr.)’ => *nilbu-* ‘spit, excrete body fluids (tr. /intr.)’, WMo. *dele-* ‘wave, flap (as wings), fan (tr. / intr.)’ => MMo. *dilbu-* ‘fan (intr.)’, WMo. *delbegene-* ‘move, sway (of flat, protruding objects) (intr.)’.

A more plausible cognate is the Old Turkic reflexive-anticausative marker OTk. -*U-* in OTk. *sāš-* ‘loosen, untie, unfasten (tr.)’ => *sāšü-* ‘loosen oneself, come loose’, OTk. *adīr-* ‘separate (tr.)’ => *adru-* ‘be superior to, excel (intr.)’, OTk. *alkīn-* ‘bring to an end, wipe out (tr.)’ => *alɣu-* ‘wane (intr.)’. The suffix further derives fientives from adjectival bases (Erdal 1991: 474-479), such as OTk. *agīr* ‘heavy (in physical sense); burdensome, painful’ => *agru-* ‘be(come) heavy, be in pain, be painful’, OTk. *boš* ‘free; empty’ => *bošu-* ‘free oneself, become empty’, OTk. *kalīn* ‘thick, dense’ => *kalnu-* ‘become thick’.

### 2.3. pK \*-le-: from anticausative to passive

*Korean.* In Korean we find a number of defective infinitives, recognizable by the infinitive ending -*e/ -a* and preceded by an element -(*u*)*l-* (Ramstedt 1939: 137; Martin 1992: 219). They occur attached to the auxiliary verbs *ci-* ‘become’, that intensifies their intransitivity and *ttuli-* ‘make’, that makes them into transitives. This leads to the reconstruction of the suffix pK \*-(*u*)*l-* that can be identified as an anticausative because the derived verb denotes a spontaneous process without an implied agent in verb pairs such as in K *pes-* ‘take off, remove, slip off (tr.)’ => *pesul-e ci-* ‘peel off, come off (intr.)’, K *swuk-* ‘be drooping, be bowed, be bent’ > *swukul-e ci-* ‘hang down, droop, bend oneself’, K *sak-* ‘decay, turn bad’ => *sakul-e ci-* ‘collapse, whither, decompose’, *wuk-* ‘get bent, turn’ > *wukul-e ci-* ‘curl up, warp, be crushed out of shape’. It extends its function towards the passive in fientive derivations from verbal adjectives such as K *nwuk-* ‘be soft, be loose’ => *nwukul-e ci-* ‘calm

down, loosen up, get milder, become soft’, K *nelp-* ‘be wide, broad, spacious’ => *nelpul-e ci-* ‘spread/scatter out widely, become wide’.

*Japanese.* We can reconstruct a suffix pJ *\*-ra-*, deriving verbal meaning that excludes a causing agent and presents the situation as occurring spontaneously. Unger (1977: 140) refers to it as a marker of “spontaneous action, endo-activity”, Martin (1987: 672) calls it “endoactive (intransitive or passive)”. We refer to pJ *\*-ra-* as the anticausative polarizer in equipollent anticausative-causative pairs in *\*-ra-/ \*-sa-*. In equipollent pairs both the anticausative and the causative are derived from a neutral base by means of different markers (Haspelmath 1993). This is illustrated by verb alternations such as OJ *ok-* ‘put’ => OJ *okor-* ‘arise, happen’ ~ OJ *okos-* ‘raise, wake’, OJ *kap-* ‘transfer, exchange, buy’ => *kapar-* ‘change, be substituted for (intr.)’ ~ *kapas-* ‘exchange, shift (tr.)’, OJ *oti-* ‘fall’ (<*\*oto-ki-*) => *otor-* ‘be inferior, fall behind’ ~ *otos-* ‘drop (tr.)’, OJ *sugi<sub>2</sub>-* ‘pass by, exceed; elapse’ (< *\*sunku-ki-*) => *sugur-* ‘pass by, exceed (intr.)’ ~ *sugus-* ‘let pass (tr.)’. The suffix pJ *\*-ra-* also derives fientives from verbal adjectives, such as OJ *aka-* ‘(be) clear, bright, red’ > OJ *akar-* ‘brighten, redden’, OJ *usu-* ‘(be) thin’ > OJ *usure-* ‘get thin’ and OJ *pi<sub>1</sub>ro<sub>2</sub>-* ‘(be) wide, broad, vast’ > OJ *pi<sub>1</sub>ro<sub>2</sub>r-* ‘be widespread’.

*Tungusic.* Poppe (1972: 139-140) finds an anticausative suffix *-ra:-* ~ *-re:-* in Evenki, such as in Evk. *awga-* ‘cure, heal (tr.)’ > *awgara:* ‘recover (intr.)’, Evk. *lamba-* ‘stick, adhere to (tr.)’ > *lambara:-* ‘hold on, stick (intr.)’, Evk. *koti-* ‘to constrict, to tighten (tr.)’ > *kotira:-* ‘dry up (intr.)’, Evk. *ñekce-le:-* ‘to bend, curve (tr.)’ > Evk. *ñekcere:-* ‘to bend, bow (intr.)’. It is possible that the Manchu suffix *-ra-/ -re-/ -ro-* (Gorelova 2002: 235), that derives fientives from adjectival nouns such as in Ma. *ehe* ‘bad, evil’ > *ehere-* ‘become evil or fierce; be on bad terms with someone’, Ma. *nitan* ‘weak, diluted, light’ > *nitara-* ‘become weak, diluted’ and Ma. *sahahu:n* ‘blackish, rather black’, *sahaliyan* ‘black’, *sahaltu* ‘having a black face’ > *sahara-* ‘turn black’ is related.

*Mongolic.* Reminiscent of the equipollent anticausative-causative pairs in Japanese, Written Mongolian derives the anticausative and the causative from a neutral verb base by means of *-ra-* ~ *-re-* and *-ci-* respectively (Poppe 1954: 64; 1972: 139-140). This can be illustrated by verb pairs such as WMo. *ebde-* ‘destroy, break, ruin’ => *ebdere-* ‘break down, fall to pieces, be wrecked (intr.)’ ~ *ebdeci-* ‘break, destroy, ruin (tr.)’, WMo. *jada-l-* ‘unwrap, unroll, undo (tr.)’ => *jadara-* ‘unfold, unwrap, loosen (intr.)’ ~ *jadaci-* ‘untie, unroll, undo (tr.)’ and WMo. *nuγu-l-* ‘fold, bend, curve (tr.)’ => *nuγura-* ‘be folded, bend, stoop (intr.)’ ~ *nuγuci-* ‘fold, crumple, separate bones at joints (tr.)’.<sup>ii</sup> The suffix *-ra-* ~ *-re-* also derives fientives (Poppe 1954: 65) from nominal adjectives, such as in WMo. *köke* ‘blue’ > *kökere-* ‘become blue’, WMo. *kögšin* ‘old’ > *kögšire-* ‘become old’ and WMo. *ügei* ‘poor’ > *ügeyire-* ‘become poor’.

*Turkic.* In Old Turkic a formative *-(I)r-* (Erdal 1991: 535-538) has lexicalized into fientives that derive from verbal adjectives, such as in Otk. *süči-* ‘be sweet’ => Otk. *süči-r-* ‘become sweet’, *yili-* ‘be hot’ > Otk. *yili-r-* ‘become hot’ and Otk. *yunči-* ‘be weak, emaciated (intr.)’ > Otk. *yunčir-* ‘be put in a bad way, worsen (intr.)’. In derivations from verbs the semantic relationship between the base and the *-(I)r-* derivate is often unclear, but an anticausative interpretation seems possible in verb pairs such as Otk *äg-* ~ *äñ-* ‘bend (tr.)’ > Otk *ägir-* ~ *äñir-* ‘surround, encircle, besiege, twist, spin (tr.)’, *\*köpi-* ‘to make (sth.) froth/foam (tr.)’ in *köpik* ‘froth, foam’ => Otk. *köpir-* ‘foam, froth (intr.)’ and *\*talpi-* ‘make flutter’ in *talpi-n-* / *talpi-š-* ‘flutter (intr.)’ => *talpür-* ‘flutter (intr.)’.<sup>iii</sup>

### 3. Conclusion

Korean	Japanese	Tungusic	Mongolic	Turkic	TEA
pK *-ki- caus.-pass.	pJ *-(k)i- caus.-pass.	pTg *-ki- causative	pMo *ki- ‘do, make’	pTk *ki(l)- ‘do, make’	pTEA *ki- ‘do, make’
pK *-pu/o- passive	pJ *-pa- passive	pTg *-p- refl.-anticaus.	pMo *-pu- refl.-anticaus.	pTk *-(p)U- refl.-anticaus.	pTEA *-pu- reflexive
pK *-(u)l- anticausative fientive	pJ *-ra- anticausative fientive	pTg *-rA- anticausative fientive	pMo *-rA- anticausative fientive	pTk *-(I)r- anticausative fientive	pTEA *-ra- anticausative fientive

It appears that the passive morphology that has lexicalized in Korean verb stems is relatable to causative, reflexive and anticausative markers across the Transeurasian languages. The cognates are global in the sense that they consist of form-function matches. As far as the form is concerned, are the phonological correspondences between the suffixes regular. They confirm the correspondence series for *\*-k-*, *\*-p-*, *\*-r-*, *\*-i-*, *\*-u-* and *\*-a-* established on the basis of lexical cognates in our previous research (Robbeets 2005). The functional matches obey to the cross-linguistic tendencies in grammaticalization, described in the first section of this article.

It is clear that the correspondences are too regular and too involved to be motivated by sheer chance or by universal principles in linguistic structuring. Nevertheless, one question remains: are the shared properties generated by genetic retention or are they generated by borrowing?

Since the present article compares bound inflectional verbal morphology, the probability of borrowing is relatively low to begin with. Second, diathetical suffixes are thought to be

particularly resistant to borrowing due to their positions close to the verbal stem and they tend to lexicalize easily due to their high semantic content. Third, the matches are not only global form-function matches, they also include shared polyfunctionality, such as causative and passive or anticausative and reflexive. And finally, the correspondences stretch over five branches. Linguistic and geographic distance can help to rule out borrowing. If one intends to study Korean from a genealogical perspective, it is rather risky to engage in a binary comparison with Japanese. The reason is obvious: both languages are geographically adjacent and they stand in a high-borrowing relationship. Borrowings are expected to obscure the underlying genetic connections. Hence, they will be mistaken for cognates. If we start from the largest reasonable hypothesis and test a model including languages that stand in a low-borrowing relationship, such as the Turkic languages, we reduce the probability that we are dealing with borrowings in disguise.

We are lead to the conclusion that it is more likely that the passive morphology shared between Korean and the Transeurasian languages is the result of genetic retention than that it is induced by language contact. The etymologies presented in this article indicate that Korean is relatable to Japanese, the Tungusic languages, the Mongolic languages and the Turkic languages in a genealogical sense.

### **Abbreviations**

Az.	Azerbaijani
Bao.	Bao'an
Bash.	Bashkir
Bur.	Buriat
Chu.	Chuvash
Dag.	Dagur
Dolg.	Dolgan
Dong.	Dongxiang
Evk.	Evenki
J	(standard Tokyo) Japanese
K	(standard Seoul) Korean
Kalm.	Kalmuk
Khal.	Khalkha
Khak.	Khakas
Kirg.	Kirghiz
Ma.	Manchu

MK	Middle Korean
MMo.	Middle Mongolian
Mgr.	Monguor
Mogh.	Moghol
Na.	Nanai
Neg.	Negidal
Nog.	Noghay
OJ	Old Japanese
OTk.	Old Turkic
pJ	proto-Japanese
pK	proto-Korean
pMo	proto-Mongolic
pTEA	proto-Trans-Eurasian
pTg	proto-Tungusic
pTk	proto-Turkic
Sol.	Solon
Tat.	(Volga) Tatar
Tk.	Turkish
Tkm.	Turkmen
Ud.	Udehe
Uigh.	Uighur
Uzb.	Uzbek
WMo.	written Mongolian
Yak.	Yakut

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<sup>i</sup> For many speakers *J Kodomo-ni gakkou-ni ika-se-ru* (child-dat. school-dat go-caus.-ind.) ‘let the child go to school’ seems to have a softer implication than *J Kodomo-o gakkou-ni ika-se-ru* (child-acc. school-dat. go-caus.-ind.) ‘make the child go to school’.

<sup>ii</sup> The suffix *-l-* in the latter two verb pairs is a causative (Pope 1954: 61). Semantically both *-l-* and *-ci-* derive causatives, but *-l-* puts fewer restrictions on the semantics of the preceding verb. An action like ‘drink’ (e.g. *uγu-* ‘drink’ => *uγul-* ‘give to drink’) that does not express a change of state cannot be the base verb for *-ci-* causatives.

<sup>iii</sup> In Old-Turkic the formative *-n-* occurs in reflexive-anticausative derivations, while *-š-* occurs in reciprocal verbs (Erdal 1991: 552-578, 584-634).

# Probabilistic OT approach to *sa*-Insertion in Japanese: Based on the corpus data

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## Abstract

This paper presents a Probabilistic OT analysis of the recent synchronic variation called *sa*-Insertion in Japanese, based on the corpus data. Firstly, I characterize the chronological change of the distribution of *sa*-Insertion based on the observed data. Secondly, I model and predict the change within the framework of Probabilistic OT. The result shows that a demand for one-to-one correspondence of form and content and a restructuring of conjugation paradigm by analogical leveling are the driving forces of the change: the chronological transition of the ranking values of constraints. I show that the change of *sa*-Insertion is explained by the interaction of the small set of constraints: OCP (morph), ParContrast, and AlloCorr.\*

**Keywords:** *sa*-Insertion, Optimality Theory, Probabilistic OT, language change, variation

## 1. Introduction

In this research, I conduct the analysis of the recent synchronic variation as well as the ongoing language change in Japanese causative forms involving a process called *sa*-Insertion from the perspective of Optimality Theory (henceforth OT; Prince & Smolensky 1993), based on the quantitative analysis. This process adds an extra *-as-* to the causative

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morpheme, as in *yar-asase-ru* vis-à-vis the standard *yar-ase-ru* ‘let someone do’ and *hasir-asase-ru* vis-à-vis the standard *hasir-ase-ru* ‘let someone enter.’

As usual with any such variation, *sa*-Insertion has also been referred to as an example of *kotoba-no-midare* “language disturbance” by language purists and school teachers. Although Martin (1975: 287) refers to the phenomenon, it was not until Chen (2002) that its grammatical mechanism and sociolinguistic aspects were analyzed in a professional way. *Sa*-Insertion has, thus far, been analyzed based on the natural linguistic data and some properties of *sa*-Insertion have been revealed (Chen 2002, Okada 2003, among others). Although previous studies have elucidated the properties of *sa*-Insertion with respect to language-internal and -external factors such as the length of the preceding verb and the type of the following context, and with respect to language-external factors such as gender and style, as well as the interactions of the significant factors (Sano 2008, among others), formal aspects of the phenomenon remain to be explored. This research, therefore, aims to characterize the phenomenon quantitatively using a large-scale corpus and to give an OT account of the change of *sa*-Insertion.

The corpus employed is the Japanese Diet database, which is characterized by its large scale. It records all utterances of the members in any sessions and committees from the first Diet (May, 1947) to the present. The large scale enables one to analyze the chronological change of the phenomena over 60 years. I sampled 81 members of the Diet who come from Tokyo according to their birth-year; their utterances in all periods are in the scope of the present research. I collected a total of 317 causative forms with *sa*-Insertion, as opposed to a total of 4,708 standard causative forms; thus, the rate of *sa*-Insertion amounts to 6.31%.<sup>1</sup>

Based on the characterization of the variation in question, I explain the results of the quantitative analysis as well as the emergence and the course of the change of *sa*-Insertion by a Probabilistic OT model. I assume the Stochastic OT model and conduct the analysis using the Gradual Learning Algorithm (Boersma & Hayes 2001). I also predict the change of

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<sup>1</sup> The Diet of Japan is comprised of the plenary sessions and the committees. The committees are further divided into permanent committees of each Ministry and select committees. Each member of the Diet belongs to either the House of Councilors or the House of Representatives (Oyama 2003).

*sa*-Insertion by means of evolOT (Jäger 2002). The result shows that a demand for one-to-one correspondence of form and content and a restructuring of conjugation paradigm by analogical leveling are the driving force of the change. I propose that *sa*-Insertion is an instance of language change for the optimization of the paradigm.

The discussion proceeds as follows. Section 2 firstly identifies the *sa*-Insertion phenomenon along with the introduction of the previous studies, and then introduces the Diet database as well as the sampling method. In Section 3, I characterize the chronological change of the distribution of *sa*-Insertion quantitatively based on the data. Section 4 conducts the OT analysis along with the introduction of the constraints. In Section 5, I conduct the Probabilistic OT analysis with these constraints. Section 6 concludes the discussion.

## 2. Methodological preliminaries

In this section, I firstly explore the *sa*-Insertion phenomenon in connection with the causative formation of Japanese.

### 2.1. *Sa*-Insertion

*Sa*-Insertion is a variation phenomenon in Japanese causatives. The Japanese causatives are formed by attaching causative suffixes to verb stems. Standard causative, which is the traditional variant, comprises the verb stem and the causative suffix *(s)ase*;<sup>2</sup> on the other hand, *sa*-Insertion, which is the innovative variant, comprises the verb stem and the causative suffixes *as*, *ase*. I present below some examples of *sa*-Insertion and standard causative observed in the Diet database.

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<sup>2</sup> The Japanese causative suffix shows morphophonemic alternation, according to the types of verb stem: Consonant verb takes *ase*, as in *yar-ase*, while vowel verb takes *sase*, as in *tabe-sase* 'let someone eat.' I will mention the two types of Japanese verb (consonant verb/vowel verb) below.

## Standard causatives

- (1) hikooki-o mata tukur-ase-ru.  
airplane-ACC again make-CAUS-NONP  
“We let (the company) make airplanes again.”  
(Yoshio Namiki, Jun. 11 1952)
- (2) iroirona enzetu-o yar-ase-te-itadaita.  
various speech-ACC do-CAUS-TE-AUX.POL.PAST  
“I made various speeches.” (polite)  
(Keigo Oouchi, Jun. 7 1994)
- (3) gakkoo-ni ik-ase-nai.  
school-LOC go-CAUS-NEG.NONP  
“We allow (students) not to go to school.”  
(Hiroko Mizushima, Feb. 27 2004)

## Sa-Insertion

- (4) tyoosahookokusyo-o yom-as-ase-te-itadakimasita.  
investigation report-ACC read-CAUS-CAUS-TE-AUX.POL.PAST  
“I read the investigation report.” (polite)  
(Seiichi Mizuno, Sep. 27 1995)
- (5) situmon-o owar-as-ase-te-itadakimasu.  
question-ACC finish-CAUS-CAUS-TE-AUX.POL.NONP  
“Let me finish my question.”  
(Tatsuya Ito, Apr. 11 1997)
- (6) kono koosyo-o torihakob-as-ase-tai.  
this negotiation-ACC advance-CAUS-CAUS-DES.NONP  
“I want to let (someone) advance this negotiation.”  
(Sanzo Hosaka, Apr. 10 1998)

As exemplified above, each standard causative is formed by attaching *ase* to verb stems, while in *sa*-Insertion both *as* and *ase* attach to verb stems,

instead of only *ase*. Thus, *sa*-Insertion contains an extra *sa* in causative phrases, as opposed to the standard causatives.<sup>3</sup>

Among the previous studies, Inoue (2003) points out that *sa*-Insertion is restricted to consonant verbs, and it does not occur in vowel verbs. Japanese verbs are classified into two types, according to the stem-ending; one type is a consonant verb which ends in a consonant (e.g. *yar*-‘do’, *hair*-‘enter’), and the other type is a vowel verb which ends in a vowel (e.g. *mi*-‘see’, *tabe*- ‘eat’) (Bloch 1946).

Table 1. Distribution of causatives by verb type

verb type	stem	standard causative	<i>sa</i> -Insertion
consonant verb	<i>yar</i> -	<i>yar-ase</i> -	<i>yar-as-ase</i> -
	<i>hair</i> -	<i>hair-ase</i> -	<i>hair-as-ase</i> -
vowel verb	<i>tabe</i> -	<i>tabe-sase</i> -	* <i>tabe-sas-ase</i> -
	<i>mi</i> -	<i>mi-sase</i> -	* <i>mi-sas-ase</i> -

As Table 1 shows, standard causative can occur with either consonant- or vowel verbs, while *sa*-Insertion cannot occur with vowel verbs. Thus, \**mi-sas-ase*- or \**tabe-sas-ase*-, for instance, are impossible.

Based on this observation, Inoue claims further that the change of *sa*-Insertion would lead to the simplification of the conjugation of verbs in Japanese by analogical leveling (cf. Kiparsky 1978, Bybee 1985, among others).

Table 2. Distribution of causative suffix by paradigm

paradigm	verb type	causative suffix	
traditional	vowel verb	<i>sase</i>	(standard causative)
	consonant verb	<i>ase</i>	(standard causative)
innovative	vowel verb	<i>sase</i>	( <i>sa</i> -Insertion)
	consonant verb	<i>sase</i>	(standard causative)

<sup>3</sup> *Sa*-Insertion was dubbed based on a phonological aspect of Japanese. Japanese has an open-syllable sound pattern and in principle it does not allow codas. Thus, the sequence *yar-as-ase* is pronounced with CV structure as in *ya.ra.sa.se*. This results in the auditory perception of an extra *sa* rather than *as*. However, the morphosyntactic investigation revealed that *sa*-Insertion contains an extra causative suffix *as* (Okada 2003, Sano 2006), and the difference between standard causative and *sa*-Insertion cannot simply be attributed to the phonological aspect.

As illustrated in Table 2, the traditional paradigm, which consists of only standard causative, shows a morphophonemic alternation of the causative suffix between two allomorphs *ase* and *sase* according to the verb types to which it attaches. On the other hand, in the innovative paradigm, which consists of *sa*-Insertion and standard causative, the causative suffix in vowel verbs has changed from *ase* to *sase*. There is no such alternation in this paradigm, and the causative suffix uniformly takes the form *sase*, regardless of the types of the verb stem. Consequently, the difference in conjugation paradigm will disappear.<sup>4</sup>

Okada (2003) points out that; 1) the meaning of *sa*-Insertion is honorific, rather than causative; 2) *sa*-Insertion is double causative; 3) *sa*-Insertion serves to reinforce politeness, and the newly inserted causative suffix carries this function.<sup>5</sup>

Based on Okada's claim that *sa*-Insertion is a double causative, Sano (2006) proves that *sa*-Insertion is the productively formed causative which consists of two causative suffixes. Traditionally, the double causative is not allowed in Japanese and the occurrence of two causative suffixes leads to unacceptability. Instead, one of the causative suffixes is suppressed in double causative construction and a single causative surfaces (Shibatani 1973; Martin 1975; Kuroda 1993). As a result, double causative and single causative surface as an identical form: single causative. In *sa*-Insertion, however, two causative suffixes remain intact. Here exists the variation: If two suffixes remain intact, then the double causative (*sa*-insertion) arises, on the other hand, if one of the causative suffixes is suppressed, then the single causative (standard causative) arises.

## 2.2. Data

In this research, the Diet database is employed, which is characterized by its large-scale: It records all utterances of the members in any sessions

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<sup>4</sup> This analysis, however, is problematic, because it is primarily based on the *Kana* spelling of Japanese. Although the name *sa*-Insertion is based on the *Kana* spelling, *Kana* is inappropriate for the detailed analysis of *sa*-Insertion, and the morphophonemic analysis needs to be done.

<sup>5</sup> This seems to be associated with the fact that the causative suffix originally carried the function as intensifier of the honorific/humble meaning in addition to the function as causative in old Japanese (cf. Sato 1977: 317-319, and references cited therein).

and committees from the first Diet held in May, 1947 to the present (It continues to be updated.). The large scale of the Diet database enables one to analyze the chronological change of the phenomena over sixty years.<sup>6</sup> The present research targets the utterances from May 1947 to April 2005.

In the Diet database, we search target strings by selecting the Diet number or the date of session/committee in the pull-down menu (this is obligatory) and adding search strings. The target can be specified by adding further information such as the name of a speaker or the session/committee. The target strings are displayed with detailed information per session/committee and we can directly download the information into our computer.

Based on the list of the members of the Diet by Nambu (2005), I sampled eighty-one members of the Diet who come from Tokyo; their utterances in all periods are in the scope of the present research. According to the member's birth-year, I selected one member for each year. Thus, the target of the analysis is the utterances of eighty-one members from Tokyo.<sup>7</sup> In the next section, I describe the change of *sa*-Insertion based on the collected data.

### 3. Chronological change

In this section, I characterize the chronological change of the distribution of *sa*-Insertion quantitatively. An exhaustive examination of the Diet database brought forth a total of 317 causative forms with *sa*-Insertion, as opposed to a total of 4,708 standard causative; thus, the rate of *sa*-Insertion ( $sa\text{-Insertion}/(sa\text{-Insertion} + \text{standard causatives}) * 100$ ) amounts to 6.31%, as shown in Table 3 below.

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<sup>6</sup> Matsuda (2004) describes the possibility of the Diet database for Linguistics use.

<sup>7</sup> Sano (2008a, 2008b) describes the criterion concerning the status of *sa*-Insertion and standard causatives in the data extraction. According to the criterion of Sano (2008a), I excluded the examples which are not qualified as *sa*-Insertion or standard causatives from the extracted data.

Table 3. Distribution of causatives

	#
<i>sa</i> -Insertion	317
standard causatives	4,708
rate (%)	6.31

Based on these data, I considered the relation between the year-period and the occurrence of *sa*-Insertion, where *sa*-Insertions and standard causatives are sorted out by every five years. The distribution of *sa*-Insertion by five-year period is shown in Figure 1.

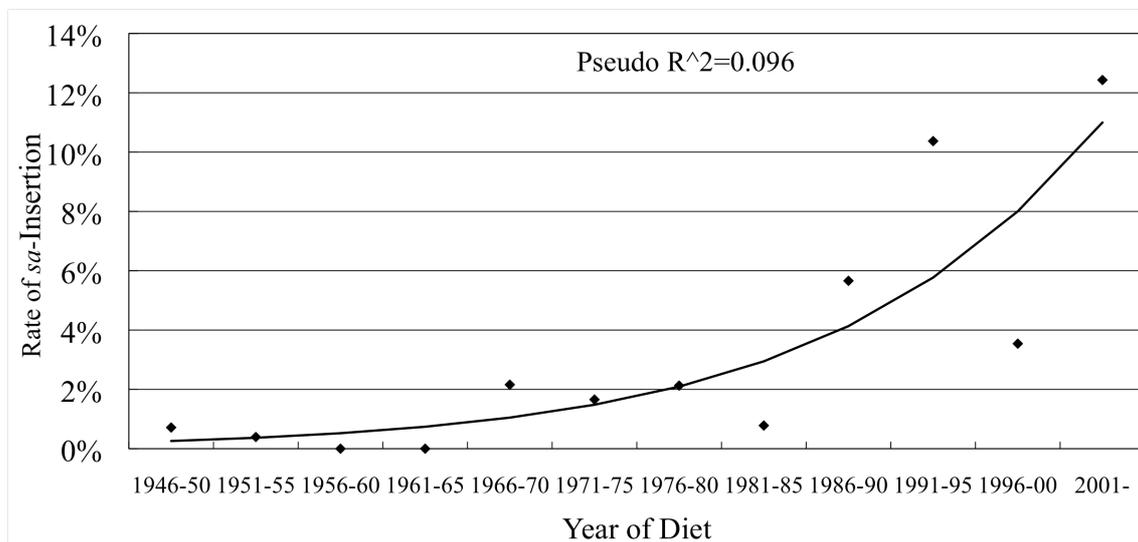


Figure 1. Chronological change of the distribution of *sa*-Insertion

In Figure 1, the dots which stand for the rate of *sa*-Insertion for each year of the Diet and the approximated curve are plotted. The rate of *sa*-Insertion is gradually rising from year to year. In the present data, *sa*-Insertion is first observed in 1949. From the first appearance, some *sa*-Insertion is observed (gradually increasing) until the 1980s; around 1990, *sa*-Insertion suddenly exploded. This shows that *sa*-Insertion is in the beginning of a language change, and the shape of the current curve exactly corresponds to the early stage of an S-curve (Bailey 1973, among others). Thus, it can be predicted that the change of *sa*-Insertion will proceed in an S-curve fashion.

#### 4. OT analysis

In this section, I conduct the OT analysis, introducing three constraints that govern the change of *sa*-Insertion: Obligatory Contour Principle (morph),<sup>8</sup> ParContrast, and AlloCorr.

##### 4.1. OCP (morph)

*Sa*-Insertion is a double causative, namely it contains two causative suffixes, while standard causative is a single causative (Okada 2003, Sano 2006). Based on this observation, I firstly introduce the constraint OCP (morph).

###### (7) OCP (morph)

No identical morphological categories are adjacent.

OCP (morph) blocks the occurrence of adjacent identical morphemes. I show how the double causative is suppressed to a single causative in terms of this constraint.

###### (8)

Input: /yar-as-ase/	OCP (morph)
a.ya.ra.sa.se	*!
☞ b.ya.ra.se	

As shown in (8), candidate (a) *ya.ra.sa.se* violates OCP (morph), since it contains two causative suffixes adjacently, on the other hand, the optimal candidate (b) *ya.ra.se* incurs no violation of OCP (morph). Thus, *sa*-Insertion, which contains two causative suffixes adjacently, is blocked by OCP (morph), and standard causative, which contains only one causative suffix, surfaces even if the input contains two causative suffixes.

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<sup>8</sup> Obligatory Contour Principle (OCP), which bars consecutive identical features, was originally proposed by Leben (1973).

#### 4.2. Paradigm Contrast

As Okada (2003) claims, the meaning of *sa*-Insertion is honorific, rather than causative. *Sa*-Insertion plays a role in reducing the functional load with respect to these two meanings. To capture this observation in OT terms, I introduce the constraint Paradigm Contrast (Ito & Mester 2004).

(9) ParContrast (Paradigm Contrast, Ito & Mester 2004):

The cells of a paradigm are pair-wise phonologically distinct.

ParContrast requires a one-to-one correspondence between form and content. I illustrate the evaluation in terms of this constraint with the tableau.

(10)

Candidate paradigms for /yar-/	ParContrast
☞ a. causative: <i>ya.ra.se</i> (standard causative) honorific: <i>ya.ra.sa.se</i> ( <i>sa</i> -Insertion)	
b. causative: <i>ya.ra.se</i> (standard causative) honorific: <i>ya.ra.se</i> (standard causative)	*!

In paradigm (a), the meanings ‘causative’ and ‘honorific’ take distinct forms: ‘causative’ takes *ya.ra.se* which is standard causative, ‘honorific’ takes *ya.ra.sa.se* which is *sa*-Insertion. The paradigm (a) satisfies one-to-one correspondence between form and content. On the other hand, in paradigm (b), ‘causative’ and ‘honorific’ take the identical form *ya.ra.se*. In other words, *ya.ra.se*, which is standard causative, carries two meanings. This results in the higher functional load. The paradigm (b) does not satisfy one-to-one correspondence, and violates ParContrast. Thus, the paradigm (a), which includes *sa*-Insertion, is selected as the optimal candidate with no violation of ParContrast, and it follows that ParContrast is in favor of *sa*-Insertion.<sup>9</sup>

<sup>9</sup> The following question arises with respect to the meaning of *sa*-Insertion: Why the paradigm where *sa*-Insertion carries the meaning ‘honorific’ and standard causative carries the meaning ‘causative’ stands as the candidate, instead of the paradigm where *sa*-Insertion carries the meaning ‘causative’ and standard causative carries the meaning ‘honorific’? Both paradigms should satisfy one-to-one correspondence (Joe Pater, personal communication). As to the reason for this point, Japanese expresses

### 4.3. Allomorph Correspondence

As mentioned above, the causative suffix in Japanese shows allomorphy, namely, it undergoes morphological alternation according to verb types to which it attaches, either consonant verbs or vowel verbs. *Sa*-Insertion plays a role in eliminating the allomorphy by analogical leveling (Inoue 2003). To capture the analogical leveling in OT terms, I introduce the constraint AlloCorr.

(11) AlloCorr (Allomorph Correspondence, Ito & Mester 2004):<sup>10</sup>

Morphs in a relation of allomorphy are identical.

AlloCorr requires allomorphs to take the identical form. The AlloCorr evaluates the identity between forms within paradigms with respect to segments. I illustrate the evaluation in terms of this constraint with the tableau.

(12)

Candidate paradigms for /yar-/ and /tabe-/ ☞ a. consonant verb: ya.ra.sa.se (sa-Insertion) vowel verb: ta.be.sa.se (standard causative)	AlloCorr
b. consonant verb: ya.ra.se (standard causative) vowel verb: ta.be.sa.se (standard causative)	***!

The paradigm (a) which includes *sa*-Insertion and standard causative shows no allomorphy, namely, both consonant verb and vowel verb uniformly take the causative suffix *sase*. On the other hand, the paradigm (b), which consists only of standard causative shows the allomorphy, namely, consonant verb takes *se*, while vowel verb takes *sase*, and three segments do not have identical segments as their counterpart. This results in three violations of AlloCorr. Thus, the paradigm (a), which includes *sa*-Insertion, is selected as the optimal candidate with no violation of AlloCorr, and it

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the honorific meaning by directing causation to the speaker, and the meaning is enhanced by attaching extra morphemes of causation. Therefore, the extra causative suffix may fit the honorific meaning. Along these lines, Okada (2003) claims that the extra causative suffix is the honorific booster.

<sup>10</sup> I slightly modified the original definition.

follows that AlloCorr is in favor of *sa*-Insertion.

In summary, OCP (morph) is against *sa*-Insertion, while ParContrast and AlloCorr are in favor of *sa*-Insertion. Assuming the standard OT, if ParContrast and AlloCorr dominate OCP (morph), standard causative is selected as the optimal candidate; on the other hand, if OCP (morph) dominates ParContrast and AlloCorr, *sa*-Insertion is selected as the optimal candidate. In the next section, I show how these constraints govern the changes of *sa*-Insertion interacting with each other.

## 5. Probabilistic OT analysis

Assuming the Stochastic OT model (Boersma 1998; Boersma & Hayes 2001), I conduct the analysis based on the collected data and the constraints. Firstly, I outline the Stochastic OT model, and then I move on to the analysis, followed by the prediction.

### 5.1. Stochastic OT

In Stochastic OT, the strength of each constraint is associated with numerical values (*ranking values*) along a continuous scale of real numbers, and each constraint takes the ranges of values characterized by a Gaussian distribution. The evaluation of Stochastic OT takes the forms of *stochastic evaluation*: at every speaking event, the random value, *evaluation noise*, is added to the ranking value and the final value of the constraint is determined. This value is called a *selection point*. The selection point of each constraint varies from evaluation to evaluation, and this is the locus of variation. Stochastic OT is accompanied by the learning theory: Gradual Learning Algorithm (henceforth GLA). GLA calculates and identifies the ranking values of each constraint based on the OT grammar and the learning data, and it in turn generates the distribution of variants based on the ranking values. While learning, GLA continues to promote and demote the ranking values of each constraint by a small step in order to come up with the grammar which can generate the frequency distribution consistent with the learning data.

## 5.2 Analysis

I implemented the analysis by means of GLA in Praat program (Boersma & Weenink 1992-2008). In the present analysis, I focused on three time periods: 1946-1950, 1986-1990, and 2000-2005. I classified the tokens of *sa*-Insertion and standard causative into each of these time periods. The frequency distributions of *sa*-Insertion and standard causative in each time period are shown in Table 4.

Table 4. Chronological change of the frequency of the causatives

	1946-50	1986-90	2000-05
<i>sa</i> -Insertion	1	9	200
standard causative	139	150	1409

I hypothesize that the chronological change of the distribution of *sa*-Insertion can be attributed to the change of the ranking values of each constraint. I derived the ranking values of each constraint in the three time periods based on the OT grammar and the frequency distribution.<sup>11</sup> After the learning, GLA has assigned the following ranking values to the constraints.

Table 5. Chronological change of the ranking value of each constraint

	1946-50	1986-90	2000-05
OCP(morph)	103.821	102.676	102.045
ParContrast	96.179	97.324	97.955
AlloCorr	96.179	97.324	97.955

Table 5 illustrates the chronological change of the ranking values of each constraint. The ranking value of OCP (morph), which is against *sa*-Insertion, gradually decreases, on the other hand, the ranking values of ParContrast and AlloCorr, which are in favor of *sa*-Insertion, gradually increase along the time-line. The ranking values of each constraint come closer. As a result, the probability of the occurrence of *sa*-Insertion increases. Thus, the gradient approximation of the ranking values of each constraint caused the

<sup>11</sup> I set the representative parameters in learning as follows: Initial ranking: 100; Evaluation noise: 2.0; Ranking strategy: symmetric all; Initial plasticity: 1.0; Replications per plasticity: 100,000.

emergence and the gradual increase of *sa*-Insertion.

Next, I turn to the verification of the adequacy of the above analysis. GLA generates the frequency distributions of each variant (*output distributions*) according to the resulting grammar, namely, the ranking values of each constraint in Table 5. The output distributions for the above grammar are shown below.

Table 6. The observed distributions of causatives

observed	1946-50	1986-90	2000-05
<i>sa</i> -Insertion	1	9	200
standard causative	139	150	1409

Table 7. The predicted distributions of causatives

predicted	1946-50	1986-90	2000-05
<i>sa</i> -Insertion	1	11	207
standard causative	139	148	1402

Correlation coefficient = 0.999981

The observed frequency distributions of *sa*-Insertion and standard causative in the corpus data in each time period are repeated in Table 6; Table 7 shows the predicted frequency distributions of *sa*-Insertion and standard causative in each time period. The predicted distribution is consistent with the observed distribution. This is also supported by the extremely high correlation coefficient between the observed and predicted distributions. Thus, the analysis is verified to be adequate.

### 5.3. Prediction

Finally, I predict the chronological change of *sa*-Insertion. I employed evolOT (Jäger 2002). The evolOT predicts the transition of ranking values of each constraint over time, based on the OT grammar and the frequency distribution of the phenomena at a particular point, and it further generates a series of frequency distributions, according to the resulting ranking values. In the prediction simulated by evolOT, one cycle of learning (by means of

GLA) and production represents a single generation.<sup>12</sup> The result of the simulation is shown below.

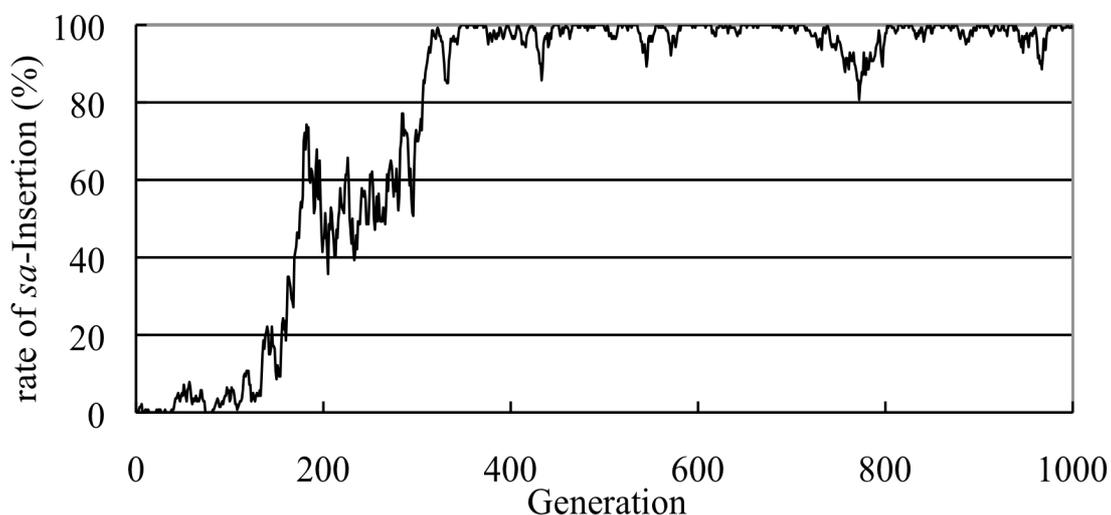


Figure 1. Prediction of the change of *sa*-Insertion

As Figure 2 illustrates, the evolOT predicts that the change of *sa*-Insertion proceeds in an S-curve manner. Furthermore, the beginning of the change of *sa*-Insertion illustrated in Figure 1 roughly corresponds to the generations from 0 to 150. Thus, the observed chronological change of the distribution of *sa*-Insertion and predicted one closely match.

At this point, I consider the reason why the rate of *sa*-Insertion increases in an S-curve manner, instead of remaining stable. Assuming a UG factor, such that at each cycle of learning, the raw ranking values get altered, with higher values for UG-favored constraints, this produces a slightly different distribution, which could then serve as the learning data for the next generation. Such a procedure could create an S-curve.<sup>13</sup>

## 6. Conclusion

In this research I conducted the Probabilistic OT analysis, based on the corpus data. The results show that *sa*-Insertion is first observed in 1949,

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<sup>12</sup> I set the parameters as follows: Initial ranking = 0; Plasticity = 10; Noise = 20; Number of observations = 20,000.

<sup>13</sup> A suggestion by Bruce Hayes stimulated this idea.

and it is currently in the beginning of the language change. The demand for the optimization of the conjugation paradigm and for the reduction of the functional load is reflected in the gradient approximation of the ranking values of each constraint. This caused the emergence and gradual diffusion of *sa*-Insertion. The innovative paradigm which includes *sa*-Insertion satisfies these demands all taken together. The OT grammar I proposed was verified to be adequate. Finally, the evolOT predicts that the change of *sa*-Insertion will proceed in an S-curve manner. The result again matches the observed chronological change of the distribution of *sa*-Insertion. I propose that *sa*-Insertion is an instance of language change for the optimization of the paradigm. Although the change of *sa*-Insertion is affected by various language-internal and language-external factors, I showed that the change can be explained by the interaction of OCP (morph), ParContrast, and AlloCorr in a formal manner.

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## **Appendix**

List of abbreviations

ACC: Accusative    AUX: Auxiliary    CAUS: Causative    LOC: Locative

NONP: Nonpast    NEG: Negative    DES: Desiderative    PAST: Past

POL: Polite    TE: *te*-form of the verb

# Is Anger HEAT or QI in Chinese? A Historical Perspective

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## Abstract

Resorting to Chinese philosophical and medical classics, this study explores the most general conceptual metaphor in the metaphorical system of anger in Chinese. QI, instead of HEAT, is the central metaphor in Chinese. From a historical viewpoint, *qi* used to refer to anger has nothing to do with heated gas but the essence that exists and circulates through the body. The conceptualization of *qi* causing anger or anger causing the hyperactivity of *qi* can be traced back to Warrior States (403-221 B.C.). It is affirmative that the physiological effects of *qi* serve as the underlying cultural model for the metaphorical system of anger. The cultural model exerts influence on language, which develops a large number of anger expressions associated with the lexeme *qi* in Han Dynasty (206 B.C.-220 A.D.). Diachronically, the sources of these two metaphors QI and FIRE are not two subversions of ANGER IS HEAT. It is the central metaphor ANGER IS QI that dominates the metaphorical use for anger expressions. The discourses drawn from Chinese classics distributed chronologically demonstrate that the compounds related to the lexeme *qi* are very productive. The compounds have undergone semantic extension and are referred to as metaphorical anger. In sum, the concept of *qi* plays a crucial role in the expressions of anger. The lexeme *qi* and the compounds related to *qi* indicating anger in contemporary Chinese are deeply rooted in Chinese conceptual system.

**Key words:** anger, *qi*, heat, metaphorical system, conceptual metaphor, cultural model.

## 1. Introduction

Lakoff and Kövecses (1983, 1987) propose that the physiological effects of anger such as body heat and internal pressure serve as the underlying cultural model for the metaphorical system of anger in English in which anger is characterized by the most general conceptual metaphor ANGER IS HEAT<sup>1</sup> (Kövecses 1986, 1990, 2000). The

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<sup>1</sup> Capital letters stand for the metaphorical concepts.

metaphor ANGER IS HEAT has two subversions: ANGER IS THE HEAT OF A FLUID and ANGER IS FIRE. In this metaphorical system, there are a large number of anger expressions. For example, “You make my blood boil” and “I have reached the boiling point” tie to THE HEAT OF A FLUID. “Those are inflammatory remarks” and “She was doing a slow burn” tie to the FIRE metaphor. These are all conventionalized English anger expressions to describe a person who is angry.

Later, many studies have been conducted on Chinese anger expressions by making use of the methodology proposed by Kövecses and his associates in 1980s. Shyu (1989) and Cheng (1999) still treat the physiological effect of anger, body heat, as the underlying cultural model for the metaphorical system of Chinese anger expressions, in which ANGER IS HEAT is still the most general conceptual metaphor. What’s difference is that in Shyu’s categorization, she first introduces the concept of 氣 *qi* ‘air’<sup>2</sup> into the metaphorical system. Qi is translated as ‘air’ by Shyu and then the two subversions of HEAT become ANGER IS THE HEATING OF QI ‘AIR’<sup>3</sup> and ANGER IS FIRE. In other words, while English chooses FLUID and FIRE metaphors, Chinese uses QI ‘AIR’ and FIRE metaphors. There are a large number of conventionalized anger expressions which tie to the metaphorical system as shown in the following.

ANGER IS THE HEATING OF 氣 QI ‘AIR’

他有一股怨氣 *ta you yi gu yuan qi* “He has an angry air.”

別氣 *bie qi* “Don’t be angry.”

我心中有氣 *wo xin zhong you qi* “I have an air (anger) in my heart.”

ANGER IS FIRE

他發火 *ta fa huo* “He emitted fire.”

他冒火 *ta mao huo* “He spouted fire.”

我很火 *wo hen huo* “I become fiery.”

Yu’s (1998) analysis concerns the common cultural theories for Chinese anger expressions. Yu points out two Chinese traditional theories of 陰陽 *yin-yang* ‘yin-energy and yang-energy’<sup>4</sup> and 五行 *wu-xing* ‘the Five Elements’ as the

<sup>2</sup> Chinese discourses or phrases are illustrated in the following manner. Chinese characters are presented first. Italic types stand for transliteration: 漢語拼音 *Han Yu Pin Yin*. The translation is enclosed with either “” or ‘’: “” for discourse and ‘ ’ for phrase or word.

<sup>3</sup> The lexeme 氣 *qi* in classical Chinese encompasses various definitions: a form of energy, essence of the body, breath, and the force of life. Its modern counterpart has another definition: air or gas which is widely used in contemporary Chinese.

<sup>4</sup> In a survey of classical linguistic data, 先秦 pre-Qin, 秦 Qin and 漢 Han philosophical and medical

underlying cultural models for the metaphorical system of anger expressions. Yu proposes that the heated *qi* ‘air’ or ‘gas’ is formed by the *yang*-energy. Therefore, in this metaphorical system, the HEAT metaphor is still the most general conceptual metaphor in Chinese. Yu also identifies the central metaphor ANGER IS HEAT which has two subversions ANGER IS THE HOT QI ‘GAS’ and ANGER IS FIRE. It is noticed that Shyu translates *qi* as ‘air’ whereas Yu translates *qi* as ‘gas.’ They refer to the same thing in contemporary meanings. For instance, Shyu would translate the sentence 我心中有氣 *wo xin zhong you qi* as “I have an air (anger) in my heart.” Yu would translate it as ‘I have a gas (anger) in my heart. To sum, Yu’s two subversions are the same as Shyu’s. What’s difference is that Yu first introduces *yin-yang* and *wu-xing* as the underlying cultural models for the metaphorical systems of Chinese anger expressions and these two theories are utilized to account for the relationships among metaphors: the central metaphor HEAT and two subversions, QI and FIRE.

In general, previous studies on Chinese anger expressions converge on the following points. The researchers patch up Kövecses’ analysis of the cultural model of anger, draw upon Lakoff and Kövecses’ framework of metaphors in English anger expressions and come to the generalization that English and Chinese share the central metaphor ANGER IS HEAT that breaks into two subversions FIRE and AIR/GAS. Furthermore, the underlying cultural models *yin-yang* and *wu-xing* are utilized to provide a cognitive base for viewing ANGER IS HEAT as the central metaphor of anger in Chinese. However, the previous studies pose some problems. First, in our commonsense, the contemporary *qi* indicating AIR/GAS indeed can be viewed as a subversion of HEAT, since HEAT is a necessary condition of AIR/GAS (Yu 1998). Nevertheless, the lexeme *qi* can be traced back to 戰國時代 *Zhan Guo Shi Dai* ‘Warring States’ (403-221 B.C.). It didn’t refer to ‘air’ or ‘gas’ and was not a subversion of HEAT. Second, the effects of the theories, *yin-yang* and *wu-xing*, can also be traced back to ‘Warring States’ (403-221 B.C.) which encompass variable diachronic ingredients. These two theories are not supposed to be explained in a synchronic perspective. Yu uses diachronic models to explain the synchronic meaning of the lexeme *qi*. One way to solve the problem is to examine the linguistic data in a diachronic way and to ascertain whether the source of the lexeme *qi* and the concept of heat are related in classical Chinese.

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works, 陰 *yin* and 陽 *yang* are two opposite forms of *qi* ‘energy’ existing and flowing in all things in the universe.

## 2. Goals

The goals of the present study are as the following:

1. To explore a cognitive base serving as the cultural model for the metaphorical system of Chinese anger expressions.
2. To ascertain the central metaphor in this metaphorical system.

I argue that from a historical perspective the physiological effects of *qi* can serve the underlying cultural model for the metaphorical system of Chinese anger expressions and that ANGER IS QI instead of HEAT is the most general conceptual metaphor in Chinese. The analysis in the next section begins with the definition of *qi* and the common cultural model of the physiological effects of *qi* demonstrated in classical Chinese.

## 3. The Definition of *Qi* and the Underlying Cultural Model in Chinese

The theory of *qi*, regarded as a basic concept in ancient Chinese, is pervasive in the conceptual system of Chinese (cf. Liu 1985, *Jing Shang Cong* 1997). It is found that in Chinese classics during Warring States (403-221 B.C.), the concept of *qi* with different definitions is well-demonstrated. Chinese philosophers regard *qi* as a form of energy possessed by all things in the universe such as human beings, birds and beasts, grass and trees as well as water and fire, as illustrated in the following discourse drawn from 荀子 *Xun Zi* ‘the works of *Xun Zi*’, written around Warring States (403-221 B.C.).

水火有氣而無生，草木有生而無知，禽獸有知而無義，人有氣、有生、有知，亦且有義，故最爲天下貴也。

*shui huo you qi er wu sheng , cao mu you sheng er wu zhi , qin-shou you zhi er wu yi , ren you qi ,you sheng ,you zhi ,yi qie you yi , gu zui wei tian xia gui ye .*

“Fire and water possess energy but are without life. Grass and trees have life but no intelligence. Birds and beasts have intelligence but no sense of duty. Man possesses energy, life, intelligence, and in addition, a sense of duty. Therefore, he is the noblest being on earth.” (Watson 1963: 45)

Furthermore, *qi* is a form of element that would influence a person’s cultivation of righteousness and reason, as shown in the following discourse drawn from 孟子 *Meng Zi* ‘the works of Mencius’, written around Warring States (403-221 B.C.).

其爲氣也，配義與道；無是，餒也。

*qi wei qi ye , pei yi yu dao ; wu shi , nei ye .*

“It is the mate and assistant of righteousness and reason. Without it, man is in a state of starvation.” (Legge 1992: 311)

Moreover, based on Chinese medical tradition, *qi* is the essence of the body that exists and flows through the body of every living being. The harmony of *qi* decides the source of life. It is the flourishing and declining of *qi* held in the internal organs that leads to the rising and falling of human physiology. The loss of *qi* in some human body parts would cause the interference or suspension of vitality of some organs (Cai 1997). “*Qi* influences the human physiology or leads to illness through inner structure of the human body and the mutual influence of the body and the external environment” (Cai 1997: 379). A discourse drawn from 莊子 *Zhuang Zi* ‘the works of *Zhuang Zi*’ demonstrates that *qi* is the essence of the body that would influence the human physiology.

莊子/外篇/卷七上/第十九達生

*Zhuang Zi/Wai Pian/Juan Qi Shang/Di Shi Jiu Da Sheng*

夫忿瀆之氣，散而不反，則爲不足；上而不下，則使人善怒；下而不上，則使人善忘；不上不下，中身當心，則爲病。

*fu fen xu zhi qi , san er bu fan , ze wei bu zu ; shang er bu xia , ze shi ren shan nu ; xia er bu shang ; ze shi ren shan wang ; bu shang bu xia , zhong shen dang xin , ze wei bing .*

“When the original breath within is scattered and will not reunite, then weakness follows. If it goes up but will not come down, it makes a man bad-tempered. If it goes down but will not come up, it makes a man very forgettable. If it goes neither up nor down, but canters upon the body, at the heart, then illness comes.” (Palmer 1996: 160-161)

The change of *qi* held in the viscera influences not only the human physiology but also the psychological states. More specifically, *qi* influences the emotional states. When the essences of the internal organs are exhausted, it may lead to the union of the spirits from the external environment, which results in various emotional states, as illustrated in the following discourse extracted from 黃帝內經 *Huang Di Nei Jing*

‘Yellow Emperor’s Classic of Internal Medicine’<sup>5</sup>.

黃帝內經素問/宣明五氣篇

*Huang Di Nei Jing Su Wen/Xuan Ming Wu Qi Pian*

五精所并：精氣并於心則喜，并於肺則悲，并於肝則憂〔怒〕，并於脾則畏〔思〕，并於腎則恐，是謂五并，虛而相并者也。

*wu jing suo bing : jing qi bing yu xin ze xi , bing yu fei ze bei , bing yu gan ze you [ nu ] , bing yu pi ze wei [ si ] , bing yu sheng ze kong , shi wei wu bing , xu er xiang bing zhe ye .*

“The five spirits are equal to the five essences. When they are united they caused joy to emanate from the heart; they cause pity to emanate from the lungs; they cause grief to emanate from the liver; they cause anxiety to emanate from the spleen; and they cause fears to emanate from the kidneys. This explains the unity of the spiritual essences. When the essences are exhausted then the spirits should unite.” (Veith 1982: 207)

On the contrary, the emotional states would cause *qi* to function abnormally, as shown in the discourse from Yellow Emperor’s Classic of Internal Medicine:

黃帝內經素問/舉痛論

*Huang Di Nei Jing Su Wen/Ju Tong Lun*

百病生於氣也，怒則氣上...。

*bai bing sheng yu qi ye , nu ze qi shang... .*

“Every kind of sickness results from qi; anger causes qi to rush upwards.”

If one wants to cease the state of agitation, he should comfort *qi* in the body, as exemplified in the following discourse extracted from the works of *Zhuang Zi*.

莊子/雜篇/卷八上/第二十三 庚桑楚

*Zhuang Zi/Za Pian/Juan Ba Shang/Di Er Shi San Geng Sang Chu*

出怒不怒，則怒出於不怒矣；出爲無爲，則爲出於無爲矣。欲靜則平氣，欲神則順心。

*chu nu bu nu , ze nu chu yu bu nu yi ; chu wei wu wei , ze wei chu yu wu wei yi .*

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<sup>5</sup> That Yellow Emperor’s Classic of Internal Medicine is written around Warring States (403-221 B.C.) is regarded as the general opinion held by scholars. For a more detailed discussion, please refer to *Cai* (1997).

*yu jing ze ping qi , yu shen ze shun xin °*

“Anyone who expresses anger but is not really angry will exhibit non-anger. Anyone who acts yet is not really acting, his actions will be non-action. If he wants to be still (calm his *qi*), he must be at peace. If he wants to be spiritual, he must calm his heart.” (Palmer 1996: 208)

As exemplified in the discourses extracted from Chinese classics during Warring States, two points are singled out. First, in light of Chinese philosophy and medical tradition, the lexeme *qi* is a polysemy which encompassed various definitions during Warring States:

1. *Qi* is a form of energy in the universe.
2. *Qi* is an element influencing a person’s cultivation of righteousness.
3. *Qi* is the essence of the body influencing physiological states.
4. *Qi* is the essence of the body influencing emotional states.

Apparently, the definitions of *qi* have nothing to do with the concept of HEAT or with the heated gas.

Second, during Warring States, the lexeme *qi* related to anger has nothing to do with *yin-yang* or *wu-xing*, but has to do with the cultural theory of *qi*. The physiological effects of *qi* causing anger or the emotional states causing the hyperactivity of *qi* serve as the cognitive base of the common cultural model of anger. The underlying cultural model forms the metaphorical system in which ANGER IS QI is the most general conceptual metaphor. As illuminated in the discourses extracted from philosophical and medical classics during Warring States, it is safe to claim that the common cultural model for the metaphorical system of Chinese anger expressions is the physiological effect of *qi* itself. The conceptualization of *qi* from the discourses above is summarized as follows:

Being careless about one’s *qi* may cause the emanating of various emotional states, such as anger, happiness, sadness, fear and so on; in turn, emotional states would lead to the impediment, restriction, growing and nourishing of *qi*.

The next question is that if the physiological effects of *qi* serve as an underlying cognitive base for the metaphorical system of anger, then we have to survey the linguistic data to support the claim that there are a large number of conventionalized anger expressions which tie to the central metaphor ANGER IS QI instead of HEAT.

The conceptualization of *qi* indicating the emotion anger can be traced back to *Han* Dynasty (206 B.C.-220 A.D.), which will be expounded in the following section.

#### 4. The Metaphorical Use of the Lexeme *Qi* for Anger

A survey of philosophical and medical works of Warring States, and 漢 *Han* dynasties shows that *QI* instead of *HEAT* dominates the metaphorical use of anger expressions.

*Qi* stands in the prototypical meanings as a form of energy, an element, the essence of the body during Warring States. The semantic extension of the lexeme *qi* referring to anger is treated as its metaphorical use which occurred during *Han* Dynasty (206 B.C.-220 A.D.). As shown in the following discourses distributed chronologically, anger expressions associated with the lexeme *qi* are quite productive.

##### 1. Warring States (403-221 B.C.)

The discourses extracted from Chinese classics testify that *qi* regarded as an anger element in the body appeared around Warring States, as illustrated in 難經 *Nan Jing* ‘the works of 秦越人 *Qin Yue-ren*’.

難經/難經本義卷下/四十九難 論正經自病與五邪所傷之別  
*Nan Jing/Nan Jing Ben Yi Quan Xia/Si Shi Jiu Nan Lun Zheng Jing Zi Bing Yu Wu Xie Suo Shang Zhi Bie*  
恚怒氣逆上而不下則傷肝...  
*hui nu qi ni shang er bu xia ze shang gan*  
“If anger-qi goes up but does not come down, it will hurt the liver.”

##### 2. Warring States (403-221 B.C.) ~ *Han* Dynasty (206 B.C.-220 A.D.)

The following discourse extracted from 戰國策 *Zhan Gou Ce* is written around the declining years of Warring States but edited during *Han* Dynasty. The metaphorical *Qi* referred to as anger in the body occurred.

戰國策/卷十八~二一 趙策/卷二十一 趙四/趙太后新用事  
*Zhan Guo Ce/Juan Shi Ba~Er Yi Zhao Ce /Juan Er Shi Yi Zhao Si/Zhao Tai Hou Xin Yong Shi*  
...願見太后，太后盛氣而揖之。  
*...yuan jian tai hou , tai hou sheng qi er yi zhi 。*

“...hope to see the mother of the emperor. The mother of emperor is full of anger and waiting for him.”

### 3. Han Dynasty (206 B.C.-220 A.D.)

The lexeme *qi* metaphorically used to refer to anger appeared in the discourses of philosophical works during Han Dynasty, as presented in 淮南子 *Huai-nan Zi*.

淮南子/第十二卷

*Huai Nan Zi/Di Shi Er Juan*

忿心張膽，氣如涌泉

*fen xin zhang dan , qi ru yong quan*

“The heart is filled with hatred; anger comes up like a spring.”

Meanwhile, *Qi* indicating an anger element in the body intensively appeared during Han dynasty as shown in discourses from 春秋繁露 *Chun-qiū Fan-lu*, 說苑 *Shuo Yuan* and 吳越春秋 *Wu Yue Chun-qiū*.

春秋繁露/第十一卷/第四十四篇 王道篇

*Chun Qiu Fan Lu/Di Shi Yi Juan/Di Si Shi Si Pian Wang Dao Pian*

怒氣...，天與人所同有也

*nu-qi... , tian yu ren suo tong you ye*

“Anger-qi ... is possessed by heaven and human beings.”

說苑/第十九卷 脩文

*Shuo Yuan/Di Shi Jiu Juan Xiu Wen*

粗厲猛賁之聲動人，而怒氣應之；

*cu li meng bi zhi sheng dong ren , er nu-qi ying zhi ;*

“To touch people with rough and violent sound would cause anger-qi.”

吳越春秋/句踐伐吳外傳第十/句踐二十一年

*Wu Yue Chun Qiu/Gou Jian Fa Wu Wai Zhuan Di Shi/Gou Jian Er Shi Yi Nian*

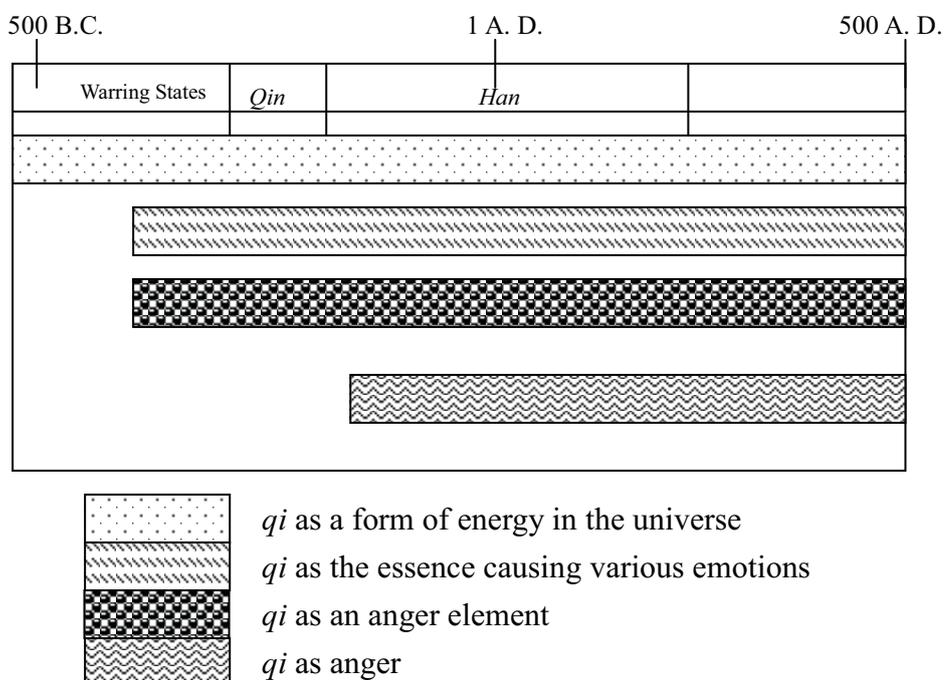
見敵而有怒氣... ·

*jian di er you nu-qi*

“One is anger-qi because of seeing the enemy.”

The historical development of the lexeme *qi* from a prototypical meaning as a

form of energy of all things to a specific one indicating anger itself is roughly schematized as below.



**Figure 1. The historical development of different senses of *qi*.**

As Figure 1 shows, *qi* is a polysemous lexeme during Warring States. Its prototypical meanings stand in a form of energy, an element and the essence of the body. The metaphorical use of anger expressions associated with the lexeme *qi* occurred during *Han* Dynasty. Therefore, it is safe to claim that ANGER IS QI is the central metaphor of anger in Chinese culture in light of a diachronic perspective.

To conclude, the discourses from Warring States to *Han* Dynasty illustrated above support the claim that diachronically the metaphor ANGER IS QI dominates a large number of anger expressions. Anger expressions tied to body HEAT are not found in Chinese classics before *Han* Dynasty. *Qi* originally functions as a lexeme meaning a form of energy possessed by all things in the universe. Then *qi* is specified as the essence circulating in the body where the impediment of the essence would cause the emanating of various emotional states. It is the conceptualization of *qi* causing anger that motivates the development of the lexeme *qi* indicating energy to the metaphorical use as anger.

## 5. Compounding of X + the Lexeme *Qi*

The central metaphor ANGER IS QI is extremely productive in that the compounding of a preceding word in combination with the lexeme *qi* can elaborate the conceptual metaphor. In other words, there are a large number of anger expressions related to the compounding of X + the lexeme *qi* which tie to the metaphor ANGER IS QI. The compound 生氣 *sheng-qi* ‘generate *qi*; active *qi*’ or 受氣 *shou-qi* ‘receive *qi*’ is a good example.

### 5.1 The compound 生氣 *sheng-qi*

Besides a free noun, the lexeme *qi* can form compounds in combination with a preceding word. The lexeme 生 *sheng* means either ‘generate’ or ‘active.’ The compound 生氣 *sheng-qi* ‘generate *qi*; active *qi*’ is construed as the most general form used to express anger in contemporary Chinese. Chronologically, its prototypical meaning is related to the cultural theory of *qi*.

#### 1. Warring States (403-221 B.C.)

The following discourse is from Yellow Emperor’s Classic of Internal Medicine. The compound is used to indicate ‘the spirit of life’ (Veith 1982: 104) in the body.

黃帝內經素問/四氣調神大論篇

*Huang Di Nei Jing Su Wen/Si Qi Tiao Shen Da Lun Pian*

唯聖人從之，故身無奇病，萬物不失，生氣不竭...

*Wei sheng ren cong zhi , gu shen wu qi bing , wan wu bu shi , sheng-qi bu jie...*

“The sages followed the laws [of nature] and therefore their bodies were free from strange diseases; they do not lose anything (which they has received by nature) and their spirit of life was never exhausted.” (Veith 1982: 104)

#### 2. South and North Dynasties (420-589 A.D.)

The compound *sheng-qi* indicating the external spirit in some circumstances occurred in 後漢書 *hou han shu* ‘the Book of Eastern Han Dynasty’ written around South and North Dynasties.

後漢書/列傳/卷五十一

*hou han shu/lie zhuan/Juan Wu Shi Yi*

孤兒寡婦，哭號空城...雖含生氣，實同枯朽。

*gu er gua fu , ku hao kong cheng...sui han sheng qi , shi tong ku xiu 。*

“The orphans and the widows are crying in the deserted city...It may contain the spirit of life but in fact, it is decayed and rotten.”

### 3. Yuan Dynasty (1206-1370 A.D.) ~ Ming Dynasty (1368-1644 A. D.)

The compound *sheng-qi* has undergone a semantic extension and takes on the metaphorical meaning ‘ruffle’ or ‘be angry’ occurring in the novel 三國演義 *San Guo Yan Yi* written around the Yuan Dynasty (1206-1370 A.D.), but edited during Ming Dynasty (1368-1644 A. D.):

三國演義/第五十一回

*San Guo Yan Yi/Di Wu Shi Yi Hui*

程普恐瑜生氣

*Cheng Pu kong Yu sheng-qi*

“*Cheng Pu* is afraid that *Yu* would ruffle [be angry].”

### 4. Qing Dynasty (1644-1911 A.D.)

The compound *sheng-qi* metaphorically used to refer to ‘ruffle’ or ‘be angry’ intensively appeared in the novels during Qing Dynasty (1644-1911 A.D.).

醒世姻緣/第二回

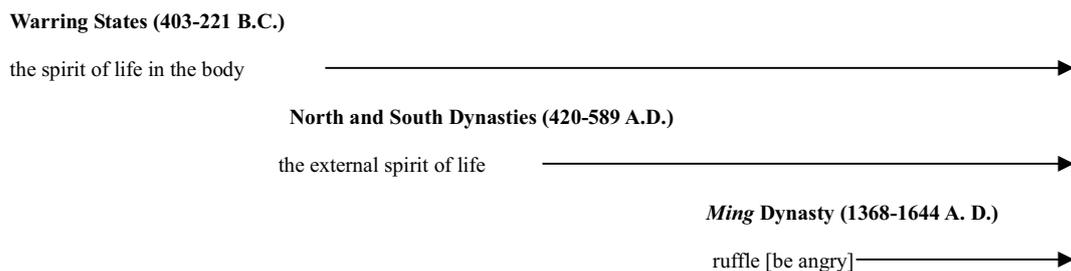
*Xing Shi Yin Yuan/Di Er Hui*

...要我生氣，我倒沒有這許多閒氣生來。

*yao wo sheng-qi , wo dao mei you zhe xu duo xian qi sheng lai*

“...to make me ruffle [be angry]. I have no surplus anger to generate.”

The compound *sheng-qi* becomes the most general form to express anger. It is also viewed as a colloquial form in contemporary Chinese. The historical development of the compound *sheng-qi* from a prototypical meaning related to the spirit of life to a specific one indicating anger is roughly shown as below.



**Figure 2. The historical development of different senses of *sheng-qi***

### 5.2 The compound 受氣 *shou-qi*

Another compound 受氣 *shou-qi* is also a general form to express anger in contemporary Chinese in which the lexeme 受 means ‘receive.’ Its prototypical meaning is also related to the cultural theory of *qi*.

#### 1. Warring States (403-221 B.C.)

As illustrated in the following examples during Warring States, *shou qi* was a verb phrase indicating ‘receiving energy’ from *Yin Yang* or the internal organs ‘receiving the life-giving force.’

莊子外篇/卷六下/第十七 秋水

*Zhuang Zi Wai Pian/Juan Liu Xia/Di Shi Qi Qiu Shui*

受氣於陰陽

*shou qi yu yin yang*

“receive energy from Yin Yang”

黃帝內經素問/玉機真藏論

*Huang Di Nei Jing Su Wen/Yu Ji Zhen Zang Lun*

肝受氣於心，傳之於脾，氣舍於腎，至肺而死。心受氣於脾，傳之於肺...

*gan shou qi yu xin , chuan zhi yu pi , qi she yu shen , zhi fei er si , xin shou qi yu pi , chuan zhi yu fei...*

“When the liver receives the life-giving force from the heart, it is from there transmitted to the spleen, whence it is passed on to the kidneys; here it reaches its utmost, so that it meets death when it arrives at the lungs. When the heart receives the life-giving force from the spleen, it is from there transmitted to the lungs...”(Veith 1982: 179)

## 2. Ming Dynasty (1368-1644 A. D.)

The verb phrase *shou qi* ‘receive *qi*’ connected with the emotion anger meaning ‘receive one’s anger’ is found to occur in the novel 三遂平妖傳 *San Sui Ping Yao Zhuan*:

三遂平妖傳/第七回

*San Sui Ping Yao Zhuan/Di Qi Hui*

老爺出廳了，你快些躲避，莫累我們受氣。

*lao ye chu ting le , ni kuai xie duo bi , mo lei wo men shou qi 。*

“The venerable sir is coming to the hall. Hide yourself out of his sight so that we won’t receive his anger.”

## 3. Qing Dynasty (1644-1911 A.D.)

The compound *shou-qi* is metaphorically used to indicate ‘ruffle’ or ‘be angry’ intensively occurred in the novels during Qing Dynasty such as 桃花扇 *Tao Hua Shan* and 醒世姻緣 *Xing Shi Yin Yuan*.

桃花扇/卷三/第二十二齣 守樓

*Tao Hua Shan/Juan San/Di Er Shi Er Chu/Shou Lou*

知你拒絕田仰，動了大怒...下官怕你受氣，特爲護你而來。

*zhi ni ju jue tian yang , dong le da nu...xia guan pa ni shou-qi , te wei hu ni er lai 。*

“I know you refuse *Tian Yang* and are very angry...I am afraid you ruffle [are angry] and come to protect you.”

醒世姻緣/第七十六回

*Xing Shi Yin Yuan/Di Qi Shi Liu Hui*

...孩子不是他公公骨血...狄員外因此受氣

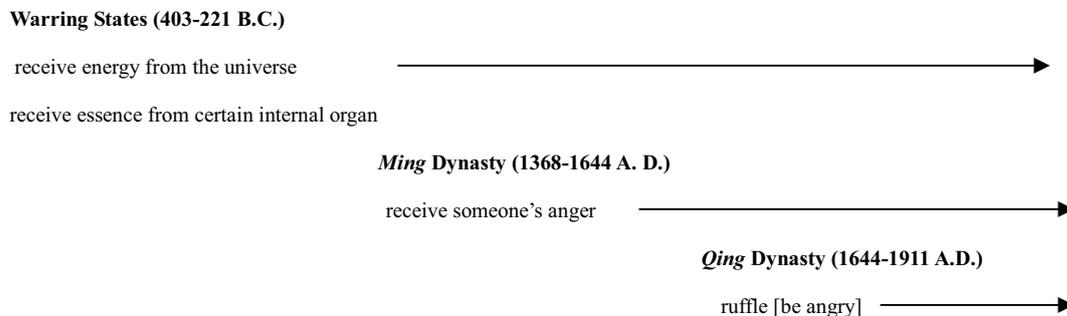
*...hai zi bu shi ta gong gong gu xie...di yuan wai yin ci er shou-qi*

“The officer *Di* ruffles [is angry], for the child is not his.”

As shown in the discourses, the verb phrase *shou qi* ‘receive *qi*’ has undergone a semantic extension and becomes polysemous. In modern Chinese, it connotes either an action in which someone receives another’s anger or ‘ruffle’ itself. Diachronically the verb phrase ‘receive *qi*’ takes on the metaphorical use meaning ‘ruffle’ during Qing Dynasty (1644-1911 A.D.).

The lexeme 受 *shou* ‘receive’ functioning as a verb combines with the lexem *qi*

‘energy’ and then becomes a compound used to indicate anger, as roughly schematized as below:



**Figure 3. The historical development of different senses of 受氣 *shou-qi*.**

We have delved into the chronological distributions of the common compounds used to indicate anger in modern Chinese. The points singled out here are as in the following:

1. The compounds become conventionalized and are metaphorically used to refer to anger in the novels written around *Ming* and *Qing* dynasties.
2. The source of the compound is relevant to the cultural theory of physiological effects of *qi* in the body. The underlying cultural theory of *qi* provides a cognitive base for the metaphorical use of the lexeme *qi* in construction with a preceding word.
3. The central metaphor ANGER IS QI is extremely productive in that the compounding of a preceding word in construction with the lexeme *qi* elaborates the central metaphor.

## 6. Conclusion

Different from previous studies on Chinese metaphors of anger (Shyu 1989, Yu 1998, Cheng 1999), we have verified the central metaphor ANGER IS QI based on the philosophical and traditional medical works. The multiple definitions of the lexeme *qi* are manifested in the classics during Warring States. The prototypical meaning of the lexeme *qi* has nothing to do with heated gas but the essence that exists and circulates through the body. Based on the discourses extracted from the classics, it is also found that the physiological effects of *qi* ‘the essence of the body’ exerts influence on a person’s emotional state and vice versa, anger would cause the hyperactivity of *qi*. The

conceptualization of *qi* as the essence of human physiology causing variable emotional states associated with anger feelings is prevailing in Chinese culture. It is affirmative that the physiological effects of *qi* serve as the underlying cultural model for the metaphorical system of anger in Chinese in which ANGER IS QI is the most general conceptual metaphor. Diachronically, the sources of two metaphors QI and FIRE are not two subversions of ANGER IS HEAT. ANGER IS QI, instead of ANGER IS HEAT, is the central metaphor in the metaphorical system. Based on the data current during 403 B.C. to 1900 A.D., beginning in Warring States and continuing through *Han*, *Song*, *Yuan*, *Ming* dynasties to *Qing* dynasty, we have shown that the metaphorical use of the lexeme *qi* referring to anger is found to occur during *Han* dynasty. The underlying cultural model of physiological effects of *qi* exerts influence on language, which develops a number of anger expressions associated with the lexeme *qi* which tie to the central metaphor ANGER IS QI. Therefore, it is QI, instead of HEAT, dominates the metaphorical use for anger in Chinese.

In light of the discourses drawn from Chinese classics and novels distributed chronologically, the compounds related to *qi* indicating anger are also related to the cultural theory of *qi* and are very productive. The compounds undergo semantic extension and are referred to as metaphorical anger. In sum, the cultural theory of *qi* plays a crucial role in the expressions of anger. In Chinese, it is common for anger to be metaphorized as QI. The lexeme *qi* referring to anger and the compounds related to the lexeme *qi* indicating anger in contemporary Chinese are deeply rooted in Chinese conceptual system.

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# Kaingang and Austronesian – Similarities between Geographically Distant Languages

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## Abstract

The paper shows that significant similarities exist between two geographically distant language families: the Kaingang family, comprising Xokleng and Kaingang, spoken in South Eastern Brazil, on the Atlantic, and Austronesian, spoken in the Pacific. These similarities pertain to kinship semantic patterns, structural features and lexicon. In the paper, I sketch kinship and grammatical similarities and discuss in more detail the lexicon, paying special attention to various modes of arguing for significant similarity. One plausible explanation of the results found is a distant relationship between these families, a conclusion corroborated also by some extralinguistic facts. If such a hypothesis turns out to be true, one important implication would be some prehistoric contact between these distant parts of the world.

**Keywords:** Austronesian-Kaingang relationship hypothesis, Oceanic and South American contacts, language prehistory and classification, languages and migrations.

## 1. Introduction

The Southern-Ge Kaingang people, comprising the Xokleng and the Kaingang, presently reside in the states of Santa Catarina, São Paulo, Paraná, and Rio Grande do Sul in south-eastern Brazil, and speak two closely related languages, forming the Kaingang language family. No external relationship of the Kaingang people, or their language, with peoples or languages outside of Ge, or Amerind(ian) more generally, has so far been suggested. In this paper, I will describe substantial similarities between the Kaingang language family and the Austronesian family, in particular its Oceanic/Polynesian branch. First, I will sketch significant kinship pattern and structural similarities between the families. Then, I will present lexical parallels with sound correspondences, placing special emphasis on the comparison of “non-random word sets”, like synonyms, homonyms, paronyms, lexical fields, etc. which impart additional plausibility to the comparisons.

## 2. Kinship similarities

A database of the kinship terminological patterns of 566 societies (Murdock 1970) was computationally explored with the goal of finding statistically significant similarities between pairs of societies speaking languages belonging to *different* language families according to the standard language classification source *Ethnologue*. The database has eight attributes with a total of 192 values. The attributes are the eight relatives: grandparents, grandchildren, uncles, aunts, nephews and nieces, siblings,

cross-cousins and siblings-in-law. The values for attributes are so-called “kinship patterns” such as, for the kin grandparent, “Bisexual Pattern” (having two terms, distinguished by sex, which can be glossed as “grandfather” and “grandmother”), “Merging Pattern” (having a single undifferentiated term, which can be glossed as “grandparent”), etc. The pair-wise society comparison revealed that Xokleng (the language representing the Kaingang family in the database) had 7 matching kinship patterns with the Amis (Taiwan) and 6 matching kinship patterns with both the Chuukese (Micronesia) and the Ulithian (Micronesia). These were the most significant results in comparison to all other investigated society pairs, at levels of  $p = 0.005$ ,  $p = 0.002$  and  $p = 0.008$ , respectively. Xokleng thus, quite unexpectedly, turned out to follow an Austronesian type of kinship patterning, showing also substantial kin pattern overlaps with other Austronesian languages like Rotuman, Samoan, and Māori. Checking the original files for Xokleng of the contributor of the database, anthropologist G. P. Murdock, showed his opinion about the similarity expressed in labeling Xokleng’s system as “Normal Hawaiian”. Further details can be found in Pericliev (2007: 42-48).

### **3. Structural similarities**

Some structural features of the Kaingang language family (for Xokleng, cf. Henry 1935, 1948, Urban 1985, 1986, Gakran 2005; for Kaingang cf. Wiesemann 1972, 1978, 1986) were then tested against a set of typically Austronesian features that have been proposed (Klamer 2002) as a heuristic for suggesting the affiliation of a language (i.e. whether it is Austronesian or not). The Kaingang languages turned out to share Austronesian properties of both phonology and grammar.

Like Austronesian languages, and especially their Oceanic branch, which are known to have lost the voicing contrast in obstruents and to have developed prenasalized consonants in opposition to plain consonants, the Kaingang languages also do not have plain voiced obstruents, but contrast plain voiceless with prenasalized voiced consonants.

Many Austronesian languages prefer roots of CVCV type, and so do the Kaingang languages. Specifically, according to Henry (1948: 196), in Xokleng the CVCV pattern is prevalent and amounts to 35% of all root patterns in Xokleng (CV patterns being 14%, CVC 13%, CVCVC 12%, CVCCV 12%, CCV 5%, and CVCVCV 5%). As seen from these numbers, other typically Austronesian features of Xokleng are the “dropping” of final consonants (word-final consonants being present in only 25% of the patterns) and a dispreference for consonantal clusters (occurring in only 17% of the words). Besides, the possible final consonants and consonantal clusters are subjected to further restrictions we need not discuss here. The situation is similar in Kaingang.

Another, and related, phonological similarity is the insertion of paragogic vowels word-finally in both language families in order to open the syllable.

Similarly to many Austronesian languages, Xokleng forms emotional expressions by Verb + body part noun, in which the Experiencer of the emotion is the Possessor of the body part. E.g. Xokleng’s expression for “I am angry” literally means “My heart splits (in several places)” (Henry 1935: 213).

Like many Austronesian languages, Xokleng’s numerals seem to behave like

verbs in that they act like verbal predicates and take the same predicating particles as the verbs.

Also, like other Austronesian languages mainly in Eastern Indonesia, but also scattered elsewhere in Western and Eastern Austronesian languages (e.g., Malagasy, Manobo, Hawaiian, Batak, etc.), Xokleng (cf. Urban 1986) employs parallelism in narratives, myths, poems and songs, a verbal art form in which semantically synonymous pairs/triples etc. of words and phrases are used in parallel utterances.

Finally, we note two other typically Austronesian features not mentioned by Klamer (2002), which are possessed by the Kaingang languages, viz. the affixing and reduplication as productive devices, and operating basically on verbs, and the fundamental verbal distinction in both Austronesian and the Kaingang languages between stative verbs and dynamic, or active, verbs.

#### 4. Some lexical data and sound correspondences

A 100-item basic vocabulary list was compiled, and pair-wise comparisons were computationally made between Xokleng and Kaingang on the one hand, and the reconstructed Proto-Austronesian and five major extant Austronesian languages (Tagalog, Malay, Fijian, Samoan and Hawaiian) on the other hand. Standard similarity criteria for matching two word forms were used: generally, two identical consonants, or an identical consonant and a vowel plus a phonetically “similar” consonant. The method, which follows closely that of Oswalt (1991) was tested against pairs of languages with well understood relationships, both positive and negative. All comparisons were significant at levels shown below (with accuracy up to four decimal places).

	Proto-AN	Tagalog	Malay	Fijian	Samoan	Hawaiian
Xokleng	0.0000	0.0000	0.0002	0.0022	0.0003	0.0000
Kaingang	0.0087	0.0004	0.0179	0.0014	0.0000	0.0000

The preliminary computational approach to lexicon was suggestive and I proceeded with manual lexical comparison between the Kaingang and the Polynesian family, the latter being the “closest” geographically.

In the following, our data for Xokleng comes from different sources (Gensch 1908; Henry 1935, 1948; Gakran 2005), and for Kaingang from the dictionary Wiesemann (2002) and Wiesemann (1972). The data on cognate sets for Polynesian are based on Biggs & Clark (2006), Blust (1995), and the *Austronesian Basic Vocabulary Database*, but Tregear (1891), Williams (1957), Pukui & Erbert (1986), and Andrews (1865) are also consulted.

Table 1 shows the familiar sound correspondences (e.g., Biggs 1973, Tregear 1891) in the Polynesian languages Māori (New Zealand), and Hawaiian, alongside with those that are known to hold for the Kaingang family (Wiesemann 1978).

The following similarity sets are illustrations of the sound correspondences. Each similarity set has a gloss, giving a general meaning, which may be further specified for some languages if somewhat different from gloss. The items in one language family that are similar to those of the other family are separated by equality “=”. A dash “-“

indicates a relatively clear word division in the Kaingang languages, segmenting stem from morphological endings (-*m*, -*n*, -*r*, -*y*, etc.). Brackets “()” enclose forms that are not part of the comparison (e.g. the verbal forms *ke*, *he* ‘to say’ in the Kaingang languages, which, when parts of larger verbs, simply indicate direct speech). A slash “/” stands for “or”, and according to context may indicate a paragogic vowel at the end of a Kaingang word, or a doublet form. Note that a paragogic vowel in both Kaingang languages is the same or a more central vowel added after word final *r*; *v*; *y*; in Kaingang orthography, the paragogic vowel is not written, while in Xokleng an investigator like Henry (1935, 1948) and earlier linguists write these vowels and they may appear in my description below. Note also that a plus sign “+” after a Xokleng word below designates a word whose source is the early investigation by Gensch (1908), who does not make some phonological distinctions (e.g. central vs. non-central vowels) that are recognized today, which results in some indefiniteness in his description (in other respects pretty reliable). Finally, in the sequel, the Kaingang languages are written in their usual phonemic transcription, and the Austronesian languages in the way of their respective sources, with only minor and obvious changes (e.g. I use “?” in place of the more common apostrophe “ ’ ”).

**Table 1.** Sound correspondences between Xok(leng), Kai(ngang), Māo(ri), and Haw(aiian).

<i>Nos.</i>	<i>Xok/Kai/Māo/Haw</i>	<i>Examples Nos.</i>
1	p/p/p/p	23,24,25,39
2	t/t/t/k	31,32,36,39
3	k/k/t/k	1,2,5,26
4	k/k/k/?	9,10,11,13,17,27
5	k/k/h/h	15,16,40
6	ð/Φ/t/k	33,34,35,40
7	h/h/(w)h/h	1,3,4,21
8	m/m/m/m	17,29,38
9	ŋ/ŋ/ŋ/n	11,12,24,36,37
10	w/w/w/w	28,30
11	l/r/r/l	1,2,6,7,8,9,15,16,18,19,22,38
12	a/ã/ā/ā	1,3,7,8,20,34,35
13	ɔ,a,ã/a,ã,ẽ/a/a	5,9,11,12,24,25,26,36,37,38,40
14	æ/a,ã/au,ao/au,ao	10,29,30
15	e/e/e/e	1,2,17,33
16	i,ẽ/i,ĩ/i/ĩ	1,2,4,14,28,37
17	ũ/ũ/ū/ū	18,19
18	o,u,õ/o,ɔ,õ/õ/õ	6,13,27
19	u,o/u,o/u,o/u,o	4,9,15,16,17,21,22,36,40

The following abbreviations are used for frequently cited languages and language groups:

H = Hawaiian, K = Kaingang, M = Māori, X = Xokleng, PAn = Proto-Austronesian, PCEMP = Proto-Central-Eastern-Malayo-Polynesian, PCMP = Proto-

Central-Malayo-Polynesian, PMP = Proto-Malayo-Polynesian, POc = Proto-Oceanic, Pn = Polynesian, PPn = Proto-Polynesian.

1. Be same or similar: X *halike*, K *hã ri ke* = M *whārite*, H *hālike*.
2. Be same or similar: X *like*, K *ri ke* = M *rite*, H *like*.
3. Prefix: X *ha-*, K *hã-* = M *whā-*, H *hā-*.
4. Whistle: X *hui*, K *huj* = M *whio*, H *hio*.
5. Near: K *kakã* = M *tata*, H *kaka* ‘fruits growing in clusters’, Pn *tata* ‘near’.
6. Ant/insect: X *lo* ‘ant’, K *ro* ‘small bee’ = M *rō* ‘stick insect’, H *lō* ‘species of bug’ (Tongan *lo* and Samoan *loi* ‘ant’), PPn \**lō* ‘ant’.
7. Sun: X *la*, K *rã* = M *rā*, H *lā*.
8. Day: X *la*, K *kurã* = M *rā*, H *lā*.
9. Light/glow: X *kulaŋ* ‘tomorrow, morning, early’, K *kurã* = M *kura*, H *ʔula*.
10. Stick: X *kɔ*, K *ka* = M *mā/kau* ‘handle’, POc \**kayu* ‘stick, wood’, Fijian (Bau) *kau* ‘tree, stick’.
11. Sick: X *kɔŋɔ* ‘sick, pain, wound’, K *kaŋa* ‘sick, pain, wound’ = Central-Eastern Pn *kaga* ‘to place a curse on someone’, Tuamotan *kaŋa* ‘injure, illtreat’; Samoic-Outlier Polynesian *kago*, Samoan *ʔago/si* ‘wasted away from sickness’; Fijian *gogo* ‘weak, wasted away’, M *ngongo* ‘sick’.
12. Worm: X *(wai-)ŋɔ+* ‘louse’ (*kɔŋɔ* ‘grub’), K *ŋa* ‘louse, woodworm’ (also *nunʔə* ‘worm-eaten, rotten, wasted away’) = Pn *tuga* ‘larva, maggot, organism causing internal decay’, M *tunga* ‘larva, worm-eaten, rotten (of timber)’, Mangarevan *tuga* ‘worm that devours sugar-cane’.
13. Penetrate: X *ko* = M *kō* ‘wooden implement used for digging’, H *ʔō*.
14. In, inside: X *ki*, K *ki* = M *ki*, H *ʔi*.
15. Cloth: X *kul/u*, K *kur/u* = M *huru* ‘coarse hair’, H *hulu*.
16. Blanket: X *kul/u*, K *kur/u* = H *huluhulu*.
17. Broth/food: K *kome* = M *kome*.
18. Shake (as dust from garment): K *rũ-m rũ-m* = M *rūrū*, H *lūlū*.
19. Scatter: K *rũ-m (ke)* = M *rui*, H *lū*.
20. Breathe (with difficulty): K *hã-m hã-m (ke)* = M *hāhā*, H *hāhā*.
21. Blow: K *hu (he)* = H *hu*.
22. Round/roll: K *ror* = M *(pi)rori*, H *loli*.
23. Birth/origin: X *pɔ* = M *pū*.
24. Throw: X *pãŋ*, K *pěŋ* = M *panga*, H *pana*.
25. Hand/touch: K *pě* = M *pā*, H *pā*.
26. Finish: X *kaŋ*, K *kã-n* = H *kā*.
27. Dig: K *kōkō-m* = M *kōkō*, H *ʔōʔō*.
28. Turn, reverse: K *wĩrĩ-n* = M *wiri* ‘twist’, H *wili*.
29. Carry: X *mɔ*, K *ma* = M *mau*, H *mao*.
30. Tree, forest: X *wæ+*, K *wã-n* = M *wao*, H *wao*.
31. The (def. art.): X *te*, = M *te*, H *ke*.
32. Moist: X *tuy/u*, K *tuy* ‘trickle intensely’ = M *tōi*, H *kōi* ‘flow, spurt’.
33. Heart: X *ðe*, K *ʔe* ‘heart, chest, breast’ = M *ate* ‘liver, heart’, *ateate* ‘bosom’, Tuamotan *ate* ‘heart’.
34. Shell: X *kɔða* ‘shell’, *kɔðan* ‘strip embira bark’ (*kɔtĩ* ‘smooth’), K *kuʔēn* ‘to peel, to shell’, *kĩʔe* ‘knife’ = M *kota* ‘cockle shell, anything to scrape or cut with’, PPn

\**qota* ‘dregs, residue’.

35. Wash clothes: X *ḍaŋ*, K *Φā*, = H *kā*, Samoan *tā*.

36. Rash (of skin): K *tuŋa* ‘rash’ = Rarotongan *tunga* ‘scabbed, weevily; covered with sores’, Tokelau *tunga* ‘pimple’, Pn *tunga* ‘blemish, imperfection’.

37. Hand, arm: X *nēŋa*, K *nīŋε* (or *niŋā*) = M *ringa*, Fijian *liga-* ‘hand, forearm’, PMP \**liŋa* ‘hand, arm’. (*l* ~ *n* is a common alternation within Polynesian languages, e.g. *lima* ~ *nima* ‘five, hand’).

38. Ashes: X *mlā*, K *mrēj* = Pukapuka *malamala*, H *malamala* ‘small piece of any substance broken from a larger’, PPn \**mala(mala)* ‘chip, splinter, fragment’.

39. Pierce: X *pati* = M *pātia* ‘spear’, Penrhyn, Rarotongan, Tahitian *pātia* ‘stab, thrust; spear, lance’, Central-Eastern Pn *pā-tia* ‘pierce’.

40. Stone: X *kaḍu+* = M *whatu*, H *haku*, Mangarevan *ʔatu*, Pn *fatu*.

As seen from the above list, the sounds (vowels and consonants) of each Kaingang-family wordform, with only a small number of exceptions, are totally predictable from the Polynesian-family wordforms, according to the correspondences from Table 1. More illustrations of the correspondences follow in the next section.

## 5. More data (non-random lexical sets) and additional levels of evidence

By a “non-random lexical set”, I will understand a set of words sharing a similarity in meaning, form, or perhaps in some other way. Familiar examples based on shared meanings are lexical fields such as body parts, kinship terms or lower numerals, and the classical example of a non-random lexical set, formed on this basis, is the basic vocabulary, whose elements (body parts, kinship terms, etc.) are themselves non-random word sets. There are also other non-random word sets, perhaps less commonly used in historical/comparative linguistics, which I will also compare below. Such comparisons provide an additional level of evidence over the traditional comparative method, and used complementarily to it, can lend further credibility to the comparisons, because a concentration of similarities within an antecedently fixed and limited (i.e. non-random) domain are generally less likely to be due to mere chance than the same number of matches in an open domain.

In the following, I slightly relax the strict conditions for counting a match used earlier, especially as regards vowels, and occasionally admit comparanda outside of the Polynesian family, for the following reasons. The first reason is methodological and has been nicely phrased by Campbell in the following manner:

Where the intention is to call attention to a possible, but as yet unattested connection, one often casts a wide net in order to hold in as much potential evidence as possible. When the intention is to test a proposal that is already on the table, those forms admitted initially as possible evidence are submitted to more careful scrutiny. (Campbell 2004)

The second reason is empirical and has to do with the considerable presence of doublet forms involving vowels for the Kaingang family, not all of which may be registered in the sources I am using, and for which very strict sound matching criteria can turn out to be much too restrictive. E.g., as reported by Wiesemann (1972, 1978), in Kaingang there exist a number of free vowel alternations: *a* ~ *ə*, *ā* ~ *a*, *ã* ~ *ε*, *ā* ~ *ɔ*, *ε* ~ *e*,

o ~ o (e.g. *kāgra* ~ *kāgrə* ‘picture’, *kā* ~ *ka* ‘tree’, etc.).

### 5.1. Synonymous sets

If a single word from a set of synonyms in one language may resemble a word from a synonymous set in another language by pure chance, the event in which other words from both sets also resemble each other is much less likely to occur by chance. The higher the number of resembling words, the less likely the event, and hence the stronger the evidence for the existence of some link between the compared languages. By “synonyms” I understand both words with exactly coinciding and such with close meanings, and examples of both types are used as illustrations below.

#### (1) NEAR

Near1: K *kakā* = M *tata*, H *kaka* ‘fruits growing in clusters’, Pn *tata* ‘near’.

Near2: X *la*, K *rā* = M *rā*, H *la* ‘there, yonder’.

#### (2) RAIN

Rain1: X *ugua*+ (? *ukua*) = M, H *ua*, Rapanui, Rennell Is. (Solomons) *ʔua* (POc \**quzan*).

Rain2: X *kuta* ‘fall (rain)’, K *kutē* ‘fall (rain)’, *ta kutē* ‘rain’ = Pwamai (New Caledonia) *kuta*, Jawe (New Caledonia) *kut*.

Rain3: X *tə*, K *ta* = Woleai (Micronesian) *uta*, Lau, Longgu (Solomon Islands) *uta*.

Rain4: K *kə* (*he*) ‘drizzle’ (also *ta kə*) = M *tō* ‘fall (of rain)’, Pn \**tō* ‘fall (of rain)’.

Rain5: K *kəkə* (*he*) ‘drizzle’ = M *totō* ‘to ooze, to trickle’, H *koko* ‘reddish rain’

(Andr).

#### (3) HIT/STRIKE

Hit/strike1: K *pē* ‘hand, arm’ = H *pā*, Niue *pā* ‘slap, strike, touch, clap’.

Hit/strike2: X *puke*, K *pə ke* = Niue *poki* ‘slap’.

Hit/strike3: K *tā-n* ‘kill, beat to death’ = Niue *tā* ‘strike, kill, adze’.

Hit/strike4: X *tunʒe*, K *tag ke* = Niue *tuki* ‘knock, pound, mash’.

#### (4) TREE/WOODS

Tree/woods1: X *kə*, K *ka* = POc \**kayu* ‘stick, wood’, Fijian (Bau) *kau*, M *mā/kau*, Namakir (Vanuato) *ka*.

Tree/woods2: X *kute*, K *kute* ‘capão (flora), forming a type of flowers in southern Brazil, consisting of a group of tree vegetation’ = POc \**qutan* ‘woods, forest’, Mota *uta*.

Tree/woods3: X *wæ*+, K *wā-n* = M *wao*, H *wao*.

Tree/woods4: X *bekud*+ = PAn \**binjudu*, Paiwan *vukid* (Blust 1995).

#### (5) WATER

Water1: X *ɲoy-waig*+ ‘river, stream’, K *war* ‘flood of water’ = POc \**wair*, M *wai*, *awa* ‘river, stream’, H *wai*.

Water2: X *ɲoy*, K *ɲoy* = H *nō* ‘seepage, to leak’.

Water3: K *kayā* ‘salty’ = M *tai*, H *kai* ‘salty water’.

Water4: K *wāya* ‘mixture (with water)’ = Fiji *vai-na* ‘mixture with water’.

Water5: K *ɲunɲən* ‘liquid’ = M *ngongi*, H *nono* ‘oozing, seepage’, Macassar *njonjo* ‘liquid; to drip’.

Water6: K *ēkə-r* ‘sour water’ = M *ehu* ‘muddy’, H *ehu* ‘dusty, disturbed’.

Water7: K *ku-pe* ‘wash’ (*ku-* prefix) = Vanua Lava (five dialects) *pe*; Mota *pei*; *pii* ‘sprinkle water’, *pia* ‘foam from soap’.

Water8: K *me* ‘liquid’ = Mergen *me* ‘water’.

Water9: K *run* ‘carry, fetch water’, *runya* ‘vessel for water’ = M *ranu-a* ‘mix with liquid’, Tongan *lanu* ‘wash in fresh water’, POc \**danum* ‘fresh water’.

Water10: X *ɲoy* (*be?*)*lele*+ ‘falling of water’ = M *rere* ‘waterfall’ (Tr), H *wai lele* ‘waterfall’.

(6) BREAST/SUCK

Breast/suck1: X *-kum(b)e*+ ‘female breast’ = M *kōuma* ‘breastbone’, Tuamotan *kōuma* ‘chest, breast, bosom’, PPn \**uma.a* ‘breast, chest’.

Breast/suck2: K *ũ-n ũ-n* (*he*) ‘suck’ = M, H *ū* ‘female breasts’, Tongan *huhu* ‘female breasts, to suck’.

(7) FIRE

Fire1: X *pē*, K *pī* = POc \**api*, M, H *ahi*, Anuta *api*.

Fire2: X *akpunu*+ ‘burn’, K *kaprūn* ‘line of fire, much fire in the firewood’ = M *kapura*.

Fire3: X *δai-kəlɔ* ‘kindle fire’ = M *toro* ‘to burn, a flame, burning’ (also M *kora* ‘fire’), Tongan *tolo* ‘to rub, to ignite’.

Fire4: K *pūn* ‘burn’, *pūr* ‘burnt’ = Proto-Central Pacific \**pula* ‘burn’, Proto-Micronesian \**pwula* ‘burn’, Rotuman *pula* ‘burn’, H *pula* ‘kindling’, Waya (western Fiji) *bula-n* ‘burn’.

Fire5: K *wāpūn* ‘burn with big fire’, *wāpūr* ‘burnt to garbage’ = M *māpura* ‘fire’.

Fire6: K *kupūn* (= *hupūn*) ‘to light up’, *hupūr* ‘illuminated with fire’, *kupūr* ‘burn in fire’ = Central-Eastern Polynesian *kō-pura* ‘flash’, PPn \**pula* ‘shine’, M *kōpura* ‘flash, flicker, glance’, Tahitian *opura/pura* ‘to be flashing obscurely as fire’, Tuamotu *kōpura/pura* ‘to emit sparks, to glow or shine with unsteady light’.

Fire7: K *kəm* (*ke*) ‘light fire, light’, *kəm kəm* (*ke*) ‘to flash, to shine’ = Tahitic *koma* ‘spark’, M, Tuamotu *koma*.

## 5.2. Polysemous/Homonymous sets

If a monosemous word in one language happens to resemble another monosemous word in another language by chance, the event in which a polysemous (or homonymous) word resembles a polysemous (or homonymous) word, is less likely to be merely coincidental, because it involves several meaning matches, rather than only one. The higher the number of meaning matches, and the more “unusual” the meanings of the polysemous/homonymous word, the less probable this event is, and hence the stronger the evidence for a non-chance link between the compared languages.

(1) In the following example, the compared forms have four meanings, the last two of which are “unusual” in that they seem quite divergent from the “basic meaning” of the form:

Sun: X *la*, K *rā* = M *rā*, H *lā*; cf. No.7.

Day: X *la* (K *kurā*) = M *rā*, H *lā*; cf. No.8.

Near: X *la*, K *rā* = M *rā*, H *la* ‘there, yonder’.

Below: K *rā* = Fijian (Bau) *e rā*, Fijian (Navosa) *ra*.

Besides, the Kaingang form *ra* ‘hot’ and Xokleng *lɔ* ‘hot’, apparently related to *rā* and *la*, respectively, also have the same correlative word *rā/lā* ‘hot’ in Polynesian.

(2) This example exhibits three meanings, the last of which seems “unusual”:

Cloth, clothes: X *kul/u*, K *kur/u* = H *hulu* ‘cloth; fur, wool’.

Blanket: X *kul/u*, K *kur/u* = H *huluhulu*.

Colour: ? X *kul/u* = Paumotan *huru* ‘colour’, H *hulu* ‘colour, nature, kind’; but cf. Section 6(3).

Compare also the different, but apparently related, Kaingang forms:

Hair: ? X *kren-kula-*+ (= ‘head’-*kula*) = M *huru* ‘hair, coarse hair (properly, of the body, but sometimes used for the hair of the head’; cf. *uru*, the head; a single hair), Rarotongan *uro*; cf. 6(5).

Fibre: K *kurē* (or *kurā*) ‘internal fibre of taquara’ = H *pulu* ‘coconut fibre’, cf. *hulu-hulu* ‘body hair, hair of eyelashes, fleece, fur, hairy’, PAn *\*bulut* ‘hairy filaments of certain plants, husk’, Niue *pulu* ‘fibre’.

(3) This example shows the instrumental metonymy “tree-stick”, which is typical for Oceanic languages, where the instrumental prefix *ka(i)-* has developed from *\*kayu* ‘tree’, cf. Lynch et. al. (2002: 70):

Tree: X *kɔ*, K *ka* = POc *\*kayu* ‘stick, wood’, Fijian (Bau) *kau*, M *mā/kau* ‘handle’, Namakir (Vanuato) *ka*.

Stick: X *kɔ*, K *ka* = Fijian (Bau) *kau*.

### 5.3. Polysemous/Homonymous and paronymous sets

By “paronyms”, here I understand words in one language that are very close in form. Paronymous sets normally involve some derivational pattern. If the different meanings of a polysemous/homonymous word in one language are rendered by a paronymous set in another language, this would be an unlikely event, since normally we would expect a random set of words, rather than some derivational pattern, to do the job. The higher the number of meanings of the polysemous/homonymous word rendered by paronyms, the less likely the event, and hence the stronger the evidence for a non-chance link between the compared languages. Below are examples of paronymous sets in the Kaingang family that correspond to the different meanings of polysemous/homonymous sets in Polynesian.

(1) The Kaingang paronymous set  $\{t\tilde{a}, (\delta/\Phi)\tilde{a}, k\tilde{a}\}$  matches the Polynesian polysemous word *tā*:

Break (as wood): K *tā* = H *kā* ‘to split or break wood’, M *tā* ‘strike’, Samoan *tā* ‘to break firewood, to break up a dry tree’, Fijian *tā* ‘chop’.

Kill: X *tajn*, K *tā-n* ‘kill, beat to death’ = H *kā* ‘murder’, Rennell Is. (Solomons) *tā* ‘hit, strike, cut, kill’, Sikaiana (Solomons) *tā* ‘kill, hit, kick’, Luangiua (Ongtong-Java, Solomons) *kā* ‘hit, kill’.

Wash clothes: X *đag*, K *Φā* = H *kā*, Samoan *tā*.

Beat (maize): K *Φān* = H *kā* ‘to thrash out grain’.

Finish: X *kaŋ*, K *kā-n* = H *kā*.

It is important to notice that the sound pattern of forming the paronymous set in Kaingang, viz. the alternation  $t \sim \delta/\Phi \sim k$ , coincides with all the Kaingang sounds that correspond to Polynesian *t*, thus giving additional support to the three rules Nos. 2, 3, and 6 from Table 1. Notice also that the same alternations are additionally observed within Kaingang itself, e.g.: Xokleng *kɔđa* ‘shell’, *kɔđan* ‘strip embira bark’, but *kɔtī* ‘smooth’, Kaingang *ti* ‘he/it’; *Φi* ‘she’, Xokleng *ti* ‘he/it’; *đi* ‘she’.

(2) The following example shows a correspondence between a paronymous set in Kaingang and a paronymous set in Māori and a homonymous set in Hawaiian.

Throw: X *pāŋ*, K *pēŋ* = M *paŋa*, H *pana*.

Shoot: X *pænū* or *paŋ*, K *penū* = M *whana*, H *pana*, PPn \**fana* ‘shoot with a bow’.

Bow/arrow: X *puŋ* = H, Marquesan *pana* ‘bow’.

#### 5.4. Lexical fields

##### (1) BODY PARTS

Head1: X *klē*, K *krī* = PPn \**qulu*, M *uru*, East Futuna, Tongan, East Uvea *ʔulu* ‘head’.

Head2: X *paʔi*, K *pāʔi* = M *u/poko*, H *poʔo*.

Hand/arm1: X *nēŋa*, K *nīŋā* or *nīŋe* = M *ringa* ‘hand, arm’, Fijian *liga* ‘hand, forearm’, PMP \**linga* ‘hand, arm’.

Hand/arm2: K *pē* = M, H *pā* ‘touch’, Ra’ivavai *pā* ‘to touch with’.

Leg/foot: K *wagwag* ‘to limp’ (*wag (ke)* ‘to pass to the other side’) = M *wae/wae*, H *wawae*.

Eye: X *kāna* ‘eye, to look at’, K *kanē* ‘eye, to look at’ = M *kana* ‘stare wildly’, Tuamotan *kana* ‘stare’, Central-Eastern Pn *kana* ‘stare at’ (M, Penrhyn *kanohi* ‘eye’).

Breast: X *-kum(b)e+* ‘female breast’ = M *kōuma* ‘breastplate’, Tuamotan *kōuma* ‘chest, breast, bosom’ (cf. also K *ū-n ū-n (he)* ‘suck’ = M, H *ū* ‘female breasts’).

Heart/liver: X *de*, K *Φe* ‘chest, breast, heart’ = M *ate* ‘liver, heart’, H *ake* ‘liver’, Tuamotan *ate* ‘heart’.

Chin: X *lɔ*, K *ra* ‘jaw’ = M *rae*, H *lae* ‘any projecting substance as a prominent forehead’, Tongan *lae* ‘forehead’, Samoan *lae* ‘beardless chin’.

Bone: X *koko+* ‘bone, knuckle’, *kuka*, K *kuka* = PAn \**kukut* ‘bone’, \**kuku* ‘node, joint, knuckle’, H *kuʔe* ‘joint, the nuckles’.

Mouth/lips: X *-kuʔo* (from *-kuso+*) ‘lips’ = Fijian *gusu-na*, Samoan, Tongan, Nieu *ngutu*, PAn \**ŋusu*.

##### (2) KINSHIP TERMS

Xokleng’s kinship terminology is discussed by Henry (1941: 175-80) and Kaingang’s by Wiesemann (1974). The comparisons below seem to show substantial similarity of Kaingang terms with Micronesian languages (viz. the terms for wife, husband, and mother). Note that we found (Section 2) the best match in kinship semantic patterns between Xokleng and the Micronesian languages Chuuk and Ulithian. The entry for ‘elder sibling’ is interesting, especially if the forms for ‘younger siblings’ could also be conceived as “similar”. The entry for “family” is a remarkable resemblance both formally and semantically, and further allows us to tentatively explain the meaning of Xokleng *kəŋŋəŋ* and Kaingang *kaŋŋəŋ* ‘an Indian, a Kaingang’, previously unexplained as far as I know, as meaning ‘one of our family’ by reference to the respective words for ‘family’, viz. *kəi ka* and *kaŋkã*. The entry for ‘child1’ notes a similarity with a cognate set in some Solomonian languages, while those for ‘father’ and ‘child2’ show likeness with words in isolated New Guinea languages, for which no cognate sets are proposed in the *Austronesian Basic Vocabulary Database*.

Wife+woman: X *plū*, K *prū* = Proto-Chuukic \**p<sup>w</sup>p<sup>w</sup>ulú* ‘spouse’, \**p<sup>w</sup>ulú-wa* ‘married’, Satawalese *pulú-wa-(n)* ‘his wife’, Marshallese (Eastern Dialect) *pālee-*.

Husband+man: X *man* (or *mən*), K *mən* = Proto-Micronesian, Proto-Chuukic \**m<sup>w</sup>aane* ‘man, male’, Satawalese *m<sup>w</sup>áán*, As, Minyaifuin (Gebe, New Guinea) *man*

‘husband’.

Father: X *yug*, K *yɔg* = Kaulong (Au Village, New Guinea) *iyok*.

Mother: X *n̄ɔ̄*, K *-n̄ɔ̄* = PAN *\*t-ina*, POc, Proto-Micronesian *\*tina*, Samoan *tinā*, Mokelese (Micronesia) *ina-(a)* ‘his mother’, Mortlockese (Micronesia) *ina-*.

Child1: X *η̄l̄/e*, K *η̄r* = Kwara’ae *ngela*, Lengo, Ghari *η̄gari*, Mbaungguu *η̄wele*, Fataleka *η̄wele* (all Solomonian).

Child2: K *kɔsin* = Sengseng (New Guinea) *po-kusan*.

Elder sibling: X *kake* ‘relative’, K *kāke* (or *kāke*) ‘elder brother’, *kāke Φi* (*Φi* = female) ‘elder sister’ = PMP *\*kaka* ‘elder sibling’. (Blust 1995 notes that there can be no doubt that in PMP *\*kaka* referred to elder siblings, while another word, *\*huaji*, to younger siblings; Kaingang’s meaning correspondences to the latter term have the forms X *yawi*, K *yāwi* (*Φi*) ‘younger brother/sister’.)

Family: X *kai ka* (*he*) ‘relatives, people with the same body paint, family’, K *kajkã* ‘family, parents’ = Pn *kāiga* ‘kin, family, relative’, Tuvalu (Ellice Is.) *kāiga* ‘family, relative’, East Futuna (Horne Is.) *kāiga* ‘relative, family, parent’, East Uvea (Wallis I.) *kāiga* ‘parent, friend’, Pileni (Solomons) *kaega* ‘clan, family’, Samoan *ʔāiga*. ‘elementary family; family, lineage, kin, relatives’, Tokelau *kāiga* ‘kin, relative’, Tongan *kāinga* ‘relation, relative’.

### (3) NUMERALS

Kaingang’s numerals, according to Wiesemann, are *pir* ‘one’, *reŋre* (or *reŋre*) ‘two, second’, *tāntū* ‘three’, *wēŋ-kāŋra* ‘four’, [*šiko*] ‘five’. Contemporary Xokleng has a base-two system, *pil* ‘one’, *leŋle* ‘two’, forming higher numerals by their combination: *leŋle to pil* ‘three’ *leŋle to leŋle* ‘four’, etc. (Greg Urban, personal communication). Henry (1945) lists *pil* ‘one’ and *leŋle* ‘two’, as well as one word involving the number four, viz. *ɔ̄ɔ̄ipa* ‘four-cornered’, but says that the Xokleng have no “real numbers”, presumably because e.g. *leŋle/reŋre* mean ‘companion, friend, co-spouse (Xokleng), brother (Kaingang)’. An early investigation (Gensch 1908) lists what seems to be a quinary numeral system: *toktenúnlo+* ‘one’, *nunengláeglo+* ‘two’, *lenglæmú+* ‘twice’, *umarikélko+* ‘three’, *umpétko+* ‘four’, *undupélemo+* ‘five’ (stress is marked).

One: X *pil/i*, K *pir*, *pipir* ‘few’, (*wēŋ*) *pānpir* ‘reunited’, *pānpin* ‘group together long objects’ = M *piri*, H *pili* ‘united, joining’, Marquisan *piʔi* ‘unite, kindred’. The Austronesian languages usually do not express quantity with the term, cf. however the related Tahitian *piti* with the same meaning ‘to join, to unite with another’ used as “two” in counting.

Two: K *rərə* ‘fight by twos’, *rən* ‘grapple’, *to rə* ‘fight’ (i.e. *rərə* probably *rə-rə* lit. ‘grapple, fight + two’) = Pn *rua* ‘two’, Tahitian *aro-rua* ‘the second in a combat’, or lit. ‘to face, to turn towards + second’.

Xokleng’s numerals given by Gensch look very interesting, even if not wholly understandable (to me). First, they seem like a continuation in counting after two of the other source(s), and the set undoubtedly shares the word for “two” with them. Secondly, they seem to contain some additional material over pure numerals roots, as witnessed e.g. by *nuneng-láeglo+* ‘two’ vs. *lenglæ-mú+* ‘twice’. Table 2 highlights the sequence overlaps between Xokleng and Austronesian numerals for three, four, and five, accompanied by some information from Kaingang.

The highlighted Xokleng sequences, which are similar to those in Austronesian, seem to be supported by segmentation considerations. In all three words the initial *u-* seems the Xokleng (and Kaingang) pronominal *ũ*, and *-kɔ* is a predicating particle

(Greg Urban, personal communication). Thus, we get respectively: for “three”, *ũ – mari – kel – kɔ*, where *mari*, if guessed by its meaning in Kaingang, is an emphasis word meaning ‘also, too’; for “four”, *ũ – (m)pen – kɔ* (the Xokleng nasal *n* is changed to the homorganic stop *t* in this context, as described by Henry 1945), and besides apparently *ðai – pa* lit. ‘corner – four’; and, for “five”, *ũ – ndu – pélemo*, where *ndu* is a postposition meaning ‘after’. Given this, the comparisons are:

Three: X – *kel* = H *kolu*, M *toru*, Proto-Micronesian *\*telu*, Kisar *wo-kelu*, Kei *tel*, Yamdena, Selaru *tél* (all Maluku), Central Masela *wəkəl*, Emplawas *wokel*, Dawera Daweloor *ʔel* (all Babar).

Four: X *pa* or *pen* = H *hā*, M *whā*, Anuta *pā*, Buru (Maluku) *pā*.

Five: X *pelemo* = H *pālima* ‘five times, in fives, fivefold’, M *rima*, Tungag *palpalimana*, Tiang *patlima* (both New Ireland).

**Table 2.** Sequence overlaps (in bold) in the numerals for “three”, “four”, and “five”

	<i>Xokleng</i> ( <i>Gensch</i> )	<i>Xokleng</i> ( <i>Henry</i> )	<i>Kaingang</i>	<i>Austronesian</i>
THREE	<i>umarikélko</i>			POc <i>*tolu</i> , PCEMP <i>*talu</i>
FOUR	<i>umpétko</i>	<i>ðai</i> <i>pa</i> ‘four-cornered’	<i>Φir</i> ‘corner’ <i>penu</i> <i>gnu</i> ‘quadrangle’, <i>penu</i> ‘angle, corner’	POc, PCEMP <i>*[ə]pat</i> , <i>*pati</i> , <i>*pani</i>
FIVE	<i>undupélemo</i>			POc <i>*lima</i>

### 5.5. Long words

Similarities in longer words are less likely to be coincidental than similarities in shorter words as is well-known in historical linguistics. Below are some examples:

Be same or similar: X *halike*, K *hā ri ke* = M *whārite*, H *hālike*.

Smell, odour: X *(di?)kukræ+* ‘stink’, K *kəkrā-ŋ* ‘stink of rotten’ (cf. also K *kaʔi* ‘smell’, *kāhɔr/ɔ* ‘odourless’) = M *kakara*, H *ʔaʔala* ‘fragrant’, East Futuna (Horne Is.) *kakalu* ‘that which smells bad’, M *kekererū* ‘stinkroach’.

Snow: X *kuklule+*, K *kukrir/i* = M *hukarere*.

Thunder: X *t̃t̃ɔl*, K *(ta) t̃ t̃ā̃r (hɛ)* = M *(wha)titiri*, H *(he)kili*, Samoan *(fāi)titili*, Tuamoto *(fa)tutiri*, Tahiti (1773) *(pa)tiree* ‘it thunders’.

Fish: K *kākuΦər* ‘small fish’ = M *kō-kota* (shellfish), Mangarevan *kokota* ‘small shell-fish’.

### 5.6. Compound words

The comparison of “compound words” (in our context, words comprising more material than just a single stem) presents significant evidence when both the compounds themselves and their constituent parts match in the compared languages. Below I give several illustrations, including as component part a grammatical morpheme.

(1) Compare entries Nos. 1-3 from our list of similarity sets. These three entries illustrate similar compound words, e.g. Xokleng *halike*, Hawaiian *hālike*, etc., all

having an identical meaning, viz. ‘be same or similar’. These composite words comprise prefixes with identical form and function in present context, variously designated in the different languages: “emphatic” (Xokleng), “assertive” (Kaingang), and “causal” (Polynesian) (from *\*fā*), and stems (meaning ‘be same or similar’), which are also formally similar, e.g. Xokleng Prefix: *ha* + Stem: *like*, Hawaiian Prefix: *hā* + Stem: *like*, etc. Such a coincidence of three compared entities, viz. a compound word and its two constituents, is so highly unlikely, as to be practically impossible to occur by mere chance.

(2) Henry (1935, 1948) lists for Xokleng *maikaug* ‘fear, be frightened’, which comprises a prefix *mai-* (in other Xokleng sources written *wai-* or *wā-*; Kaingang *wāŋ-* or *wěŋ-*), a “reflexive” with general meaning, and a stem *kaug*. Henry (1935, 1948) draws attention to the fact that this prefix has a valency-decreasing function, writing that “Certain verbs that begin with *mai* omit it when they have direct objects” (Henry 1935: 204), giving, among others, examples with the verb ‘fear, be frightened’. Compare

Frighten: X *maikaug* = H *makaŋu*, M *mataku*, PAn *\*ma-takut*.

Now, the stems seem related (cf. also Yamdena and Selaru (southeast Maluku) having *taut*, Kédang (Timor) *taug* or Puyuma (Formosa) *ma-kauð* ‘fear, be frightened’, where the middle consonant *k* is elided). Additionally, Austronesian (Proto-Oceanic) *ma-* is known to have a valency-decreasing function (Evans and Ross 2001), in that prefixing it to a verbal stem reduces the number of arguments this verb may have. As we see, Xokleng’s prefix *mai-* behaves in exactly the same way, as actually does Kaingang’s correlative. (Curiously, this same verb seems to be the common illustrative example of the phenomenon in both language families.)

(3) Compare the “long word” for fish above. The Polynesian *kō-kota* ‘shellfish’, is a compound word, comprising the prefix *kō* ‘like, similar to’ and the stem *kota* ‘shell, scrapings’. The Kaingang *kākuΦar* ‘small fish’ also seems to be a compound, viz. *kā-kuΦar*, as seen from its meaning equivalent *kuvar* in one of Kaingang’s dialects (São Paulo) (Wiesemann 1978: 212). Its stem *kuΦar* then corresponds to Polynesian *kota* ‘shell, scrapings’ as evidenced by Kaingang *kuΦen* ‘to shell, to peel’, Xokleng *kɔða* ‘shell’. The Kaingang prefix *kā-* seems to be allomorphic to the preposed Kaingang particle *kɔm* ‘similar to, parallel to’, and hence also corresponding to the Polynesian prefix *kō* ‘like, similar to’.

### 5.7. A compound word and a synonymous set

The next example also describes an event which would not normally be expected in random comparisons, so is of some interest. The constituent parts of the compound Polynesian word *pō-fatu* ‘stone’ (M *pō(w)hatu*, Mangarevan *pōŋatu*), in which the sequence *fatu* ‘stone’, correspond to a synonymous set in the Kaingang family: Kaingang *pɔ* ‘stone’, and Xokleng *kaðu+* ‘stone’ (from older *kasu+* given by Gensch, in which *s* represents *ð*). Note that *kaðu* is “regular” in that it fully agrees with our sound correspondences in Table 1. It is interesting to note, whatever the exact implications, that the contemporary form for stone in Xokleng is *kɔði*, and it nicely matches Pre-Rotuman *\*hafu* ‘stone’ pronounced [*hɔθu*] (cf. also Xokleng *ðe*, Kaingang *Φe* ‘heart’, Pre-Rotuman *\*afe* ‘liver’, pronounced [*æθe*], Biggs 1965: 188).

## 6. Predictions

The usual way of testing a scientific theory is to draw logical deductions from the theory and check whether these predictions of the theory fit the data or not. The more of these predictions are true, the more corroborated the theory is. A similar approach, of course, can be used in historical linguistics. In the following, this general mode of reasoning takes a specific form. I take a sequence of two words in Kaingang <W1 + W2>, whose meaning as a whole, as well as the meaning of one of the constituent words, W1, is known, but that of the other, W2, is not, though W2 can be reasonably reliably predicted from context. This prediction, then, under the assumption that the Kaingang and Austronesian families are related – somewhat anticipating the hypothesis I shall put forward to explain the observed similarities – can be tested by seeing whether or not a correlative word in Austronesian exists with the appropriate predicted meaning. This reasoning mode mimics the real-life situation in which one tries to reconstruct the died-out meaning of a word in some language by reference to a related language that has, or might have, preserved this word meaning. A positive outcome of such a reconstruction constitutes positive evidence for the idea of the existence of a relationship among these languages. Additionally, it allows us to gain a better understanding of one of the languages by making the reconstruction.

(1) Kaingang *ka rigri* means ‘small mosquito’, *ka* in this context standing for ‘mosquito’. The word *rigri*, however, is with unknown meaning and according to Wiesemann (personal communication) does not occur outside this word complex. Assuming a connection between Kaingang and Austronesian/Polynesian, we can predict that if *ringri* designates ‘small’ – as it would follow from context – we could find a correlative in Austronesian. Indeed, the formally similar *riki* means ‘small’ in Austronesian.

(2) Kaingang *ka pūr* ‘black person, African’, *pūr* ‘burnt’ = Proto-Central Pacific \**pula* ‘burn’, Proto-Micronesian \**pwula* ‘burn’, Rotuman *pula* ‘burn’, Hawaiian *pula* ‘kindling’, Waya (western Fiji) *bula-n* ‘burn’. The unknown Kaingang meaning of *ka* in this context, probably ‘person’ as derived from context, is confirmed by Hawaiian *ka* meaning ‘the one who, the person in question’.

(3) In the early documentation of Xokleng by Gensch (1908), the form *kulu-* is prefixed in 7 words denoting colour, and we have the sequence *kulu* + <colour term> + *ma*, as exemplified in *kulukuprima*+ ‘white’, *kuluklama*+ ‘yellow’, etc. The form *ma* is known to be a predicating particle, but what does *kulu* mean in this context? It would be natural to suppose that *kulu* means ‘colour’ or something related with colour, but no such use of the word is known e.g. to the investigator of Kaingang and Xokleng Wiesemann (personal communication). Assuming a relationship between Xokleng and Austronesian, we could expect to infer the actually unknown meaning of *kulu* from some corresponding word in Austronesian. Indeed, in a language like Hawaiian (cf. also Paumotan *huru* ‘colour’) one finds *hulu*, meaning – among other things – ‘colour’ (‘species of colour’, Andr), i.e. we have the “regular” correspondence:

X *kulu* = H *hulu* (PAn \**bulu*); cf. also Nos. 15, 16.

As additional piece of evidence for this conclusion, consider the “unusual” coinciding polysemy of *kulu/hulu* in Kaingang/Austronesian families, cf. 5.2(2).

(4) Gensch (1908) lists as entry and sub-entry in Xokleng  
X *kulug-*+ ‘dark’ (German *dunkel*)

X *kuru-loa*+ lit. ‘darker stuff’ (German *dunkler Stoff*), which have the same root *ku(l/r)u* for ‘dark’ (*l* and *r* freely alternating in Xokleng). The meaning of Xokleng *loa* does not occur elsewhere in Gensch (1908) and is unknown. The Xokleng form *loa* does not seem to be associated with its substantive literal translation *staff*, for if it were the case, then, first, it should have preceded the adjectival *kuru* ‘dark’ (Xokleng’s word order being substantive + adj), and, secondly, it should, as an autonomous word, have been written separately from the adjectival form. Therefore, *loa* appears to be a sort of comparative degree, or intensifier, of the adjectival *kuru* ‘dark’. This prediction is fully substantiated by the Polynesian particle *loa*, having two meanings: (i) long, and (ii) ‘very, very much, exceedingly’, a post-posed intensifier probably used in our context. I note that there is a full match also of the other Xokleng word in the complex; thus, Hawaiian *kulu* ‘be late at night’ (Puk), ‘first night in which the moon is dark or can’t be seen’ (Andr); cf. also PAn *\*kudem*, Nggela *kuro*.

Further evidence that we are on the right track is the word *halikelɔ* ‘how long’, listed several times by Henry (1935), in which *halike* means ‘how’ (Kaingang *hēri ke* ‘how’), and *-lɔ*, apparently related to the older form *loa*+, has to mean ‘long’, the first meaning of the identical Polynesian word. It is not clear whether in Xokleng *-lɔ/-loa*+ are separate words or are only used in compounds (as it is the case e.g. in Kapingamarangi). Note that our argumentation here follows the idea of Section 5.2, viz. comparison of polysemous sets.

(5) For the word ‘hair’ in Xokleng, Gensch gives *kren-kula-ma*+ (lit. = ‘head’-*kula*-predicating particle), where the meaning of *kula* is unknown. Henry (1935) lists for ‘hair’ *klē kiki* lit. ‘head feather’. Given also that a formally similar word in Kaingang, *kule*, has a similar meaning, ‘internal fibres of taquara’, one could predict that the unknown meaning of *kula* is also feather or something similar. This prediction is corroborated by the complete match with Western Fijian (Navosa) *kula* ‘feathers’, as well as by the fact that a number of Austronesian languages (e.g. Sekar, Ujir, Yakan, Buru) form the words for ‘hair’ as the combination of ‘head+feathers’.

## 7. Extra-linguistic data

There are several pieces of evidence, besides the linguistic evidence, that seem to make less incredible the idea of the existence of some linguistic link between the geographically distant Austronesian-speaking and Kaingang-speaking populations. First, genetically South America is the most diverse part of the world, and Central America is more similar to North America than to South America (Cavalli-Sforza et al. 1994: 339).

Secondly, and more specifically, the Macro-Ge people, in drawing a phylogenetic tree of 23 American tribes, grouped according to linguistic criteria (Cavalli-Sforza et al. 1994: 323-4), were found to be the worst outliers (with Macro-Tucanoans).

Thirdly, and most importantly, apart from these more circumstantial, even if quite suggestive, pieces of genetic evidence that (at least some parts) of South America do not fit into the scenario of exclusively North-South population movement – which is the prevalent current belief today – there emerged recently genetic work giving sound evidence for the predominantly South-East Asian and Oceanic origin of South American native populations. E.g. Ribeiro et. al. 2003, analyzing the Macro-Ge-speaking Xikrin

and the Tupi-speaking Parakanã (note that Tupi is believed to be related to Macro-Ge), found them to be genetically similar to Indonesians and South-East Asian populations, concluding that “These results corroborate the existence of genetic affinities between Brazilian Indians and South-east Asian and Oceanic populations”, their investigation being intended to “further contribute to the theory of a predominantly Asiatic origin of the American natives” (p. 59).

And, finally, an argument from Xokleng’s beliefs. According to Henry (1945: 127) “The Kaingang [i.e. the Xokleng] have a clear idea of a period long ago when a number of events happened: *their ancestors came out of the sea* and over the mountains to the west...” [italics mine].

## 8. Conclusion

In this paper, I showed parallels between the Kaingang and the Austronesian language families in grammar and kinship semantics, as well as presented a network of similarities in lexicon. I cherish no illusion that my description is free from errors. Rather, I expect occasional inaccuracies to occur both in the data, and in my interpretation of some data, for it could hardly be otherwise, given the early stage of my investigation, the rather scarce knowledge we have today about the Brazilian languages, and especially my lack of first-hand knowledge of both examined language families. Nevertheless, the nature and scope of the presented parallels seem to enforce the conclusion that these similarities, taken collectively, cannot be just random, a conclusion I have also reached by direct computation of probabilities of matches in basic vocabulary comparisons. There are much too many coincidences, and this requires an explanation. One plausible explanation is a historical (probably genetic) relationship between the Kaingang and the Austronesian language families, and specifically its Oceanic branch, the exact nature of which is presently unknown. Further studies are required to get more definitive answers. The severe testing of this hypothesis is a worthwhile enterprise, because, if true, it will have far-reaching consequences not only for linguistics, but for the study of human pre-history as well. Such testing should be concerned with trying to undermine a significant part of the presented data, and trying to find a more plausible explanation of the (remaining) data. Regarding the current classification of the Kaingang languages as members of the Ge family, it will be clear that if my hypothesis is true, either this classification is not valid, or it is valid, and Ge is also somehow linked to Austronesian. At present I can only state these as two logical possibilities.

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# Predicting innovative alternations in Korean verb paradigms\*

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## Abstract

In Korean verbal inflection, all forms in the paradigm (A-suffix, C-suffix, or i-suffix forms) suffer from neutralization of some lexical contrasts, and there is no single form of the paradigm from which one can correctly predict all the other forms in the paradigm. Nevertheless, a survey of child errors and historical change show that the attested reanalyses are overwhelmingly based on ambiguities in A-forms, rather than in other affixal contexts (Kang 2006). In this study we conducted a computational modeling of learning of inflected forms of 952 Korean verbs using the Minimal Generalization Learner algorithm (MGL; Albright and Hayes 2002, 2003) to account for this striking asymmetry. The simulation result shows that A-suffix form correctly predicts the other forms in the paradigm at a higher rate than C-suffix form or i-suffix form does, indicating that the A-suffix form is indeed the most informative form of the paradigm. This is in line with the previous studies showing that learners designate the most informative form as a privileged base form (Albright 2002, 2008). We compare the model's errors with attested child errors and historical changes.

**Keywords:** Korean, morpho-phonology, verb paradigm, analogy, acquisition, language change, computational modeling

## 1. Introduction

Children learning to inflect Korean verbs and adjectives faces a number of challenges simultaneously. Their primary task is to segment words in the input data into morphemes, and determine their meanings. This task is made more difficult, however, by the fact that morphemes undergo a wide variety of phonological alternations. These include fully predictable processes that satisfy general phonotactics of Korean, such as intervocalic voicing and post-obstruent tensification ([d] ~ [t'] in (1a)), allophonic [r] ~ [l] alternations ((1b)), neutralization of laryngeal and manner features in codas ((1c-e)), cluster simplification ((1f-g)), and elision of [i] ((1h-i)). There are also many cases of alternations caused by phonologically conditioned allomorphy, in which the

morpheme has multiple forms that are not fully predictable from one another based on regular phonological processes, but the distribution of the allomorphs is guided by phonotactic constraints ((2a)).

- |     |    |                    |                                      |   |                       |
|-----|----|--------------------|--------------------------------------|---|-----------------------|
| (1) | a. | d ~ t'             | se- <b>da</b> 'count'                | mək- <b>t'a</b> 'eat'                     | (*VtV, *Ct)           |
|     | b. | r ~ l              | cər-ə 'limp'                         | cəl-da 'limp'                             | (*l/_V, *r/_C)        |
|     | c. | C <sup>h</sup> ~ C | təp <sup>h</sup> -ə 'cover'          | təp-t'a 'cover'                           | (*C <sup>h</sup> /_C) |
|     | d. | C' ~ C             | kyək'-ə 'experience'                 | kyək-t'a 'experience'                     | (*C'/_C)              |
|     | e. | s ~ t              | pəs-ə 'take off'                     | pət-t'a 'take off'                        | (*s/_C)               |
|     | f. | CC ~ C             | əps'-ə 'lack'                        | əp-t'a 'lack'                             | (*C/C_C)              |
|     | g. | CC ~ C             | nəlb-ə 'wide'                        | nəl-t'a 'wide'                            | (*C/C_C) <sup>1</sup> |
|     | h. | i ~ Ø              | c <sup>h</sup> ir-ə 'pay for'        | c <sup>h</sup> iri-da 'pay for'           | (*iV)                 |
|     | i. | i ~ Ø              | əps'- <b>imyən</b><br>'lack (cond.)' | nolla- <b>myən</b><br>'surprised (cond.)' | (*Vi)                 |
| (2) | a. | s'i ~ Ø            | ka- <b>mnida</b><br>'go (defer.)'    | ip-s' <b>imnida</b><br>'put on (defer.)'  | (*CCC)                |

In addition to phonotactically motivated alternations, Korean learners are also faced with numerous irregular alternations that do not find any apparent synchronic phonotactic motivation. For example, the declarative suffix /-ta/ is expected to surface with intersonorant voicing after verb stems that end in vowels and sonorants, but it surfaces instead with either an aspirated or tense stop after many verbs ending in vowels and liquids ((3a–c)), and after all verbs ending in nasals ((3d–e)).

- |     |    |                 |   |                            |                       |
|-----|----|-----------------|---|----------------------------|-----------------------|
| (3) | a. | co-a 'be good'  | ~ | co- <b>t<sup>h</sup>a</b>  | (V-da is expected)    |
|     | b. | ci-ə 'compose'  | ~ | ci- <b>t'a</b>             | (V-da is expected)    |
|     | c. | ʃir-ə 'dislike' | ~ | ʃil- <b>t<sup>h</sup>a</b> | (l-da is phon. legal) |
|     | d. | man-a 'be many' | ~ | man- <b>t<sup>h</sup>a</b> | (n-da is phon. legal) |
|     | e. | ʃin-ə 'put on'  | ~ | ʃin- <b>t'a</b>            | (n-da is phon. legal) |

Furthermore, roots may show other lexically restricted segmental alternations, such as those in (4).

- |     |    |               |   |                 |                        |
|-----|----|---------------|---|-----------------|------------------------|
| (4) | a. | tow-a 'help'  | ~ | top- <b>t'a</b> | (p ~ w: 'p'-irreg.)    |
|     |    | ʃir-ə 'load'  | ~ | ʃit- <b>t'a</b> | (r ~ t: 't'-irreg.)    |
|     |    | hill-ə 'flow' | ~ | hiri-da         | (ll ~ ri: 'li'-irreg.) |

A standard view of how learners encode alternations, assumed in most work in generative phonology, is that learners compare the surface variants of each morpheme, extracting all unpredictable values and (wherever possible) incorporating them into an underlying form (UR) that contains all unpredictable values (Kenstowicz and Kisseberth 1977, chap. 1; Tesar and Prince 2007). For example, comparing the forms of the verb 'lack' in [əps'-ə] and [əp-t'a], the learner would establish a UR /əps/, which encodes the unpredictable presence of the cluster. Similarly, comparing the forms [ʃir-ə] and [ʃil-t<sup>h</sup>a] 'dislike', the learner might encode the fact that the verb unpredictably triggers aspiration on the suffix by positing the UR /silh/, with a stem-final [+aspirated] segment. The task of the learner is to arrive at a UR that is compatible with the range of attested surface variants.

A prediction of this approach is that in cases where the learner has incomplete

data about the behavior of a particular morpheme, the UR will be determined solely on the basis of whatever surface forms happen to be available. This means that the UR may contain a subset of the information needed to produce the unseen target forms. For example, if a learner had heard only [ʃir-ə] but not [ʃil-t<sup>h</sup>a] ‘disliked’, then there is no need to posit an underlying /h/ for this verb: /sil/. This provisional assumption, based on incomplete information, could lead the learner to project the declarative form \*ʃil-da], which is innovative relative to the adult language. (We use here the notation ‘\*’ to mark innovations, which are incorrect in the adult language but correct or expected under the learner’s analysis.) Such errors would reveal that a reanalysis has taken place, in this case based on the form of the stem that appears before the suffix /-ə/.

In principle, many different types of reanalysis are possible in Korean, depending on which inflected forms happen to be known. In addition to reanalyses like \*/sil/ based on prevocalic form [ʃir-ə], it is conceivable that the learner might happen to have encountered a particular word in only preconsonantal forms: e.g., [əp-t’a] but not [əps’-ə] ‘lack’. In this case, the learner would have no reason to posit a /ps/ cluster in the UR (\*/əp/), leading to the possibility of innovations such as \*[əb-ə] instead of [əps’-ə]. More generally, learners operating with incomplete information are free to consider a much broader range of underlying forms than they would if all surface allomorphs were known, leading to a wide variety of possible reanalyses. These are illustrated for the irregular verb [ʃir-ə] ~ [ʃit-t’a] ‘load’ in (5b–c).

(5)	a. Actual forms	[ʃir-ə]	[ʃit-t’a] ‘load’
	b. Possible reanalysis based on [ʃirə]	/sil-ə/	→ *ʃil-da
		/silə-ə/	→ *ʃirə-da
		/sili-ə/	→ *ʃiri-da
		/silh-ə/	→ *ʃil-t <sup>h</sup> a
		/silʔ-ə/	→ *ʃil-t’a
	c. Possible reanalyses based on [ʃit-t’a]	→ *ʃid-ə	/sit-ta/
		→ *ʃit <sup>h</sup> -ə	/sit <sup>h</sup> -ta/
		→ *ʃis-ə	/sis-ta/
		→ *ʃic-ə	/sic-ta/
		→ *ʃic <sup>h</sup> -ə	/sic <sup>h</sup> -ta/
		→ *ʃi-ə	/siʔ-ta/

Given such massive surface ambiguity, it is not surprising that innovative forms are in fact widely attested in Korean. Kang (2006) surveys a variety of studies of historical change, dialect differences, and acquisition, and finds that virtually all types of irregular verbs show the effects of reanalysis. But strikingly, the attested innovations are overwhelmingly asymmetrical: they are nearly all based on the stem variant that occurs before vowel-initial suffixes (Kim 2001), and in particular, before suffixes that start with -ə/-a (Kang 2006) (“A-suffixes”, in which the vowel quality is determined by vowel harmony). Concretely, reanalyses like those in (5b) are well-attested, while reanalyses based on pre-consonantal forms, like those in (5c), are vanishingly rare in verbs and adjectives.<sup>2</sup> Such asymmetries are not unusual; in fact, they are common in historical change, and are also observed in studies of child errors in other languages (Spanish: Clahsen, Avelado, and Roca 2002; German: Clahsen, Prüfert, and Eisenbeiß 2002). At the same time, these asymmetries are puzzling under the view that learners

establish URs based on whatever surface allomorphs are available to them, since in the case of Korean, it appears that learners focus primarily on the form of the stem before A-suffixes when deciding the (morpho-)phonological properties of words, while systematically ignoring information from other forms. The challenge is to understand why these forms would play such a privileged role in driving reanalysis in Korean.

In response to such asymmetries in historical change and child errors, Albright (2002, 2008) proposes a more restrictive model of underlying form discovery, in which learners designate a single inflected form as a privileged base form. The base form is constrained to be the same for all lexical items of a given category, and serves as the input (or underlying form) to a grammar of morphological and phonological rules (or constraints), which are used to project the remaining forms. In this model, asymmetries in innovation reflect asymmetries in paradigm structure: the base form serves as the basis of (re)analysis, while the non-base forms are projected by the grammar and are thus open to restructuring. This is referred to as the *single surface base* hypothesis.

To see the implications of this hypothesis for a language like Korean, let us assume for present that the form with the informal suffix *-ə/-a* is the base. (This assumption will be justified below.) The grammar must then operate on this form to derive other inflected forms, for example by transforming [X ə] → [X ta] to yield the declarative form, and then performing any necessary phonological adjustments such as cluster simplification, liquid allophony, intersonorant voicing, post obstruent tensification, etc.

- |     |    |                     |   |         |                     |
|-----|----|---------------------|---|---------|---------------------|
| (6) | a. | cər-ə               | → | cəl-da  | ‘limp’              |
|     | b. | əps’-ə              | → | əp-t’a  | ‘lack’              |
|     | c. | əb-ə                | → | əp-t’a  | ‘carry on the back’ |
|     | d. | təp <sup>h</sup> -ə | → | təp-t’a | ‘cover’             |

A consequence of this direction of mapping is that if the *-ə/-a* base form is ambiguous, the grammar may be uncertain about how to project other forms. For example, given a form like [ʃirə] ‘load’, should the declarative *-ta* form be [ʃilda], [ʃilt<sup>h</sup>a], [ʃirida], [ʃirəda], (correct) [ʃi(t)t’a], or some other form? In many cases, it is impossible to know the answer based on regular grammatical mappings alone; the speaker must instead rely on memorized lexical knowledge to settle the matter. We assume that listed information about the behavior of a word supercedes whatever other output the grammar would have produced, by means of morphological blocking (Aronoff 1976). Blocking may fail, however, in cases where the learner does not have sufficient data about the correct form, or if lexical access happens to fail for some other reason. In such instances, an innovative overregularized form will be produced (Paul 1920, Marcus et al. 1992).

To summarize, the single surface base hypothesis predicts an asymmetry between base forms, which are taken as given by the grammar and must therefore remain constant, and non-basic forms, which are projected by the grammar and may therefore be overregularized if the adult form is not known or not accessed reliably. A question that must be answered is why an A-suffix such as the *-ə/-a* form would serve as the base of Korean verbal inflection. One potentially relevant factor is high token frequency. In fact, the informal *-ə/-a* form is very frequent in spoken language,

particularly in child-directed speech (Kim and Phillips 1998, Lee et al. 2003). This no doubt plays a role in making the *-ə/-a* a likely candidate for base status, but it cannot be the whole story since in many other documented cases, the base of reanalysis is not the most frequent form.<sup>3</sup>

Albright (2002) proposes instead that the decision depends on the relative informativeness of the forms in question. The premise of this hypothesis is the following: faced with the restriction that the grammar must be based on a single surface form, which may potentially suffer from neutralizations that remove information about lexical contrasts, learners seek the surface form that exhibits as many contrasts and suffers from as few neutralizations as possible. Ideally, the base form would reveal all contrastive phonological properties (the segments of the morpheme, its tonal pattern, etc.), as well as all morphological contrasts (gender, inflection class). Unfortunately, in most languages, there is no single perfectly revealing surface form, since different inflected forms are affected by different types of neutralizations. In such cases, the learner must choose the form that has least serious neutralizations, and allows accurate projection of the inflected forms of as many words as possible.

As noted, Korean provides an excellent example of the ubiquity of neutralizations, with no single inflected form revealing all contrasts. The question that we address in this study, therefore, is whether A-suffixes such as the *-ə/-a* form are nonetheless the most informative form in Korean. This idea has some a priori plausibility, since these suffixes are vowel-initial, and therefore do not trigger neutralizations in manner and laryngeal features of stem-final consonants, or reduction of stem-final clusters—that is, they provide a phonologically advantageous “pre-vocalic” environment for the preceding stem. At the same time, some of these neutralizations have quite limited practical impact; for example, there are relatively few verb roots ending in obstruent+obstruent clusters, so it is not difficult to guess that a verb should not end in a cluster. Furthermore, although vowel-initial suffixes reveal laryngeal features and clusters, Kang (2006) points out that they also trigger neutralizations such as elision or coalescence of preceding vowels, and they fail to reveal whether the preceding root exceptionally causes aspiration or tensification of a following obstruent (see (3) above). Thus, it is an empirical question which set of neutralizations causes greater difficulty in predicting inflected forms of words.

In the remaining sections, we show that although the A-suffixes trigger various types of neutralization, they are not as serious as one might think, since they affect comparatively few words, they can be predicted more often than not, and they are more than offset by neutralizations caused by consonant-initial and *i*-initial suffixes. The claim is that A-forms are indeed more informative about C-forms than vice versa, and that the direction of reanalysis in Korean is therefore correctly predicted by a theory that makes use of the most informative form as a base form. In order to show this, we first lay out a model for learning grammars that project morphologically related forms from one another. We then describe simulations employing this model to assess the relative accuracy of projections between various inflected forms in Korean, comparing the consequences of using A-suffixes vs. other types of affixes as the input to the grammar. The results reveal that the A-suffixes are indeed more predictive about other forms than vice versa. We discuss the predictions of a grammar that uses A-suffixed forms as the

base of morphological projection, including unproblematic or unambiguous mappings (for which no innovation is expected) as well as problematic or ambiguous mappings (open to innovation). We compare these predictions to the attested range of innovations, and find a fairly good qualitative match. A few discrepancies also emerge, however, for which we discuss possible resolutions.

## 2. A model for learning surface mappings between inflected forms

### 2.1. Predicting allomorphy based on phonological context

The model that we employ takes as its training data a set of pairs of morphologically related surface forms, and attempts to learn a grammar of morphological and phonological mappings that project one from the other. For example, suppose the learner has been given a set of pairs involving the *-ə/-a* informal suffix and the *-imyən/-myən* conditional suffix, as in (7).

- |     |    |       |   |           |              |
|-----|----|-------|---|-----------|--------------|
| (7) | a. | siə   | ~ | simyən    | ‘sour’       |
|     | b. | kiə   | ~ | kimyən    | ‘crawl’      |
|     | c. | cəgə  | ~ | cəgimyən  | ‘write down’ |
|     | d. | əps’ə | ~ | əps’imyən | ‘lack’       |
|     | e. | iruə  | ~ | irumyən   | ‘create’     |
|     | f. | nə ə  | ~ | nə myən   | ‘hand in’    |
|     | g. | cəlmə | ~ | cəlmimyən | ‘young’      |

The model learns grammars in both directions (informal → conditional and vice versa), using the Minimal Generalization Learner algorithm (MGL; Albright and Hayes 2002, 2003). The algorithm starts by parsing each pair to see what the related forms have in common, and what has changed between forms, as in (8).

- |     |    |   |   |       |          |
|-----|----|---|---|-------|----------|
| (8) | a. | ə | → | myən  | / si__   |
|     | b. | ə | → | myən  | / ki__   |
|     | c. | ə | → | imyən | / cəg__  |
|     | d. | ə | → | imyən | / əps’__ |
|     | e. | ə | → | myən  | / iru__  |
|     | f. | ə | → | myən  | / nə __  |
|     | g. | ə | → | imyən | / cəlm__ |

The parse reveals that some pairs share the same change (e.g., (8a,b,e,f) all map *ə* → *myən*), while others have different changes. The model attempts to learn a grammar that predicts which change each form will take, by comparing forms that share the same change and trying to discover what phonological features they have in common. For example, comparison of the *-myən* forms in (8) yields the generalizations in (9).

(9) Iterative comparison of  $\emptyset \rightarrow my\grave{a}n$  pairs

- a.  $\emptyset \rightarrow my\grave{a}n$  / si\_\_  
 b.  $\emptyset \rightarrow my\grave{a}n$  / ki\_\_  
 =  $\emptyset \rightarrow my\grave{a}n$  /  $\begin{bmatrix} -son \\ -lab \end{bmatrix}$  i\_\_ (after non-labial obstruents + i)  
 e.  $\emptyset \rightarrow my\grave{a}n$  / iru\_\_  
 =  $\emptyset \rightarrow my\grave{a}n$  /  $\begin{bmatrix} +syl \\ +high \end{bmatrix}$  \_\_ (after high vowels)  
 f.  $\emptyset \rightarrow my\grave{a}n$  / næ\_\_  
 =  $\emptyset \rightarrow my\grave{a}n$  / [+syl]\_\_ (after vowels)

Consideration of a broader range of forms (e.g., [yər-ə] ~ [yəl-myən] ‘open’) would show that *myən* occurs not just after vowels, but also after laterals. Likewise, comparison of the  $\emptyset \rightarrow \#my\grave{a}n$  pairs in (8c,d,g) yields the rule  $\emptyset \rightarrow \#my\grave{a}n$  / [-syl, -lat]\_\_. Thus, the learner is able to discover that *-myən* and *-#myən* occur in complementary phonological contexts.

The discovery of complementary contexts for competing affixes is useful in allowing the model to predict the conditional form of each word correctly, but in this case it is also incomplete as an analysis of Korean, since it treats the relation between *-myən* and *-#myən* as completely arbitrary. This misses the generalization that a unified analysis: the suffix is /#myən/, but the initial /#/ of the suffix is deleted after a stem-final vowel. In order to discover this, the model must be able to consider the possibility of adding *-#myən* after a vowel-final stem, even though it is never actually observed in this context. Albright and Hayes (2002) propose to accomplish this by letting the model “clone” mappings, so that  $\emptyset \rightarrow my\grave{a}n$  is tried in the contexts where  $\emptyset \rightarrow \#my\grave{a}n$  is known to apply, and vice versa. The resulting outputs are then checked to see whether they contain sequences that are known to be illegal in the language. For example, applying  $\emptyset \rightarrow \#my\grave{a}n$  after vowels yields incorrect predictions such as \*[ki#myən] and \*[ru#myən], while applying  $\emptyset \rightarrow my\grave{a}n$  after consonants yields incorrect forms like \*[əps'myən] and \*[cəlmmyən]. Comparison of the incorrect and correct forms leads the learner to consider the possibility of phonological rules of elision in suffixes ( $\# \rightarrow \emptyset$  / V+\_\_), or epenthesis in suffixes ( $\emptyset \rightarrow \#$  / CC+\_\_C). As it turns out, when the behavior of other affixes is considered, the elision rule receives broad support, while there are /CC+C/ contexts which are repaired by deletion rather than epenthesis. Finding support for the directionality of a phonological process often requires broad consideration of a wide range of sources of data, beyond the scope of what the model can determine in considering just a limited set of morphological relations. Therefore, as a simplification, in the simulations reported here we simply provide the model with a list of generally valid phonological mappings which can be used to explain the domain of morphological rules. In the present case, this means that the model is provided with an elision rule  $\# \rightarrow \emptyset$  / V+\_\_, which it may then use to generalize the mapping  $\emptyset \rightarrow \#my\grave{a}n$  to all contexts (including after vowels).

## 2.2. Unpredictable allomorphy

Although the procedure sketched above works well to learn the general distribution of the allomorphs *-myən* and *-#myən*, it is not possible to predict the distribution of other affixes perfectly in every single case on the basis of the *-ə/-a* form alone. One systematic source of ambiguity is elision of stem-final *ɨ*, which creates a neutralization between consonant-final and *ɨ*-final verbs ((10a) vs. (10b)). Another difference that is not evident from the A-form is whether a stem triggers aspiration of the following consonant or not ((11b) vs. (11a)). In addition, certain lexically restricted irregular patterns are neutralized in the *-ə/-a* form, but are distinct in other forms ((12)).

(10)	a.	/kip <sup>h</sup> /	kip <sup>h</sup> ə	~	kip <sup>h</sup> ɨmyən	~	kipt'a	‘deep’
	b.	/səkɨlp <sup>h</sup> ɨ/	səgɨlp <sup>h</sup> ə	~	səgɨlp <sup>h</sup> ɨmyən	~	səgɨlp <sup>h</sup> ɨda	‘sad’
(11)	a.	/sə/	sə	~	səmyən	~	səda	‘stand up’
	b.	/nəh/	nəə	~	nəɨmyən	~	nət <sup>h</sup> a	‘insert’
(12)	a.	/yəl/	yərə	~	yəlmyən	~	yəlda	‘open’
	b.	/sil/irreg	ʃirə	~	ʃirɨmyən	~	ʃitt'a	‘load’

In these cases, the general rules fail. For example, the mapping of *ə* → *#myən* coupled with the elision rule, *ɨ* → ∅ / V + \_\_, incorrectly predicts that the conditional of [nəə] ‘insert’ should be \*[nəmyən]. Similarly, the general rules incorrectly predicts that lateral-final verbs like (12a) should take [ɨmyən] in the conditional. For such cases, the mapping *ə* → *myən* is still needed as a minority pattern, existing alongside and competing with the more general (and more successful) *ə* → *#myən* rule. For irregular verbs like ‘load’, even more specific rules are needed

In order to assess the competition between different patterns, the model calculates the *accuracy* or *reliability* of each rule, defined as the ratio of forms for which the rule works divided by the number of forms where the rule could potentially apply. These reliability ratios are then adjusted downwards using lower confidence limit statistics, in order to capture the fact that rules based on just a few data points tend to inspire less confidence than rules based on many applicable forms (Mikheev 1997; for details see Albright and Hayes 2002). This allows the model to estimate a *confidence* value for each rule, which determines the probability with which the model will use the rule in deriving novel outputs.

The end result of learning in this system is a grammar of competing rules of varying degrees of generality, including very general rules (such as *ə* → *#myən* in any context) and very specific rules (such as *ə* → *myən* / *ɾ*\_\_, and rules for other) each associated with a confidence score. When the grammar is invoked to produce an inflected form, all applicable rules are tried, and for each change, the rule with the highest confidence is used. This results in a set of output candidates, each given a confidence score, as shown in (13) for the A-suffixed form [kara] ‘grind’. In many cases, the candidate output with the highest confidence also matches the form that is attested in the input data. In some cases, however (i.e., in the case of minority patterns) the grammar may prefer something other than the actual attested form. These cases are lexical exceptions, which must be listed and produced from memory, blocking the

grammatically preferred form. Such forms are open to innovative regularization, however, if blocking fails because the word is not known or is too low frequency to be retrieved reliably.

(13) Candidate declarative *-ta* forms for informal *-ə/-a* form [kara] ‘grind’

<i>-ə/a</i> form		Projected <i>-ta</i> form	Confidence
[kara]	→	√ [kalda]	0.589
		★ [kalt’a]	0.331
		★ [karada]	0.168
		★ [karida]	0.098
		★ [kalt <sup>h</sup> a]	0.065

### 2.3. Selecting a base form

The example in (13) shows that the grammars that the model learns are not fully deterministic. In any language that has exceptions due to irregularities and neutralization, it is inevitable that there will be a certain number of listed exceptions. Furthermore, in languages like Korean, this is true no matter which inflected form is chosen as the starting point for morphological mappings. For example, rules starting with an A-suffix like *-ə/-a* are bound to have difficulty predicting features like presence of stem-final *i* or aspiration of a suffix-initial obstruent, while rules starting with a C-initial suffix will have difficulty predicting the laryngeal quality of stem-final obstruents or the presence of clusters. A plausible goal of the learner is to minimize reliance on listing, not only in order to decrease the burden on memory, but also (and more importantly) to increase the chance of being correct when inflecting unknown words. By comparing grammars in various directions, it is possible to assess which mappings are on average more accurate or confident in producing the correct (attested) inflected forms. Specifically, we assume that for some small initial batch of data the learner attempts to learn grammars that use each form to project all remaining forms. For each mapping in each direction, the learner then calculates the confidence with which the resulting grammar produces the form that was attested in the training data. The *base* is the form that yields grammars which are able to reproduce the training data with highest possible confidence.

## 3. Testing the model on Korean verbal inflection

### 3.1. Training data

In order to test the model, we trained it on forms drawn from a database of 952 inflected predicates (verbs and adjective) compiled by the National Institute of the Korean Language<sup>4</sup> augmented with token frequency information from Sejong Corpus

(Kim and Kang 2000). The inflected forms were romanized using the Hcode 2.1 software package (Lee 1994). Predictable phonological processes such as cluster reduction and coda neutralizations, post-obstruent tensification, nasalization, lateralization, and aspiration by /h/ in clusters were then applied automatically by script,<sup>5</sup> yielding a database of inflected forms in broad phonetic transcription. The results were spot-checked by a native speaker (the second author) to ensure that neutralizing phonological processes had been applied consistently.

In selecting input data for the morphological learner, we focus on combinations of a verb or adjective stem plus the immediately following suffix.<sup>6</sup> In particular, we selected the set of affixes in (14), chosen from among the most frequent affixes (as determined by corpus counts based on written texts) to include a representative set of phonological shapes.

(14) Affixed forms fed to the model

- a. A-initial suffixes: -ə/-a, -ətə/-ato, -ətaka/ataka
- b. C-initial suffixes: -ta, -ko, -ke, -ci, -nin; -(sɪ)mnita
- c. ɪ-initial suffixes: -(ɪ)l, -(ɪ)n, -(ɪ)n, -(ɪ)myən

As described above, each affix is taken as the starting point for a grammar of rules to derive the remaining inflected forms. Since the neutralizations triggered by a particular affix are primarily a function of the initial segment of the affix, many of the affixes in (14) are equivalent from the point of view of informativeness. We therefore report here just the results for three representative affixes: informal -ə/-a (A-suffix), declarative -ta (C-initial suffix) and conditional -(ɪ)myən (ɪ-initial suffix).

### 3.2. Comparing severity of neutralizations

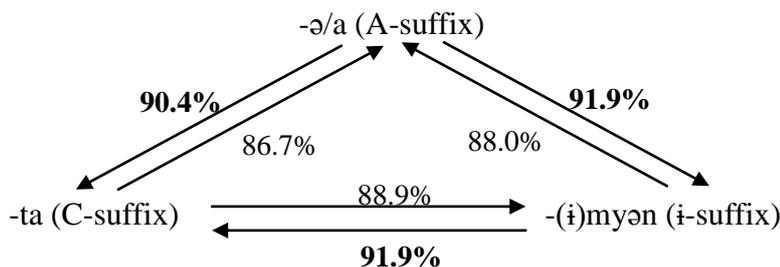
As Kang (2006) notes, all of the forms under consideration suffer from a certain degree of neutralization. The most widely-discussed neutralizations in Korean phonology are laryngeal and continuancy neutralizations among obstruents in coda position, which force all obstruents and obstruent clusters to reduce to a single unreleased stop before another obstruent. These processes are triggered by C-initial suffixes, and lead to a considerable number of neutralizations in forms like the declarative -ta form. In addition, consonant-initial suffixes mask several lexically irregular differences, including the difference between so-called *p*-irregular and regular /p/ verbs ((15a,c)), and the difference between *t*-irregular and regular /t/ verbs ((15d,h)). At the same time, A-suffixes such as -ə/-a also cause a number of neutralizations (see especially (15e-h, j-m)), as do /ɪ/-initial suffixes ((15f-m)). Thus, it is clear that all available forms suffer from numerous neutralizations.

(15)	a.	p	coba	~	copt'a	~	cobimyən	'narrow'
	b.	ps	əps'ə	~	əpt'a	~	əps'imyən	'lack'
	c.	p-irreg	towa	~	topt'a	~	toumyən	'help'
	d.	t	tada	~	ta(t)t'a	~	tadimyən	'close'
	e.	l	yərə	~	yəlda	~	yəlmyən	'open'
	f.	lh	ʃirə	~	ʃilt <sup>h</sup> a	~	ʃirimyən	'dislike'
	g.	li	t'ara	~	t'arida	~	t'arimyən	'follow'
	h.	t-irreg	ʃirə	~	ʃi(t)t'a	~	ʃirimyən	'load'
	i.	lə-irreg	irirə	~	irida	~	irimyən	'reach'
	j.	li-irreg	hillə	~	hirida	~	hirimyən	'flow'
	k.	n	ʃinə	~	ʃint'a	~	ʃinimyən	'put on'
	l.	nh-	mana	~	mant <sup>h</sup> a	~	manimyən	'many'
	m.	C	kip <sup>h</sup> ə	~	kipt'a	~	kip <sup>h</sup> imyən	'deep'
	n.	Ci	ap <sup>h</sup> ə	~	ap <sup>h</sup> ida	~	ap <sup>h</sup> imyən	'sick'
	o.	Cə, Cu	sə	~	səda	~	səmyən	'stop'
			p <sup>h</sup> ə	~	p <sup>h</sup> uda	~	p <sup>h</sup> umyən	'scoop'
	p.	V	kiə	~	kida	~	kimyən	'crawl'
	q.	h	c'iə	~	c'it <sup>h</sup> a	~	c'iimyən	'pound'
	r.	s-irreg	ciə	~	ci't'a	~	ciimyən	'compose'

For purposes of the present model, the question is how much ambiguity these neutralizations cause in practice, owing to the number of relevant words of different shapes. In order to test this, we ran the model on all pairwise mappings between the suffixes *-ə/-a*, *-ta* and *-(i)myən*, and used the resulting grammars to assess the accuracy of mappings in each direction. The first result is that in spite of the impressive degree of neutralization shown schematically in (15), it is possible to construct grammars that perform most morphological mappings very accurately in all directions. The most difficult (= least accurate) mapping is from the C-initial *-ta* form to the A-initial *-ə/-a* form, which can be predicted with only 86.7 accuracy. Most of the remaining mappings can be predicted with accuracy approaching or exceeding 90%, showing a high degree of “multiple predictability” between surface forms (Hayes 1999).

Turning to asymmetries between surface forms, we find that as one might expect, it is somewhat more accurate to project from a vowel-initial suffix (i or A) to a C-initial suffix than vice versa (lower left corner of (16)). Furthermore, in projecting C-initial forms, it is slightly more accurate to start with an i-initial suffix (91.9%) than with an A-suffix (90.4%). This difference is offset, however, by the fact that the A-form is significantly more predictive of the i-form than vice versa (91.9% vs. 88.0%). We conclude that on average, the A-initial suffix has greater accuracy in predicting the remaining forms (91.1%) than the i-initial form (90.0%) or the C-initial form (87.8%).

(16) Asymmetrical mappings among suffixed forms



The simulations described here are based on the entire available lexicon of 952 lexical items. It is plausible to think, however, that a learner would wish to establish the architecture of the grammar (which form is the base, which are derived) early in the acquisition process, before an entire lexicon of data is available. It is therefore interesting to note that the same asymmetry shown in (16) is seen to an even greater extent when the model is trained on smaller data sets consisting of just the most frequent verbs, which are presumably more representative of the learning data available to a typical child. The reason is that the irregularities that lead to ambiguity tend to affect a small number of the most frequent words, which are a larger proportion of the lexicon in a smaller training sets. It therefore appears that the advantage of the A-forms in predicting the remaining forms of the paradigm would be evident not only from the unrealistically large training set employed here, but also from smaller sets of data available to children learning Korean. This result corresponds well to the observation that A-forms are also the ones that typically act as the base of reanalysis in child errors and historical change.

### 3.3. Predictions for innovative phonological reanalysis

According to the single surface base hypothesis, the most informative form is selected as the base form in order to avoid ambiguities when producing inflected forms. We saw in the preceding section that the *-ə/-a* form is generally quite informative in predicting the remaining inflected forms. However, it is not perfect, yielding errors on approximately 8.8% of the forms tested. This naturally leads us to wonder whether cases in which the model is erroneous or uncertain correspond to cases where humans, too, produce innovative forms.

It turns out that many of the errors predicted by the model are also attested as innovations in acquisition and language change, as discussed by Kang (2006) in a sampling of the relevant literature.<sup>7</sup> One example of this is the distinction between /Cə/-, /Cu/-, and /Ci/-final stems (15m-o), all of which undergo elision before *-ə/-a*. For these, the model predicts reanalysis as /Ci/-final verbs: [sə] ~ [səda] ‘stop’ replaced by innovative \*[sida], and [p<sup>h</sup>ə] ~ [p<sup>h</sup>uda] ‘scoop’ replaced by \*[p<sup>h</sup>ida]. Such reanalyses are in fact attested.

Another example concerns the glide in forms like [k<sup>h</sup>jə] ‘crawl’, which in principle could correspond to either /k<sup>h</sup>i-ə/ or /k<sup>h</sup>jə-ə/. The attested/conservative *-ta* form of this verb is [k<sup>h</sup>jəda] (i.e., based on /k<sup>h</sup>jə/), but the model predicts the innovative form \*[k<sup>h</sup>ida], which is also attested as a human innovation. Finally, *-ə/-a* forms neutralize the distinction between stems that aspirate a following consonant and the model predicts that innovations should lack aspiration: [k<sup>h</sup>inə] ~ [k<sup>h</sup>int<sup>h</sup>a] ‘cut’ replaced by \*[k<sup>h</sup>inda], [irə] ~ [ilt<sup>h</sup>a] ‘lose’ replaced by \*[ilda], and so on. Such reanalyses are in fact marginally attested, particularly as child errors in American Korean (Choi 2003). However, as mentioned above, such changes are rarely seen elsewhere (Kang 2006, 194), while the more common change in such forms is in the other direction, i.e., to

extend the tense or aspirated allomorphs  $-t^{\prime}a$ ,  $-t^{\prime}a$ .<sup>8</sup> Further data is required on this point in order to determine whether the child errors in American Korean are representative of what any Korean learner would be tempted to do given reduced input data, or whether they are due to some additional difference in American Korean.

There is also ambiguity in the A-suffixed forms between /C/-final and eliding /CV/-final verbs. Among these, /C/-final verbs are more common in the lexicon, so the model predicts innovative reanalyses in the  $-ta$  form, particularly in replacing  $-C\grave{a}da$  with  $\star-Cta$ . Such reanalyses are attested, but to a limited extent: in particular, they affect /l/-final verbs ((15e)) such as [t'ara] ~ [t'arida] 'follow' ((15g)), replaced by innovative C-final  $\star[t'alda]$ . The model also predicts parallel changes for other /Ci/-final items, such as  $\star[kopt'a]$  instead of [kop<sup>h</sup>ida] 'hungry',  $\star[kipt'a]$  instead of [kip<sup>h</sup>ida] 'happy', and  $\star[camt'a]$  instead of [camgida] 'lock'. Interestingly, it appears that such changes are not attested after consonants other than the liquid.

There are several possible reasons why speakers may actually prefer to preserve /i/ between obstruents. First, it is possible that the /i/ is being employed to break up CC clusters. Usually, illegal /CC/ clusters are repaired by assimilation (normally, changing features of C<sub>1</sub>) in Korean. However, from the point of view of a learner, data concerning /CC/ clusters may be mixed, especially in verbal inflection, since the large number of /i/-initial suffixes give the appearance of epenthesis after /C/-final stems. This is mirrored by the fact that in loanword adaptation, epenthesis of [i] is actually the preferred repair for illegal /CC/ combinations—e.g., English *picnic* adapted as [p<sup>h</sup>ik<sup>h</sup>inik]. It is possible that the preference for preserving [i] in this context reflects a form of epenthesis, at least in child Korean. In this connection, it is relevant to note that children do epenthesize in contexts where adult Korean would have clusters, and that they do so less often in /IC/ clusters than in other /CC/ clusters (Lee and Im 2004). This difference may be due the fact that in their learning data, /l/-final stems pattern with vowel-final stems and take [i]-less form of some /i/-initial suffixes such as (i)myən, (i)lə etc. Alternatively, this asymmetry may be due to some articulatory difference, or perhaps it is an effort to avoid inserting vowels in contexts where they are relatively more perceptible (Fleischhacker 2001). Either way, the fact that our simulations assume perfect knowledge of cluster reduction may give it an unfair advantage in producing /CC/ reanalyses.

A second possible explanation of the discrepancy is that /i/ may be inserted specifically in order to maintain laryngeal properties of C<sub>1</sub>, by avoiding neutralization in pre-consonantal position. Consistent with this idea, Oh (2004) hypothesizes that the use of [i] is favored Output-Output faithfulness constraints which ban alternations in aspiration and tenseness. We might conjecture that [l] ~ [r] alternations are considered less serious than C ~ C<sup>h</sup> alternations (a difference that is also seen, to a limited extent, in loanword adaptation). Alternatively, it could be that preservation of the [i] is favored by Paradigm Contrast constraints (Kenstowicz and Sohn, to appear), since it helps to maintain lexical contrasts between verbs that end in lax, tense, and aspirated obstruents. Under this account, we might expect to find fewer /li/ ~ /l/ contrasts than other /Ci/ ~ /C/ contrasts in the lexicon, creating less pressure to maintain /i/ after /l/.

The third hypothesis is that this [i] insertion is indeed a reflection of the lexical pattern. As it turns out, in present day Korean a high proportion of /Ci/-final stems

actually involve laryngeally marked C's, making /Ci/ a very strong pattern when C is aspirated or tense. Although this trend is weak enough that the model did not pick up on and extend it, perhaps speakers notice it more reliably for some reason, and upon hearing [...C<sup>h</sup>ə] forms they infer /...C<sup>h</sup>i/. Unlike the previous two hypotheses, this account does not seek to explain why the existing lexicon has this pattern, but merely connects the current lexical statistics with the observed behavior of speakers. We currently have no basis for deciding among these competing hypotheses.

There is one final type of phonological error that the model predicts, but which is not reflected in human errors. As we saw above the model, like humans, occasionally reinterprets elided vowels as coming from a different source (★[p<sup>h</sup>ida] instead of [p<sup>h</sup>uda] ‘scoop’). In some cases, however, the result of elision is unambiguous due to vowel harmony of the suffix vowel (-a after [a], [o]). For instance, the form [p<sup>h</sup>a] ‘dig’ is unambiguously /p<sup>h</sup>a+ə/ with harmony of the suffix vowel, since underlying /p<sup>h</sup>i+ə/ would yield surface [p<sup>h</sup>ə] (no harmony). The model is extremely limited in its ability to encode vowel harmony, since it encodes rules that refer to the immediately adjacent phonological context and cannot encode long-distance conditioning environments. Therefore, it occasionally inflects forms like [p<sup>h</sup>a] as ★[p<sup>h</sup>ida], rather than as correct [p<sup>h</sup>ada]. It appears that speakers do not produce similar innovations. We anticipate that a better ability to encode and learn the relation between the stem vowel and the suffix vowel would eliminate such errors.

### 3.4. Predictions for innovative regularizations

The reanalysis based on A-suffix forms also lead to regularization of many irregular verbs. A good example can be found in p-irregular verbs such as [kiw-ə] ~ [kip-t’a] ‘sew’ ((15c) above), for the model predicts regularized C-initial forms, mirrored also in human innovations: ★[kiu-da]. Similarly, for verbs like [na:] ~ [nat’a] ‘get better’, which trigger tensification of a suffix obstruent, the model predicts reanalysis to the attested innovation ★[nat<sup>h</sup>a], or secondarily to [nada], which is also attested in American Korean (Choi 2003).

The model also predicts some changes to irregular verbs which imperfectly resemble attested innovations. For so-called t-irregular verbs ((15h) above) such as [murə] ~ [mu(t)t’a] ‘ask’, the model predicts reanalysis to a regular liquid-final verb: ★[mulda]. Such verbs are indeed partially rebuilt in their C-initial forms, but the innovative form typically preserves the tense stop in the suffix (★[mult’a]) rather than regularizing all the way to ★[mulda]. The innovative form ★[mult’a] innovation is particularly interesting because it creates a verb type that is not found in the pre-existing lexicon. One possibility is that retention of the tense [t’] reflects partial preservation of the older form [mu(t)t’a], perhaps through hypercorrection as suggested by Kang (2006). It is also worth noting, however, that tensification after sonorants is also seen quite regularly with nasal-final stems, where all verb stems cause a suffix-initial consonant to become either aspirated or tense (that is, no verbs like [an-a] ~ [an-da], only [an-t<sup>h</sup>a] ‘do not’ or [an-t’a] ‘hug’). Therefore, it seems possible that the tense stop in ★[mult’a] is part of a broader trend towards tense stops in post-sonorant position—reflecting either a

lexical trend that the model is not picking up on correctly, or motivated by a phonotactic constraint against sonorant+voiced stop sequences (Pater 1999, Hyman 2001).

Another example of a minor discrepancy concerns “lə-irregular” verbs like [irɪrə] ~ [irɪda] ‘reach for’ ((15i)). For these, the model predicts regularization to a liquid-final stem (★[irɪlda]), while human learners prefer to reanalyze them as regular li-final verbs (★[irɪrɪda]). In this case, the number of existing regular /li/ verbs is quite small, leading the model to prefer to treat ambiguous verbs as /l/-final. It is possible that human learners are motivated to retain the [ɪ] in order to avoid the [ld] sequence in hypothetical ★[irɪlda]. It may also be significant that the preferred pattern involves a perceptually minimal [ɪ] ~ □ alternation ([irɪr-ə] ~ [irɪrɪ-da]), rather than a [l] ~ [r] alternation ([irɪr-ə] ~ [irɪl-da]).

Another discrepancy between the attested innovation and the prediction of the model is found in li-irregular verbs. For example, the irregular verb [hɪllə] ~ [hɪrɪda] ‘flow’ show the extension of geminate [ll] from the A-suffix form throughout the paradigm: ★[hɪllɪda], ★[hɪllɪmyən]. As Jun (2007) points out, this innovation is particularly puzzling given the fact that the li-irregular verbs outnumber /li/-final verbs by 160 to 21, (according to Jun (2007) based on Kang and Kim (2004)), and by 49 to 1 in our learning data. One possibility is that the form ★[hɪllɪda] may be encouraged by a desire for elimination of irregular allomorphy or for non-alternating paradigms (Kim 1972, Huh 1985, Choi 1993, Park 2002, Oh 2006, Kenstowicz and Sohn in press, among others), which overrides the analogical pull to robust existing alternations. Another possibility, suggested by Jun (2007), is that the ★[hɪllɪda] is derived from [hɪllə] by a general mapping rule ə → da and the resulting illegal cluster [lld] is repaired by [ɪ] insertion (See section 3.3.).

#### 4. Base selection in the broader context of Korean inflection

The results of the preceding section support the idea that A-forms are, in fact, the most informative forms in predicting properties of other inflected forms. However, this result is based on a schematic comparison of just three affixes (-ə/-a, -ta, -(ɪ)myən), standing in for broader classes (A-suffixes, C-suffixes, i-suffixes). This is clearly an idealization, since in actuality, each class of affixes has many members, with its own segments and frequencies. The size and frequency of these classes is potentially an issue, since if some affix shapes are much more common and more widely used than others, the ubiquitous need to predict their form could make it preferable to choose a base form accordingly. To see how this could have an effect, consider the schematic example in (17), in which there is just a single A-suffix alongside three different C-suffixes. In this example (like in actual Korean), the -a suffix is better at predicting C-suffixes than vice versa. However, since the C-suffixes are perfectly mutually predictable, there is an overall advantage to selecting a C-suffix as base, since the larger number of C-forms makes them better on average.

(17) The role of affix class size, schematically

In/Out	-a	-ta	-ko	-ke	Average
-a	100%	<b>90%</b>	<b>90%</b>	<b>90%</b>	92.5%
-ta	<b>85%</b>	100%	100%	100%	<b>96.3%</b>
-ko	<b>85%</b>	100%	100%	100%	<b>96.3%</b>
-ke	<b>85%</b>	100%	100%	100%	<b>96.3%</b>

In fact, this situation is not unlike actual Korean. In (18) we provide frequency counts from the National Institute of the Korean Language<sup>9</sup>, showing that there are many frequent C-initial and i-initial suffixes. If comparisons are weighted to take into account the number of relevant inflected forms as well as their relative frequency, there is the danger that this could tip the balance (incorrectly) in favor of choosing a form other than an A-suffix as base.

(18) Inventory of most frequent verbal affixes

A-initial		C-initial		i-initial		Other	
ə/a	57894	ta	78116	(i)n	87410	(ni)nta	22141
əsə/asə	11613	nin	60551	(i)l	30545	(si)mnida	9524
ədə/adə	2142	ko	46689	(i)myən	9832	(n)inde	4118
ədaga/adaga	1898	ke	18406	(i)myənsə	4784		
		ci	12144	(i)m	4236		

Why does the large number of C-initial suffixes not influence base selection? One possibility is that learners abstract over broad classes of affixes, much as in the idealized simulation. That is, instead of seeking the most informative affix, perhaps learners seek the best affixal context, grouping sets of affixes that behave alike with respect to phonological and morphological context. We assume that ‘behaving alike’ involves a combination of taking the same stem allomorph in case of irregularity, and also inducing the same set of phonologically predictable alternations and neutralizations. If bases are selected in this more abstract fashion, then the learner may indeed conclude that A-suffixes are the most predictive, even though there happen to be many individual C-suffixes that are mutually predictable.

This idea of “affix grouping” has some intuitive appeal, but it also raises a mystery, since in other known cases the frequency of individual inflected forms does appear to matter.<sup>10</sup> We therefore consider a second possibility, which is that the corpus counts in (18) are simply not representative of spoken child-directed Korean. In fact, this seems quite likely, since the intimate or informal -ə/-a form is highly underrepresented in written texts, while the declarative -ta form is strongly overrepresented. Kim and Phillips (1998) show that in child-directed speech, informal -ə/-a is actually 6.6 times more frequent than declarative -ta.<sup>11</sup> We conclude that in colloquial speech (and especially in child-directed speech), -ə/-a forms are by far the most frequent. Therefore, it is not necessarily advantageous to select a C-initial form in order to be able to predict the large number of other C-initial forms correctly.

This conclusion now turns the question about the role of frequency on its head: could it be the case that the high frequency of -ə/-a alone that creates the observed asymmetry, and that there is no role for informativeness at all? We believe that this

conclusion is not warranted, for several reasons. First, it is important to bear in mind that although the *-ə/-a* form is very frequent, other, more neutralizing forms are also relatively frequent in spoken speech: *-ta* ‘declarative’, *-(nɨ)n* ‘progressive’, *-ko* ‘and’, and so on. It is not at all unlikely that a child might hear a particular verb for the first time used with one of these more neutralizing affixes. However, childrens’ own productions overwhelmingly (80%–100%) involve *-ə/-a* forms, especially in the earliest stages (Kim and Phillips 1998; Lee, Lee and Im 2003). Logically, this means that there should be words that have been heard only in the context of a C-initial suffix, for which the child wants to produce a *-ə/-a* form. This predicts the possibility of innovative reanalyses based on C-initial forms. However, as Kang (2006) shows, these tend not to occur. By imposing a paradigm structure in accordance with the single surface base restriction and by giving the model no means for ‘back-formation’ to infer unknown base forms, we correctly prevent the model from making such reanalyses.

A more subtle hypothesis is that frequency is not the sole explanation of the asymmetry in innovations, but that it is the reason why *-ə/-a* forms are selected as the base, without any need to compare the relative informativeness of different forms. This hypothesis is compatible with the Korean facts, if we take Kim and Phillips’ counts to be representative of the learning data. It also coincides with the more general observation that analogical change tends to favor more frequent base forms (Manczak 1958). This account is unlikely to be sufficient in the long run, however, since there are numerous other cases in which the direction of reanalysis is not predicted straightforwardly by frequency (Hock 1991; Albright 2002). Tellingly, both of the acquisition studies on child morphophonology cited above (Clahsen, Avelado, and Roca 2002; Clahsen, Prüfert, and Eisenbeiß 2002) involve errors based on less frequent forms, and innovations on more frequent 3SG forms. It appears that frequency alone is not sufficient, and that the relative informativeness of inflected forms is also a crucial factor in motivating the direction of reanalysis.

## 5. Conclusion

The model we have presented here attempts to explain a striking asymmetry in the reanalyses seen in Korean verbal inflection, both in child errors and in historical change. In particular, attested reanalyses are overwhelmingly based on ambiguities in A-forms, rather than in other affixal contexts (Kang 2006). This asymmetry is attributed to the structure of the morphological grammar that Korean speakers use to project inflected forms, which uses A-forms to project the remaining inflected forms. We hypothesize that this directionality is learned based on the fact that A-forms provide a better basis for predicting other forms than vice versa. Computational modeling confirms that this predictability relation is in fact true, making the analysis of Korean compatible with other cases investigated so far.

This study leaves a number of open questions. First, the role of frequency has been seen to cooperate with phonological predictiveness in guiding base selection, but the mechanism by which frequency is taken into account requires further clarification. One obstacle to investigating this issue is that the frequency counts of child-directed

spoken language available to us are at best rough estimates, and more comprehensive data is needed. Furthermore, we observed several cases in which the model predicted errors that are not mirrored by attested innovations. In some cases, these discrepancies may be explained by phonological considerations that are not incorporated into the model; others require further empirical investigation.

## Notes

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<sup>1</sup> As Cho (1999) documents, simplification of /IC/ clusters is not enforced categorically in inflected verbal forms.

<sup>2</sup> Such reanalyses are frequently seen in nouns: unaffixed [kap] ‘price’ corresponds to [kapsʰ-i] ~ \*[kab-i] ‘price-NOM’ (Kenstowicz 1996; Ko 2006).

<sup>3</sup> The Spanish and German examples cited above are a good example of this: highly frequent 3SG forms are reanalyzed on the basis of less frequent plural or non-third person forms; see Albright (2002) for additional examples.

<sup>4</sup> [www.korean.go.kr//08\\_new/include/Download.jsp?path=OpenPds&sub=1&idx=28](http://www.korean.go.kr//08_new/include/Download.jsp?path=OpenPds&sub=1&idx=28)

<sup>5</sup> An optional process of glide formation that may apply in some A-suffixed forms ([kiə] ~ [kjə:] ‘crawl’) was omitted. In actual learning data, the availability of such variants make for A-suffix forms likely make the A-suffix form less ambiguous and more informative than in the current simulation.

<sup>6</sup> That is, we abstract away from the fact that Korean verb forms may involve long sequences of suffixes, since the only thing that is relevant for determining stem allomorphy is the immediately following suffix, and the only thing that determines affix allomorphy is the immediately preceding context.

<sup>7</sup> Sources: The AKS (1990-1995), Bak (2004), H-W. Choi (2003, 2004), M.-O. Choi (1988, 1993), B.G. Kim (2003), H. Kim (2001, 2002), Park (2002, 2004), Um (1999), Yoo (2000).

<sup>8</sup> Jun (2007), in an acceptability judgement experiment, similarly finds that Korean speakers find the innovative tensification and aspiration to be quite acceptable (e.g. [i-ə] ~ \*[i-kʰo] (norm: [i-kʰo]) ‘to connect’, [sʰa-a] ~ \*[sʰa-kʰo] (norm: [sʰa-kʰo])). Interestingly, such innovation is found even for regular s-final verbs such innovation is unexpected based on an A-form based reanalysis.

<sup>9</sup> [www.korean.go.kr//08\\_new/include/Download.jsp?path=OpenPds&sub=1&idx=60](http://www.korean.go.kr//08_new/include/Download.jsp?path=OpenPds&sub=1&idx=60)

<sup>10</sup> For example, see Albright (2008) for discussion of how frequency influences the direction of leveling in Korean noun paradigms.

<sup>11</sup> Unfortunately, Kim and Phillips (1998) provide data only for mood markers, so it is not possible to determine the relative frequency of other common C-suffixes, or of other common A-suffixes such as the past tense marker *-as* ‘-as’.

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# La liaison en français

## Quelques conditionnements morphosyntaxiques et lexicaux

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### Abstract

French liaison is not to be considered as a unified phenomenon. We underline the interplay of three dynamics. The first is a phonological one aiming to drop final consonants. The second is morphological in nature as its main purpose is the preservation of number and person marks. The third one is orthographical. It promotes the visual form of written words. Contradiction between those three dynamics leads to state of equilibrium. Moreover, we assume that the notion of *liaison* does not apply to such environments as clitic pronouns, pseudo-lexemes put inside an idiom, determiners, or adjectives put in front of a noun, and conclude that the *categorical liaison* does not probably exist at all in French.

**Keywords:** liaison in French, phonological dynamic, morphological dynamic, orthographical dynamic, morpho-syntactic conditions, so-called categorical liaison.

## 1. La liaison en français

### 1.1. Approches et définitions

En règle générale, les mots français à consonne finale voient au cours du moyen-âge cette consonne progressivement cesser d'être prononcée, sauf parfois devant voyelle. C'est le cas de :

*chat, repas, bout, coup, beaucoup, roux*

Prononciation ancienne : ʃat, rəpas, but, kup, bokup, ru(k)s

Prononciation contemporaine : ʃa/, r(ə)pa/, bu/, ku/, boku/, ru/

Toutefois, quelques persistance régionale sont observées. Seguy 1950: 22 écrit ainsi, à propos du français tel qu'il est parlé à Toulouse, que « *dans le midi toutes les*

*lettres se prononcent* ». Il en veut pour preuve le fait que la consonne [k] des mots suivants se prononce encore à Toulouse au milieu du 20<sup>ème</sup> siècle en position finale :

*estomac, broc, escroc, joug, aspect, respect, marc, zinc*

Seguy 1950 parle à ce propos d'*hypercorrection* et l'explique par l'influence de l'usage graphique (l'orthographe) sur l'usage oral. Il est intéressant de relever, à propos de *zinc*, que l'usage « hypercorrect » a fini par triompher en français standard contemporain, où la consonne finale est dorénavant fixe.

Dans certains cas, plutôt que de chute (*amuïssement*) de la consonne finale, il vaut mieux parler de *vocalisation*. C'est ce qui passe, dans les exemples ci-dessus, pour *broc* et *escroc* qui, prononcés initialement [brɔk] et [eskɔk], sont aujourd'hui prononcés [bro] et [eskro].

La flexion du pluriel, consonantique, peut s'accompagner d'un phénomène de vocalisation. C'est ainsi qu'à propos des mots à finale consonantique en [l] au singulier, et vocalisée au pluriel, tels que :

*cheval/chevaux, travail/travaux, ciel/cieus*

*bal/baus, portail/portaus, col/cous, rossignol/rossignous, appel/appeaus*

*fol/fous, sol/sous, agnel/agneaus*

Léon Clédât 1917: 154 propose une approche, caractéristique de sa manière, marquée par un souci de l'usage et des fréquences. Il écrit :

*Les noms qui s'employaient souvent aux deux nombres ont conservé les deux formes ; [...] ceux qui s'employaient surtout ou exclusivement au singulier [...] ont maintenu la forme avec l non vocalisé; [...] ceux qui s'employaient surtout au pluriel [...] ont refait le singulier sur le pluriel.*<sup>1</sup>

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1 On pourrait s'étonner de la notion de *vocalisation* à propos du passage, par exemple, de *fol* à *fous*. Pourquoi ne pas dire : « amuïssement de la consonne [l] accompagné d'une variation de la voyelle qui la précède immédiatement (passage de [ɔ] à [u]) » ? Ce serait sans compter sans le fait que *fous* se prononçait [fous]. Il en va de même avec *agneaux* et *travaux*, qui se sont prononcés [aɲəus] et [travaus]. Le souvenir des diphtongues [ɔu], [au] etc. s'est conservé dans l'orthographe.

Considérons à présent la phénoménologie de la *liaison*. Il s'agit également d'un phénomène d'*amuïssement* ou de *vocalisation* d'une consonne finale lorsqu' elle est suivie par une autre consonne. Dans le cas considéré, la consonne constitue le phonème initial du mot suivant. Clédat 1917: 163 écrit encore :

*La liaison des mots entre eux avait pour effet, au moyen-âge, d'amiïir ou de vocaliser la consonne finale, qui se maintenait naturellement devant voyelle comme à la pause. Elle a pour effet aujourd'hui de maintenir devant voyelle la consonne finale lorsqu'elle est tombée partout ailleurs, et c'est ce que nous nommons proprement une "liaison".*

Quelques phénomènes de *vocalisation* de la consonne finale se maintenant « *naturellement devant voyelle comme à la pause* » (pour reprendre les mots de Clédat) se sont conservés en français contemporain. Ainsi :

*Un bel enfant* la consonne finale de l'adjectif est conservée devant la voyelle du nom suivant

*Un beau château* la consonne finale [l] est vocalisée devant la consonne initiale [ʃ] du mot suivant<sup>2</sup>.

Considérons enfin un exemple d'*amuïssement* de la consonne finale se maintenant devant voyelle :

ze boku travaje (*J'ai beaucoup travaillé*)

ze bokupapri (*J'ai beaucoup appris*)

Nous faisons donc nôtre la définition synthétique de Clédat 1917, selon qui la *liaison* est un phénomène de « non-amuïssement » de la consonne finale d'un mot devant la voyelle initiale du mot suivant.

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2 En réalité, l'évolution comporte trois étapes, la dernière étant une « dé-diphtongation » de [beo]. On a donc : [bel] → [beo] → [bo] (prononciation contemporaine). En adoptant un traitement strictement phonologique, nous nous écartons donc ici d'un traitement par supplétion morpholexicale, tel celui de Bonami, Boyé & Tseng 2005.

## 1.2. Cinq questions concernant la liaison

a) Certains mots ne permettent jamais la chute de leur consonne finale :

*but, troc, sac, trac, net, brut, sec, avec* (en français moderne standard)

Il ne s'ensuit pas qu'ils se lient devant voyelle ou qu'ils resyllabent avec la voyelle suivante : *sak-o-rãʒ* vs \**sa-ko-rãʒ* (*sac/orange*). De plus, certaines consonnes ne sont jamais liantes :

Les seules consonnes passibles de lier sont : *s, z, x, t, d, n, r, p, g*. Pour *p* et *g* la liaison est limitée aux mots *trop, beaucoup* et *long* (Grammont 1933: 42).

b) Certains mots ayant perdu la consonne finale, encore présente dans le paradigme, ne se lient jamais devant voyelle : *drap, galop, coup*. Clédat 1917 favorise à nouveau ici une explication fréquentielle : « L'emploi très fréquent d'un mot à la pause est aussi de nature à protéger la consonne finale (*brut, but, sec, las*) ».

c) Une liaison normalement autorisée peut être impossible dans certains environnements :

*J'ai travaillé beaucoup à Paris* : ʒe travaje boku/ a pari (\* ʒe **tr**avaje bokupa pari),

*Vous allez au zoo* (! vuzalezozo)

*Cela il l'a beaucoup été* (! s(ə)laillabokupete)

d) Une liaison autorisée peut n'être que facultative dans un contexte donné :

*J'ai beaucoup appris* : ʒe bokup **ap**ri ; ʒe boku/ **ap**ri

e) Dans certaines suites, la liaison semble présenter présente un caractère d'obligation :

*deux amis* (dø**z** ami) *très ému* (trɛ**z** emy)

\* dø/ ami

\* trɛ/emy

Les consonnes finales graphiques du français se laissent classer en 4 catégories :

- les consonnes finales qui ont définitivement chuté et qui, bien que présentes dans le paradigme, ne font jamais surface et ne lient donc pas

- les consonnes finales qui ne sont pas tombées et qui ne se lient jamais devant voyelle
- les consonnes finales qui peuvent se lier devant voyelle
- les consonnes finales qui doivent se lier devant voyelle

On ne s'intéressera ici qu'aux problèmes c), d) et e), et plus particulièrement au problème e).

### 1.3. Les effets de la liaison sur la syllabation

Soit l'expression *deux aimables enfants*. Les deux liaisons, obligatoires, sont signalées par des soulignements. Marquons la syllabation en scandant l'expression comme si elle faisait partie d'un vers classique. Cela donne *dø-ze-ma-blə-zã-fã* et non \**døz-e-ma-bləz-ã-fã*.

De la même façon, l'expression *on a le temps* est syllabée *õ-na-l(ə)-tã* et non *õn-a-l(ə)-tã*. En somme, la liaison fait fi de la séparation entre les mots. C'est ce qu'écrit Delattre 1951 :

*Le français enchaîne les mots, quitte à perdre de vue leurs limites. D'où l'impression unie, liée, que donne la chaîne parlée. Les syllabes ne cherchent aucunement à éviter de chevaucher les mots (...). La consonne d'enchaînement peut être une consonne qui se prononcerait de toute façon dans le mot isolé : petite amie ('enchaînement' proprement dit) ou une consonne qui serait muette dans le mot isolé: petit ami ('liaison'). Dans les deux cas, on s'efforcera d'ouvrir la dernière syllabe du premier mot comme si c'était la syllabe intérieure d'un mot: pe-ti-tesse, et de faire succéder les syllabes d'une manière aussi coulante, unie, liée, que si c'étaient les syllabes successives d'un mot.*

Cette tendance à la *syllabation ouverte est typique du français*. La diachronie de nombreuses langues romanes montre un mouvement constant et radical vers cette syllabation ouverte. La chute des consonnes finales n'en est que la conséquence (cf. Martinet 1955). Le sandhi externe qui caractérise la liaison enchaînée et resyllabée constitue la marque de cette dynamique profonde.

On sait que la fréquence de la liaison dépend pour partie du niveau stylistique

(Grammont 1933, Delattre 1955, 1966, Encrevé 1988). La conversation ordinaire est pauvre en liaison, la conversation soignée un peu plus riche. Quant à la parole publique (conférence, discours, théâtre etc.), elle présente une fréquence importante avec des phénomènes typiques tels que le non enchaînement (Encrevé 1988, Laks 2007). De façon générale, comme l'a montré Encrevé, la liaison se présente comme un processus sociolinguistique inversé dont la fréquence est liée au niveau d'hétérosurveillance sociale qui s'exerce sur le locuteur.

## **2. Les limites d'une conception strictement phonologique la liaison en français**

Dans la longue histoire des traitements de la liaison, qui commence dès l'institution du français au 16<sup>ème</sup> siècle (Palsgrave 1530), les descriptions phénoménologiques abondent, de même que les cacologies (Thurot 1881-1883). Au 19<sup>ème</sup> siècle et dans la première moitié du 20<sup>ème</sup> encore, l'analyse phonologique du phénomène est adossée à un corpus descriptif précis et détaillé. La liaison y apparaît comme un phénomène complexe, profondément hétérogène et variable, conditionné par des facteurs très divers relevant de niveaux linguistiques différents (phonétique et euphonie, rythmique et accent, fréquence lexicale et niveau stylistique, type de construction syntaxique, force du lien syntactico-sémantique, sémantique et pragmatique du composé). En proposant un traitement formel de niveau strictement phonologique, en considérant la liaison comme un phénomène stable et univoque et en restreignant les données considérées aux descriptions normatives de Fouché 1959, la phonologie générative introduit une rupture formelle, conceptuelle et empirique dans cette histoire.

### *2.1. La liaison en phonologie générative*

Première application de la phonologie générative au français et parmi les toutes premières mises en œuvre du système de SPE (Chomsky & Halle 1968), Schane 1967, 1968 définit la liaison comme un phénomène dont l'analyse serait strictement circonscriptible au niveau phonologique. Postulant au niveau lexical une représentation abstraite qui contient toujours la Consonne Liée (CL), il reprend sans le dire le concept de consonne latente (Damourette et Pichon) et suppose qu'elle est toujours réalisée dans un contexte d'initiale à Voyelle. La liaison est alors un **processus** par lequel la CL se trouve être prononcée, parce qu'elle ne chute pas, et ne pas chuter

parce que l'initiale Voyelle la protège de la chute. Cette conception, qui fait fi de toute la complexité phénoménologique décrite, met en œuvre un formalisme strictement phonologique. Sous une forme ou une autre, ce formalisme qui a perduré pendant vingt ans se lit comme une tautologie. En effet, quelles que soient les adaptations à des cadres théoriques génératifs et post-génératifs différents depuis la proposition initiale de Schane le traitement présuppose une Consonne Liée lexicalement présente qui se prononce devant initiale vocalique et qui chute partout ailleurs. Sous les diverses sophistications formelles, on ne retrouve rien d'autre que la définition normative et pédagogique des manuels « La liaison consiste à prononcer une consonne finale de mot, muette partout ailleurs, lorsque le mot suivant commence par une voyelle ». Ce type de stipulation repose sur une hypothèse lexicale elle-même circulaire (i.e. c'est la présence éventuelle d'une CL à l'oral qui fait postuler une CL) et n'atteint pas à l'adéquation descriptive et explicative requise. Reprenant cette approche, les traitements formels par représentation sous-jacente de CL et processus de chute, ou de non liage syllabique, doivent eux aussi être considérés comme de pures stipulations qui n'expliquent rien.

## 2.2. *En réaction contre Shane*

A l'opposé de cette conception, Morin & Kaye 1982 réintroduisaient en phonologie du français la très riche analyse descriptive des conditionnements morphologiques, syntaxiques et même sémantiques du sandhi et en proposaient une analyse qui cadrerait mal avec la vitrification empirique promue par la phonologie et la syntaxe génératives standards sous couvert d'algorithmique abstraite (Laks 2005). La question reste en effet celle des contraintes qui expliquent et motivent la non réalisation de la liaison dans des contextes où elle est phonologiquement possible, ce qui représente la très grande majorité des cas. Ceci constitue le problème de la liaison du point de vue épistémologique et phénoménologique. Dans des contextes phonologiques identiques (C-V), la liaison présente une tripartition : liaisons obligatoires, variables et impossibles. C'est cette tripartition qui doit être d'abord décrite et si possible motivée, à défaut d'être totalement explicitée.

Sensibles à cette problématique classique, au sein même de la grammaire générative, un certain nombre de travaux plus détaillés sur la liaison (Milner 1967, Selkirk, 1972, 1981, 1984) ont tenté de préciser les contraintes syntaxiques qui conditionnent la liaison en opérationnalisant notamment la force du lien syntaxique évalué en nombre de frontières majeures entre les mots. Ces analyses, fondées sur le

réajustement des limites de mots pour les rendre poreuses et accessibles à la liaison, ou étanches et bloquantes, n'ont donné que très peu de résultats, car ils partageaient une conception aprioriste et rigide de la morphologie (mots et limites) et de la syntaxe (catégories et rection) débouchant sur une conception *ad hoc* de la notion de cohésion ou de force du lien. Dans des analyses présentées ailleurs et reprises ici, nous défendons *a contrario* qu'il faut partir des phénoménologies de l'oral en français, car ce sont elles qui attestent de la cohésion ou la force du lien. Sont prononcés comme un groupe unique les éléments qui sont en relation forte. On en déduira alors une syntaxe et une morphologie adéquates, nécessairement plastiques, variables, hétérogènes et déformables.

### 2.3. *La leçon des analyses anciennes*

Les positions classiques, antérieures à Schane, avaient parfaitement saisi ce point. Grammont 1914, 1933, Fouché 1959, Martinon 1913 et Clédat 1917 tâchent d'expliquer non la prononciation d'une consonne, muette partout ailleurs que devant mot à initiale Voyelle, ce qui est trivial, mais les contraintes, conditions et motivations de la liaison ou de son absence. **Les notions de cohésion syntaxique, sémantique, voire pragmatique y jouent un rôle central.**

## 3. Deux approches explicatives du phénomène de liaison en français

### 3.1. *La spécificité de la prosodie du français et son corrélat, à savoir le caractère flou des limites de mot en français*

Comme on le sait, le français, ne connaît à l'oral que des groupes intonatifs, groupes accentuels, groupes de souffle (selon les auteurs) : toutes entités qui correspondent à une longue suite de morphèmes sans césure interne d'aucune sorte, suite que l'on a coutume de désigner sous le nom de *mot phonologique*.

On aura garde de confondre la notion de mot phonologique avec celle de mot grammatical ou lexical : c'en est la négation même. Dire que le français ne connaît à l'oral que des mots phonologiques, c'est précisément dire que la notion banale de mot n'y a aucun statut et que les tronçons auxquels nous sommes accoutumés l'écriture n'y apparaissent pas. Contrairement en effet aux langues dites *nexus* qui conservent une

identité phonétique aux éléments qu'elles agrègent à une unité principale, le français est une langue cursus qui fond les éléments composés en une unité unique indifférenciée (Pulgram 1970). Il s'ensuit des homophonies souvent relevées : *les petits pois sont verts/ les petits poissons verts, un port très joliment peint/ un portrait joliment peint, un nain valide/ un invalide* etc.

Martinet 1965 rend compte de façon définitive du phénomène : « Il y a longtemps qu'on a fait remarquer que, si le français n'avait pas de graphie traditionnelle, il y a beaucoup de chances pour que quelque explorateur linguiste venu d'un autre continent soit tenté d'écrire en un seul mot, *jlaluidonne*, ce qu'on orthographie en fait en quatre mots ».

Il existe en linguistique française un très riche corpus de travaux qui reprennent et analysent l'idée fondamentale selon laquelle, en français, le mot ne constitue pas une unité phonologique et ne possède aucun statut théorique ou formel défini (Blanche-Benveniste & Chervel 1969: 211, Damourette & Pichon 1911-1927: 182, Troubetzkoy 1939: 296, 313, Pulgram 1970, Bybee 2001: 30, Morin & Kaye 1982: 291 et sv, Selkirk 1972). Ce n'est que dans la forme graphique, la tradition orthographique et la norme académique qu'il reçoit une délimitation précise car, comme le rappelle Catach 1968, « l'orthographe commence avec la séparation des mots ».

### 3.2. *Le rôle de la graphie dans la conservation des consonnes*

La graphie a joué depuis le 13<sup>ème</sup> siècle un rôle de conservatoire de ces consonnes qui avaient chuté et ne transparaisaient plus éventuellement que dans le paradigme. Tout le travail dérivationnel de la langue s'est normativement appuyé sur ces consonnes graphiques (*long/longuement* etc.), renforçant leur statut de *consonnes latentes* selon la définition qu'en a donné Pichon 1938. On ne peut donc traiter cognitivement la liaison en faisant abstraction de la forme graphique qui constitue le réservoir interne (cognitif) et externe (dictionnaires orthographiques) des consonnes liées. Ainsi pour tout français, bien qu'il ne l'ait jamais prononcé en dehors de l'hymne national, *sang-impur* est une liaison possible (du moins non interdite ou impossible). Il en est de même de *salut-à-vous braves soldats du 17<sup>ème</sup>*, un *long-été* (mais *de long/ en large*), *pot-à-lait* (mais *pot/ à tabac*). *A contrario*, comme le souligne Martinon 1913, *pas-t-à moi* est une faute d'orthographe orale, un *pataquès* (c'est l'origine du mot d'ailleurs) !

C'est pourquoi, comme nous l'avons défendu ailleurs dans Laks 2005, « nous proposons d'inscrire *l'identité visuelle du mot* dans la représentation cognitive en posant comme entrées lexicales des constructions auto-segmentalisées comprenant, outre des lignes phonologiques, sémantiques et syntaxiques, *une ligne auto-segmentale de représentation graphique* comprenant au moins la consonne finale et la limite de mot graphique, car, pour maîtriser les liaisons, spécialement celles postposées à une catégorie principale qui sont facultatives et peu fréquentes, « il faut se représenter mentalement le mot écrit ».

Ceci permet de rendre compte notamment du marquage possible des liaisons optionnelles dans des registres de langue très formels : *les gens habitués à faire cela*, *un événement imprévu*, *le temps aux plus belles choses se plaît à faire un affront*.

#### 4. Trois types de pseudo-liaison obligatoire

Par définition, la liaison est un phénomène qui met en jeu la consonne finale d'un lexème et la voyelle initiale du lexème suivant. Il suit qu'on ne saurait parler de liaison quand des unités autres que les lexèmes, notamment des affixes ou des pseudo-morphèmes faisant partie d'une locution, perdent leur consonne finale devant voyelle. Comme nous le verrons, les unités concernées sont extrêmement nombreuses, et exhibent toutes la liaison prétendument obligatoire. Leur exclusion de la problématique de la liaison variable renforce ainsi la thèse selon laquelle les liaisons obligatoires *per se* sont rares, pour ne pas dire inexistantes.

##### 4.1 Premier type de pseudo-liaison : l'allomorphie de certains préfixes

Soient par exemple les deux variantes *bi-* et *bis-* du préfixe signifiant à peu près « deux » ou « deux fois ». La forme longue [biz] figure devant voyelle ; la forme brève [bi] figure devant consonne : *bisaïeul* vs *biréacteur*. Il s'agit incontestablement d'un phénomène de sandhi externe, mais comme il ne met pas en cause un couple de lexèmes, on parle à son propos non de *liaison*, mais d'*allomorphie* (s'il fallait parler de liaison dans un cas de ce genre, il faudrait alors aussi parler de liaison en cas d'allomorphie d'un radical devant un suffixe à initiale vocalique : *petit* /*petit-esse*). Citons quelques autres préfixes de ce type : *tri-/tris-*, *dé-/dés-*, *mé-/més-*. Un cas proche concerne un phénomène de dénasalisation de la voyelle finale devant la voyelle initiale du radical :

*non-* [nɔ̃] / *non-* [nɔn] (*non-actif, non-aligné, non-engagé*), *pan-* [pã] / *pan* [pan] (*panthéiste, panaméricain*). On peut encore citer les préfixes *sans-* et *sous-*. Dans leur cas, leur caractère de préfixe est indiscutable, du fait de la présence du trait d'union : *sans-abri, sans-emploi ; sous-alimenté, sous-homme, sous-officier*.

Quand le trait d'union est absent, l'appartenance à la catégorie des préfixes peut être mis en doute. Cependant, comme le montre Mathieu-Colas 1993, l'alternative *trait d'union/absence de trait d'union* est extrêmement fréquente. Il n'est que de prendre deux des exemples ci-dessus. Les mots *sans-abri, sans-emploi* ont un trait d'union quand ils sont employés comme noms et ils le perdent, sans raison, dans leur emploi adjectival :

*un travailleur sans emploi ; une famille sans abri*

Ces exemples illustrent deux cas de *pseudo-liaison obligatoire* : le segment *sans* n'y est pas une préposition mais un préfixe. Voici d'autres exemples d'expressions à préfixe *sans-* et *sous-*, qui exhibent le même comportement :

*sans apprêt, sans effort, sans égal, sans exception, sans excès, sans objet*  
*sous abri, sous aucun prétexte, sous anesthésie, sous influence, sous un faux nom*

#### 4.2. Deuxième type de pseudo-liaison : l'allomorphie de certains pronoms clitiques

Considérons les clitiques ayant une forme longue et une forme courte, tels les pronoms personnels : *nous* [nu/nuz], *vous* [vu/vuz], *ils* [il/ilz], *elles* [ɛl/ɛlz], *on* [ɔ̃/ɔ̃n], *en* [ã/ãn].

Si on suit l'analyse de Miller 1991, les pronoms clitiques sont assimilables à des affixes, et ce cas ne serait, du coup, pas distinct du précédent. Ce phénomène est bien extérieur à la problématique de la liaison en français. Les pronoms personnels clitiques s'unissent prosodiquement (et graphiquement, dans certaines langues, et même en français, pour *quelques-uns*) à un verbe, soit à gauche, soit à droite :

***Tu*** viendras (pronom *proclitique*)

Viendras-***tu*** ? (pronom *enclitique*)

Dans le deuxième exemple, le clitique porte un accent tonique évidemment non

intrinsèque : c'est l'accent de groupe. On en déduit que les pronoms *moi, toi, lui, nous, vous, leur* quand ils sont au cas datif immédiatement à droite d'un verbe sont des pronoms *enclitiques accentogènes*, dans les termes de Garde 1968 :

*Dis-moi la vérité ! Prête-nous 10 € !*

De plus, ces clitiques peuvent s'enchaîner les uns aux autres :

*Pierre a oublié son parapluie. Je le lui dirai* (chaîne de proclitiques)

*Ce livre m'intéresse. Prête-le moi* (chaîne d'enclitiques)

De façon obligatoire, dans les chaînes de proclitiques, les pronoms personnels à consonne finale (*on, nous, vous, ils*) réalisent cette consonne devant les clitiques à voyelle initiale (*en, y*) ainsi que devant un verbe à voyelle initiale : *Je vous en ai parlé.*

Au cas des pronoms personnels proclitiques à consonne finale, il faut associer celui du pronom relatif proclitique *dont* : *les gens dont on parle.*

De façon obligatoire également, dans une chaîne d'enclitiques, l'éventuelle consonne finale du verbe qui la précède est réalisée devant un enclitique à initiale Voyelle, et l'éventuelle consonne finale d'un clitique se réalise si le clitique suivant est à initiale vocalique : *Fais-y attention ; donne-nous en.*

Quand le verbe se termine par une voyelle, il se produit une sorte de pataquès grammatical obligatoire entériné par l'orthographe :

*Vas-y*

*Chante-t-il ? Viendra-t-il ?*

Parce que tous ces pronoms clitiques sont pour nous des flexions (à la fois personnelles et casuelles) et non des mots, nous les excluons théoriquement de la phénoménologie de la *liaison en français*. Cela réduit d'autant la part des liaisons dites obligatoires, comme nous l'avons déjà signalé.

La question peut être légitimement posée de savoir si les adverbes d'intensité ou

de degré *fort, très, bien, trop, tout, plus* et *moins* ne sont des proclitiques des adjectifs :

*C'est bien agréable*

En français classique, le trait d'union est usuel entre *très* et l'adjectif : *je suis votre très-obéissant serviteur*. Le caractère obligatoire de la liaison semble toutefois dans le cas des autres adverbes ne pas avoir un caractère absolu.

#### 4.3. Troisième type de pseudo-liaison : à l'intérieur des expressions locutionnelles

Parmi les expressions adverbiales locutionnelles colligées par Gross 1986, on en relève environ 60 qui comportent un phénomène de sandhi externe obligatoire, telles :

*de fond en comble, au pis aller, comme tout un chacun, à bras ouverts, du tout au tout, au cas où, en temps utile, avis aux amateurs, en tout et pour tout, bout à bout, c'est-à-dire, le cas échéant, comme par un fait exprès, mais enfin !, contre vents et marées, mieux encore, corps et âme, mot à mot, corps et biens, d'ores et déjà, petit à petit, d'un bout à l'autre, pour rien au monde, d'un instant à l'autre, de bout en bout, qui pis est, qui plus est, tant et plus ...*

Pour soutenir l'idée qu'il y a des liaisons au sein des locutions, il faudrait apporter la preuve que leurs composants, séparés par des espaces typographiques, sont des mots. Mais ce ne semble pas être le cas. Une expression comme le mot *pomme de terre* pourrait aussi bien s'écrire *pommedeterre* ; une évolution de la convention orthographique est encore possible, comme ç'a été le cas pour *lorsque* (< *lors que*), *quelquefois* (< *quelque fois*) et *puisque* (< *puis que*). Dans *pomme de terre*, les éléments *pomme* et *terre* ne contribuent pas au sens global du mot. Ce sont des signifiants qui ont été dépossédés de leur signifié. Ayant été déchus de leur signifié, ils ne sont plus des signifiants : ni lexèmes, ni morphèmes. Dans *lorsque* et *puisque*, ou encore dans *lierre, nombril, aujourd'hui, dinde, belle lurette, en nage*, les éléments constitutifs étymologiques ne sont pas reconnus par les locuteurs comme étant des morphèmes. Dans d'autres expressions, telles *de fond en comble, comme tout un chacun, d'ores et déjà*, certains éléments peuvent être reconnus isolément, mais on ne parvient pas à calculer le sens de l'ensemble à partir d'eux. Ce sont tout compte fait des suites de phonèmes, autrement dit des *mots simples*. On ne saurait donc y trouver des liaisons.

Voilà pourquoi il faut, si on se place du point de vue synchronique, éliminer de la problématique de la *liaison* les phénomènes de sandhi (interne) observables au sein des locutions. Nous les appelons *phénomènes de soudage*.

#### 4.4. Première conclusion

Dans la littérature sur la liaison, beaucoup d'exemples sont hors de propos, qui concernent des préfixes, des clitiques et des composants non significatifs à l'intérieur de locutions. Tous ces cas, qui mettent en cause des expressions extrêmement fréquentes, sont réputés à tort concerner le phénomène de la liaison obligatoire. Celui-ci se révèle donc être moins fréquent qu'on le croit. D'autres phénomènes particuliers, qui font l'objet de la partie suivante de cet article, vont nous conduire à remettre en question la notion même de *liaison obligatoire*.

### 5. Le soudage au sein du *bloc déterminant* du Syntagme Nominal doit être distingué de la liaison

Appelons *bloc déterminant dans le SN* l'ensemble formé par le ou les déterminants au sens strict du terme, suivi(s) d'un éventuel adjectif antéposé :

*quelques amis*

*plusieurs autres amis*

*les autres anciens amis*

#### 5.1. Le soudage de l'adjectif antéposé et du nom qu'il détermine

L'essentiel sur la composition soudée de l'adjectif antéposé et du nom qu'il détermine a été dit par Grammont 1933, mais dans des termes assez généraux :

*Il est de règle en français, d'une manière générale, que les liaisons consonantiques se font toujours dans l'intérieur d'un groupe rythmique et ne se font jamais d'un groupe rythmique au suivant (...). Ainsi l'adjectif qui précède le nom fait partie du même groupe rythmique que le substantif qu'il qualifie et sa consonne finale se lie; mais quand l'adjectif est placé après le nom dont il est attribut, il appartient à un autre groupe rythmique et la consonne finale du nom*

*ne se lie pas sur lui.*

Il est de fait frappant de constater que l'adjectif antéposé se lie, en général de façon obligatoire, avec le nom qu'il détermine, alors que l'adjectif postposé ne se lie pas au nom qu'il détermine :

*grand ami, sérieux échec* [grãtami], [serjøzeʃɛk] vs \*[grãami], ?[serjøʃɛk]  
*mort affreuse, maison agréable* \*[mɔʁtafrøz], \*[mezɔ̃nagreabl]

Le même phénomène s'observe quand c'est la flexion vocalique du pluriel de l'adjectif qui se lie au nom qu'il détermine :

*de beaux enfants* [dəbozãfã] vs \*[dəboãfã]  
*d'agréables amitiés* [dagreabləzamtje] vs \*[dagreablamtje]

Tous les adjectifs antéposables ont-ils cette propriété ? Une étude au cas par cas de cette catégorie devrait apporter une réponse. Les adjectifs antéposés les plus fréquents qui peuvent se lier le font obligatoirement (cf. Wilmet 2003: 239 et sqq.). Voici ceux qui s'antéposent à 96,72 % selon Wilmet : *grand, petit, bon, jeune, beau, vieux*. Par exemple, s'antéposent et se lient :

- les « caractérisants non stricts, numéraux et personnels » (Wilmet) : numéraux ordinaux, l'adjectif *propre* (*mes propres opinions*), les adjectifs préfixés en *in-* (*d'inutiles efforts*)
- les adjectifs à sens relatif (*de petits éléphants ; de gigantesques abeilles*)
- les couples d'adjectifs contradictoires qui « installent le nom au centre d'une filière » (Wilmet) : *nouveaux amis/anciens amis*
- les adjectifs à redondance ou affinité sémique (*regrettables agissements, rudes épreuves, chers amis*).

## 5.2. Le soudage du déterminant avec le nom qu'il détermine

Les déterminants monosyllabiques, quand ils précèdent immédiatement le nom qu'ils déterminent, se lient obligatoirement quand ils ont une finale consonantique. Sont concernés, entre autres :

- les articles : *les, des, un*
- les possessifs et apparentés : *mes, nos, mon, les propres N*
- les démonstratifs : *cet, ces*
- des quantifieurs de divers types : *aucun, plusieurs, quelques, tout ; deux, trois, cent ; différents, divers, certains ; les mêmes, les autres ; le premier, le second ; le dernier ; le prochain ; de fréquents, d'innombrables, de nombreux*

Le sandhi interne est de mise. Il existe toutefois des exceptions ponctuelles. S'agissant par exemple des déterminants numéraux cardinaux, on rencontre certes par exemple *deux euros* [døzøro] ou [døøro]. Il n'en reste pas moins que la liaison des numéraux cardinaux est en règle générale obligatoire :

*deux ans, deux enfants, trois amis, dix ans, cent ans ...*

Dans la logique morphosyntaxique que nous adoptons, ces cas ne correspondent donc pas à des liaisons, mais de composition soudée, ou partiellement soudée. Le(s) déterminant(s) se soude(nt) au nom qu'il(s) détermine(nt). On a vu précédemment que les adjectifs antéposés se soudent au nom qu'ils déterminent. Les différents éléments du bloc déterminant se soudent au nom qu'ils déterminent. « Soudure » signifie que :

- ils forment un bloc prosodique tel que c'est la dernière syllabe (ou l'éventuelle unique syllabe) du nom tête qui porte l'accent du SN tout entier
- aucune insertion n'est possible entre les éléments du groupe, mises à part certaines incisives.

Les éléments du bloc déterminant ont donc deux des trois principales propriétés reconnues aux clitiques. Il leur manque celle d'être des monosyllabes. Si les éléments du bloc pouvaient être assimilés à des clitiques, on pourrait alors faire la généralisation suivante :

*La liaison obligatoire n'existe pas. Elle ne correspond pas à un phénomène de l'oral, mais à un soudage morpho-lexical produit par l'usage.*

## **Conclusion**

Les principaux facteurs explicatifs de la liaison en français ont été identifiés par

la tradition grammaticale (Clédat, Grammont, Martinet notamment). Mais ces analyses sont trop générales : elles ne sont pas explicites, elles ont donc un pouvoir prédictif faible. Pour remédier à ces inconvénients, il faudrait construire une grammaire des environnements syntaxiques pertinents, connectée à un dictionnaire exhaustif des mots liaisonnants et non liaisonnants. Un tel dictionnaire serait composé de :

- un glossaire des mots à consonne finale (au singulier) qui peuvent se lier
- un glossaire des mots à consonne finale (au singulier) qui ne peuvent pas se lier

Le dictionnaire comporterait aussi des glossaires d'expressions parfois identifiées à tort comme liaisonnantes, mais relevant en fait des phénomènes de *pseudo-liaison* (§ 4) et de *soudage* (§ 5) : clitiques à consonne finale, éléments internes aux locutions, adjectifs antéposables. Une grammaire spécifierait en outre, par exemple :

- les environnements syntaxiques propices à la liaison optionnelle des flexions : par exemple, dans les verbes, la liaison entre l'auxiliaire et le participe passé ; dans les expressions à verbe support, la liaison entre le verbe support et le prédicats ; dans le SN, la liaison de la tête nominale avec un adjectif post-posé ; dans la relation Nom-Adjectif Relationnel (*les bières allemandes, les conflits armés*) ; dans les coordinations de constituants du même ordre (*belles et jolies ; parents et enfants*)
- les environnements syntaxiques qui interdisent toute liaison, par exemple entre les syntagmes déplacés à gauche et le reste de la phrase (ex. *à quels amis as-tu parlé* [\*amizaty] ; *quand arriveras-tu ?* [\*kâta]).

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# Convergence and Divergence in Language Obsolescence

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## Abstract

Previous research on language attrition has distinguished between internally and externally motivated change and between convergent and divergent change, with most literature focusing on speech communities that have undergone either one or the other type of change. In this paper, I argue that these types of change may coexist within the same community or even the same speaker, with the result that the obsolescing language becomes simultaneously more similar to and more different from the contact language. The results of a cross-generational acoustic study of Southeastern Pomo (Northern Hokan, Pomoan) indicate that in the domain of phonetics and phonology, the speech of the last fluent generation has converged with English in some ways and diverged from it in other ways.

**Keywords:** language contact, obsolescence, sound change, convergence, divergence.

## 1. Introduction

The study of language attrition has generally focused on characterizing how and why changes come about in an obsolescing language vis-à-vis earlier, more robust stages of the language. Change may occur as a result of external influence from a dominant language in the community or language-internal dynamics having nothing to do with the dominant language. When change is externally motivated, the obsolescing language may come to approximate features of the dominant language; conversely, external influence may cause salient features of the obsolescing language not found in

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the dominant language to be enhanced, thus further differentiating the obsolescing language from the dominant language. In short, externally motivated change may result in either convergence with or divergence from the dominant language. In a similar way, internally motivated change, by virtue of its independence from the influence of an outside language, introduces features into the obsolescing language that may happen to converge with the dominant language or to diverge from it. Whether or not the change is convergent or divergent, then, depends upon the nature of the languages involved.

Though externally motivated change and internally motivated change are often referred to in terms of a dichotomy of opposing categories, logically they are not mutually exclusive types of change. As Dorian (1993) cautions, it can be difficult to tell whether a particular change in an obsolescing language is due exclusively to external influence from a dominant language, exclusively to language-internal dynamics, or to some combination of external and internal pressures when they would both push the language in the same direction. Furthermore, it is likely for a language to be undergoing changes due to internal pressures at the same time that it is being affected separately by contact with another language.

Given that an obsolescing language may undergo externally motivated changes and internally motivated changes and that both types of change may be convergent or divergent, it stands to reason that it should be possible for an obsolescing language to show both convergent and divergent change with respect to the contact language. Nonetheless, the literature on language attrition has largely focused on cases of either one or the other, rather than on cases of both happening at the same time. In this paper, I draw on evidence from a cross-generational acoustic study of five speakers of Southeastern Pomo to argue that these types of change may indeed coexist within the same community or even the same speaker, with the result that the obsolescing language becomes simultaneously more similar to and more different from the contact language.

## **2. Phonological Change in Language Obsolescence**

Andersen (1982: 95) identifies three main patterns of phonological change in obsolescing languages. First, fewer phonological distinctions are made overall than at more viable stages of the language. Second, phonological distinctions common to the obsolescing language and the dominant contact language tend to be preserved. Finally, phonological distinctions with a high functional load are maintained longer than those with a low functional load. The first pattern, which constitutes a loss of structure, is

most often exemplified by changes convergent with the dominant contact language, since the structure lost is usually one not found in the contact language: through the loss of structure particular to the obsolescing language, the obsolescing language becomes more similar to the contact language. Thus, convergent change is the type of change most commonly cited in the literature on language obsolescence. Examples follow.

### *2.1. Convergent change*

Citing much of Campbell's previous work in this area, Campbell and Muntzel (1989: 186-187) describe many cases of convergent phonological change. One instance is the language Pipil (Southern Uto-Aztecan, Aztecan), whose speakers have for the most part neutralized a vowel length contrast not found in the dominant language, Spanish, leaving just short vowels. In Tuxtla Chico Mam (Mayan, Mamean), a contrast between velar and post-velar/uvular plosives, again not found in dominant Spanish, has also disappeared, leaving just velars. Goodfellow (2005: 134-138) documents several other examples of convergent phonological change in younger generations of Kwakwala speakers, who have lost several classes of Kwakwala sounds that are absent from English, either omitting them or replacing them with more familiar sounds from English. Glottalized consonants are replaced by plain pulmonic consonants; uvulars are replaced by velars; velar fricatives are omitted; and lateral affricates are replaced by /gl/ clusters.

Campbell and Muntzel (1989) describe these sorts of externally motivated changes as predictable or expected. What they have in common is the loss of structures in the obsolescing language that are not present in the dominant language. Campbell and Muntzel also enumerate several other categories of phonological change that they describe as "of uncertain predictability". These include the overgeneralization of marked features, which normally results in divergent change.

### *2.2. Divergent change*

Campbell and Muntzel (1989: 189) cite Jumaytepeque Xinca (isolate) as one case of a marked form being overgeneralized, with the result that the language diverges further from the dominant language that does not have the marked form. In this case, Jumaytepeque Xinca has a rule glottalizing consonants in specific environments, but some speakers have lost this rule and generalized the relatively marked glottalized consonants to all environments over the relatively unmarked plain consonants . Teotepeque Pipil is another example of this kind of overgeneralization . In this case ,

voiceless [l̥] used to be a word-final allophone of voiced [l], but speakers came to generalize this relatively marked segment to all environments. Campbell and Muntzel (ibid.) state that “[t]hese changes are internal to the structure of the obsolescent language in that they appear to have no direct analog in the dominant language,” but Woolard (1989) counters that these sorts of divergent changes may actually be externally motivated: a marked structure not present in the dominant language is exaggerated in the obsolescing language to differentiate it from the dominant language. In this way, the divergent change may serve as a symbolic act of distancing from the dominant language by speakers who want “to emphasize their differentness from the dominant group” (Thomason 2001: 230), a motivation reminiscent of the well-known case of vowel centralization in Martha’s Vineyard described by Labov (1963).

Thus, it is possible for divergent change to occur in language obsolescence. Nevertheless, convergent change remains the more commonly attested type of change, often resulting in the merger of phonemes that do not contrast in the dominant language. Given that these sorts of mergers are widely attested, it should come as no surprise that they do not form a homogeneous class. Instead, they have come to be differentiated from each other by the particular path to merger: transfer or approximation.

### 2.3. *Transfer, approximation, and expansion in phonological merger*

Trudgill and Foxcroft (1978) introduce the concepts of *transfer* and *approximation* in their analysis of vowel mergers in East Anglia. In the case of transfer, two phonemes merge via the first phoneme categorically changing to the second phoneme in more and more words containing the former phoneme; in this case, the merger is accomplished by the unidirectional transfer of one phoneme to another in a process that “involves...a form of lexical diffusion” (ibid.: 73), which is “not consistent with a result that shows an intermediate phonetic form” (Labov 1994: 321). In the case of approximation, however, two phonemes merge as their individual phonetic spaces approach (i.e. approximate) each other; here both phonemes typically shift, resulting in a merged category with a phonetic space intermediate between the original phonemes. In addition to these two merger types, Labov (1994: 321-323) adds a third type, *expansion*, in which the phonetic space of the merged category ends up spanning the phonetic spaces of both original categories.

These categories of merger figure prominently in an acoustic and articulatory study of Northern Paiute (Uto-Aztecan, Western Numic) carried out by Babel (to appear), who documents two kinds of sound change in the language. First, a three-way

laryngeal contrast is maintained in each of three generations of speakers; however, the phonetic realization of this contrast differs across generations, and in the youngest generation there is increased subphonemic variation. Second, the place of articulation of the language's sibilant shifts from a palatalized post-alveolar to a plain alveolar /s/, while a more palatalized allophone is replaced by the palato-alveolar /ʃ/ in the youngest generation. Based upon these results, Babel hypothesizes that contrasts based on timing relationships (e.g. laryngeal contrasts) are more likely to undergo sound change via approximation, while contrasts that are more categorical in nature (e.g. consonantal place contrasts) are more likely to undergo sound change via transfer. Labov (1994: 321) additionally asserts that transfer happens more often when "one form has acquired a social stigma or prestige", the less prestigious form typically transferring to the more prestigious form used in the dominant standard language.

#### *2.4. Change in the status of phonological rules*

Campbell and Muntzel (1989) review two other types of phonological change that can occur in obsolescing languages. First, variability may develop in the application of phonological rules: rules that used to be obligatory may apply optionally, show substitutions, or simply be lost. The case of optional rule application usually results in free variation between forms that have resulted from the rule and those that have escaped it. For example, consonant gradation rules in standard Finnish which voice stops in certain environments are not applied consistently in American Finnish, producing free variation between voiced and voiceless stops in environments where only voiced stops would occur in standard Finnish. Second, phonological rules may be undergeneralized or overgeneralized. In the case of Teotepique Pipil mentioned above, a rule devoicing final sonorants has been overgeneralized for /l/, but undergeneralized for /w, j/, resulting in voiceless [l̥] and voiced [w, j] in all environments.

#### *2.5. A case of convergent and divergent change?*

A possible case of convergent and divergent change is reported by Dorian (1993), who describes a multifaceted change having to do with gender assignment. In East Sutherland Gaelic, which has masculine and feminine gender categories, there has been a change towards extending the use of the masculine pronoun /a/ 'he' in substituting for a noun (thus decreasing the use of feminine /i/ 'she'). The increase in usage of /a/ to agree with nominal antecedents parallels the generality of English *it*, and so seems to be

an externally motivated change resulting from contact with English. However, it is not the case that nominal gender assignment has weakened overall. On the contrary, the form of English which has had the greatest influence on East Sutherland Gaelic, Northeast Scots, has non-standard features that have the effect of strengthening gender assignment. Though Northeast Scots lacks grammatical gender, it makes greater use of diminutive morphology like the suffix *-ie*, which can be freely added to virtually any monosyllabic noun. Correspondingly, East Sutherland Gaelic is also characterized by relatively frequent diminutive formation, which takes the form of a suffix that indexes gender information: /-an/ for masculine nouns and /-ag/ for feminine nouns. In this way, gendered diminutive formation has the effect of boosting nominal gender assignment, counterbalancing the gender weakening effect of the novel pronoun replacement pattern.

The case of East Sutherland Gaelic thus seems to be an example of convergent and divergent change happening at the same time: the weakening of gender assignment in pronominal replacement is convergent with English, while the strengthening of gender assignment in diminutive formation is divergent from English. However, this divergent change is unlike those cited above in that it is not externally motivated. Here it is not because grammatical gender is missing in English that it becomes more robust in East Sutherland Gaelic. In fact, grammatical gender is strengthened only because of another convergent change – the increase in diminutive formation paralleling the frequency of diminutives in the contact dialect of English. In this sense, it is simply a coincidence that this change has turned out to be divergent from English. What remains to be seen, then, is whether convergent and divergent change can co-occur under the same external influences, and moreover, whether they can co-occur in the phonological domain. Below I argue that both of these situations obtain in Southeastern Pomo.

### **3. Background on Southeastern Pomo**

#### *3.1. Geography and dialectology*

Southeastern Pomo (Northern Hokan, Pomoan), varieties of which are called Sulfur Bank Pomo, Elem Pomo, and Lower Lake Pomo, is a severely endangered language that was spoken primarily in the area around Clear Lake, East Lake, and Lower Lake in Lake County, California (Moshinsky 1974, Gordon 2005). Southeastern Pomo (hereafter, SEP) is not mutually intelligible with the other Pomo languages such as Eastern Pomo (Grekoff 1957: 5). The terms “Sulfur Bank Pomo” and “Elem Pomo”

most likely refer to one dialect spoken in the region of Sulfur Bank and Rattlesnake Island in East Lake, given that a current speaker (Speaker 2A, cf. §4.1.1) remembers this region used to be one connected land mass and refers to the dialect spoken by her father (Speaker 1B), which Moshinsky refers to as Sulfur Bank Pomo, as Elem Pomo. Sulfur Bank/Elem Pomo may differ to some extent from Lower Lake Pomo, which Speaker 2A recalls as a separate dialect. Moshinsky, however, states that “[d]ialect divergences between Sulfur Bank and Lower Lake seem to be minimal...possibly restricted to a small number of lexical differences” (ibid.: 1). It follows that any phonetic differences between these two varieties are probably subphonemic.

### 3.2. Inventories

Moshinsky (1974: 5) presents consonant and vowel inventories of the language as in Tables 1 and 2 (predictable and marginal segments have been placed in parentheses). The segment inventories found in independent fieldwork largely agree with the inventories posited by Moshinsky, but they also depart from them in a few significant ways. These divergences constitute some of the sound changes described below.

**Table 1.** Consonant inventory of Southeastern Pomo

	LABIAL	DENTAL	ALVEOLAR	PALATO(ALV.)	VELAR	POST-VELAR	GLOTTAL
STOPS	p p' b	t t'	t t' d		k k'	q q'	ʔ
AFFRICATES			ts ts'	(tʃ tʃ')			
FRICATIVES	f		s	ʃ	x	χ	h
NASALS	m		n		(ŋ)		
LIQUIDS			r l				
GLIDES	w			j			

**Table 2.** Vowel inventory of Southeastern Pomo

	FRONT	CENTRAL	BACK
HIGH	i		u
MID	e	(ə)	o
LOW		a	

As for suprasegmentals, Moshinsky (1974) includes stress as a contrastive feature, but others (e.g. Goodman 1992) have argued that stress is invariably stem-initial underlyingly, with late processes of epenthesis resulting in surface forms in which an initial syllable is unstressed. The Stress Placement and Pretonic Vowel Epenthesis rules that Moshinsky (1974: 19, 21) himself posits seem to indicate that he also adheres to the

non-contrastive analysis on some level. Thus, phonological stress may be regarded as a non-contrastive feature of SEP prosody.

## 4. Sound Change in Southeastern Pomo

### 4.1. Methods

#### 4.1.1. Speakers

This study is based on recordings of four male speakers from the previous generation (Generation 1: Speakers 1A, 1B, 1C, and 1D) and recordings of one current female speaker (Generation 2: Speaker 2A). As summarized in Table 3, Speaker 1B was from Sulfur Bank, and Speaker 1C was from Upper Lake near Sulfur Bank (Moshinsky 1974: v); presumably they both spoke Sulfur Bank/Elem Pomo. Speaker 1A was a Lake Miwok speaker and not a native speaker of SEP; coming from Middletown in Lake Miwok-speaking territory, he would have been geographically closest to Lower Lake, so the variety of SEP he spoke was probably closest to Lower Lake Pomo. Speaker 1D is described by Moshinsky (*ibid.*) as coming from Sulfur Bank, but his niece (Speaker 2A) reports that he was from Lower Lake (like his sister and her mother, Speaker 1F) and came to Sulfur Bank by way of marriage to Speaker 1G; thus, he most likely spoke Lower Lake Pomo, too. Like Speaker 2A, all Generation 1 speakers also spoke English.

**Table 3.** Linguistic backgrounds of Southeastern Pomo speakers

Speaker	Gender	Origin	SEP dialect	Other languages	Year of Recording
1A	male	Middletown	Lower Lake	Lake Miwok, English	1956
1B	male	Sulfur Bank	Sulfur Bank	English	1960s
1C	male	Upper Lake	Sulfur Bank	English	1960s
1D	male	Lower Lake	Lower Lake	English	1960s
1E	male	Sulfur Bank	Sulfur Bank	E. Pomo, English	N/A
1F	female	Lower Lake	Lower Lake	English	N/A
1G	female	Sulfur Bank	Sulfur Bank	English	N/A
2A	female	Sulfur Bank	S. Bank/L. Lake	English	2006-07

Speaker 2A is one of the last fluent speakers of SEP. She is dominant in English and learned SEP at home primarily from her mother, with whom she spoke almost exclusively in SEP. According to her, the variety of SEP her mother spoke was Lower Lake Pomo, which she regards as a variety of SEP differing slightly from Sulfur Bank/Elem Pomo (*cf.* §3.1). Unfortunately, there are no recordings of her mother's speech, although she did serve as a consultant to linguists who worked on the language

and is therefore recorded in the field notes of Grekoff (1957) and Moshinsky (1965-1968). Speaker 2A's father, Speaker 1B, usually spoke to her in English, although she remembers hearing him speak to other people in SEP while growing up. She describes her own idiolect of SEP as somewhere in between her father's and her mother's speech.

#### *4.1.2. Corpus construction*

A corpus was constructed from archival and original recordings of these speakers to compare word forms across the two generations. First, the Generation 1 word lists were searched for overlaps between speakers using the glosses audible after each word. In the case of Speaker 1D, whose recordings do not include any glosses, overlaps were postulated based upon the SEP word forms instead of the English glosses, a process facilitated by the arrangement of much of Speaker 1D's word list into minimal pairs. The Generation 2 word list was then searched for overlaps with Generation 1, and words that overlapped were included in the corpus. Words that were missing were elicited and included if they overlapped with a Generation 1 form; otherwise, they were removed. The final result was a cross-generational corpus containing approximately 200 words shared among Speaker 2A and at least two Generation 1 speakers.

#### *4.2. Convergent changes*

##### *4.2.1. Narrowing of the velar/post-velar distinction*

The velar/post-velar distinction is one example of an SEP distinction that is not found in English. Moshinsky (1974) observes that velar and post-velar stops may be distinguished not only by place of articulation, but also by quality of contact, the post-velar stop being more fortis in articulation and often affricated or wholly fricated. The velar and post-velar fricatives may be cued by secondary features as well, the velar having less noise and occurring with concomitant lip spreading.

The extent to which velars and post-velars are differentiated in Generation 1 vs. Generation 2 was examined through acoustic measures of place of articulation, degree of contact, and vowel quality. The minimal pair examined was /xa/ 'fish' and /χa/ 'water'. To gauge place of articulation, the second resonance (F2) of the fricative noise was measured over the whole fricative interval, as well as the onset of the first formant (F1) in the following vowel. Measures of fricative duration and intensity were also taken as correlates of the degree of contact. Finally, the quality of the following vowel was estimated via average measures of the F1 and F2 over the whole vowel interval.

The data are summarized in Table 4. Note that the data for Speaker 1B and

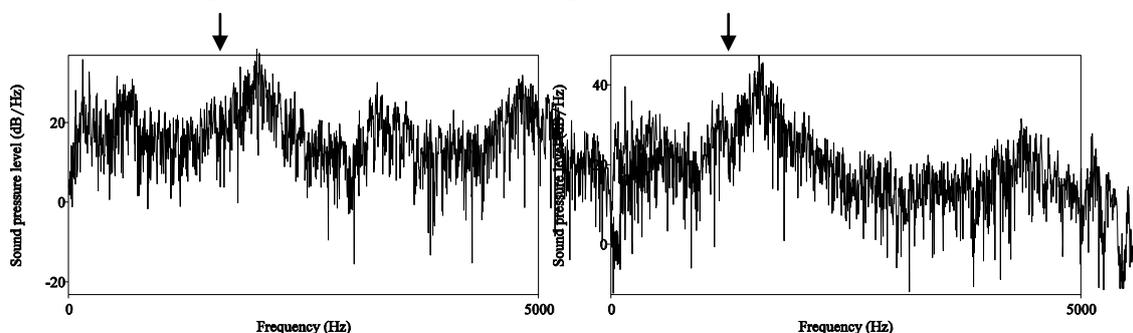
Speaker 1D represent single tokens, as only one token of each word was available. The data for Speaker 1A's /xa/ and /χa/ are averaged over 6 and 4 tokens, respectively, and the data for Speaker 2A's /xa/ and /χa/ are averaged over 14 and 10 tokens, respectively.

**Table 4.** Average acoustic data for /xa/ 'fish' vs. /χa/ 'water'

	Speaker 1A		Speaker 1B		Speaker 1D		Speaker 2A	
	/xa/	/χa/	/xa/	/χa/	/xa/	/χa/	/xa/	/χa/
Fricative F2 (Hz)	<b>1212</b>	<b>1128</b>	<b>1331</b>	<b>1066</b>	<b>1588</b>	<b>1272</b>	<b>1488</b>	<b>1417</b>
F1 onset (Hz)	501	519	491	597	572	560	397	378
Duration (ms)	296	253	324	244	326	381	224	258
Intensity (dB)	55.5	56.1	64.5	62.3	58.5	64.8	60.6	60.2
Average F1 (Hz)	791	813	745	816	825	891	569	548
Average F2 (Hz)	1358	1358	1351	1284	1612	1518	1547	1495

It turns out that the only significant and consistent difference between /xa/ and /χa/ lies in the F2 of the fricative noise, bolded in Table 4. For all speakers, F2 is lower in the post-velar fricative than in the velar fricative, indicating a more retracted place of articulation. This difference is statistically significant (Speaker 1A:  $t(7) = 1.864$ ,  $p = .049$ ; Speaker 2A:  $t(20) = 2.485$ ,  $p = .012$ ) and is illustrated in Figure 1, where it is clear in spectra of these fricatives that the F2 frequency in /χa/ is lower than that in /xa/.

**Figure 1.** Spectra of the initial fricatives in Speaker 1D's /xa/ 'fish' (L) and /χa/ 'water' (R)



Though the post-velar fricative's F2 is on average lower than the velar fricative's F2 for all speakers, the difference between the two is greater in magnitude for all three Generation 1 speakers as compared to Speaker 2A, who shows a difference of 71 Hz. In comparison, Speaker 1A shows a slightly greater difference of 84 Hz. For Speakers 1B and 1D, there are only single tokens of the velar and post-velar, so it is difficult to conclude how much overlap there is between these two categories. However, the single tokens lie much farther away from each other than 71 Hz: the difference is 265 Hz for Speaker 1B and 316 Hz for Speaker 1D. The acoustic distance between the velar and post-velar fricatives thus appears to have decreased significantly in Generation 2.

This narrowing of the velar/post-velar contrast can be most straightforwardly interpreted as an externally motivated change. There is no similar contrast between dorsals in English; consequently, this contrast is left more vulnerable to loss. It should be noted, however, that the contrast is in fact maintained in Generation 2. The distance between the categories simply decreases.

#### 4.2.2. Narrowing of the dental/alveolar distinction

The dental/alveolar distinction is a second example of an SEP contrast that is not found in English. Moshinsky (1974) describes this contrast as an opposition between an “apico-interdental to apico-dental stop” and an “apico-alveolar to retroflexed apical stop”. We can expect this sort of contrast to be realized acoustically in two main ways. First, the frequency of the most prominent peak in the stop burst will be higher for a dental than an alveolar/retroflex (Ladefoged 2005: 158-159). Second, the formants in adjacent vowels will differ due to coarticulation with consonants of different places; in particular, the frequency of the third formant (F3) will be lower next to a retroflex.

The extent to which dentals and alveolars are differentiated in Generation 1 vs. Generation 2 was thus examined through acoustic measures of the stop burst and of vowel quality. The minimal pair examined was [ʔə'tʰat] ‘touch’ and [ʔə't'at] ‘ruddy duck’. The frequency of the burst peak and the intensity of the burst were measured over the whole burst interval. Formant measurements of both vowels were also taken as averages over the whole vowel interval.

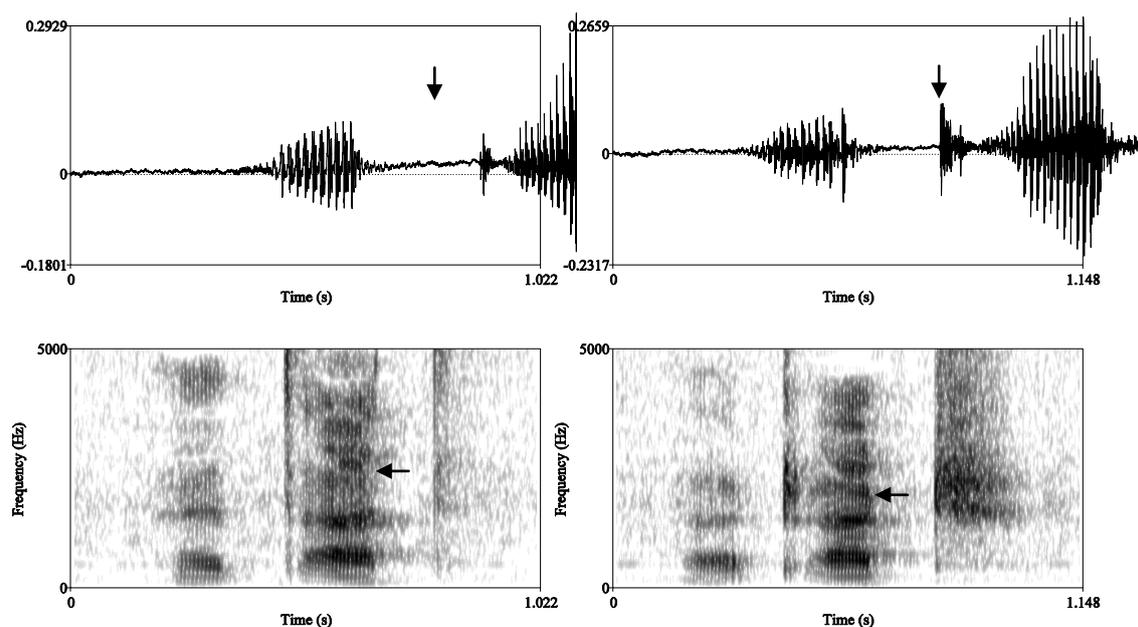
The data are summarized in Table 5. The data for Speaker 1C represent two tokens of each word; the data for Speaker 1D represent one token of each word; and the data for Speaker 2A represent three tokens of each word.

**Table 5.** Average acoustic data for [ʔə'tʰat] ‘touch’ vs. [ʔə't'at] ‘ruddy duck’

	Speaker 1C		Speaker 1D		Speaker 2A	
	[tʰ]	[t]	[tʰ]	[t]	[tʰ]	[t]
Intensity of ejective burst (dB)	53.6	58.5	67.3	67.1	50.6	44.6
Intensity of plosive burst (dB)	<b>49.9</b>	<b>58.8</b>	<b>66.4</b>	<b>71.2</b>	<b>40.0</b>	<b>42.2</b>
Frequency of ejective burst peak (Hz)	<b>4304</b>	<b>2113</b>	<b>4364</b>	<b>3422</b>	<b>4142</b>	<b>3603</b>
Frequency of plosive burst peak (Hz)	<b>4705</b>	<b>2213</b>	<b>4211</b>	<b>3831</b>	<b>4118</b>	<b>3868</b>
Average F1, first vowel (Hz)	540	568	755	653	603	648
Average F2, first vowel (Hz)	1587	1498	1943	1756	1623	1820
Average F3, first vowel (Hz)	2456	2331	3031	2898	2526	2833
F1 onset, second vowel (Hz)	606	586	594	549	758	784
Average F1, second vowel (Hz)	689	661	704	732	696	694
Average F2, second vowel (Hz)	1490	1527	1559	1671	1428	1654
Average F3, second vowel (Hz)	<b>2602</b>	<b>2401</b>	<b>2930</b>	<b>2480</b>	2669	2796

There are several consistent differences between [ʔə'tʰat̚] and [ʔə't'at]. First, the burst intensity of the alveolar plosive is greater than that of the dental plosive for all speakers, and the difference is significant for Speaker 1C ( $t(2) = -5.084$ ,  $p = .037$ ). Second, as expected, the frequency of the dental burst peak is higher than that of the alveolar burst peak for both the ejective (Speaker 1C:  $t(2) = 12.010$ ,  $p = .007$ ; Speaker 2A: difference approaching significance at  $t(4) = 2.395$ ,  $p = .075$ ) and the plosive (Speaker 1C:  $t(2) = 59.091$ ,  $p = .0003$ ; Speaker 2A: difference approaching significance at  $t(4) = 2.298$ ,  $p = .083$ ). Finally, F3 is lower in the vowel following the alveolar (Speaker 1C:  $t(2) = 6.787$ ,  $p = .021$ ), though not for Speaker 2A. These differences are illustrated in Figure 2. In the waveforms, it is clear that the alveolar bursts have greater intensity relative to the vowel than the dental bursts, while the spectrograms show that F3 is lower adjacent to the (retroflexed) alveolars than adjacent to the dentals.

**Figure 2.** Waveforms and spectrograms of Speaker 1C's [ʔə'tʰat̚] 'touch' (L) and [ʔə't'at] 'ruddy duck' (R)



As alluded to above, Speaker 2A patterns a bit differently from Speakers 1C and 1D. The intensity differences and burst peak frequency differences between her dental and alveolar stops are all substantially smaller than those achieved by Speakers 1C and 1D. For example, the burst peak frequency difference between the dental and alveolar ejectives is 539 Hz for Speaker 2A, as compared to 2191 Hz and 942 Hz for Speakers 1C and 1D, respectively. Furthermore, for F3 in the vowels, Speaker 2A's data goes in the opposite direction of Speakers 1C and 1D, the lower F3 occurring next to the dental.

Like the narrowing of the velar/post-velar contrast, the narrowing of the dental/alveolar contrast here is most likely the result of external influence: the absence of a similar contrast in English leaves the native contrast more susceptible to change. Again, however, the contrast is not actually lost, but merely reduced, both in terms of the number of cues to the contrast and the magnitude of the acoustic distance effected between the two categories.

### 4.3. Divergent changes

#### 4.3.1. The elimination of rhotics

Generation 2 differs from Generation 1 in that Speaker 2A's inventory contains no rhotics, whereas flaps, trills, and alveolar/retroflex approximants are not uncommon in the speech of Generation 1, as shown in Table 6 (phonetic forms are given in relatively narrow IPA transcription). Note that while some forms are clearly loanwords (e.g. [ˈperas] ‘pears’, cp. Sp. *peras* ‘pears’), others, judging from their semantics, segments, and phonotactics, seem to be native SEP words rather than borrowings (e.g. [ˈkʰɪxra] ‘leaf’; [ˈt̪ʰoʔrokɪn] ‘soft’). Though there are only 1-3 tokens available of each word, the appearance of rhotics is consistent across these tokens; therefore, we can be fairly certain that the forms in Table 6 contain some sort of rhotic phoneme.

**Table 6.** Generation 1 forms containing rhotic segments

Speaker	Phonetic form	Phonemic form	Gloss	Source <sup>1</sup> (file, time)
1A	kʰusneru	kusneru	‘cook’	7M4049A, 29:21
1B	ʔorkeθa	ʔorkeʔa	‘fork’	7M2054, 26:02
1B	qʰol.kʰras	qolkras	‘to jump’	7M2054, 20:32
1B	kʰsak.mʃʰɪrə	ksakmʃɪra	‘Sunday’	7M2054, 28:40
1B	ˈperas	peras	‘pears’	7M2054, 26:51
1B	kʰɪxra	kikra	‘leaf’	7M2054, 31:02
1C	kʰɪtkʰɪa	kitkra	‘leaf’	7M2055, 27:04
1C	pʰɪəˈmedik	prmedik	‘relative’	7M2055, 18:21
1C	tʰokʰrokɪn	tʰokrokɪn	‘soft’	7M2055, 28:01
1C	tʰokruʃkiʃ	tʰokruʃkiʃ	‘to choke’	7M2055, 28:05
1D	kʰuʃ	kʰuʃ	(unavailable)	7M2056A, 10:17
1D	qʰəɪa	qʰra	(unavailable)	7M2056A, 8:15
1D	sɛɪka	serka	‘fence’	7M2056A, 3:42
1D	t̪aɪapu	t̪arapu	‘cloth, flag’	7M2056A, 1:08
1D	tʰoʔrokɪn	tʰokrokɪn	‘soft’	7M2056A, 18:11
1D	wuru	wuru	‘donkey’	7M2056B, 1:03
1D	χqʰoɪaʃ	χqoraʃ	(unavailable)	7M2056A, 15:10

<sup>1</sup> The source information refers to the name of the relevant audio recording on file at the Berkeley Language Center.

The fact that Speaker 2A’s inventory lacks rhotics is clear from certain words she has in common with Generation 1 speakers. Table 7 lists examples of words for which a Generation 1 speaker’s form contains a rhotic, while the Generation 2 form contains no rhotic. In each case, the phonetic environment is similar, yet the rhotic is conspicuously absent from the Generation 2 form.

**Table 7.** Comparison of rhotic vs. non-rhotic forms in Generation 1 and Generation 2

Generation 1 form (speaker)	Generation 2 form	Gloss
<sup>1</sup> ʔorkeθa (1B)	<sup>1</sup> ʔoŋkeŋa	‘fork’
<sup>1</sup> seɹka (1D)	<sup>1</sup> seŋka	‘fence’
<sup>1</sup> k <sup>h</sup> ɪtk <sup>h</sup> ɹa (1C)	<sup>1</sup> k <sup>h</sup> ɪkt <sup>h</sup> a	‘leaf’

Thus, it appears that Speaker 2A’s phonological inventory differs in a significant way from that of Generation 1 in having virtually eliminated rhotic segments. With regard to how this change might have come about, we can entertain two main possibilities. First, it is possible to attribute this change to external influence from English, a language in which rhotics are abundant. This subtractive change would then be complementary to the additive exaggeration of non-English features that has been reported for other obsolescing languages; however, in this case, not only would rhotics in loanwords have been eliminated to make the language less similar to English, rhotics in apparently native SEP words would also have been eliminated. Second, it is possible to attribute this change to internal forces. Rhotics carry a low functional load in SEP – they occur in only a few native words and otherwise in loanwords and fail to distinguish any minimal pairs – making them vulnerable to loss over time.

The fact that rhotics are lost in an inconsistent manner (cf. Table 7, which shows that /r/ can be replaced by [ɹ], [tʰ], or [l]) suggests that the former analysis is probably right. This is not an ordinary conditioned sound change; instead, it appears that, whether consciously or unconsciously, rhotics have been replaced wholesale in the language by other segments that are not so saliently identified as English sounds.

#### 4.3.2. Generalization of /d/-deletion

According to Moshinsky (1974: 25-26), SEP has a rule of d-deletion whereby /d/ is deleted preceding another consonant (e.g. /lodt/ ‘my hair is falling out’ → [lot]; /btedlaj/ ‘women’ → [btelaj]). However, it is clear from the speech of Generation 1, particularly Speaker 1C, that this was an optional rule, not an obligatory one. Table 8

lists many examples of forms containing /d/ before another consonant, indicating that /d/ was not necessarily deleted in this environment.

**Table 8.** Generation 1 forms containing -dC- sequences

Speaker	Form	Gloss	Source (file, time)
1A	<sup>h</sup> id̩le	‘noon’	7M4049A, 14:29
1A	<sup>h</sup> id̩lejukin	‘before noon’	7M4049A, 14:00
1A	<sup>h</sup> id̩lebə̌,tonə̌wa	‘afternoon’	7M4049A, 13:49
1C	ʔə <sup>h</sup> k <sup>h</sup> ud̩l	‘ridge’	7M2055, 15:43
1C	k <sup>h</sup> ʔid̩l	‘meadowlark’	7M2055, 10:54
1C	<sup>h</sup> mk <sup>h</sup> ud̩l	‘log’	7M2055, 26:22
1C	<sup>h</sup> mxud̩lxa	‘to put out to dry’	7M2055, 23:14
1C	q <sup>h</sup> oʃid̩l	‘toad’	7M2055, 19:33
1C	q <sup>h</sup> ʃid̩lbu	‘little finger’	7M2055, 20:49
1D	q <sup>h</sup> oʃid̩l	‘toad’	7M2056A, 10:31

Furthermore, it appears that d-deletion could apply optionally within the same speaker, resulting in free variation between forms that maintained pre-consonantal /d/ and those that deleted it. Table 9 lists examples of this variation from Speaker 1C. In each case, one token of the word contains /d/, while the other does not, and the form with d-deletion occurs as either the first or second token.

**Table 9.** Free variation in Speaker 1C between forms with and without pre-consonantal /d/

Token 1	Token 2	Gloss	Source (file, time)
k <sup>h</sup> əʔid̩l	k <sup>h</sup> əʔil	‘yellow’	7M2055, 16:10
k <sup>h</sup> əʔod̩l	k <sup>h</sup> əʔol	‘honeybee’	7M2055, 26:58
<sup>h</sup> k <sup>h</sup> f̩id̩n	<sup>h</sup> k <sup>h</sup> f̩in	‘mistletoe’	7M2055, 17:19
q <sup>h</sup> t̩id̩l	q <sup>h</sup> t̩il	‘to lock’	7M2055, 27:30

What was once an optional rule has become obligatory for Speaker 2A. There are no instances of pre-consonantal /d/ in her speech, which can be seen most clearly in words she has in common with Generation 1 speakers. Table 10 shows that for words in which the Generation 1 form either has a pre-consonantal /d/ or alternates between having the /d/ and deleting it, Speaker 2A’s form invariably deletes the /d/.

**Table 10.** Comparison between Generations 1 and 2 with respect to pre-consonantal /d/

Generation 1 form (speaker)	Generation 2 form	Gloss
<sup>h</sup> id̩le (1A)	<sup>h</sup> il̩e	‘noon’
k <sup>h</sup> əʔid̩l ~ k <sup>h</sup> əʔil (1C)	k <sup>h</sup> əʔil̩t̩’o	‘yellow’
k <sup>h</sup> ʔid̩l (1C)	k <sup>h</sup> əʔil	‘meadowlark’
jʊd̩l (1F, 1G) <sup>2</sup>	jʊl	‘snow’
k <sup>h</sup> ʔod̩l (1C)	k <sup>h</sup> ʔol	‘honeybee’
k <sup>h</sup> t̩id̩l (1C)	k <sup>h</sup> t̩il	‘to lock’

<sup>2</sup> These data for Speakers 1F and 1G are from the field notes of Grekoff (1957: 19, 80).

k <sup>h</sup> fiɖl̩ (1C)	k <sup>h</sup> fiɭ	‘poison’
'mxud̩ɭxa (1C)	'mxulka	‘to put out to dry’

In short, Speaker 2A has generalized an optional rule, obligatorily deleting /d/ before another consonant – a change in the status of the rule that seems to be internally motivated. Influence from English is unlikely to be responsible for this change, as there is no comparable ban on pre-consonantal /d/ in English (cf. words such as *addle*, *paddle*, *madden*, *redden*, *ridden*, *fiddle*, *riddle*, *coddle*, *cuddle*, *idle*, *sidle*, etc.); moreover, there is no clear analog in English to the d-deletion rule that has been generalized.

## 5. Discussion

To summarize, data collected in four cross-generational case studies of SEP phonetics and phonology suggest that convergent change and divergent change can exist simultaneously within the same speaker. On the one hand, the narrowing of the velar/post-velar contrast and the narrowing of the dental/alveolar contrast are convergent with English and likely due to this external influence. On the other hand, the elimination of rhotics from the consonant inventory and the generalization of a SEP-specific d-deletion rule are divergent from English. The elimination of rhotics seems also to be a reaction to external influence from English, while the generalization of d-deletion is probably the result of language-internal factors.

Before discussing these results further, we should more firmly establish their validity. How sure can we be that the phonetic and phonological differences found are due to diachronic change rather than simply correlated with gender or dialect? First, we can be fairly certain that the patterns found cannot be attributed to dialectal differences, at least in large part. The Generation 1 speakers come from both major dialect groups, yet the differences found between Generation 1 and Generation 2 are not correlated with this variable. It is not the case, for instance, that the Lower Lake speaker, Speaker 1D, also happened to lack rhotics like Speaker 2A, or that the Sulfur Bank speakers all patterned together with or against Speaker 2A in a particular dimension.

We cannot be so sure about gender. It is an unfortunate fact that all of the recordings available of Generation 1 speakers are of males, while the only Generation 2 speaker is female. It is possible that Speaker 2A patterns differently from Generation 1 speakers because females and males say things differently in SEP. Nonetheless, gender differences cannot be responsible for the generalization of d-deletion. In this case, data from other female speakers (1F and 1G) pattern with the Generation 1 male speakers, not with the Generation 2 female speaker. Moreover, estimates of vocal tract size from

vowel formant measurements suggest that the much greater distances between categories achieved by the Generation 1 male speakers cannot be solely due to physiological differences between speakers. Thus, the data collected in this study cannot be written off entirely to gender effects, either.

More specifically, we might want to re-consider the divergent changes presented in §4.3. For example, there are two possible explanations for the presence of rhotics in Generation 1 and their absence in Generation 2. In the first scenario, (i) rhotics were not originally in the inventory, (ii) there was individual variation with respect to (innovative) rhotic realizations of certain words, and (iii) the Generation 1 speakers analyzed here all happened to have rhotic forms. In this case, the absence of rhotics in Generation 2 would be an “original” state rather than the result of sound change; the apparently consistent presence of rhotics in Generation 1 would then be an artifact of sample size. In the second scenario, (i) rhotics were originally in the inventory or entered it early on due to language contact, and (ii) they were then lost in Generation 2.

Two points favor the second, simpler analysis. First, whether or not rhotics were restricted to loanwords, they must have been fairly common for Moshinsky (1974) to include them in his consonant inventory, a fact that casts some doubt on the idea that there were many Generation 1 speakers who lacked rhotics entirely. Second, assuming that such speakers were common in Generation 1, it becomes highly improbable that of the four speakers on the recordings, not one would turn out to be one of these rhotic-less speakers, especially considering the fact that they were from different dialect regions.

One might return to the gender issue to counter that (i) rhotics might not have been a standard part of the inventory, (ii) female speakers tend to conform more to the standard variety of a language, and (iii) Speaker 2A is female. This is a possibility that we cannot fully discount due to the unavailability of recordings of other female SEP speakers. However, it is clear from the data that rhotics appear in native SEP words and not just in loanwords that have not been fully integrated into SEP phonology.

In fact, comparative evidence from other Pomo languages heightens the probability that there were indeed original rhotics in SEP. McLendon (1973) includes rhotics in the inventories of Northeastern Pomo as well as Eastern Pomo, the Pomo language most closely related to SEP, and one correspondence set she cites in particular suggests an alternation between /r/ and /l/ – the Pomo words for ‘leaf’. The forms in all seven Pomo languages as cited by McLendon are summarized in Table 11 below.

**Table 11.** Comparison of Pomo forms for ‘leaf’ (McLendon 1973: 79)

Proto Pomo	Kashaya Pomo	Northern Pomo	Central Pomo	Northeastern Pomo	Eastern Pomo	Southeastern Pomo
*siʔt’ál	siʔt’al	siʔ’ál	st’ál	túʔt’a	sit’ál	kiqt’a

McLendon (1973: 79) notes that the “lack of a reflex for \*-l in [Northeastern Pomo] and [Southeastern Pomo] perhaps indicates that this \*-l was a separate, segmentable morpheme in Proto Pomo”, but it appears \*-l might actually have had a reflex in SEP – namely, a rhotic. Compare the forms in Table 11 with the Generation 1 SEP forms for ‘leaf’: [kixra] (Speaker 1B) and [kitkɪa] (Speaker 1C). If this \*l ~ r correspondence is legitimate, it further strengthens the argument for original rhotics in SEP.

As for the other case of divergent change, the generalization of d-deletion raises interesting questions about the stability of truly free variation. Campbell and Muntzel (1989) mention examples of previously obligatory rules becoming optional in obsolescence and resulting in free variation, but they do not present any cases of optional rules becoming obligatory ones. The former situation fits well into the notion of an obsolescing language being imperfectly learned in that it is subtractive: a language structure is forgotten or omitted. The latter situation, on the other hand, is additive: a rule of ambiguous status is regularized such that it can be applied all the time.

Of course, the generalization of d-deletion is a perfect example of an optional rule becoming obligatory. It seems the factors leading to this change might not be internal to the language so much as universal across languages. In many ways, truly free variation is a difficult problem for learners predisposed to associating a difference in sound to a difference in meaning. How do they cope with a difference in sound when they cannot associate it with a difference in meaning? One solution is just to eliminate the difference in sound: take account of all the variants, pick one, and stick to it. Perhaps this sort of motivation underlies the generalization of the SEP rule.

The findings of Hudson Kam and Newport (2005) lend support to this hypothesis. In this study, adults and young children were compared with respect to how they acquired unpredictable grammatical variability in an artificial language. Hudson Kam and Newport found that adult learners of the artificial language reproduced the pattern of variability they were exposed to in the input. However, many of the child learners, rather than reproducing the variability of the input like the adults, instead regularized the language. Thus, children’s predisposition to constructing a grammar of regular patterns – often cited as a driving force behind the formation of creole languages – may account for the generalization of d-deletion seen in Generation 2.

With regard to the convergent changes discussed above, it remains a question what route to merger the narrowing of SEP contrasts is following. Babel (to appear)

presents a case of place contrasts undergoing merger via complete and rather rapid transfer in Northern Paiute, but in the case of SEP, the change appears to be slower and more gradient. Both the velar/post-velar and dental/alveolar contrasts are actually maintained despite being lessened in degree. What seems clear is that the road to merger in the case of SEP is not one of transfer as claimed by Babel for Northern Paiute, but rather one of approximation, since there indeed seems to be an intermediate phonetic form in this case. The dental/alveolar contrast, for instance, is diminished by way of the retroflexed alveolars of Generation 1 approaching the dentals by becoming non-retroflex in Generation 2. On the other hand, the dentals themselves maintain robust dental contact and do not move back in place of articulation, so it seems that if the two categories were to fully merge in the future, the result would be a merged category with approximately the same phonetic space as the dentals.

## 6. Conclusion

In contrast to previous linguistic studies focusing on the occurrence of either convergent or divergent change in obsolescing languages, this paper has argued, using phonetic and phonological evidence from Southeastern Pomo, that it is possible for these different types of change to occur simultaneously within the same speaker, resulting in the obsolescing language both converging with and diverging from the contact language under the same sort of external influence. Though these findings are based on data from one language, they suggest that the case of simultaneous convergent and divergent change is likely to be more common than the literature reflects.

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# Consonant Gemination in Japanese Loanword Phonology

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## Abstract

The distribution of geminate obstruents in Japanese loanwords appears very complex. Some consonants are more prone to gemination than others, on the one hand, and one and the same consonant is more likely to geminate in some phonological contexts than in others, on the other hand. This paper tackles these problems by considering the relationship between consonant gemination in native words and that of loanwords. It proposes a principled prosodic analysis by which gemination is allowed to occur if and only if it improves prosodic structure. This analysis reveals that gemination in loanwords is essentially an output-oriented phenomenon and that loanword phonology is closely related with and severely constrained by native phonology.

**Keywords:** Japanese loanwords, consonant gemination, prosodic structure, loanword phonology

## 1. Introduction

The distribution of geminate obstruents, or *sokuon*, in Japanese loanwords is notoriously complex. For example, /p/ is geminated in /kyap.pu/ ‘cap’, but not in /kya.pu.ten/ ‘captain’ (dots indicate syllable boundaries). ‘bat’ undergoes gemination, while ‘butter’ fails to do so: /bat.to/ vs. /ba.taa/. There are many pairs of words like these. Representative examples are given in (1).

(1)

		Gemination		No Gemination
<i>p</i>	<i>cap</i>	kyap.pu	<i>captain</i>	kya.pu.ten
<i>t</i>	<i>bat</i>	bat.to	<i>butter</i>	ba.taa
<i>s</i>	<i>listen</i>	ris.sun	<i>listener</i>	ri.su.naa
<i>k</i>	<i>tax</i>	tak.ku.su	<i>tact</i>	ta.ku.to
<i>g</i>	<i>frog</i>	fu.rog.gu	<i>log</i>	ro.gu

This paper discusses how the distribution of geminate obstruents as opposed to single obstruents (e.g., /pp/, /tt/, /kk/ vs. /p/, /t/, /k/) is determined in loanword adaptations in Japanese, whose native system employs consonant length contrastively. The main focus will be placed on an analysis of loanwords from English. We will propose a phonological analysis to account for both new and previously-established generalizations regarding consonant gemination in Japanese loanwords and demonstrate how severely loanword phonology is constrained by native phonology.<sup>1</sup>

This paper is organized as follows. The next section describes basic constraints holding in the native phonology of Japanese. Section 3 proposes a principled output-oriented analysis of major gemination and non-gemination patterns in loanwords. The final section (Section 4) summarizes main points as well as questions that remain for future work.

## 2. Relevant Constraints in Native Phonology

### 2.1. Voiced geminate

As is well known, consonant length as well as vowel length is distinctive in Japanese phonology. Thus, there are many minimal pairs including those in (2) that contrast between a single consonant (singleton) and a geminate consonant (geminate). Geminate consonants appear only word-medially.

(2)

<i>Singleton</i>	<i>Geminate</i>
ki.ta ‘came’	kit.ta ‘cut (past)’
syu.tyoo [ʃu.tʃo:] ‘assertion’	syut.tyoo [ʃut.tʃo:] ‘business trip’
sa.ki ‘point, edge’	sak.ki ‘a short time ago’
ka.sya [kaʃa] ‘freight car’	kas.sya [kaʃʃa] ‘pulley’

Phonetic studies have shown that, other things being equal, consonant length is signaled primarily by consonant duration (Fujisaki & Sugito 1977, Han 1994). Thus, the closure duration of [t] is much longer in /kit.ta/ ‘cut (past)’ than in /ki.ta/ ‘came’. Geminate fricatives have a much longer frication duration than singletons: e.g., [s] is considerably longer in /kas.sen/ ‘battle’ than in /ka.sen/ ‘underline’.

While consonant length is contrastive in Japanese, not all consonants have a geminate counterpart. First, no voiced consonant, whether obstruent or sonorant, can be geminated in native phonology: /b, d, g, m, n, y, r, w/ do not have their geminated counterparts. This is symbolized by the fact that /ta.da/ ‘only’ turned into /tat.ta/, not /tad.da/, when geminated for emphasis in the course of the history. It follows from this and other facts that the native phonology of Japanese is subject to the constraint in (3), a constraint that is observed across languages.

(3) \*Voiced Geminate (\*VoiGem)

Voiced geminate consonants are prohibited.

Second, voiceless fricatives fall into two types, those that can be geminated ([s] and [ʃ]) as shown in (4), and those that cannot ([h]).

(4) ka.sen ‘underline’—kas.sen ‘battle’

ka.sya [kaʃa] ‘freight car’—kas.sya [kaʃʃa] ‘pulley’

Note that /h/ can be geminated in several independent contexts in native phonology, but when geminated, it alternates with [pp] rather than [hh] for historical reasons.<sup>2</sup> This is true irrespective of the following vowel, which determines the phonetic quality of /h/ ([ç], [ϕ] or [h]) in native and SJ words.<sup>3</sup> Some examples are given in (5).<sup>4</sup>

(5) a. ha ‘leaf’ + ha ‘leaf’ → hap.pa ‘leaves’

b. ni.hon ‘Japan’ → nip.pon ‘Japan’

c. a.ho ‘fool’ → ap.po ‘fool (colloquial)’

d. it ‘one’ + hu ‘husband’ → ip.pu ‘one husband’

e. it ‘one’ + hi ‘day’ → ip.pi ‘first day of the month’

## 2.2. Syllable weight

Geminate consonants cannot occur after a long vowel or diphthong in native phonology. Thus, /to.ki/, /tok.ki/, and /too.ki/ are all legal forms, but /took.ki/ is not.

(6)

	<i>Singleton</i>	<i>Geminate</i>
<i>Short V__</i>	to.ki ‘time’	tok.ki ‘projection’
<i>Long V__</i>	too.ki ‘pottery’	*took.ki

Kubozono (1999) attributed this distributional restriction to a constraint on the optimal size of the syllable, which permits light (monomoraic) and heavy (bimoraic) syllables, but not superheavy (trimoraic) ones.

(7) \*superheavy (\* $\sigma_{\mu\mu\mu}$ )

Trimoraic syllables are banned.

The same constraint accounts for the seemingly peculiar loanword adaptation process known as ‘pre-nasal vowel shortening’ (Lovins 1975). This process, as illustrated in (8), shortens long vowels and diphthongs before a moraic nasal, thus creating bimoraic syllables out of a string that would otherwise result in trimoraic syllables (see Kubozono 1999 for more evidence for the trimoraic syllable ban in Japanese).

(8) Pre-nasal vowel shortening

Source	Loan
<i>foundation</i>	<u>fan</u> .dee.syon, *faun.dee.syon
<i>stainless</i>	su. <u>ten</u> .re.su, *su.tein.re.su
<i>Cambridge</i>	<u>ken</u> .bu.riz.zi, *kein.bu.riz.zi
<i>corned beef</i>	<u>kon</u> .bii.fu, *koon.bii.fu

### 2.3. Prosodic form

Native phonology exhibits a striking tendency to favor Heavy-Light (HL) and Heavy-Heavy (HH) sequences and to disfavor Light-Heavy (LH) in word-final position. This tendency is observed in various independent phenomena in Japanese, one of which is the *zuzya-go* formation discussed in depth by Itô et al. (1996).

*Zuzya-go* is a jazz musicians’ secret language involving metathesis: e.g., /ma.nee.zyaa/ → /zyaa.ma.ne/ ‘manager’. The input to this process can be any word with any prosodic structure, but its output is severely constrained in prosodic terms. This is illustrated with monosyllabic and disyllabic input forms in (9) below.

(9)

Input		Output		Gloss
Prosodic form	Word	Prosodic form	Word	
L	me	HL	ee.me	eye
H	kii	HL	ii.ki	key
LL	me.si	HL	sii.me	rice
LH	go.han	HL	han.go	meal, rice
HL	tan.go	HL	gon.ta	tango
HH	too.kyoo	HH	kyoo.too	Tokyo
	ron.don		don.ron	London

In these examples, the input forms vary from a monomoraic monosyllable (L) to a disyllabic word consisting of two heavy syllables (HH). This variability in the input is quite contrastive with the uniformity in the output, where only HL or HH structures are permitted. For example, the input /me/ (L) gives rise to /ee.me/ (HL). More striking is the fact that both HL and LH inputs yield HL outputs: /go.han/ and /tan.go/ turn into /han.go/ and /gon.ta/, respectively. This output neutralization in prosodic structure results from the irregular process that HL inputs undergo, namely, the process by which input mora strings are entirely reversed: /ta-n-go/ → /go-n-ta/, \*/go.tan/. All in all, *zuzya-go* formation exhibits a strong tendency towards HL and HH outputs and against LH outputs.

*Zuzya-go* is not the only process that exhibits such a tendency. Baby words display a more remarkable tendency towards HL and HH in preference to LH and other prosodic forms. In (10), words to the left of the arrows are adult forms from which baby forms are derived.

(10) Baby words

a. LL → HL

ba.ba → baa.ba, \*ba.baa ‘grandma’

zi.zi → zii.zi, \*zi.zii ‘grandpa’

ku.tu → kuk.ku ‘shoes’

da.ku → dak.ko ‘to hold up’

ne.ru → nen.ne ‘to sleep’

o.bu.u → on.bu ‘to carry a baby piggyback’

b. LL → HH

ha.u → hai.hai ‘to crawl’

buu.buu ‘car, pig’

The interesting asymmetry between HL and LH in the output is also observed in the process of loanword truncation. Crucially, HL forms are perfectly acceptable in the output, whereas LH forms are strictly prohibited (Itô 1990, Kubozono 2003).

(11) a. HL

roo.tee.syon → roo.te ‘rotation’

pan.hu.ret.to → pan.hu ‘pamphlet’

sin.po.zi.u.mu → sin.po ‘symposium’

b. LH → LL

ro.kee.syon → ro.ke, \*ro.kee ‘location’

de.mon.su.to.ree.syon → de.mo, \*de.mon ‘demonstration’

There are several other independent processes that display a bias towards HL and HH outputs in Japanese (see Kubozono 2003 for more evidence). Considering all these processes with respect to the wellformedness of output forms, it can be said that Japanese favors HL and HH sequences and disfavors LH sequences in word-final position. This leads us to propose the following prosodic constraint. As we will see in section 3, this constraint is primarily responsible for consonant gemination in loanwords.

(12) Prosodic Form (ProsForm)<sup>5</sup>

Words must end in Heavy-Heavy or Heavy-Light sequences.

#### 2.4. Accent structure

(Tokyo) Japanese exhibits a certain bias with respect to accent structure, too. It permits two major accent patterns: accented and unaccented (McCawley 1968, Kubozono 1988/1993). Putting aside the unaccented pattern, Japanese displays a striking tendency to put an accent on the third or fourth mora from the end of the word if the word is a noun. Seen conversely, it avoids placing an accent on the penultimate or final mora of the word.

In native and SJ words, words with an accent on the antepenultimate mora, e.g., /i.no.ti/ ‘life’, overwhelm those with an accent on the penultimate or final mora, e.g. /ko.kó.ro/ ‘heart’, /o.to.kó/ ‘man’ (Kubozono 2006, 2008). This is true of loanwords, too. For example, most three-mora loanwords bear an accent on the antepenultimate mora irrespective of the location of the accent in the source words, as shown in (13).

(13) source: *banána potato Cánada cámara cláss*

loan: bá.na.na pó.te.to ká.na.da ká.me.ra kú.ra.su

This is suggestive of the constraint in (14) (Kubozono 2006) .

(14) Penultimate accent restriction ( $*\mu\mu'\mu]_{PrWd}$ )

In (Tokyo) Japanese, accent on the penultimate mora is prohibited in trimoraic or longer words.

Note in this connection that penultimate accent is perfectly well-formed in bimoraic nouns. Many bimoraic native nouns have an accent on the penultimate mora: e.g., /né.ko/ ‘cat’. Moreover, this penultimate pattern is by far the most common in bimoraic SJ nouns (e.g., /é.ki/ ‘station’, /tó.syo/ ‘book’), and accounts for virtually all bimoraic loanwords, as exemplified in (15).

(15) source: *bus*      *location*    *pill*      *cab*      *demonstration*  
loan:      bá.su    ró.ke      pí.ru    kyá.bu    dé.mo

### 2.5. Loss of syllabicity

It is worth referring here to the peculiar behavior of /ru/, /su/ and /fu/ (= [ϕu]) in Japanese phonology.<sup>6</sup> These CV sequences seem to lose their syllabicity in several independent phenomena so that /CV+ru/, /CV+su/ and /CV+fu/ behave as if they were a heavy syllable. In other words, /ru/, /su/ and /fu/ count as one mora, but not as one syllable, with the vowel /u/ behaving like an extraprosodic element.

Consider the deaccenting rule in loanwords, for example. While loanwords generally show a remarkable bias towards the accented (vs. unaccented) pattern in Tokyo Japanese (Sibata 1994, Kubozono 2006), they tend to become unaccented if they are four moras long and involve a sequence of light syllables word-finally: /a.me.ri.ka/ ‘America’ and /mon.ba.sa/ ‘Mombasa (placename)’. However, /ru/, /su/ and /fu/ behave as if they were not syllabic in loanwords. Thus, while /a.me.ri.ka/ and /mon.ba.sa/ take the unaccented pattern as predicted by the deaccenting rule, /kón.do.ru/ ‘condor’, /ín.da.su/ ‘the Indus River’ and /mó.ro.zo.fu/ ‘Morozoff’ pattern with /rón.don/ ‘London’, /sái.daa/ ‘cider’, /bú.ru.zon/ ‘blouson’, respectively. In other words, /ru/, /su/ and /fu/ in word-final position behave like the moraic nasal and other non-syllabic moras in accent assignment (Kubozono 1996, Giriko 2008).

## 3. Phonological Account of Consonant Gemination in Loanwords

### 3.1. Segmental and contextual conditions

Japanese has three lexical strata—native, Sino-Japanese (SJ) and foreign (loanwords). Geminate consonants are relatively rare in native words but are quite common in the other two types of vocabulary. They are extremely common in the foreign stratum, as we will see shortly, but their distribution is quite severely constrained by linguistic factors. These factors fall into two kinds, those that relate to the consonant itself (segmental conditions) and those that concern the phonological environment in which gemination occurs or does not occur (contextual conditions). In this section, we will look at each of these conditions in detail and propose an output-oriented analysis to account for both old and new generalizations regarding gemination and non-gemination in loanwords.

The essential points of our analysis are as follows. First, we claim that geminate obstruents are universally more marked than singletons (\*Gem >> \*Single). Second, despite this markedness, obstruents can be geminated in order to improve prosodic well-formedness. Specifically, gemination is triggered by a force to create a HL or HH string in word-final position. In our analysis, this constraint dominates \*Gem, which militates against geminate obstruents. Third, gemination does not occur when it is not motivated: that is, it is blocked either if it will not improve prosodic well-formedness or if it would produce a structure that is banned in native phonology.

### 3.2. Voicing condition

The first segmental condition concerns the voice/voiceless distinction in the consonant to be geminated. In loanwords, voiceless obstruents can be geminated, whereas voiced ones are seldom geminated. This condition is exemplified in (16).

(16)

Source	Loan	Source	Loan
Voiceless C	Gemination	Voiced C	No Gemination
<i>tap</i>	tap.pu	<i>tab</i>	ta.bu
<i>lock, rock</i>	rok.ku	<i>log</i>	ro.gu
<i>lack, rack</i>	rak.ku	<i>lag, rug</i>	ra.gu

The voiced/voiceless distinction in (16) follows directly from the constraint in (3), \*VoiGem, which constrains native and SJ words very severely, as we saw in section 2.1 above. (17) describes how relevant constraints interact with each other to produce the

correct outputs.

(17) a.

lock, rock	*VoiGem	ProsForm <sup>7</sup>	*Gem
☞ .rok.ku.			*
.ro.ku.		*!	

b.

log	*VoiGem	ProsForm	*Gem
.rog.gu.	*!		*
☞ .ro.gu.		*	

In (17a), the geminated form is chosen as the optimal output since it satisfies the prosodic constraint demanding HL or HH in word-final position. In this case, gemination improves the prosodic structure without violating any higher constraint. In (17b), in contrast, the ungeminated form becomes the winner since the geminated form violates \*VoiGem, which dominates the prosodic constraint in the constraint hierarchy.

It must be noted here that voiced obstruents are geminated in some loanwords such as /dog.gu/ ‘dog’, /bag.gu/ ‘bag’, /bed.do/ ‘bed’ and /hed.do/ ‘head’ (Itô & Mester 1999). While it remains an open question why voiced geminates are tolerated in these instances, it is worth emphasizing two related facts here. First, many of these ‘exceptions’ are known to undergo devoicing, showing a free variation between a voiced geminate and a voiceless one: e.g., /bag.gu/~bak.ku/, /bed.do~/bet.to/.

A second fact that bears on the voiced geminate issue is that loanwords can and often do exhibit patterns that deviate from native patterns (Itô & Mester 1999). For example, [ti] and [di] are not permitted in native phonotactics but are permissible in loanwords—in such words as ‘team’ and ‘Disney’. Similarly, [p] cannot occur word initially in native words, but it can do so in loanwords, e.g., /pen/ ‘pen’. The native vocabulary cannot have more than one voiced obstruent within a morpheme due to an OCP effect, but loanwords are exempt from such a restriction (e.g., /ze.bu.ra/ ‘zebra’). In all these phenomena, loanwords are more faithful to the input than are native words and are free from markedness constraints to which native words are sensitive. The voiced geminate obstruents in loanwords can be seen as another instance showing this type of deviation from the native restriction.

### 3.3. [s] vs. [ʃ]

A second segmental condition on loanword gemination concerns the distinction between [ʃ] and [x], on the one hand, and [s] and [f], on the other. All of these are voiceless fricatives in the source words, but [ʃ] and [x] undergo gemination in

loanwords, while [s] and [f] generally do not. Some examples are given in (18).

(18)

Source	Loan	Source	Loan
ʃ/x	Gemination	s/f	No Gemination
<i>bush</i>	buʃ.ʃu	<i>kiss</i>	ki.su
<i>cash</i>	kyaʃ.ʃu	<i>bus</i>	ba.su
<i>Bach</i> (German [x])	bah.ha	<i>tough</i>	ta.fu
<i>Gogh</i>	goh.ho	<i>rough</i>	ra.fu

(18) involves a puzzling fact. [s] and [ʃ] belong to one and the same phoneme /s/ in the native phonology of Japanese ([ʃ] appears before [i], and [s] elsewhere), but only [ʃ] undergoes gemination in loanwords. Likewise, [x] but not [f] is geminated in loanwords despite the fact that their adapted forms—[h] and [ϕ]—are in complementary distribution in native phonology: [ϕ] before [u], [ç] before [i], and [h] elsewhere. We attribute this asymmetrical behavior between [s] and [ʃ] (or between [ϕ] and [h]) to the fact mentioned in section 2.5, namely, that /su/ and /fu/ (= [ϕu]) lose their syllabicity in word-final position in Japanese. Our output-oriented analysis accounts for the facts in (18) as in (19), where [f] and [x] are compared for illustration. (<u> means that this vowel is extraprosodic and does not contribute to syllabicity).

(19) a.

tough	*σ <sub>μμμ</sub>	ProsForm	*Gem
.taff.<u>	*!	*	*
☞ .taf.<u>		*	

b.

Bach	*σ <sub>μμμ</sub>	ProsForm	*Gem
☞ .bah.ha.			*
.ba.ha		*!	

The essential part of our analysis is that /fu/ and /su/ are counted as an independent mora but not as an independent syllable. Under this analysis, /tafu/ in (19a) forms one heavy syllable, [.taf.<u>], whereas its geminated counterpart, /taffu/, constitutes a superheavy syllable, [.taff.<u>]. The latter structure is rejected by the general constraint prohibiting trimoraic syllables, which dominates the prosodic constraint triggering consonant gemination. Because of this constraint interaction, the candidate with a single consonant becomes optimal in (19a).

In contrast, the output form with a geminate consonant is chosen as the optimal candidate in (19b) since it violates neither the syllable structure constraint nor the

prosodic structure constraint. In this case, gemination leads to the improvement of prosodic structure. This is true of the case of [ʃ], too: [buʃ.ʃu] wins over [bu.ʃu] as it has a Heavy-Light structure in word-final position.

Yet, the analysis in (19) raises one question regarding the gap between native and loanword phonology. As mentioned in section 2, native phonology permits [ss] and [ʃʃ] as well as their singleton counterparts (see (4) above), but does not permit [ʃʃ] or [hh]. In loanword phonology, however, [ʃ] and [h] can be geminated, while [s] and [f] (= [f]) generally cannot. The non-gemination of [s] and [f] has already been accounted for in (19). What remains to be answered is why [h] is geminated in loanwords although its geminated form is not allowed in native words.

In OT terms, this can be accounted for by ranking a constraint prohibiting [hh] (\*[hh]) below ProsForm, thus assuring that the geminated form is more harmonic than the ungeminated form. However, this account is merely descriptive and not explanatory. The question still remains why loanwords permit [hh] although it is prohibited by native words. This will require phonetic as well phonological considerations. At the descriptive level, the gemination of [x] into [hh] in loanwords is just another instance showing that loanwords are sensitive to phonological (markedness) constraints to a lesser extent than native words.

### 3.4. Vowel length condition

There are quite a few contextual conditions to which loanword gemination is sensitive. In this and the next four sections we will consider five major contextual conditions all of which define the phonological contexts in which gemination is (un)likely to occur.

The first contextual condition on consonant gemination is a ‘vowel length condition’, by which gemination is invariably blocked if the consonant is preceded by a long vowel or diphthong (as opposed to a short vowel) in the output:

(20)

Source	Loan	Source	Loan
short V __	Gemination	longV ____	No Gemination
<i>mitt</i>	mit.to	<i>meat</i>	mii.to
<i>pick</i>	pik.ku	<i>peak</i>	pii.ku
<i>pack</i>	pak.ku	<i>park</i>	paa.ku

The vowel length condition illustrated in (20) can be accounted for by the

constraint against trimoraic syllables in a straightforward manner. This is shown in (21), where we have the same constraints and constraint ranking as in (19). In (21a), the output form with a geminate consonant is more harmonic than its ungeminated counterpart due to the force to have a Heavy-light or Heavy-heavy structure word-finally. In (21b), however, the form with a geminate consonant is less harmonic than the ungeminated form since it violates the higher ranking syllable structure constraint.<sup>8</sup>

(21) a.

mitt [mit]	*σ <sub>μμμ</sub>	ProsForm	*Gem
☞.mit.to.			*
.mi.to.		*!	

b.

meat	*σ <sub>μμμ</sub>	ProsForm	*Gem
.miit.to.	*!	*	*
☞.mii.to.			

### 3.5. Positional effect

A second case where gemination is sensitive to phonological context concerns what we call a ‘positional effect’. Namely, coda consonants in word-final syllables in the source language can be geminated but those in word-medial syllables cannot (Kawagoe & Arai 2002). This effect is exemplified in (22).

(22)

Source	Loan	Source	Loan
word-final C	Gemination	word-medial C	No Gemination
<i>cap</i>	kyap.pu	<i>captain</i>	kya.pu.ten
<i>dock</i>	dok.ku	<i>doctor</i>	do.ku.taa
<i>mix</i>	mik.ku.su	<i>mixer</i>	mi.ki.saa
<i>sax</i>	sak.ku.su	<i>saxophone</i>	sa.ki.so.fon
<i>box</i>	bok.ku.su	<i>boxer</i>	bo.ku.saa
<i>tax</i>	tak.ku.su	<i>taxi</i>	ta.ku.sii
<i>picnic</i>	pi.ku.nik.ku	<i>picnic</i>	pi.ku.nik.ku

To take one example, the English word ‘picnic’ consists of two syllables, /pik/ and /nik/, of which only the coda consonant of the second syllable undergoes gemination when adapted into Japanese: /pi.ku.nik.ku/, \*/pik.ku.nik.ku/, \*/pik.ku.ni.ku/. The same generalization holds in all other cases given in (22).

Our analysis of this positional effect is illustrated with the *dock*—*doctor* pair in (23). The lack of gemination in *doctor* can be accounted for in a straightforward manner by the prosodic structure constraint, ProsForm. Recall that this constraint requires that the output should end in a Heavy-Light or Heavy-Heavy syllable string in word-final position. The first candidate in (23a), /dok.ku/, satisfies this requirement. On the other hand, the first candidate in (23b), i.e., /dok.ku.taa/, does not fulfill it as gemination creates a HL string in *non-final* position. In other words, gemination of [k] in this word does not improve the prosodic structure and, hence, lacks prosodic motivation. The same analysis explains all other cases in (22) (see the next section for the motivation of coda gemination in *mix*, *sax*, *box* and *tax*).

(23) a.

dock	ProsForm	*Gem
☞ .dok.ku.		*
.do.ku.	*!	

b.

doctor	ProsForm	*Gem
.dok.ku.taa.	*	*!
☞ .doku.taa.	*	

The next tableau explains how /pi.ku.nik.ku/ is chosen for ‘picnic’.

(24)

picnic	ProsForm	*Gem
.pik.ku.nik.ku		**!
.pik.ku.ni.ku	*!	*
☞ .pi.ku.nik.ku		*
.pi.ku.ni.ku	*!	

### 3.6. /-ks/ vs. /-kt/, /-sk/

In word-final position, gemination readily occurs in /-ks/ but almost never in /-sk/, /-kt/, /-sp/ or /-st/ (Kawagoe & Arai 2002). This is illustrated in (25).

(25)

Source	Loan	Source	Loan
word-final -ks	Gemination	word-final -sp/-sk/-st/-kt	No Gemination
<i>tax</i>	tak.ku.su	<i>task</i>	ta.su.ku
<i>max</i>	mak.ku.su	<i>mask</i>	ma.su.ku
<i>sax</i>	sak.ku.su	<i>tact</i>	ta.ku.to
		<i>duct</i>	da.ku.to
		<i>wasp</i>	wa.su.pu
		<i>list</i>	ri.su.to

Our analysis provides a principled account for the gemination of [k] in /-ks/, as shown in (26a). The geminated pattern, /takkusu/, has /su/ in word-final position, which is non-syllabic according to our discussion in section 2.5. Accordingly, this output form consists of two heavy syllables: [tak.kus.<u>]. The ungeminated form, [ta.kus.<u>], is also disyllabic but consists of a light syllable followed by a heavy one. This prosodic form thus fails to satisfy ProsForm and, hence, cannot win over the geminated form.

(26) a.

tax	* $\sigma_{\mu\mu\mu}$	ProsForm	*Gem
☞ .tak.kus.<u>			*
.ta.kus.<u>		*!	

b.

task	* $\sigma_{\mu\mu\mu}$	ProsForm	*Gem
.tas.su.ku.		*	*!
☞ .ta.su.ku		*	

c.

tact	* $\sigma_{\mu\mu\mu}$	ProsForm	*Gem
.tak.ku.to.		*	*!
☞ .ta.ku.to.		*	

The *task* case in (26b) involves /su/ in the output but only in word-medial position. The geminated pattern in (26b), /tassuku/, is syllabified as /tas.su.ku/, which does not satisfy ProsForm despite gemination. Since gemination does not improve the prosodic structure, the ungeminated form will be chosen. Here \*Gem plays a decisive role in selecting the most harmonic candidate.

A similar situation can be found in (26c), where gemination of [k] does not improve the prosodic structure, either. Since the prosodic form constraint, ProsForm, cannot be satisfied in any case, the ungeminated pattern turns out to be the winner.

### 3.7. *listen* vs. *listener*

Let us now consider the *listen*—*listener* pair. We saw in section 3.3 that [s] and [f] generally fail to undergo gemination due to the non-syllabic status of word-final /su/ and /fu/ in Japanese phonology. In certain phonological contexts, however, even [s] and [f] can be geminated. One such context is where they are followed by a syllabic sonorant ([ŋ] or [l]) in the source words. Thus, [s] is geminated in such words as *lesson*, *listen*, *hustle*. [f] is geminated in *shuffle* and *waffle*.

(27)

Source	Loan	Source	Loan
followed by syllabic sonorant [ŋ], [l]	Gemination	not followed by syllabic sonorant	No Gemination
<i>lesson</i>	res.sun	<i>less</i>	re.su
<i>hustle</i>	has.su.ru	<i>huss</i>	ha.su
<i>listen</i>	ris.sun	<i>listener</i>	ri.su.naa
<i>shuffle</i>	syaf.fu.ru	<i>shaft</i>	sya.fu.to
<i>tackle</i>	tak.ku.ru	<i>tact</i>	ta.ku.to

Our analysis is summarized in (28) with *listen*, *listener* and *hustle*.

(28) a.

listener	*σ <sub>μμ</sub>	ProsForm	*Gem
.ris.su.naa.		*	*!
☞.ri.su.naa.		*	

b.

listen	*σ <sub>μμ</sub>	ProsForm	*Gem
☞.ris.sun.			*
.ri.sun.		*!	

c.

hustle	*σ <sub>μμ</sub>	ProsForm	*Gem
☞.has.sur.<u>			*
.ha.sur.<u>		*!	

First, [s] is not allowed to geminate in *listener* in (28a) since gemination does not improve the prosodic structure: the geminated output violates both ProsForm and \*Gem. Its ungeminated form, /ri.su.naa/, does not satisfy ProsForm but it fulfills \*Gem. Here again, \*Gem plays a decisive role in selecting the most optimal candidate.

In the case of *listen* and *hustle* in (28b/c), on the other hand, gemination does improve the prosodic structure by producing HH outputs. In (28c), in particular, the

geminated output involves a HH output due to the extraprosodicity of the word-final /u/ in /ru/.

### 3.8. *tough* vs. *staff*

We saw in sections 3.2 and 3.3 that voiced stops as well as [f] and [s] generally resist gemination. However, they become less resistant to it if an extra consonant is added to the beginning of the word. This is exemplified in (29).

(29)

Source	Loan	Source	Loan
Complex onset	Gemination	Simple onset	No Gemination
<i>frog</i>	fu.róg.gu	<i>log</i>	ró.gu
<i>flag</i>	fu.rág.gu	<i>lag</i>	rá.gu
<i>drug</i>	do.rág.gu	<i>rug</i>	rá.gu
<i>snob</i>	su.nób.bu	<i>knob</i>	nó.bu
<i>stab</i>	su.táb.bu	<i>tab</i>	tá.bu
<i>staff/stuff</i>	su.táf.fu	<i>tough</i>	tá.fu

Gemination of [g] is generally blocked since it would produce a voiced geminate. What is it then that motivates its gemination in *flag* and *frog*? The answer to this question lies in the accent structure of /fu.rá.gu/ and /fu.ró.gu/. As noted in section 2.4, Japanese has a constraint against accenting the penultimate mora in trimoraic or longer words. Non-gemination of [g] in *flag* and *frog* produces a phonological structure violating this constraint. In contrast, gemination in these words helps to avoid this marked accent structure since it serves to shift the accent from the penultimate to the antepenultimate mora while keeping the accent on the same vowel/syllable: /fu.rág.gu/ and /fu.róg.gu/.

Non-gemination of [g] in *lag* and *log* does produce an output form with a penultimate accent, too, but this bimoraic output does not violate the prosodic constraint in question. We can account for this interesting interaction between accent structure and consonant gemination by positing the penultimate accent restriction in (14) higher than \*VoiGem. This is illustrated in (30).

(30) a.

log	*μμ'μ] <sub>PrWd</sub>	*VoiGem	ProsForm	*Gem
róg.gu.		*!		*
☞ ró.gu.			*	

b.

frog	* $\mu\mu'\mu$ ]PrWd	*VoiGem	ProsForm	*Gem
$\varphi$ .fu.róg.gu.		*		*
.fu.ró.gu.	*!		*	

Similarly, we can account for the difference between *tough* and *staff* by positing the penultimate accent restriction higher than \* $\sigma_{\mu\mu\mu}$ , as shown in (31).

(31) a.

tough	* $\mu\mu'\mu$ ]PrWd	* $\sigma_{\mu\mu\mu}$	ProsForm	*Gem
.táff.<u>		*!	*	*
$\varphi$ .táf.<u>			*	

b.

staff	* $\mu\mu'\mu$ ]PrWd	* $\sigma_{\mu\mu\mu}$	ProsForm	*Gem
$\varphi$ .su.táff.<u>		*	*	*
.su.táf.<u>	*!		*	

It must be noted here that gemination is not the only solution to avoid the marked accent structure. An alternative solution is to change the accent structure of the output either by deleting the accent or by moving it onto a different syllable. These solutions are actually used in many words including those in (32): superscribed /<sup>o</sup>/ denotes that the word is unaccented. Not surprisingly, accent change and consonant gemination are complementary to each other so that they do not co-occur in one and the same output form. The English word *flag*, for example, results either in /fu.rág.gu/ (geminated, but with no change in accent position) or in /fu.ra.gu<sup>o</sup>/ (unaccented, but with no gemination). The geminated, unaccented form /fu.rag.gu<sup>o</sup>/ never surfaces in the output.

(32) a. deaccenting: *flág* → fu.ra.gu<sup>o</sup>, *plúg* → pu.ra.gu<sup>o</sup>, *blóg* → bu.ro.gu<sup>o</sup>

b. accent shift: *plúg* → pú.ra.gu, *cláss* → kú.ra.su, *clúb* → kú.ra.bu

It is possible to account for this interesting interaction between accent change and consonant gemination by positing the faithfulness constraint in (33) and ranking it as relative to \*VoiGem or \* $\sigma_{\mu\mu\mu}$ . The variation between /fu.rág.gu/ and /fu.ra.gu<sup>o</sup>/, for example, can be dealt with as in (34), where Faith-acc >> \*VoiGem will select the geminated and accented form as in (34a) and the reverse ranking will choose the ungeminated, deaccented (or accent-shifted) form as in (34b).

(33) Faith-accent

The accented vowel in the input must be accented in the output.

(34) a.

flág	*μμ'μ]PrWd	Faith-acc	*VoiGem	ProsForm	*Gem
☞.fu.rág.gu.			*		*
.fu.rá.gu.	*!			*	
.fu.ra.gu.°		*!		*	
.fú.ra.gu.		*!		*	

b.

flág	*μμ'μ]PrWd	*VoiGem	Faith-acc	ProsForm	*Gem
.fu.rág.gu.		*!			*
.fu.rá.gu.	*!			*	
☞.fu.ra.gu.°			*	*	
☞.fú.ra.gu.			*	*	

## 4. Conclusion

### 4.1. Summary

In this paper, we looked at various facts regarding gemination in Japanese phonology, especially in loanwords. The distribution of geminate obstruents in Japanese loanwords appears very complex at first glance, but it can be accounted for in a principled manner if one considers various conditions on the occurrence of geminate obstruents in native phonology (in native and SJ words). The basic claim underlying our analysis is that gemination in loanwords is essentially an output-oriented phenomenon. While gemination itself creates a marked structure, it is permitted when and only when it improves output structure. Specifically, it occurs in contexts where it creates Heavy-Light or Heavy-Heavy syllable strings in word-final position. On the other hand, it is blocked in contexts where it would not improve prosodic structure or it would produce a more marked structure in one way or another.

With these ideas in mind, we proposed an Optimality-theoretic analysis that can provide a simple and principled account for all major gemination and non-gemination patterns in loanwords. The relevant constraints in our analysis are ranked as follows:

(35) \*μμ'μ]PrWd >> \*VoiGem, \*σμμμ >> ProsForm >> \*Gem

The output-oriented account proposed here is compatible with the idea that loanword phonology is severely constrained by native phonology (Kubozono 2006) or, in phonetic terms, that speech perception is highly constrained by the phonological structure of the listener's native language (Best et al. 1988).

## 4.2. Future agenda

This study has uncovered several interesting questions for our future work. Two questions emerge regarding the gap between native and loanword phonology. One of them concerns the gemination of (German and Dutch) [x] into [hh] in Japanese loanwords. As mentioned above, [h] turns into [pp] and not into [hh] when geminated in native phonology. It remains unclear why [hh] is tolerated only in loanwords. Equally interesting is the fact that voiced obstruents (especially [g] and [d]) are geminated in some loanwords, e.g., /bag.gu/ ‘bag’, /bed.do/ ‘bed’, despite that they are not allowed to geminate in native words (recall the gemination of [d] into [tt] in /ta.da/ → /ta.tta/ ‘only’). It is interesting to ask why voiced geminates are allowed to occur in some loanwords.

A third question that remains unanswered concerns the fact that [t] in [tʰ] in English is not geminated in Japanese, e.g., /bo.to.ru/, \*/bot.to.ru/ ‘bottle’; /sya.to.ru/, \*/syat.to.ru/ ‘shuttle’. Given that other voiceless obstruents are geminated in the same phonological context, e.g., /kyas.su.ru/ ‘castle’, /ap.pu.ru/ ‘apple’, /tak.ku.ru/ ‘tackle’, /waf.fu.ru/ ‘waffle’, it is strange to find that only [t] is not allowed to geminate in this particular context. This looks particularly peculiar since [t] is at least as prone to gemination as other voiceless obstruents in other phonological contexts.

Another puzzling fact about gemination can be found in loanwords from other languages. Although our analysis in this paper was mainly restricted to loanwords from English and German, loanwords from Korean seem to display somewhat different patterns from those that derive from English. One notable case is that voiceless coda stops generally do not geminate. /pak/ ‘Park (Korean surname)’, for example, has basically the same syllable structure as the English word ‘pack’, but its coda consonant nevertheless fails to undergo gemination when adapted into Japanese: /pak/ → [pa.ku], \*[pak.ku]. We need to ask why the same phonological string is adapted into Japanese in different ways and, for that matter, what phonetic details contribute to this adaptation difference. This question leads us to a new aspect of loanword phonology as it points to the necessity of comparing loanwords from English with those from other languages (e.g., Korean, French) and explaining their differences and similarities.

Finally, it is necessary to ask about the universality of the constraints used in our analysis, all of which hold in the native phonology of Japanese. It is equally important to explore the empirical basis of the phonological constraints. The former question will require a detailed cross-linguistic survey, while the latter will require phonetic, physiological and/or cognitive experimentation and considerations.

## Notes

<sup>1</sup> In this paper, the term ‘native phonology’ is used contrastively with ‘loanword phonology’, referring to the phonology of native and Sino-Japanese words.

<sup>2</sup> Modern Japanese /h/ derives from old Japanese [p] and is believed to be underlyingly /p/ in modern Japanese (Itô & Mester 1996).

<sup>3</sup> /h/ has three allophones in Japanese: [ç] and [ϕ] appear before /i/ and /u/, respectively, while [h] appears other vowels.

<sup>4</sup> [pp] occurs in reduplication in (5a), in emphatic forms in (5b-c), and in compound-medial positions via regressive place assimilation in (5d-e).

<sup>5</sup> This constraint is here stated descriptively, and can perhaps be formally understood as resulting from the interaction of several constraints, including NonFinality and FootForm, as well as accentual constraints (see Itô et al. 1996 for a proposal in this direction). In this paper we retain this preliminary formulation, leaving its formal investigation for future work.

<sup>6</sup> In what follows, [ϕu] is represented as /fu/ rather than /hu/ to show the correspondence between [ϕ] in loans and [f] in source words.

<sup>7</sup> A violation mark is assigned if the form does not end in HH or HL.

<sup>8</sup> It may be worth adding here that \*σ<sub>μμμ</sub> can be violated in some languages. In Finnish, for example, geminate consonants can appear before long vowels both in native words and loanwords: e.g., /piik.ki/ ‘peak’, /paak.ki/ ‘park’.

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# **A Phonetic Analysis of the Prosody of Hebrew-Speaking Children with High-Functioning Autism**

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## **Abstract**

Atypical prosody is a core feature in the language of many individuals with autism spectrum disorders. We analyzed and compared the intonation of two children diagnosed with high-functioning autism and two matched children without developmental disorders as an initial part of our research. Pitch accents and edge tones were examined in two elicitation tasks (semi-spontaneous speech and reading-aloud). The data were transcribed using the PRAAT system according to Autosegmental-Metrical theory with the Israeli Hebrew adaptation of the ToBI transcription framework. The results were analyzed and explained according to the theory of Phonology as Human Behavior of the Columbia School of Linguistics.

**Keywords:** Phonology, Prosody, Autism.

## **1. Introduction**

This paper presents a preliminary study applying the Autosegmental Metrical (AM) theory (Pierrehumbert 1980, Ladd 1996) and the ToBI (Tones and Break Indices; Beckman and Hirshberg 1994, Beckman and Ayers-Elam 1997) framework being adapted for Israeli Hebrew (IH) for this study, in order to describe, compare and contrast prosodic features of intonation of Hebrew-speaking children diagnosed with Autism Spectrum Disorders-High Functioning (ASD-HF) with matched peers without developmental disorders, using a phonetic analysis of pitch accents and edge tones.

ASDs are neuro-developmental disorders that emerge early in life, prior to 30 months (Short and Schopler 1988, Volkmar 1997, Volkmar *et al.* 2005). It is a behaviourally defined disorder. The three essential criteria for diagnosing autism include: (a) qualitative impairments in social reciprocity and engagement, (b) delays and deficits in language and communication, and (c) the presence of restricted repetitive and stereotyped behaviours, activities, or interests (Wing and Gould 1979, APA 1994). The severity of these impairments varies from individuals to individual (e.g. Sigman and McGovern 2005). The autistic continuum ranges from the most severe mentally retarded individuals with social impairment as one of several other severe impairments, to highly intelligent and capable persons with social impairments (Wing 1991). Researchers began using the term High Functioning Autism (HFA) (together with low-functioning autism) as a quasi-diagnostic label to distinguish the relative levels of adaptation and development. The research community recognizes that HFA does not occur in people with an IQ of less than 70.

Despite the abundant evidence that prosody is a feature of impaired communication in ASD (Kanner 1946, 1971, Baltaxe and Simmons 1985, 1992, Paul *et al.* 2005, Tager-Flusberg 1981), there has only been limited research in the prosody of

autism. However, there is general agreement that when atypical prosody is present, it tends to be persistent and shows little change over time, even when other aspects of language improve (e.g. Kanner 1971, Simmons and Baltaxe 1975). For those with HFA, prosody can be one of the main barriers to social acceptance (Shriberg *et al.* 2001, McCann and Peppé 2003). The research into the prosody of autism has concentrated on disordered stress patterns that have been described as being excessive, unvarying or misplaced (e.g. Baltaxe and Simmons 1985, McCaleb and Prizant 1985, Baltaxe and Guthrie 1987, Fine *et al.* 1991, Shriberg *et al.* 2001). Others (Fine *et al.* 1991, Thurber and Tager-Flusberg 1993), point out that autistic children use grammatical pausing in a way similar to typically developing children. Peppé (2007) investigated the prosodic boundary in children with ASD-HF and Asperger syndrome (AS) and found that children with ASD (HF and AS) can use prosodic boundaries in speech for linguistic distinctions and assumed that it is possible that factors other than prosody contributed to the perception of atypicality. Baltaxe (1984) found that the children with autism do not have a significantly different frequency range from typically developing children but produced either very narrow or very wide frequency ranges. These findings suggest that the mean of these frequency ranges does not adequately capture the atypical nature of intonation in children with autism (McCann and Peppé 2003). At present, research into prosody neither provides a full description nor an explanation for the atypical prosody produced by many individuals with autism.

Prosody has been conceptualized as the melody of language. Fujisaki (1997:28) defined prosody as: “a systematic organization of various linguistic units into an utterance or a coherent group of utterances in the process of speech production. Its realization involves both segmental and suprasegmental features of speech, and serves to convey, not only linguistic information, but also paralinguistic and non-linguistic information”. Prosody plays an important role in a range of communicative functions that enable speakers to construct discourse through expressive language. Based on the AM model of intonational phonology, the ToBI transcription method was developed for use in labelling of intonation and prosody of spoken Mainstream American English (MAE\_ToBI). In time it has come to refer to a general framework for the development of prosodic annotation systems of different typological languages (Jun 2005). The prosodic model assumed in ToBI is a phonological model (rather than a phonetic one) and the ToBI system of one language is not appropriate for describing the prosodic system of other languages (Jun 2005). Therefore, the specification of IH and the distinctive prosodic events of the IH-ToBI (for the age group of the current research) serve as an important background to our research.

At the turn of the 19<sup>th</sup> century Hebrew was "revived" as an everyday vernacular or spoken language and became the national language of the Jewish majority of the State of Israel. The genetic affiliation of IH is the Northwest sub-branch of the general Afro-Asiatic Semitic language family. IH has a synthetic morphology and basic lexicon which are drawn from Biblical Hebrew (BH). The phonology of IH, as well as certain syntactic phenomena such as word order, no longer exclusively reflect the characteristics of BH, but have been strongly influenced by European languages (Tobin

1997). The preferred word order in IH is Subject–Verb–Object, but IH word order is relatively free and all possible alternations can appear in specific contexts. Differences in word order also influence the use of prosodic patterns. IH may be referred to as an “intonational language” because it employs prosodic means to provide meaningful communication distinctions on the lexical and utterance levels. There has not been much research on the intonational phonology of IH in general; on the phrase level (e.g. Laufer 1987, 1996, Izre’el *et al.* 2001, Becker 2003, Mixdorff and Amir 2002, Amir *et al.* 2004), and even less research in developmental prosody on the word level (e.g. Ben David 2001) and for developmental clinical prosody (e.g. Frank *et al.* 1987, 1989, Adi-Bensaid and Bat-El 2004, Adi-Bensaid 2006). However, the stress pattern of IH has been relatively well studied (e.g. Rosen, 1977, Bolozky, 1978, Berman 1978, Melčuk and Podolsky 1996, Falk 1996, Bat-El 1993, Graf and Ussishkin 2001, Becker 2003) and demonstrate that primary stress usually occurs on the final syllable, with secondary stress occurring on alternating syllables to the left. Stress in IH nouns is mostly ultimate or penultimate.

We will now present our initial description of IH prosodic and intonation events through the investigation of pitch realization. As in other ToBI systems, this IH-ToBI transcription is a method for transcribing the distinctive prosodic events of a spoken utterance. It is based on the MAE\_ToBI, but it has been adapted so as to take into account the main goal of the current study. The distinctive prosodic events of spoken IH fall into two main categories; (a) *Phrasing*, which creates a grouping of words, and (b) *Accents*, which contribute to a word's relative prominence in an utterance.

IH-ToBI differentiates three levels of phrasing: the *intermediate phrase* (ip), the *intonation (phrase) unit* (IU) and the *utterance* (U). An U may include more than one IU which might include more than one ip. The degree of perceived disjuncture between sequential words across IU boundaries is larger than that between words within and across the ip and it is coded in the Break indices tier. Two types of phrase accents (PhA) defined: high (Hp) and low (Lp). Hp has roughly the same fundamental frequency (FO) value as the peak corresponding to the most recent H tone, which creates a plateau until the end of the phrase or an upstep from the recent H tone before a very high boundary tone (BT). Lp constitutes either an FO minimum low in the range or tone but can also be downstepped in relation to a previous tone. The PhA in IH also functions as “blocking” a downstep (Lp) and upstep (Hp) of the intonation contour patterns. For the BT we determine three types of boundaries: one initial (%) BT and two final BTs: high (H%) and low (L%). These two BTs combine with the PhAs in four different configurations that appear to have specific pragmatic functions. In this paper we will focus on the various prosodic patterns of IH using a partial presentation of the IH-ToBI developed for this research.

Every IU unit contains at least one Pitch Accent (PA). PAs are the events which are associated with the stressed syllable but may be in contrast to stress (which is lexically determined). In the domain of tone it is not expected that every stressed syllable will be accented. A detailed narrow transcription of the data of our speech samples revealed five pitch accents: two mono-tonal PAs: H\* and L\*, and three bi-tonal

PAs: L+H\*, H\*+L and L\*+H. As in the description of other languages, the H and L tones for IH are described as high or low relative to each speaker's pitch range. The basic PA's may additionally be scaled within a modified pitch range: lowering ('!' symbol), sequence of pitch accents where each accent involves a step up in pitch or a step up to a boundary tone ('^' symbol) and peak delay ('<' symbol) after the associate syllables.

For the present paper we combined the results of H\*, L+H\* and the H\*+L transcription into one H\* group even though the most common PA in IH is the L+H\* (cf. Table 2 for a detailed summary of IH-ToBI transcription and coding).

## **2. Methodology**

### *2.1. Subjects*

The data of this preliminary study are drawn from the speech samples of four children: two children diagnosed with ASD as HF (ASD-HF) and two matched children without developmental disorders (WDD) selected by the special education teacher who was not aware of the research aims. The children were recruited from two classes from a mainstream primary school with special education classes for children with ASD. The ASD children receive their regular academic program together with their peers and remedial assistance for both academic and social issues in the special education classes. Subjects for this study were matched peers. The children fulfilled the following criteria: two children WDD (9:08, 12:09) and two children diagnosed with ASD-HF (9:11, 12:10). All participants were male, monolingual speakers of IH; their parents were born in Israel and are monolingual speakers of IH. None of the members of the immediate families of the subjects have learning or other known disabilities. All four mothers have at least 15 years of education, which is indicative for socioeconomic status, since maternal educational level is a significant predictor of language functioning in children (Dollaghan *et al.* 1999). The recruitment of the ASD-HF subjects was made using inclusion criteria of: (a) a diagnosis of DSM-IV Autistic disorder or Asperger disorder on the basis of clinical interview by the child psychiatrist, (b) IQ test results. The ASD children were found to be within the norm for their chronological age, both in their performance and verbal IQ (WISC-R), and (c) typical, within the average, school performance in the mainstream class in language and reading. The recruitment of the control group was made using inclusion criteria of: (a) children WDD, i.e. they have not been referred to a specialist for any developmental reasons, (b) they belong to the same home classes as the HFA subjects, and (c) as reported by the teachers, their academic achievements are similar to the ASD-HF subjects. Details are presented in Table 1.

Table 1: Subject's characteristics

Subject and Research Group	School Year	IQ			Age
		VIQ	PIQ	FIQ	
N-ASD-HF	5	90	99	94	9:11
T-ASD-HF	7	108	99	104	12:10
D-WDD	5				9:08
A-WDD	7				12:09

## 2.2. *Speech Material*

It has often been pointed out that reading tasks can be very useful for research dealing with controlled data, but reading aloud fails to account for several linguistic phenomena that are crucially important when one is making assumptions about spoken language (Beckman 1997). This is particularly relevant when researching the complex domain of prosodic intonation which is the natural context of prosody. This study will concentrate on both Read Aloud (RA) and Semi-Spontaneous Speech (S) data. The S sample will provide the naturally occurring conversational prosodic behaviour and will be compared with an elicited RA language sample. However, the definition of what characterizes S is controversial. Speech is usually labelled as being either spontaneous or read, without taking into account that there is a continuum that lies between the two (Fujisaki 1997). Therefore, we have adopted a more gradual holistic view of S, defined by the main characteristic of spontaneity: i.e. that it must occur “by its own internal force, motivation, etc., rather than by external ones” (Fujisaki 1997:38).

## 3. Procedures

The speech material was gathered from RA and S elicitation tasks. Each child participated in an introductory meeting with the first author, followed by a session where language samples were collected: (a) RA: each subject read a short story considered by the teacher to be appropriate for the age and grade of the subjects. We analyzed ten sentences of the story: seven complex declarative sentences (181 words) and three simple WH questions (12 words). (b) S: natural language samples were collected during interaction between the children and the researcher in response to the question: “I want to get to know you better. Is that OK with you?” After receiving a positive reply, directed, open questions were asked about the subject's school environment and hobbies. The goal was to produce a fluent narrative, preferably a monologue or a series of monologues, from the child. We analyzed the first ~100 IU of each subject's S. Meetings took place in the child's room.

### 3.1. *Preparation of the Material*

Two procedures were followed before the actual analyses of the data:

1. Digitalization of the acoustic material: All the language samples were recorded directly onto a laptop computer using Audacity, a software package for recording and editing sound files. The recording was done at a sample rate of 44.1 KHz and at a bit depth of 16 bits.
2. Transcriptions and coding procedure were separated into: (a) Division of the data into IUs following the commonly used procedure of parsing an utterance into IUs delimited

by their boundaries (Cruttenden 1986). All utterances/sentences were saved in .wav format for further coding and analyzes. (b) Using PRAAT software (Boersma and Weenink 2005) and the adaptation of ToBI framework to IH-ToBI our research procedure generates a sound file and a textgrid for each utterance or sentence. This textgrid has five different tiers: tones, words, breaks, phonetic and comments. In this paper we will not consider all the important issues of each tier, rather we will concentrate on the initial analysis of the intonation features of pitch accents and edge tones in the language of ASD-HF subject and control WDD in two elicitation tasks. In table 2 we summarize the IH-ToBI transcription and coding procedures we have just described.

Table 2: Summary of IH-ToBI transcription and coding

IH-ToBI Tiers		Description
Tone	PAs	L+H* - This is a rising PA. It is by far the most frequently used PA in IH. The accented syllable is perceived as high. This PA is preceded by a syllable with a low pitch target which leads to a rise in the accented syllable (In this PA the peak might be late in the accented syllable).
		H* - FO peak which is preceded by a small rise.
		H*+L - This is a falling pitch accent.
		L* - Low pitch accent.
		L*+H - The L*+H differs from the L* primarily by a rising pitch movement that follows the L* target. This PA is in contrast with the L+H* PA. In the L+H* PA the H tone appears roughly in the middle of the accented vowel and even if the peak is late (L+H*<), this PA perceptually perceived as high. In contrast, The L*+H PA always show a late alignment of the H tone and perceptually perceived as low.
	PhA	Lp - FO minimum low in the range / downstepped in relation to a previous tone. Hp - The same FO value as the peak corresponding to the most recent H tone / upstep in relation to previous H tone.
BT	%	- Initial boundary tone.
	L%	- Final low boundary tone.
	H%	- Final high boundary tone.
Words: It is an orthographic tier and contains a straightforward transcription of all of the words in the utterance, written in Latin alphabet to transliterate IH words (following Berman 1978). The word transcriptions are aligned with their locations in the speech waveform.		
Break indices	B	Marking the beginning of an IU
	1	Marking typical word boundaries in a fluent sequence of words within a phrase
	1p	Marking a short disfluent break
	0	Marking when two words are produced as one
	2	Marking mismatch between tones and perceived juncture
	3	Marking of ip
	3p	Marking a disfluent break long enough for an ip boundary
	4	Marking the end of an IU
4u	Marking the end of an U	
Phonetic: Provides an IPA transcription of a word with addition of PA placement (/) before the accented syllable.		
Comments: Information is only encoded if it cannot be derived from labels from other tiers or from the speech signal. This tier includes nonverbal noise produced in the vocal tracts of speech event participants as well as other related details.		

## 4. Results

The results describe, compare and contrast the intonation components of PAs and ETs of the ASD-HF and WDD groups in each elicitation task.

### 4.1. PAs in the RA task

The ASD-HF subjects produced more PAs than the WDD control group. Differences were also found in the kinds of PAs. All subjects produced high PAs (L+H\*,

H\*, H\*+L) more frequently, but the ASD-HF subjects showed a greater use of high PAs, as well as a dissimilarity in their use within the ASD-HF group. The use of high PAs by the two ASD-HF participants was 70.0% and 81.2% of the total, while the WDD subjects produced 64.2% and 66.1% of high PAs respectively (see Table 3).

Table 3: PAs in the RA task

Component	ASD-HF		WDD	
	N-ASD	T-ASD	D-WDD	A-WDD
PAs per total number of words	1.29	1.15	1.05	0.94
	1.22		0.99	
% of H* PAs	70	81.3	64.2	66.1
	75.65		65.15	

#### 4.2. ETs in the RA task

The sample contained 169 IUs of which 162 were analyzed. 7 IUs were excluded because the visibility of the ETs (on the PRAAT software) was unclear or absent. The results indicate that for all subjects the most frequent use of ETs is a contour pattern of L% final. For declarative sentences, the ASD-HF and the WDD use almost the same patterns in sentence-final position (H\*LpL%, L\*LpL%): i.e. 79% of the ETs were similar, except that they showed a preponderance of high PA (similar to the PA component). The HFA subjects have more L% final than their WDD peers. With regard to the ETs patterns in the RA task, the WDD subjects exhibit more similar contour patterns (58.2% and 62.7%) of L% final while the ASD-HF subjects exhibit dissimilar patterns. One ASD-HF participant produced 53.9% of L% final which is more similar to the contour patterns of the control WDD subjects and the other ASD-HF participant used an L% final in 83.7% of his IUs boundaries, far more than all the others. These differences in the falling pattern are even more prevalent when we compare the two groups. The HFA subjects used more final lowering patterns than the WDD controls but with less diversity (see Table 4).

Table 4: Distribution of ETs in the RA and S tasks

ETs	N-ASD		T-ASD		D-WDD		A-WDD	
	RA	S	RA	S	RA	S	RA	S
H*HpH	7.6	14.1	2.3	2.1	11.4	9	19.4	16.7
H*LpH	23.2	17.4	9.4	7.2	5.8	7	8.4	10
L*HpH	9.6	2.2	2.3	3.1	8.6	7	8.4	15.6
L*LpH	5.7	0	2.3	2.1	11.5	10	5.6	1.1
Total of high- BT	46.1	33.7	16.3	14.5	37.3	33	41.8	43.4
H*HpL	7.7	17.3	20.9	22.6	17.1	14	19.4	10
H*LpL	28.8	39.2	51.1	49.4	20.0	29	22.2	22.1
L*HpL	0	2.2	4.7	3.1	8.5	5	0	10
L*LpL	17.4	7.6	7.0	10.4	17.1	19	16.6	14.5
Total of low-BT	53.9	66.3	83.7	85.5	62.7	67	58.2	56.6

#### 4.3. PAs in the S task

The sample contained 405 IUs (about 100IU of each subject). The ASD-HF subjects produced *more* PAs than the WDD controls with a greater use of the high PAs. The S analysis of high PAs by the two ASD-HF subjects was 75.6% and 79.5% of the total number. Differences between the two ASD-HF subjects were smaller, when

compared with the RA task. The PAs of the WDD subjects show that the use of high PAs is 64.4% and 64.3% and hence similar to the RA task (see Table 5).

Table 5: IUs and PAs in the S task

Component	N-ASD	T-ASD	D-WDD	A-WDD
Number of IUs	96	103	108	98
PAs per IU	3.84	3.69	3.12	3.2
		3.765		3.16
% of high PAs	75.6	79.5	64.4	64.3
		77.55		64.35

#### 4.4. ETs in the S task

The most frequent use of boundary tones at the edge is a contour pattern of L% final for both groups. Comparing the WDD controls with the ASD-HF subjects, the WDD controls are more similar (58.2% and 62.7%) for L% final while the ASD-HF subjects exhibit dissimilarity. While one ASD-HF subject has 53.9% of L% final and is more similar to the WDD controls, the other uses an L% final in 83.7% of his IUs tone boundaries. Comparing the matched HFA-WDD peers, the differences are more pronounced. While one WDD subject has 62.7% of final lowering, his ASD-HF peer has 53.9% the other WDD subject produces 58.2% of final lowering and his ASD-HF peer produces 83.7%. When considering the ETs in the contour pattern at the end of the IU, we observed again that the ASD-HF subjects use the final lowering pattern more than the WDD controls with less diversify in their use. For both groups the contour pattern of H\*LpL% at the edge of prosodic domain was the most frequent one (see Table 4).

## 5. Discussion

The present study reflects the advances made in the linguistic study of intonational phonology, the technological progress in the computer description and analysis of prosodic intonation as well as the further refinements in the assessment and definition of autism. In doing so, we have examined new ways to describe the particular intonation of children who meet the criteria for ASD-HF who are mainstreamed in the regular school environment. There were two fundamental research questions in this initial study which could serve as a basis for further research. First, is it possible to distinguish the phonological representations of the intonation contours of children with ASD-HF versus children WDD according to the procedure presented above? The second question focused on the influence of the elicitation task on the intonation of ASD-HF and WDD children.

As to the first question, the analysis of the pitch contour using the methodology presented above does in fact clearly show differences between subjects with ASD-HF and the WDD control group even though we concentrate only on two components of the intonation contour (PAs and ETs). Our chosen methodology allows the representation of intonation in a script form of the linear sequence of speech. We have observed that the intonation script, based on acoustic measurements, facilitates a phonological representation of the differences in intonation between the research and control groups.

The following pitch contour differences were found. The ASD-HF subjects produced more high PAs (L+H\*, H\* and H\*+L) and within the ASD-HF group there is a greater variation than in the WDD control group. This may indicate that if the causes of the variation in intonation are differences in the kinds of PAs and transitions between the prominent components, then when (a) the prominence exists in more frequent high PAs and (b) there are consequently fewer transitions, a monotonous accent is created. The other intonation feature we examined was the edge of the IU, i.e. the last PA, the PhA and the BT of an IU. ASD-HF children exhibited a limited repertoire of prosodic ET patterns within the norm of the language. These patterns are repeatedly used both in the RA and in the S elicitation tasks. Therefore both the *monotonous accent* and the *repetitiveness of ETs* produced by the ASD-HF subjects create a stiff sounding prosody. Conversely, the prosodic patterns found in the WDD control group, showed a greater number and a larger degree of variations for the same tasks creating a more diverse and flexible sounding prosody.

The second question focused on the influence of the elicitation tasks on the intonation features of ASD-HF and WDD children. The results in both tasks showed a similar tendency. However in S the characteristics were more pronounced than in the RA elicitation task. In the WDD control group no differences between the RA and S were found. However, differences were observed between the two ASD-HF subjects in the research group. One subject (N-ASD) exhibited a similar distribution of the prosodic events that were examined in both tasks. The second subject (T-ASD) exhibited: (1) more high PAs in the S than in RA, and (2) the predominant ET in RA (H\*LpL%) occurred even more frequently in S, an increase to a more patterned speech by the T-ASD-HF subject in the S. The variation that was found between the ASD-HF subjects and the lack of variation in the WDD control group seem to indicate that the differences are not age related. We suggest that this variation reflects the specific differences between individuals who are diagnosed with ASD that was previously mentioned (e.g. Wing 1991, Sigman and McGovern 2005), a topic worthy of further research. The present study has laid the way for future research examining the prosodic differences between ASD-HF and matched children WDD in these and in additional elicitation tasks.

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# Perception of voicing in fricatives<sup>1</sup>

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## Abstract

Stops and strident fricatives show a similar pattern of voicing neutralization. Voicing contrast is preserved more often (i) in between sonorants than in word boundaries; (ii) word-initial than word-final position. In case of stops, the asymmetry between word-initial and word-final position is due to the availability of VOT cues. However, it has been less investigated what cues are responsible for fricative voicing neutralization. The present study has identified the important cues to voicing distinction of fricatives in the intervocalic position. It turned out that the cues in surrounding vowels as well as frication duration are important. This explains the asymmetry between intervocalic position versus word boundaries, though it does not explain the asymmetry between word-initial and word-final positions.

**Keywords:** fricatives, voicing contrast, neutralization, Licensing by Cue, perception

## 1. Introduction

Speech perception and speech production condition the phonological distribution of sounds and play an important role in determining whether the contrast between two classes of sounds is implemented or whether it is neutralized (Liljencrants and Lindblom 1972, Ohala 1981, Steriade 1997). Crucial to the interaction of perception and phonological processes is the concept of “cue,” defined following Wright (2001) as the information in the acoustic signal, which allows the listener to apprehend the existence of phonological contrast. The absence of an important cue to the perception of a contrast

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\* The names are in alphabetical order. Both authors contributed equally to this paper.

in a given phonological context has as a major consequence the triggering of neutralization.

Steriade (1999:4) hypothesizes that “the likelihood that distinctive values of the feature F will occur in a given context is a function of the relative perceptibility of the F-contrast in that context” (Licensing by Cue Hypothesis). Given that different phonological contrasts rely on different cues, different contrasts show specific and individual patterns of distribution. Also, the availability and the nature of the cues to a given contrast type vary systematically with the context in which the segments occur: different phonological contrasts are therefore ‘licensed’ in different positions. An extensive recent literature has shown that perceptual considerations shape the typology of contrast neutralization: more perceptible contrasts are preferred to less distinct contrast, and contrasts are usually neutralized first in environments where they would be less distinct (cf. Dispersion Theory of Contrast, Flemming 1995, 2002).

Not all cues to a contrast are the same: a distinction has to be drawn between internal and external cues (Steriade 1997: 9). Whereas internal cues are realized during the segment itself, e.g. vowel formants and fricative noise, external cues are realized on adjacent segments, e.g. formant transitions, or they rely on the presence of adjacent segments, e.g. VOT (Flemming 2007). The availability of external cues depends on the environment of the target segment; the presence of external cues is thus highly variable across contexts. On the other hand, internal cues are less context-dependent as they are intrinsic acoustic properties of the segment itself.

The paper is organized as follows: In Section 2, we report the pattern of voicing contrast neutralization of stops and that of fricatives. In Section 3, we will present our experiment and the results. In Section 4, we will discuss how the unavailability of important cues in certain conditions would result in the typological asymmetries in the patterns of voicing contrast neutralization. Section 5 is the conclusion.

## **2. Voicing contrast in stops and in fricatives**

### *2.1 Voicing contrast in stops*

The distribution of voicing contrast in stops is strongly conditioned by the availability of acoustic cues to voicing in different contexts (Kingston and Diehl 1994, Steriade 1997). Contexts in which more cues are available are those in which the voicing contrast is more likely to be preserved cross-linguistically.

Among the acoustic correlates of stop voicing, cues in the transition following the release of the stop are more important to the perception of the contrast, than cues in the closure (Raphael 1981). VOT is a more perceptually salient cue than closure duration (Lisker 1957). Other cues to the presence of voicing are amplitude and duration of the release burst (Repp 1979) and the amplitude of F1 at release (Lisker 1986) and F1/F0 adjacent to the closure (Haggard, Ambler and Callow 1970). Cross-linguistic patterns of [±voice] neutralization provide evidence for the link between contrast preservation in a certain position and availability of perceptible cues in that context: no language neutralizes the voicing contrast in a more informative context, unless it also does so in a less informative context. The patterns across languages are shown in (1).

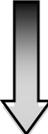
(1) Patterns of voicing neutralization in stops (Steriade 1997)

Context Language	#_O, O_#	R_O	R_#	_R	R_R
Totontepec Mixe	no contrast	no contrast	no contrast	no contrast	<b>contrast</b>
Lithuanian	no contrast	no contrast	no contrast	<b>contrast</b>	<b>contrast</b>
French	no contrast	no contrast	<b>contrast</b>	<b>contrast</b>	<b>contrast</b>
Shilha	no contrast	<b>contrast</b>	<b>contrast</b>	<b>contrast</b>	<b>contrast</b>
Khasi	<b>contrast</b>	<b>contrast</b>	<b>contrast</b>	<b>contrast</b>	<b>contrast</b>

O = obstruent, R = sonorant

Contrast is very rarely attested in stop clusters: in both positions of the cluster, C<sub>1</sub> and C<sub>2</sub>, important cues to contrast are missing. VOT information is not available to discriminate voicing in C<sub>1</sub>, and information about cues in the preceding vowel (such as duration) is not available in C<sub>2</sub>. The voicing contrast is even less frequent in obstruent clusters at the edges of a word: in a word-initial cluster both cues in the preceding vowel and VOT cues in C<sub>1</sub> are missing, the same is true for C<sub>2</sub> in a word-final cluster. Only cues in the closure (duration and voicing) are preserved. As the contexts become more informative (moving rightwards in (1)): voicing identification becomes more reliable and thus more languages exhibit voicing contrast in those contexts. Examples from Russian are shown in (2).

(2) Russian (data from Padgett 2002), arranged by descending cue availability.

	Contrast R_R	sled-a 'track (GEN.SG.)'	sviet-a	'light (NOM.SG.)'
	Contrast _R	teatr 'theater'	kadr	'film sequence'
	No Contrast R_#	slet 'track (NOM.SG.)'	sviet	'light (GEN.PL.)'
	No Contrast #_O	gde 'where'	*kde, gte	
		kto 'who'	*kdo, gto	

A crucial part of the Licensing by Cue hypothesis is that different phonological contrasts are licensed by different cues and therefore can present different distribution. There are no specific syllabic positions where contrast is in *general* less attested, different contrasts are neutralized in positions which are *specific* to the cues signaling the contrast. Steriade (1997:30) shows that this hypothesis not only accounts for the distribution of voicing contrasts, but also for the distribution of other contrasts, e.g., pre- and post aspiration and glottalization contrast. There are languages which maintain voicing contrast before all consonants (e.g., bt, pt, bn, pn (initial clusters)) but they only maintain aspiration contrast before sonorants ( $t^h m$ ,  $p^h n$  \* $t^h p$ , \* $p^h d$ ) (e.g., Khasi (Henderson 1976)). Although voicing and post-aspiration contrasts are licensed by almost the same set of cues, the non-perfect overlap of cues results in a different cross-linguistic distribution.

## 2. 2 Voicing contrast in fricatives

### 2.2.1 Acoustic and articulatory properties of voiced and voiceless fricatives

Little attention has been devoted until now to the perceptual cues to voicing in fricatives, but purely acoustic properties of voiced and voiceless fricatives have been described at length in the literature.

Voicing during the frication, as well as voicing during stops is subject to the aerodynamic voicing constraint (Ohala 1983, Stevens 2000). In order for voicing to occur, two basic requirements have to be met. First, the vocal chords must have the appropriate degree of tension and the appropriate degree of adduction. Second, there must be air flowing through the glottis (Ohala 1983). In stops, voicing is hard to maintain because the air flowing through the vocal folds accumulates in the oral cavity raising the oral pressure to the point where voicing ends (i.e. when oral pressure equals to subglottal pressure). In fricatives, the difficulty to maintain voicing could theoretically be smaller, given that some of the air accumulated in the oral cavity escapes, lowering the oral pressure. However this is not the case. The difficulty comes about from the conflict between the production of voicing and the generation of turbulence that is required for the identification of a fricative and its place of articulation. For the generation of strong frication turbulence, high oral air pressure is necessary and, as in stops, if the oral air pressure is raised too much, it becomes too close in magnitude to subglottal air pressure and the production of voicing will cease. In the production of strident fricatives such as /z/ this issue is even more relevant (Beckman et al. 2006): in

order to distinguish strident from non-strident fricatives, strident fricatives need to be produced with a large amplitude of frication turbulence. Ohala (1997) observes that there is statistically greater tendency for fricatives to favor voicelessness than for stops: 24% of the world's languages have only voiceless stops and about 38% have only voiceless fricatives.

A rough comparison of the acoustic properties of voiced and voiceless fricatives is given in (3).

(3) Acoustic properties of voiceless and voiced fricatives in a V1-C-V2 sequence

	Acoustic properties	Voiceless fricative	Voiced fricative
<b>C</b>	Frication duration	Longer	Shorter
	Voicing during frication	No	Yes
<b>V1, V2</b>	V1 duration	Shorter	Longer
	F0/ V1, V2	Higher	Lower
	F1/ V1, V2	Higher	Lower

(Adapted from Steven's (2000, *passim*) description of fricatives)

2.2.2 *Phonological patterns: distribution of the contrast and contrast neutralization.*

The distribution of voicing contrast in strident fricatives is to a certain extent similar to the distribution of voicing contrast in stops. The preservation of contrast in stops is dependent on the presence of a following sonorant segment since important cues such as VOT are available in those contexts. Many languages neutralize voicing contrast in word-final strident fricatives as well as in fricatives preceding a stop, similarly to the pattern of stops. In this section we describe a few cases of fricative voicing neutralization that show strong similarities with the previously described stop cases.

(4) illustrates the distribution of voicing contrast in strident fricatives with a sample of languages.

(4) Patterns of voicing neutralization in fricatives

Context Language	V_V	#_V	V_#
Italian (e.g. Tuscan dialect)	no contrast	no contrast	no contrast
German, Italian (e.g. Milanese dialect)	<b>Contrast</b>	no contrast	no contrast
Russian, Polish, Czech	<b>Contrast</b>	<b>contrast</b>	no contrast
Hungarian, Turkish, Romanian, French	<b>Contrast</b>	<b>contrast</b>	<b>contrast</b>

*German*



	niz-a	‘bottom (GEN.SG.)’
Contrast #_[+son]	ḡad-	‘orchard (NOM.SG.)’
	zad-	‘back (NOM.SG.)’

b. Voicing contrast is neutralized everywhere else

No Contrast [+son]_#	leḡ-	‘forest (NOM.SG.)’
	niḡ-	‘bottom (NOM.SG.)’

### *Turkish*

In Turkish, word-finally, stops neutralize but fricatives do not. The distribution of voicing in fricatives has the same pattern as in English, where phonological voicing contrast is preserved everywhere (inter-vocalically, word-initially, and word-finally)<sup>2</sup>.

(8) a. Voicing contrast is preserved before sonorants

Contrast [+son]_[+son]	aḡa ‘stick’	aḡa ‘member’
Contrast #_[+son]	su ‘water’	zor ‘trouble’

b. Voicing contrast is preserved word-finally

Contrast [+son]_#	kaḡ ‘goose’	kaḡ ‘muscle’
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In spite of the fact that a comprehensive survey of the cross-linguistic distribution of fricative voicing neutralization has not been done, the small sample of languages illustrates a pattern which can be summarized by the implicational hierarchy below.

(9) No Contrast V\_V → No Contrast #\_V → No Contrast V\_#, No Contrast V\_O

The sample of languages presented in table 3 suggests that, as is the case for stop voicing neutralization, word-final neutralization in fricatives is more common than word-initial neutralization. More precisely, word-initial neutralization seems to imply word-final neutralization but not vice versa.

### **3. Experiment: Identifying important cues to voicing in fricatives**

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<sup>2</sup> In spite of the absence of phonological contrast neutralization, both stops and strident fricatives are phonetically devoiced word-finally, i.e. spectrograms reveal that most of the times voicing is not produced throughout the closure/frication but only in the vicinity of the preceding sonorant.

The similar contrast neutralization patterns in stops and fricatives (§2) suggests that the perception of fricative voicing would also depend on cues that rely on the presence of a following sonorant segment, just as the VOT cue for stops does. Until now, however, perceptual cues to voicing in alveolar fricatives have not been thoroughly analyzed, and therefore there is no evidence of any sonorant-dependent property as a cue. The experiment reported here was designed to assess the saliency of individual acoustic cues to the perception of voiced and voiceless alveolar fricatives in the intervocalic environment.

### *3.1. Experimental Procedure*

Our perceptual study was a forced-choice identification task. Individual cues were edited one at a time, a method similar to Raphael's (1981) work on the acoustic cues to stop voicing in American English.

In order to investigate the contribution of individual cues to the perception of voicing in alveolar fricatives, we hypothesized that when a listener is presented with a stimulus which is overall ambiguous but contains one *salient* cue pointing him to one voicing category, e.g., [+voice], he will be prone to systematically categorize the stimulus as being [+voice] because of the high perceptibility of that cue. In contrast, when the listener is presented with a stimulus which is overall ambiguous but contains a *marginal* cue pointing him to one voicing category, e.g., [-voice], he will categorize the stimulus as being sometimes [+voice] and sometime [-voice], because the marginal cue is not salient enough to override the overall ambiguity.

The experiment was therefore designed to investigate the strength of each cue in moving the stimulus away from the categorical boundary (chance level [s] and [z] responses), into one of the voicing categories (more than chance level [s] or [z] responses). To do so, we first created the ambiguous base, using the measurements from five speakers. We moved this ambiguous stimulus into two directions of [s] or [z] by editing one cue at a time.

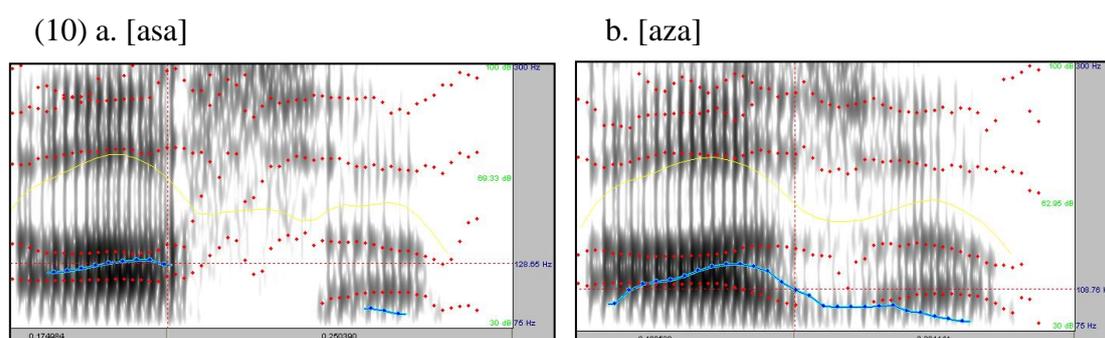
#### *3.1.1 Source material*

Five American English speakers (males, age 25-35) were recorded while reading [asa] and [aza] in a sound attenuated booth. Each item was repeated three times and embedded in a carrier sentence ("Say x please") to eliminate the effect of the boundary tone on the final vowel when they were read isolated. The recording was made to obtain

an average estimation of the acoustic properties of intervocalic /s/ and /z/. The speakers did not report any history of speaking or hearing disorder. The sound files were recorded at a sampling rate of 44.1 kHz. The following acoustic properties were measured using Praat: duration and intensity of the frication; duration of the surrounding vowels; F0, F1 and F2 at the offset of V1 and at the onset of V2.

The measurements were averaged across speakers and the standard deviation (SD) was calculated. The speaker whose values best fit within one SD from the average was chosen to be the representative speaker. In order to make the two tokens more representative, they were edited for the parameters which departed more than within 1 SD, based on the values across speakers. The resulting two tokens ([asa] and [aza]) were used as the source material to create the base stimulus for the editing.

The acoustic properties of the two tokens were in line with the descriptions of intervocalic fricatives in (3) in Section 2. Below are the spectrograms of the two tokens.



The frication duration was longer in the voiceless fricative [s]. Voicing bars were present during the frication of [z] but not [s]. The preceding vowel (V1) was longer with [s] than with [z]. F0 and F1 on the preceding and succeeding vowels (V1, V2) were higher with voiceless [s] than with voiced [z].

### 3.1.2 Preparing stimuli

Starting from the two tokens described above, an ambiguous stimulus was created through editing; its acoustic properties were exactly in the middle between those of the voiced and those of the voiceless fricative. Pretesting revealed that in order for the token to be perceptually ambiguous, there should be no voicing at all; therefore the frication of the ambiguous stimulus, the Base, was the frication of voiceless [asa], with edited duration. Moreover, we could not manipulate formant values of the vowels to the middle values since Praat does not allow manipulating formants without synthesis. We

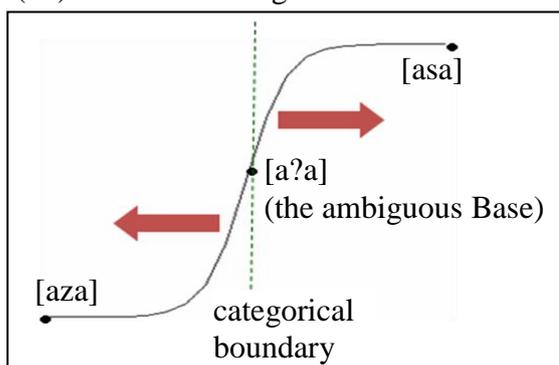
started with the vowels of [asa] to create the [Base], setting all the values to the averaged values of [asa] and [aza], except for the formant values which remained the same as those of [asa]. Despite this apparent [s] bias, in the pretesting phase of the experiment, subjects reported that the Base stimulus was very ambiguous: half of the listeners categorized it as [s], and half as [z]. The values of the acoustic variables of the tokens [asa], [aza] and the Base are shown in (11).

(11) Values of the acoustic variables

	V1 dur.	V2 dur.	Fric. dur.	F0/V1	F0/V2	F1, F2/V1	F1, F2/V2
[asa]	122	77	94	129	153	812 1248	525 1472
[aza]	152	88	52	106	95	447 1293	480 1371
Base	137	82	73	118	121	837 1247	495 1424

The perceptual effect of each cue was tested by subjecting the Base to a number of editing operations which consisted of manipulating *single* variables into the direction of [s] and of [z]. The stimuli for the perceptual experiment therefore differed from the Base only in one single cue. Assuming that the ambiguous Base lies near the categorical boundary between [s] and [z], the editing of each cue towards their values for [s] and [z] made the stimuli closer to [s] and [z] respectively. The directions and the effects of the editing are schematized in (12):

(12) Stimulus editing



(13) presents the values of the variables for each single-variable edited stimulus type. All the cues were manipulated one at a time into two directions, except for the formants. Formant cues were edited only to the [z] direction because the formants of the base were the same as the formants of the vowels in [asa], for the reason described above.

## (13) Single-variable editing

Cue Direction	V1 Dur	V2 Dur	Fric Dur	F0/V1	F0/V2	F1, F2/ V1		F1, F2/V2	
Unedited [asa]	122	77	94	129	153	812	1248	525	1472
Unedited [aza]	152	88	52	106	95	447	1293	480	1371
[Base]	<b>137</b>	<b>82</b>	<b>73</b>	<b>118</b>	<b>121</b>	<b>837</b>	<b>1247</b>	<b>495</b>	<b>1424</b>
V1 dur [s]	<b>122</b>	82	73	118	121	837	1247	495	1424
V1 dur [z]	<b>152</b>	82	73	118	121	837	1247	495	1424
V2 dur [s]	137	<b>77</b>	73	118	121	837	1247	495	1424
V2 dur [z]	137	<b>88</b>	73	118	121	837	1247	495	1424
Fric dur [s]	137	82	<b>94</b>	118	121	837	1247	495	1424
Fric dur [z]	137	82	<b>52</b>	118	121	837	1247	495	1424
F0/V1 [s]	137	82	73	<b>129</b>	121	837	1247	495	1424
F0/V1 [z]	137	82	73	<b>106</b>	121	837	1247	495	1424
F0/V2 [s]	137	82	73	118	<b>153</b>	837	1247	495	1424
F0/V2 [z]	137	82	73	118	<b>95</b>	837	1247	495	1424
F1, F2/ V1 [z]	137	82	73	118	121	<b>447</b>	<b>1293</b>	495	1424
F1, F2/ V2 [z]	137	82	73	118	121	837	1247	<b>480</b>	<b>1371</b>

In addition, a second set of stimuli was created from the Base by manipulating more than one variable at the time: the cumulative perceptual effect of vowel cues was tested by replacing (splicing) both vowels of the Base with vowels of [asa] and [aza] respectively. Although the frication was ambiguous, formant transitions and vowel durations pointed towards one of the two voicing categories. Acoustic properties of these two stimuli are listed in (14).

## (14) Vowel replacement

Cue Direction	V1 Dur	V2 Dur	Fric Dur	F0/V1	F0/V2	F1, F2/ V1		F1, F2/V2	
Unedited [asa]	122	77	94	129	153	812	1248	525	1472
Unedited [aza]	152	88	52	106	95	447	1293	480	1371
[Base]	<b>137</b>	<b>82</b>	<b>73</b>	<b>118</b>	<b>121</b>	<b>837</b>	<b>1247</b>	<b>495</b>	<b>1424</b>
V1 and V2 [asa]	<b>122</b>	<b>77</b>	73	<b>129</b>	<b>153</b>	<b>812</b>	<b>1248</b>	<b>525</b>	<b>1472</b>
V1 and V2 [aza]	<b>152</b>	<b>88</b>	73	<b>106</b>	<b>95</b>	<b>447</b>	<b>1293</b>	<b>480</b>	<b>1371</b>

Finally, a third set of stimuli was created with the aim of identifying the effect of voicing during the frication on the perception of voicing distinction in fricatives, all

cues other than frication voicing were kept as in the Base, as shown in (15). Voicing was added to the voiceless frication of the Base on a continuum from 10 to 50%.

(15) Frication voicing addition

Cue Direction	V1 Dur	V2 Dur	Fric. Dur	Voicing	F0/V1	F0/V2	F1, F2/ V1		F1, F2/V2	
Unedited [asa]	122	77	94	None	129	153	812	1248	525	1472
Unedited [aza]	152	88	52	None	106	95	447	1293	480	1371
[Base]	<b>137</b>	<b>82</b>	<b>73</b>	<b>None</b>	<b>118</b>	<b>121</b>	<b>837</b>	<b>1247</b>	<b>495</b>	<b>1424</b>
10% [z] voicing	137	82	73	10%	118	121	837	1247	495	1424
20% [z] voicing	137	82	73	20%	118	121	837	1247	495	1424
30% [z] voicing	137	82	73	30%	118	121	837	1247	495	1424
40% [z] voicing	137	82	73	40%	118	121	837	1247	495	1424
50% [z] voicing	137	82	73	50%	118	121	837	1247	495	1424

Fillers were added to the twenty-two target stimuli: these were sixteen stimuli of the form [VsV] and [VzV], where V= e, i, o, u. The entire stimulus set was RMS equalized using Becker's (2002) Praat script.

3.1.3 *The perceptual experiment*

The subjects who participated in this study were nineteen native English speakers (age 25- 55). None of them reported history of hearing or speaking impairment. The experiment was a two-alternative forced-choice identification task. Stimuli were randomized and presented in three blocks (((22+16) stimuli \* 6 repetitions) \* 3 blocks = 684 tokens total) using Psyscope X B5 1D. Each stimulus was thus repeated 18 times. The listeners were asked to do a speeded categorization task, by pressing one of the two keys, labeled [S] and [Z], as fast as they could. Each trial was timed out 2000 ms. after the sound was played, and then a screen told subjects to respond faster. There was an interval of 200ms between the key press and the beginning of the following stimulus.

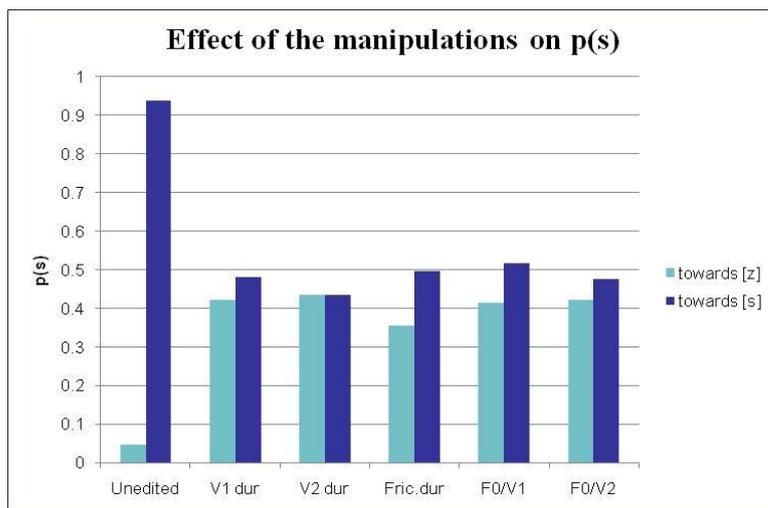
3.2. *Results*

3.2.1 *Effect of the single-variable manipulations on the subjects' responses*

The analysis of the subjects' responses revealed that listeners are sensitive to most of the edited acoustic properties. The chart in (16) plots the probability of categorizing

the stimulus as containing [s], p(s), for the stimuli for which one cue is edited at a time into both directions. Responses to the stimuli are plotted by comparing the effect of symmetric manipulations (editing the same cue in the two directions): the adjacent bars show that when the cue was edited towards the [s] value, p(s) rose, and when the cue was edited towards the [z] value, p(s) decreased. These results reveal thus that the direction of the manipulations is perceptually salient.

(16) Responses to single-variable edited stimuli (average across subjects)



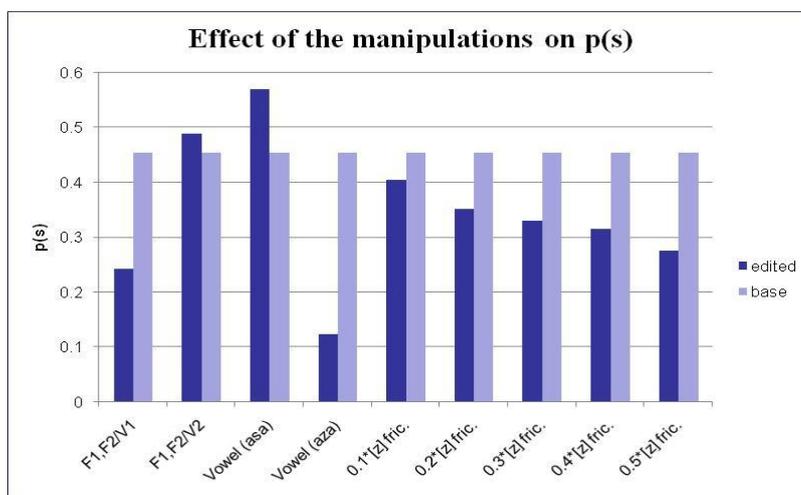
Unedited instances of [asa] and [aza] were almost always correctly identified by the subjects. Among the stimuli edited by a single variable, frication duration has the biggest effect on the response type. Cues in V1 are also salient to the subjects. Cues in V2 (duration and F0) had a smaller effect on the perception of voicing. However, this should not be interpreted to mean that cues in V1 are generally more important than those in V2. This asymmetry between V1 and V2 may have come from the fact that our speaker put stress on V1 and substantially reduced and shortened V2 in both [asa] and [aza]. Thus, V1's were distinct enough from each other in [asa] and [aza] whereas V2's in both utterances were similar to each other. It is therefore not surprising that cues in V1 had a greater discriminating effect than cues in V2. It is plausible that cues in V2 appear less perceptually salient because the segment was less salient overall, and not because of its intrinsic marginality.

Nevertheless, the results may also reflect the fact that the duration of the preceding vowel can often be a more crucial cue to voicing in both stops and fricatives than the following vowel, especially in a language like English where final phonological voicing neutralization does not occur, but where phonetic final devoicing is attested.

### 3.2.2 Effect of vowel replacement and frication voicing on the subjects' responses

The chart below plots pairwise comparisons between the probability that the Base is categorized as voiceless, and the probability that the edited stimuli are perceived as voiceless. Importantly, the results from the pretesting phase are confirmed during the experiment: although there is a slight bias to categorize the Base as [asa], the stimulus turned out to be ambiguous with  $p(s)$  almost 0.5.

(17) Comparing the Base stimulus to the edited stimuli



The effects of the single-cue manipulations are discussed below.

#### *Vowel formants:*

Formant editing had a big effect on the response type. It should be noted that F1 and F2 cannot be manipulated separately from the entire spectrum, and so our method of formant editing was rather indirect: Instead of changing formant values in the Base stimulus, we had to splice the entire [asa] or [aza] vowels onto the Base and subsequently edited other values (duration and F0) back to those of the Base except for the formant values. Because of this, we cannot guarantee that acoustic properties other than just formants were not transported to the Base beyond our control. Although for this reason we may have to underestimate the size of the effects of F1 and F2 cues than the results presented here, the formant cue should still be considered as one of the strongest. As for the formants on V2, the same caveat applies as in the previous section.

#### *Vowel replacement:*

The replacement of both vowels had a great effect on the categorization: Cues contained in the vowels are therefore very perceptually salient. This result is not

surprising given that the replacement involves giving the listener at least three types of information regarding voicing distinction: vowel duration, formant transitions into the frication, formant transitions out of the frication. All of these cues were found to be individually salient, and therefore the additive effect was expected.

The fact that replacement of the Base vowels with the vowels from [asa] has a much smaller perceptual effect than the replacement with the vowels from [aza] arises from the acoustic properties of the Base itself (§ 3.1.2): The smaller perceptual effect can be attributed to the slight bias of the Base, towards [s], as mentioned above.

#### *Frication voicing:*

The addition of frication voicing along a continuum interestingly had a linear effect on the subjects' responses: as the frication of the [Base] becomes more voiced, subjects are less likely to categorize the stimulus as being voiceless. More precisely, a linear decrease of p(s) corresponds to a linear increase of frication voicing. This finding suggests not only that even a small percentage of voicing is very perceptually salient, but also that perception of voicing during the frication is linear.

#### *3.2.3 Perceptual effect of the cues to frication voicing*

A more telling method to quantify the importance of a cue to the perception of a phonological contrast is to quantify the perceptual distance between the individual editings and the categorical boundary. The greater the distance between the ambiguous stimulus and the target stimulus edited for one acoustic dimension, the greater the perceptual saliency of that dimension for the listener. More precisely, if the editing of one single cue shifts the distribution of the responses to the stimulus by a large amount with respect to the responses to the ambiguous [Base], that cue is salient to the perception of the contrast under investigation.

There is an open debate in the literature as to which is the distance function for computing distance relationships between stimuli in the perceptual space. In our study, distance measures were obtained according to MacMillan and Creelman's Detection Theory (2005). The stimuli were classified as one-dimensional on the assumption that the single edit of perceptual cues will only produce a one-dimensional change in the perception of the stimulus. We are nevertheless aware of the fact that a one-dimensional change in the acoustic property of a stimulus may sometimes result in a multi-dimensional change on a perceptual scale. "[...] the question of the *perceptual* dimensionality of a stimulus set is distinct from that of physical structure. Stimuli

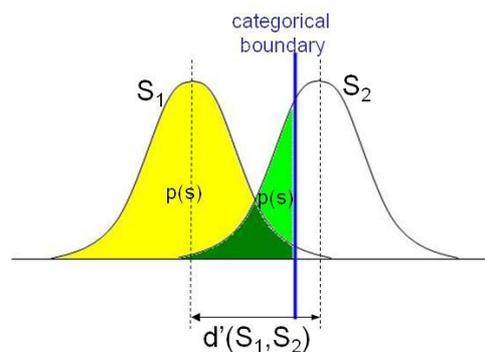
differing in one dimension can produce multi-dimensional perceptual changes.” (MacMillan and Creelman, 2004: 114). In the event that some of the editings had this unwanted result, our analysis will not capture the multi-dimensionality of the change, by treating them as one-dimensional.

Perceptual distance was calculated between the Base stimulus and each edited target stimulus in order to find out whether the editing of any cue resulted in bigger perceptual distance compared to the editing of other cues. Distance is measured by the sensitivity statistics  $d'$ , defined in terms of  $z$ , the inverse of the normal distribution function:

$$(19) d' = z(S_1) - z(S_2)$$

where the  $z$  transformation converts the probability of a response into standard deviation units. A probability of 0.5 is converted into a  $z$  score of 0, small probabilities into negative, and large probabilities into positive  $z$  scores. Probabilities of exactly 1 or exactly 0 have infinite  $d'$ . For this reason, we converted probabilities of 1 and 0 to 0.95 and 0.05.  $S_1$  was consistently chosen to be the stimulus with the highest  $p(s)$  between the two stimuli to be compared, regardless of whether it was the Base, or the edited stimulus.

(20) Converting  $p(s)$  into  $d'$ -values



$$d' = z(S_1) - z(S_2)$$

$S_1$ : Stimulus with higher  $p(s)$

$S_2$ : Stimulus with lower  $p(s)$

where  $S_1$  or  $S_2$  is the “base”

Starting from the ambiguous base, most cues were edited in two directions: towards [s] and towards [z], yielding two symmetric stimuli. Since the manipulation was done along a single dimension,  $d'$  values of the same cue in the two directions could be added. For each symmetric cue, the cumulative  $d'$  was calculated as in (21):

$$(21) d'(s, z) = d'(s, Base) + d'(Base, z)$$

For those stimuli which do not have a symmetric counterpart,  $d'$  could not be added and instead the individual  $d'$  values will be reported. The table in (22) shows the  $d'$  values of the different cues, arranged in descending order.

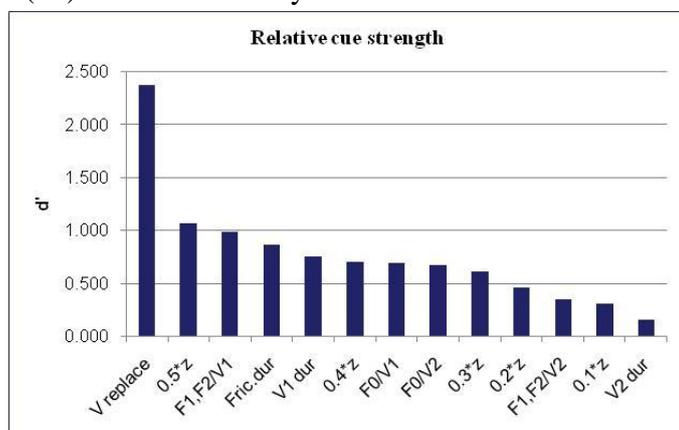
(22) Effect of the manipulations on  $d'$

Cues	$d'$
V1 and V2 replacement	2.368
50% [z] voicing	1.059
F1, F2/V1	0.985
Frication duration	0.859
V1 duration	0.749
40% [z] voicing	0.702
F0/V1	0.690
F0/V2	0.667
30% [z] voicing	0.603
20% [z] voicing	0.454
F1, F2/V2	0.340
10% [z] voicing	0.308
V2 duration	0.151

A repeated measures analysis of variance (ANOVA) was performed for the obtained  $d'$  values. The analysis indicated an effect of the factor cue manipulation on the  $d'$  value which was significant [F(11, 198),  $p < 0.001$ ].

As it emerged from the p(s) results, the  $d'$  analysis reveals that vowel replacement and frication voicing are the most informative cues to voicing categorization of the alveolar fricatives under analysis. Among the single-edited dimensions, durational cues in the frication and in the preceding vowel are most salient to listeners.

(23) Relative saliency of the edited cues



It should be noted that this experiment has investigated the relative importance of

different cues to the perception of voicing in alveolar fricatives. It does not address the question of whether the same weighting system is applicable to non-strident fricatives; we do not have the relevant evidence to extend our findings to all fricatives.

#### 4. Discussion

The present experiment has revealed that there are two categories of cues which are important in the discrimination of voicing of alveolar fricatives in intervocalic position in English. Two types of cues proved to be most salient to the listeners: these are cues in the adjacent vowels (duration and formant transitions), and cues in the frication (duration and voicing).

The Licensing by Cue hypothesis predicts that contrast will be preferably preserved in intervocalic position, and likely neutralized word-initially and word-finally. Contrary to the distribution of voicing contrast in stops, no perceptual cues were found for fricatives. When present, such cues, like VOT, cause the word-initial position to be a better environment for the discrimination of contrast than the word-final position. Even though the stronger influence of V1 was due to the fact that V1 was stressed and V2 was heavily reduced so that there was no discernable difference between V2s in [asa] and [aza], if the differences between V1 and V2 found in this paper are reliable at all, the asymmetry predicts a complementary pattern of contrast neutralization with respect to stops, i.e., postvocalic (V\_ #) better than prevocalic (#\_V).

Contrary to this prediction, a typological study showed that the distribution of voicing contrast in strident fricatives is remarkably similar to the one observed among stops. In the case of stop voicing contrast, the asymmetry is predicted by the nature of the strongest cue to the contrast, VOT, which depends on the *following* sonorant. In spite of the fact that only half of the formant cues are available at either edge of the word, the two edges are very different in terms of how informative they are. Whereas VOT cues are preserved in a word-initial stop, no VOT cue is available in the case of a word-final stop. The initial- vs. final- asymmetry is therefore accounted for by the Licensing by Cue hypothesis (Steriade 1997). The lack of VOT cue in word final position causes the identification of voicing to be less reliable, and therefore the contrast is more likely to undergo neutralization.

While the neutralization pattern of stops can be attributed to lack of VOT cue, it has been less clear what cues are missing in the case of fricatives. The current study showed that cues in surrounding vowels are as important as those in the fricative itself,

which explains the asymmetry between intervocalic and word initial/final positions. However, our results do not explain the word –initial and –final asymmetry: why word-initial position is a better place to keep the contrast than word-final position. We have shown in Section 2 the implicational hierarchy of positional neutralization of voicing contrast: Many languages neutralize the voicing contrast in word-final position (e.g., Russian); some neutralize the contrast both in word-final and in word-initial position (e.g., German). However, there is no language which preserves the distinction word-finally but neutralizes word-initially. Our results do not justify any differences of cues in V1 and V2, and thus the asymmetry between word-initial (prevocalic) and word-final (post-vocalic) positions. Therefore, they neither support nor disprove the Licensing by Cue hypothesis.

We have shown that the duration of frication is one of the most important single cues. We can hypothesize that the duration of frication is hard to perceive in word-final position, because acoustic signals gradually die out at the end of utterance, which may make the end point of frication in word final position less clear than the beginning of frication in word initial position. This may render frication duration harder to measure in word final position than in word initial position. Giavazzi (2008) is to investigate this hypothesis.

In a nutshell, our result showed that cues in the surrounding sonorant and cues that are more salient in the presence of surrounding sonorants are crucial for distinction of fricative voicing contrast. However, our results do not explain the asymmetry between word-final and word-initial position. The Licensing by Cue hypothesis is neither supported nor disproved by our results, in explaining the positional (word initial and final) asymmetry of voicing contrast neutralization of fricatives.

## **5. Conclusion**

The present study has identified the important cues to voicing distinction of fricatives, by looking at the intervocalic position. It turned out that sonorant-dependent properties such as the cues in surrounding vowels as well as frication duration were important. This explains why contrast is preserved more often in intervocalic position than in word boundaries. However, our results do not provide any evidence that a following sonorant should be more important than a preceding sonorant, as was the case for VOT for stops. We hypothesize that frication duration is less perceptible in word-final position; a further study is necessary to justify this speculation. According to our

results, the Licensing by Cue hypothesis is supported in explaining intervocalic and word-boundaries asymmetry, but it is neither supported nor disproved in explaining word-final/initial asymmetry of voicing contrast neutralization of fricatives.

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# Lyman's Law Effect in Japanese Sequential Voicing: Questionnaire-Based Nonword Experiments\*

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## Abstract

The present study investigated Lyman's Law effect (OCP) in Japanese sequential voicing by two questionnaire-based experiments using nonexistent compounds. Experiment 1 explored the positional effect of the voiced obstruent contained in the second element. Experiment 2 investigated the influence of etymological type of lexical stratification of the first element. The change in results of these experiments for a period of twenty-one years was also examined. It may be concluded from this research that (1) Lyman's Law is a general tendency rather than a categorical prohibition, (2) the etymological type of the first element affects Japanese sequential voicing, and (3) the 'X-basigo' exception, where X represents any first element, has closely conformed to the tenets of Lyman's Law over twenty-one years.

**Keywords:** sequential voicing Lyman's Law OCP questionnaire decision tree analysis

## 0. Introduction

Sequential voicing in Japanese, or *rendaku*, refers to voicing of the initial voiceless obstruent of a second element in a compound. Lyman's Law is a well-known condition inhibiting *rendaku* when the second element of the compound already contains a voiced obstruent. Lyman's Law is one particular case of Obligatory Contour Principle (OCP) by which an identical element or feature is prohibited from repeating within a certain domain. In order to explore *rendaku* ruled by Lyman's Law, two experiments were conducted in the present study. Experiment 1 explored how the position and distance of the voiced obstruent contained in the second element affect

*rendaku*. Experiment 2 investigated how the etymological type of the lexical stratification of the first element influences *rendaku* in exceptional cases to Lyman's Law. Etymological types of lexical stratification of Japanese are generally classified into native Japanese, Sino-Japanese (Chinese Borrowing), and foreign loanwords. It has been well-documented and is uncontroversial that the etymological type of second elements affects *rendaku*. *Rendaku* occurs more frequently in cases that the second element is native Japanese, whereas it less frequently or hardly ever occurs where the second element is Sino-Japanese or foreign loanwords. In previous studies (Vance 1979, Ito and Meter 2003: 147), it is concluded that the etymological type of the second element affects *rendaku*, but that the first element has no effect on *rendaku* voicing of the second element. Another aim of this study is to investigate the change in results of these experiments over a period of twenty-one years. These experiments were conducted in 1984 by Murata and in 2005 by Ihara with an interval of twenty-one years based on the questions used in (Murata 1984) by simply asking for a single choice out of each pair of voiceless and voiced nonexistent compound words. These experiments were questionnaire-based. Vance (1979) originally applied a questionnaire-based approach to the research of *rendaku*. His experiment was run with too small sample size (14 participants) for a statistical investigation and too many test items for participants to process (645 items.) The test items used were hybrid compounds consisted of a modern Japanese word and an old Japanese word. (Murata 1984) and (Murata and Ihara 2006) expanded the sample size and employed carefully selected and elaborated test items for the specific phenomena of *rendaku*. The present study focuses on the experimental findings rather than theoretical considerations.

### 1. Sequential Voicing (*Rendaku*)

In the Japanese language, when two words are compounded, the initial voiceless consonant of the second element is voiced, which does not always occur consistently.

- (1) a. ko 'small' + taiko 'drum' → ko-daiko / \*ko-taiko 'small drum'  
 b. oo 'big' + hako 'box' → oo-bako / \*oo-hako 'big box'

For example, in (1a), where the first element /ko/ 'small' and the second element /taiko/ 'drum' are compounded, the initial voiceless obstruent /t/ of the second element /taiko/ is voiced as /d/ as in /ko-daiko/ 'small drum.' This is the phenomenon called *rendaku*.

In Japanese, /h/ behaves like an obstruent whose voiced counterpart is /b/. In (1b), /oo/ ‘big’ and /hako/ ‘box’ are compounded to be /oo-bako/ ‘big box.’ The voiceless /h/ alternates with the voiced /b/, because the modern Japanese /h/ was derived from /p/ via a voiceless bilabial fricative through historical change (Hashimoto 1950, Komatsu 1981, Vance 1979).

## 2. Lyman’s Law

Lyman’s Law is a well-known condition on *rendaku* that the existence of a voiced obstruent in a second element prohibits *rendaku*.

- (2) a. tori ‘bird’ + kago ‘cage’ → tori-kago/ \*tori-gago ‘birdcage’  
 b. naga ‘long’ + sode ‘sleeve’ → naga-sode/ \*naga-zode  
     ‘long sleeve’  
 c. oo ‘big’ + tokage ‘lizard’ → oo-tokage/ \*oo-dokage ‘big lizard’  
 d. nawa ‘rope’ + hasigo ‘ladder’ → \*nawa-hasigo/ nawa-basigo  
     ‘rope ladder’

In (2a), the second element /kago/, which contains a voiced obstruent, does not undergo voicing. The compounded word is not /\*tori-gago/ but /tori-cago/. *Rendaku* is prohibited.

- |  |  |
|--|--|
| (3) a. 2 <sup>nd</sup> element of (2a) | b. 2 <sup>nd</sup> element of (2b)                 |
| k a   g o                              | t o   k a   g e                                    |
| C <sub>1</sub> V C <sub>2</sub> V      | C <sub>1</sub> V C <sub>2</sub> V C <sub>3</sub> V |

Lyman’s Law is one particular case of Obligatory Contour Principle (OCP) by which an identical element or feature is prohibited from repeating within a certain domain (Ito & Mester 1986, 2003; Kubozono 1999, 2005). The relevant feature here is laryngeal [+voice, -sonorant] and the domain is the second element of a compound. In (2a-b), C<sub>2</sub> in the two-mora CVCV-structured second element is a voiced obstruent, and in (2c-d), C<sub>3</sub> contained in the three-mora CVCVCV-structured second element is a voiced obstruent. C<sub>1</sub> is a potential *rendaku* site. In (2a-b), C<sub>2</sub> is adjacent to the potential *rendaku* site C<sub>1</sub>. In (2c-d), C<sub>3</sub> is at a distance from C<sub>1</sub> by the intervention of C<sub>2</sub>. The intervening V is irrelevant here. (2d) /nawa-basigo/ is one of the few exceptions to

Lyman's Law found in the existing vocabulary. The second element /hasigo/ contains a voiced obstruent C<sub>3</sub>. Nevertheless, it undergoes *rendaku*.

### 3. Experiment 1

Experiment 1 explored how the position and distance of the voiced obstruent contained in the second element affect *rendaku*.

#### 3.1. Method

The experiments were conducted with a total of 256 undergraduate students of St. Marianna University School of Medicine, Tokyo Institute of Technology, and Nihon University in 2005, and 194 students of Kyushu Institute of Technology and Yamaguchi University in 1984. All participants were native speakers of Japanese. However, analyses were carried out depending on the number of participants who responded to each item due to missing values.

The second elements of two-element compounds were controlled by varying the positions of the voiced obstruent. The position of the voiced obstruent was varied from the second mora position to the fourth mora position (C<sub>2</sub>, C<sub>3</sub>, C<sub>4</sub>). The participants were asked to judge whether or not the first obstruent of these second elements is voiced in each question as exemplified in (4). These voiced-and-voiceless paired questions were randomly presented to participants in a single questionnaire.

(4) Voiced-and-voiceless paired question

- 長(ナガ)・タギ (/naga-tagi/)
- 長(ナガ)・ダギ (/naga-dagi/)

#### 3.2. Stimulus Items and Item-by-Item Analyses

As shown in Table 1, two real words /naga/ 'long' and /oo/ 'big' were chosen as the first elements. The two-mora CVCV-structured nonword /tagi/, the three-mora CVCVCV-structured nonword /harage/, and the four morae CVCVCVCV-structured nonword /haranige/ were chosen as second elements to measure *rendaku*. C<sub>2</sub> was a voiced obstruent in /tagi/, C<sub>3</sub>, in /harage/, and C<sub>4</sub>, in /haranige/. This manipulation was intended to keep the second element semantically neutral or avoid analogy and to make

the experiments easier to control.

Table 1. Experiment 1 in 1984

1st element + 2nd element	1984			Chi-square test of goodness-of-fit
	Voiced	Voiceless	Rate	
(1) CVCV-structured 2nd element				
naga-tagi / naga-dagi	16	177	0.08	$\chi^2(1)=134.31, p<.001$
oo-tagi / oo-dagi	30	164	0.15	$\chi^2(1)=92.56, p<.001$
(2) CVCVCV-structured 2nd element				
naga-haragi / naga-baragi	88	110	0.44	$\chi^2(1)=2.44, p=.12, n.s.$
oo-haragi / oo-baragi	75	122	0.38	$\chi^2(1)=11.21, p<.001$
(3) CVCVCVCV-structured 2nd element				
naga-haranige / naga-baranige	55	80	0.41	$\chi^2(1)=4.63, p<.05$
oo-haranige / oo-baranige	52	83	0.39	$\chi^2(1)=7.12, p<.01$

Table 2. Experiment 1 in 2005

1st element + 2nd element	2005			Chi-square test of goodness-of-fit
	Voiced	Voiceless	Rate	
(1) CVCV-structured 2nd element				
naga-tagi / naga-dagi	43	214	0.17	$\chi^2(1)=113.78, p<.001$
oo-tagi / oo-dagi	48	208	0.19	$\chi^2(1)=100.00, p<.001$
(2) CVCVCV-structured 2nd element				
naga-haragi / naga-baragi	71	182	0.28	$\chi^2(1)=48.70, p<.001$
oo-haragi / oo-baragi	71	184	0.28	$\chi^2(1)=50.07, p<.001$
(3) CVCVCVCV-structured 2nd element				
naga-haranige / naga-baranige	74	182	0.29	$\chi^2(1)=45.56, p<.001$
oo-haranige / oo-baranige	57	111	0.34	$\chi^2(1)=17.36, p<.001$

In Table 1 and 2, compound words are examined by a series of chi-square tests of goodness-of-fit setting an expected value of equal frequency (50% random chance) for choice of a voiceless or voiced initial consonant in the second element. Table 1 and Table 2 show that a significantly larger proportion of participants selected the voiceless case for almost all stimulus items.

Table 3. Comparison of 1984 and 2005 in Experiment 1

1st element + 2nd element	<i>Rendaku</i> rate		Chi-square test of independence
	1984	2005	
(1) CVCV-structured 2nd element			
naga-tagi / naga-dagi	0.08	0.17	$\chi^2(1)=6.894, p<.01$
oo-tagi / oo-dagi	0.15	0.19	$\chi^2(1)=0.832, p=.362, n.s.$
(2) CVCVCV-structured 2nd element			
naga-haragi / naga-baragi	0.44	0.28	$\chi^2(1)=13.058, p<.001$
oo-haragi / oo-baragi	0.38	0.28	$\chi^2(1)=5.317, p<.05$
(3) CVCVCVCV-structured 2nd element			
naga-haranige / naga-baranige	0.41	0.29	$\chi^2(1)=3.829, p<.05$
oo-haranige / oo-baranige	0.39	0.34	$\chi^2(1)=6.85, p=.408, n.s.$

In Table 3, a series of chi-square tests of independence are carried out for each item to compare voiced frequency between 1984 and 2005. Table 3 shows that the frequency of *rendaku* significantly increased in twenty-one years in the case of second elements with a voiced obstruent in the second mora (C<sub>2</sub>) and that the frequency of *rendaku* significantly decreased in the case of second elements with the third-/fourth-positioned voiced obstruent (C<sub>3</sub>, C<sub>4</sub>) as illustrated in (5).

(5) Positional blocking effects in 1984 and 2005

1984		2005
C <sub>2</sub>	>	C <sub>2</sub>
C <sub>3</sub>	<	C <sub>3</sub>
C <sub>4</sub>	<	C <sub>4</sub>

### 3.3 Results

Decision tree analysis CHAID (Chi-Squared Automatic Interaction Detection) was used setting a dependent variable of a voiced or voiceless decision predicting by the three independent variables of (1) two types of first element, (2) voiced mora position of the second element, and (3) years of research of 1984 and 2005. The decision tree analysis, as shown in Figure 1, revealed the following significant trends: (1) *rendaku* with a voiced obstruent in the second mora of the second element (15.2%) occurred less frequently than in the third and the fourth mora (34.0%) [ $\chi^2(1)=102.435, p<.001$ ]; (2) in the case of second elements with a voiced obstruent in the second mora, the frequency of *rendaku* significantly increased in twenty-one years from 1984 to 2005 (11.9% in

1984, 17.7% in 2005) [ $\chi^2(1)=5.855, p<.05$ ]; and (3) the frequency of *rendaku* significantly decreased in the case of second elements with the third-/forth-positioned voiced obstruent over twenty-one years from 1984 to 2005 (40.6% in 1984 and 29.3% in 2005) [ $\chi^2(1)=22.121, p<.001$ ].

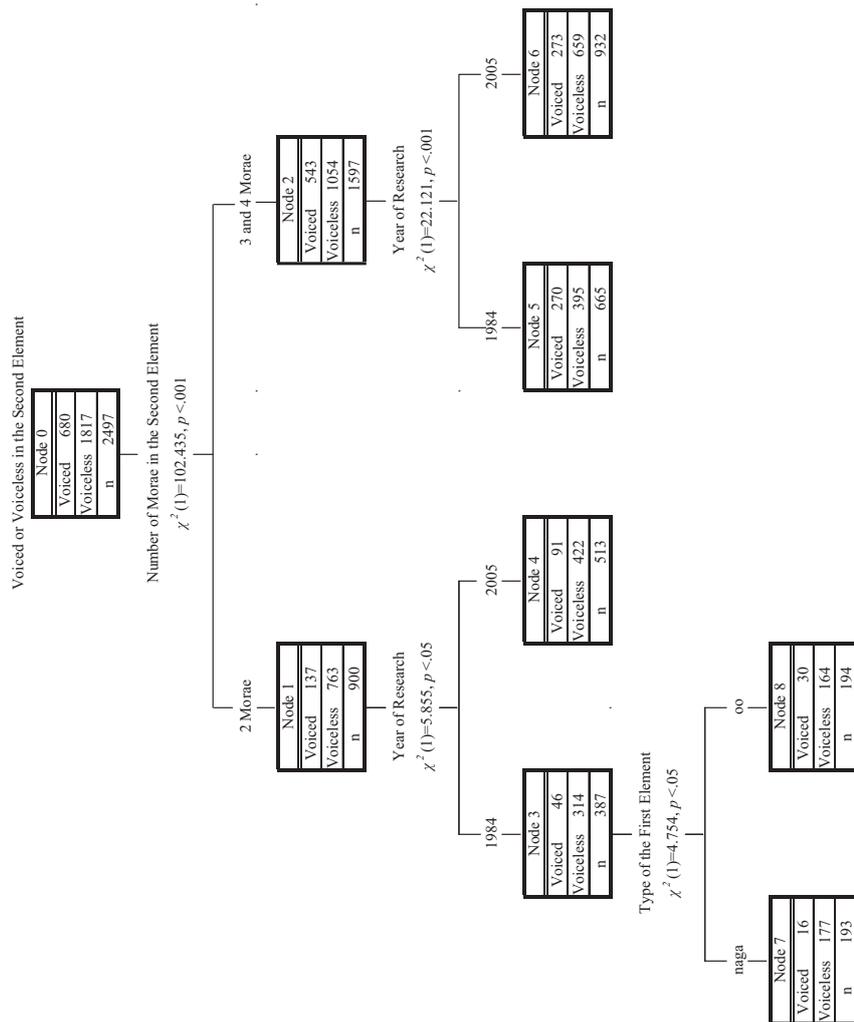


Figure 1. Decision tree analysis of Experiment 1

## 4. Experiment 2

Experiment 2 examined how the etymological type of lexical stratification of the first element influences *rendaku* in cases deviating from Lyman's Law. /Nawa-basigo/ 'rope ladder' is one of a few exceptions to Lyman's Law found in the existing vocabulary. Nonexistent pairs of X-hasigo and X-basigo, where X referred to any first element, were used.

### 4.1. Method

The participants are the same as in Experiment 1. The first elements were controlled by varying the etymological type of Japanese such as native Japanese, Sino-Japanese, and foreign loanwords. Again, the same participants were asked to judge whether or not the first mora of the second element is voiced in each question. These voiced-and-voiceless paired questions were randomly presented to participants in a single questionnaire.

### 4.2. Stimulus Items and Item-by-Item Analyses

As shown in Table 4 and Table 5, first elements were chosen according to three different etymological types of lexical stratification: native Japanese, Sino-Japanese (Chinese Borrowing), and foreign loan words. The first elements were native Japanese /naga/ 'long,' Sino-Japanese /tetusei/ 'iron-made,' and a foreign loan word /sutenresu/ 'stainless-steel-made.' These first elements were compounded to a pair of second elements, the voiceless /hasigo/ and the voiced /basigo/, respectively, to constitute a pair of nonwords.<sup>1</sup>

Table 4. Experiment 2 in 1984

1st element + 2nd element	1984			Chi-square test of goodness-of-fit
	Voiceless	Voiced	Rate	
(1) Native Japanese 1st element				
naga-hasigo /naga-basigo	7	190	0.96	$\chi^2(1)=169.99, p<.001$
(2) Sino-Japanese 1st element				
tetusei-hasigo / tetusei-basigo	127	71	0.36	$\chi^2(1)=15.84, p<.001$
(3) Foreign loan word 1st element				
sutenresu-hasigo /sutenresu-basigo	132	66	0.33	$\chi^2(1)=22.00, p<.001$

Table 5. Experiment 2 in 2005

1st element + 2nd element	2005			Chi-square test of goodness-of-fit
	Voiceless	Voiced	Rate	
(1) Native Japanese 1st element naga-hasigo /naga-basigo	82	175	0.68	$\chi^2(1)=33.65, p<.001$
(2) Sino-Japanese 1st element tetusei-hasigo / tetusei-basigo	188	70	0.27	$\chi^2(1)=53.97, p<.001$
(3) Foreign loan word 1st element sutenresu-hasigo /sutenresu-basigo	231	27	0.10	$\chi^2(1)=161.30, p<.001$

Table 4 and 5 shows that for native Japanese first elements, a significantly larger proportion of participants selected the voiced case, while for Sino-Japanese and foreign loanword first elements, a significantly larger proportion of participants selected the voiceless case.

Table 6. Comparison of 1984 and 2005 in Experiment 2

1st element + 2nd element	<i>Rendaku</i> rate		Chi-square test of independence
	1984	2005	
(1) Native Japanese 1st element naga-hasigo /naga-basigo	0.96	0.68	$\chi^2(1)=56.88, p<.001$
(2) Sino-Japanese 1st element tetusei-hasigo / tetusei-basigo	0.36	0.27	$\chi^2(1)=3.99, p<.05$
(3) Foreign loan word 1st element sutenresu-hasigo /sutenresu-basigo	0.33	0.10	$\chi^2(1)=36.09, p<.001$

Table 6 shows that for every etymological type, the frequency of *rendaku* decreased over twenty-one years.

#### 4.3. Results

As shown in Figure 2, the decision tree analysis revealed the following significant trends: (1) the frequency of *rendaku* is marked by notable differences among etymological types from the highest — native Japanese, Sino-Japanese, and foreign loanwords [ $\chi^2(2)=373.124, p<.001$ ] — and (2) for every etymological type, the frequency of *rendaku* has consistently decreased over the twenty-one-year period [ $\chi^2(1)=56.883, p<.001$  for native Japanese,  $\chi^2(1)=3.994, p<.05$  for Sino-Japanese, and  $\chi^2(1)=36.085, p<.001$  for foreign loan words].

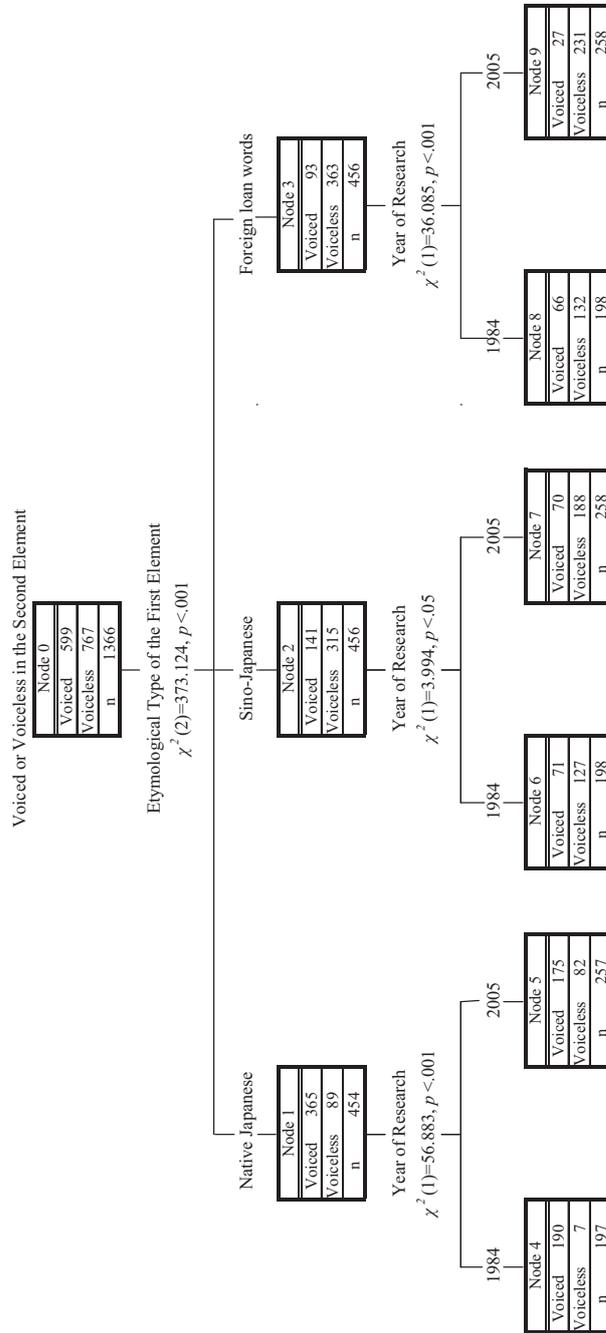


Figure 2. Decision tree analysis of Experiment 2

## 5. Discussion

The present study investigated Lyman's Law effect on *rendaku*. Experiment 1 demonstrated that the blocking effect of voiced obstruency was higher with voiced obstruents in the second mora position than in the third/fourth mora position. There was no significant difference in *rendaku* frequency between cases in the third mora and the fourth mora. This indicates that the blocking effect by Lyman's Law differs in strength depending on the position of the voiced obstruent contained, and what is more, there exists a gap between the second mora position adjacent to *rendaku*-targeted mora and the third/fourth mora position distant from the *rendaku*-targeted mora. The blocking effect decreases toward the end of the domain of *rendaku*. The strong effect of proximity is thus observed. Comparing the results in 2005 with those in 1984, in the case of the voiced obstruent in the second mora, Lyman's Law effect has weakened, whereas it has intensified in the case of the voiced obstruent contained in the third and fourth mora. These are opposing tendencies. This indicates that the difference in Lyman's Law effect between the second mora position and the third/fourth mora position has decreased over 21 years. Therefore, Lyman's Law differs in blocking effect depending on the position of the voiced obstruent already contained, although these differences tend to decrease. This implies that Lyman's Law is a general tendency rather than a categorical prohibition.

Experiment 2 revealed that the frequency of *rendaku* is marked by notable differences among the etymological type of the first elements.<sup>2</sup> The frequency of *rendaku* among native Japanese, Sino-Japanese, and foreign loanwords was observed in descending order. Comparing the results in 2005 with those in 1984, for every etymological type, the frequency of *rendaku* has consistently decreased in twenty-one years. In other words, the exceptionality of the *hasigo* exceptions to Lyman's Law tends to decrease. This reveals a tendency that in close conformance with the tenets of Lyman's Law.

Based on the two experiments and their close examinations with statistical analysis using decision tree analyses above, it may be concluded that (1) Lyman's Law, which is one case of OCP, is a general tendency rather than a categorical prohibition; (2) etymological types of the first element affect *rendaku*; and (3) the 'X-basigo' exception has closely conformed to the tenets of Lyman's Law in twenty-one years.

## Notes

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1. More test items are examined in (Ihara & Murata 2006).
2. See (Tamaoka, Ihara, Murata & Lim To appear) for more extensive study.

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# Is marked less frequent? Polish word-final consonantal sequences in a dictionary

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## **Abstract**

The main objective of the paper is to determine the relation between the degrees of cluster markedness and their frequency. We base our analysis on Polish word-final dictionary clusters. The paper is a contribution to the ongoing debate on whether complexity goes hand in hand with statistical estimates. In addressing this issue, on the one hand, we establish the degrees of phonological preferability, and, on the other hand, we introduce the distinction between phonologically- and morphologically-motivated clusters.

**Keywords:** frequency, markedness, (mor)phonotactics, Natural Phonology.

## **1. General issues in Polish (mor)phonotactics**

### *1.1. Introduction*

It has long been acknowledged that the phonological description of a language should be concerned not only with phonemes in isolation but with “the combinations into which phonemes enter in forming morphemes and words” (Trnka 1966: 36). This postulate was asserted by other linguists who claimed that scarce attention had been given to “the sequential relations between sounds” (Saussure 1998 [1974]: 50) and that “what is now required is nothing less than a syntax of phonological expressions” (Kaye et al. 1990: 193). Phonotactics has thus become one of the principal areas of phonological investigation. Central to this contribution is the linear arrangement of consonants in Polish which emerge word-finally within a morpheme and across morphemic boundaries. In light of the facts that the majority of world languages does not permit consonantal clusters (Maddieson 1999), and that they tend to be avoided,

especially in the word-final position, the study of sequences in a phonotactically elaborate language such as Polish becomes particularly interesting.

### *1.2. Previous accounts of Polish (mor)phonotactics*

Previous research on Polish phonotactics has primarily focused on the classification, frequency and ranking of clusters in written (e.g., Dobrogowska 1984, 1990, 1992; Śledziński 2005) and spoken text (e.g., Bargielówna 1950, Dunaj 1985, Madejowa 1990). With the advances in phonological theories, theory-oriented analyses of phonotactics occurred (e.g., Cyran and Gussmann 1999, Dziubalska-Kołaczyk 2002, Rochoń 2000, Rubach and Booij 1990). These accounts, however, did not point explicitly to the role that morphology plays in cluster formation. The first systematic description of the Polish cluster inventory which accounted for the distinction between clusters emerging within a morpheme and across morphemic boundaries was Bargielówna's (1950). Recently Dressler and Dziubalska-Kołaczyk (2006) brought up the issue of morphologically-motivated phonotactics by proposing the study of morphonotactics. The authors provided the cross-linguistic description of selected intra- and intermorphemic clusters and discerned between sequences which emerge due to concatenative and non-concatenative morphological operations.

### *1.3. The study and domain of morphonotactics*

Dressler and Dziubalska-Kołaczyk (2006) define morphonotactics as a distinct area of morphophonology which is based on the semiotic model of morphonology proposed by Dressler (1985), on the one hand, and the Beats-and-Binding model of phonotactics propounded by Dziubalska-Kołaczyk (2002). The study of morphonotactics focuses on the interrelationship between phonotactic constraints and morphological rules in a given language. The authors distinguish between phonologically- and morphologically-motivated clusters, which are here referred to as intramorphemic and intermorphemic respectively. For instance, in Polish the cluster /-rt/ occurs only within a morpheme, (e.g., *żart* 'joke', *rekord* 'record', *miliard* 'billion'), in contrast to /-jɛ+tɕ/ which is unexceptionally intermorphemic (e.g., *pójs+ć* 'go', *wyjś+ć* 'come out', *wzejś+ć* 'rise'),. Next to the two groups of clusters, Dressler and Dziubalska-Kołaczyk (2006) mention sequences which occur in both contexts, i.e. intra- and intermorphemically. /-ɛ(+ )tɕ/ can serve as an example. The cluster is intramorphemic in *kość* 'bone', *złość* 'anger', *radość* 'happiness' and intermorphemic in *jeś+ć* 'eat', *kraś+ć* 'steal'

and *upaś+ć* 'fall'.

The issue which should be clarified from the outset of our considerations concerns the target domain within which morphonotactics operates. A word, on a par with its constituent morphemes, are regarded as domains relevant for the description of consonantal clustering. Firstly, a word, as a relatively independent linguistic unit, aspires to being the least problematic and controversial domain for formulating phonotactic generalizations (see Booij 1999, Ewen and Hulst 2001). Secondly, the discussion on the morpheme boundaries within clusters requires that the morphological domain be consulted. Therefore, constraints in morphonotactics are stated for the following: the lexical domain, to determine the possible strings in a given word position, and the morphological domain, to specify the structure of morphemes.

#### *1.4. Polish (mor)phonotactics*

Polish, as a phonotactically elaborate language, tolerates complex consonant clusters. It allows 4 consonants word-initially (e.g., *pstrąg* /pstrɔŋk/ 'trout'), and 5 consonants in the word medial and final position (e.g., *następstwo* /nastɛmpstfɔ/ 'consequence' and *skapstw* /skɔmpstf/ 'stinginess' [gen. pl.] respectively). Moreover, there are clusters which emerge as the realizations of the nasal vowels <a, ɛ> before obstruents (e.g., *okręt* /okrɛnt/ 'ship', *wąs* /vɔ̃wɔs/ 'moustache'). It must be noted that the most complex clusters emerge in subtractive morphology. For instance, the aforementioned final cluster /-mpstf/ in *skapstw*, *zastępstw* 'substitution' [gen. pl.] and *ustępstw* 'concession' [gen. pl.] results from the truncation of the plural marker {-a} from the nominative forms *skapstw+a*, *zastępstw+a* and *ustępstw+a*.

In a dictionary, which presents a very restricted morphological context, all the intermorphemic clusters emerge in concatenation. The vast majority of the clusters is found in verbal infinitives at the boundary of a verbal stem and the infinitival desinence {-ć}, e.g., in *podnieś+ć* 'lift' or *przyjś+ć* 'come'. The collected data also contains one pronoun *czyj+ś* 'somebody's' with an intermorphemic cluster.

## **2. Theoretical framework of Natural Phonology**

### *2.1. Beats-and-Binding phonotactics*

Natural Phonology is an explanatory theory based on universal preferences and

language-specific constraints. The model of phonotactics proposed within the theory is Dziubalska-Kołodziej's (2002) *Beats-and-Binding phonotactics* (henceforth BBP). The principle underlying the model is the preference for the canonical CV structure, which is considered the most optimal sequence universally. In the case of languages which allow consonant clusters, the model helps establish the phonotactic scale, whose extreme ends are represented by the most and the least preferred sequences with gradual transition between the two. Well-formedness conditions which specify cluster preferability are formulated on the basis of three parameters: sonority distances between consonants forming a cluster (measured in terms of the manner of articulation), cluster complexity (i.e. the number of consonants forming a cluster), and the position of a cluster within a word (i.e. initial, medial or final). Similar continua of cluster preferability can be established with the help of the revised version of the BBP model.

## 2.2. Net Auditory Distance (NAD)

Similarly to BBP, Net Auditory Distance (Dziubalska-Kołodziej and Krynicki 2008) serves to determine auditory distances between sounds neighbouring on one another. Well-formedness conditions which specify the word-final -CC and -CCC clusters are drawn from Dziubalska-Kołodziej (2002):

- (1)  $NAD(V-C_1) \leq NAD(C_1-C_2)$  for doubles, and
- (2)  $NAD(V-C_1) \leq NAD(C_1-C_2) > NAD(C_2-C_3)$  for triples.

What differentiates NAD from BBP is the way in which distances are calculated. In contrast to the original model, NAD calculates auditory distances not only for the manner of articulation (MOA) according to the sonority scale, but also on the basis of the place of articulation (POA) and voice specification ( $Lx$ ). According to (Dziubalska-Kołodziej and Krynicki 2008), the three coordinates (i.e. MOA, POA,  $Lx$ ) established for two adjacent sounds, say  $S_1$  and  $S_2$ , help specify the NAD between the sounds. The NAD for  $S_1$  and  $S_2$ , with the three defining coordinates  $S_1 = (MOA_1, POA_1, Lx_1)$  and  $S_2 = (MOA_2, POA_2, Lx_2)$ , is calculated along the following metric:  $NAD(S_1-S_2) = |MOA_1 - MOA_2| + |POA_1 - POA_2| + |Lx_1 - Lx_2|$ . MOA and POA distances for the Polish consonantal inventory are provided below.

Table 1. Auditory distances for Polish (based on Dziubalska-Kołaczyk and Krynicki 2008).

5	4	3	2	1	0
obstruent		sonorant			
stop	fricative	nasal	liquid	glide	vowel
	affricate		lateral	rhotic	
p b	f v	m		w	labial 1
t d	tʃ dʒ ts dz	s z ʃ ʒ	n	l r	coronal 2
k g	tʃ dʒ x	ɲ ɲ		j	dorsal 3
					radical 4
					glottal 5

As shown above, the auditory distance of 1 point holds between labial – coronal, coronal – dorsal, dorsal – radical, and finally radical – glottal consonants on the POA scale, which results in the  $NAD_{(POA)}$  equal to 0, 1 and 2 for /mp/, /jt/, and /xw/ respectively. As regards the MOA scale, the distance 1 holds between vowels – glides, glides – liquids, liquids – nasals, nasals – fricatives and fricatives – plosives. The distance of 1 point does not apply to two classes of consonants, namely affricates and liquids.

Firstly, affricates are assumed 0.5 distance from fricatives and plosives neighbouring on them, which results in the following  $NAD_{(MOA)}$  distances: /t-tʃ/ = 0.5, /x-tʃ/ = 0.5, /w-tʃ/ = 3.5, /l-dʒ/ = 2.5 and /n-dʒ/ = 1.5. Secondly, Dziubalska-Kołaczyk and Krynicki (2008) subsume /l/ and /r/ under one category. However, in line with the proposition of Selkirk (1982) and Vennemann (1988), we suggest to subdivide the liquids into the rhotic and the lateral. Therefore we acknowledge the distance of half a point between the sequences of glide – rhotic, rhotic – lateral, and lateral – nasal. This is how we arrive at the following  $NAD_{(MOA)}$  distances: /wɹ/ = 0.5, /jɹ/ = 1, /ml/ = 0.5, /nr/ = 1 and /rl/ = 0.5. Apart from the POA and MOA scales, NAD accounts for the voice characteristic of adjacent sounds. The distance equal 1 holds between two consonants which differ in terms of voice, in contrast to consonants with the same voice specification, which are assigned the distance 0.

Let us illustrate the working of the phonotactic model on the example of the final doubles /-jp/ and /-tl/. Given the metric for a word-final double:

$$(3) NAD(V-C_1) = |MOA(V) - MOA(C_1)|$$

$$(4) NAD(C_1-C_2) =$$

$$|MOA(C_1) - MOA(C_2)| + |POA(C_1) - POA(C_2)| + |Lx(C_1) - Lx(C_2)|,$$

the defining coordinates for /-jp/ and /-tl/ are the following:

(5)  $NAD (V-C_1) = |0 - 1| = 1$  for /-jp/,

(6)  $NAD (V-C_1) = |0 - 5| = 5$  for /-tl/,

(7)  $NAD (C_1-C_2) = |1 - 5| + |3 - 1| + |1 - 0| = 4 + 2 + 1 = 7$  for /-jp/ and

(8)  $NAD (C_1-C_2) = |2.5 - 5| + |2 - 2| + |0 - 1| = 2.5 + 0 + 1 = 3.5$  for /-tl/.

The cluster /-jp/, whose  $NAD (V-C_1) = 1$  is smaller than its  $NAD (C_1-C_2) = 7$ , meets the phonotactic condition and is therefore preferred. To the contrary, /-tl/, with the  $NAD (V-C_1) = 5$  and the  $NAD (C_1-C_2) = 3.5$ , is a dispreferred final double. The calculation of the auditory distances for triples proceeds along the lines given above but additionally involves the POA, MOA and Lx distances for the second pair of consonants  $C_2-C_3$ . Below we summarise the NAD distances for four selected doubles and triples.

Table 2. The Net Auditory Distances for word-final CC clusters (P = preferred, D = dispreferred).

	NAD (VC <sub>1</sub> )	NAD (C <sub>1</sub> C <sub>2</sub> )				Is the pref. condition met?
	MOA	MOA	POA	Lx	NAD	
jp	1	4	2	1	7	P. $1 < 7$
rɕ	2	2.5	0	0	2.5	P. $2 < 2.5$
ns	3	1	0	1	2	D. $3 > 2$
tl	5	2.5	0	1	3.5	D. $5 > 3.5$

Table 3. The Net Auditory Distances for word-final CCC clusters (P = preferred, D = dispreferred).

	NAD (VC <sub>1</sub> )	NAD (C <sub>1</sub> C <sub>2</sub> )				NAD (C <sub>2</sub> C <sub>3</sub> )				Is the pref. condition met?
	MOA	MOA	POA	Lx	NAD	MOA	POA	Lx	NAD	
wɕɕd	1	3.5	1	0	4.5	0.5	0	0	0.5	P. $1 < 4.5 > 0.5$
mpt	3	2	0	1	3	0	1	0	1	P. $3 \leq 3 > 1$
rnz	1.5	1	0	0	1	1	0	0	1	D. $1.5 > 1 \geq 1$
pst	5	1	1	0	2	1	0	0	1	D. $5 > 2 > 1$

Given the NAD distances in Tables 2 and 3, it can be stated that the doubles /-jp/ and /-rɕ/ occupy the preferred end of the scale, in contrast to /-ns/ and /-tl/ which are dispreferred. Out of the four triples, /-mpt/ and /-wɕɕd/ are preferred since their NAD (C<sub>1</sub>-C<sub>2</sub>) is greater than or equal to the NAD (V-C<sub>1</sub>) and greater than the NAD (C<sub>2</sub>-C<sub>3</sub>). To the contrary, /-rnz/ and /-pst/ do not meet the well-formedness condition. Since their NAD (V-C<sub>1</sub>) is greater than the NAD (C<sub>1</sub>-C<sub>2</sub>) and NAD (C<sub>2</sub>-C<sub>3</sub>), they are classified as dispreferred.

The approach to (mor)phonotactics put forward by Dziubalska-Kołodziejczyk (2002) and later refined by Dziubalska-Kołodziejczyk and Krynicky (2008) allows to establish the preferability degrees of clusters on the basis of several phonological features marshaled into NAD. The criterion not only accounts for a greater phonetic detail than the traditional accounts but also provides phonotactic continua with gradual transitions between preferred and dispreferred clusters. In such a way, the approach points to the pitfalls inherent in any phonotactic analysis which, firstly, relies on a single criterion (such as sonority), and, secondly, classifies clusters in simplistic terms into well- and ill-formed.

### 2.3. NAD and the Polish clusters

Having calculated NAD for all doubles and triples in the Polish dictionary, we arrive at two broad groups of clusters: preferred and dispreferred. Sequences in the two groups are further subcategorized depending on their structural complexity into (a) preferred -CC, (b) preferred -CCC, (c) dispreferred -CC and (d) dispreferred -CCC. Bearing in mind that the phonotactic model (Dziubalska-Kołodziejczyk 2002) is based on the universal preference for the CV structure, cluster size is assumed to be a stronger indicator of preferability than auditory distances between adjacent sounds. In practice this means that any -CC is universally more preferred than the most preferred -CCC. The distribution of exclusively phonologically-motivated clusters at each preferability degree is shown below.

Table 4. The distribution of exclusively intramorphemic clusters in the 4 preference groups.

Preferability for exclusively phonologically-motivated clusters		
Preferability	Cluster size	Cluster types
Preferred	-CC	fr, jf, jk, jl, jm, jn, jr, js, jt, jf, jts, jx, kl, kr, lf, lf, lk, lp, ls, lt, lts, lx, mf, mp, ms, nf, nt, nk, pn, pr, rē, rf, rk, rm, rn, rp, rs, rt, rf, rē, rts, rx, sw, tw, wf, wf, wk, wl, wm, wn, wp, wr, ws, wt, wē, wx
Dispreferred	-CC	cl, cn, fp, fj, ft, fx, fk, fl, fn, ft, fts, ks, kt, kx, lm, mf, mn, nr, nf, nts, jts, pl, ps, pt, rl, rn, sk, sm, sp, st, tf, tl, tm, tr, ts, xj, xt
Preferred	-CCC	jsk, jst, lēn, lft, lsk, mpf, mpt, nf, nks, nkt, rēē, rfj, rjt, wjt, wst
Dispreferred	-CCC	jnt, kst, ltr, mpl, mpr, ntr, nkr, psk, stj, str, wnt, xtr

The established degrees of preferentiality are translated into 4 markedness degrees (henceforth MDs), which are here presented in the form of a pyramid. The least marked clusters, i.e. the preferred doubles, are subsumed under the MD = 1, whereas the most marked clusters, here represented by the dispreferred triples, are grouped under the MD = 4 (see Figure 1). The bottom and top of the pyramid correspond with the MD = 1 and 4 respectively.

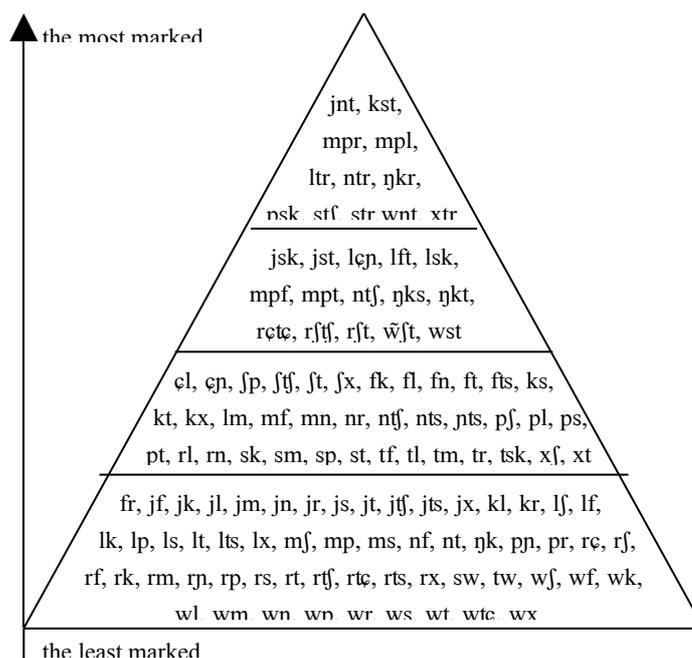


Figure 1. The markedness degrees for exclusively intramorphemic clusters in the Polish dictionary.

As far as exclusively morphologically-motivated sequences are concerned, they are represented by 2 types  $/j+\text{ɕ}/$  and  $/j\text{ɕ}+\text{ɕ}/$ . This means that only 2 degrees of preferability and the resulting 2 degrees of markedness can be established, where the MD = 1 is represented by the preferred double  $/j+\text{ɕ}/$ , and the MD = 2 by the preferred triple  $/j\text{ɕ}+\text{ɕ}/$ . No markedness continuum can be established for  $/ɲ(+)\text{ɕ}/$  and  $/\text{ɕ}(+)\text{ɕ}/$  which occur both intra- and intermorphemically as the 2 types are preferred doubles.

Summing up, we proposed a 4-degree continuum for the intramorphemic clusters and a 2-degree scale for the intermorphemic ones. Our objective now is to test the hypothesis that markedness corresponds to frequency (see Bybee 2001). We predict that there is a strong tendency for the unmarked to be more frequent. We expect the established markedness degrees to correlate particularly with type frequency. In the subsequent section of the paper, we discuss the frequency of the phonologically- and morphologically-motivated clusters assigned to each markedness degree.

### 3. The study

#### 3.1. Data

The data used in this study was compiled on the basis of the electronic version of a 200.000-entry *Uniwersalny Słownik Języka Polskiego* (Dubisz 2006). The complete set of words with final consonantal clusters was extracted manually with the help of the index *a tergo*. The collected data contains instances of obsolete words, proper nouns, acronyms, borrowings and rare vocabulary. The longest clusters found in the dictionary are triples, which occur intra- and inter-morphemically. The total of the lexical entries containing word-final clusters amounts to 6916, including 6806 doubles and 110 triples. We subcategorized all words into 126 types, among which there are 98 -CC and 28 -CCC clusters. As regards the morphologically-motivated sequences, the data contains only four final clusters. With the exception of the pronoun *czyj+ś* 'somebody's' ending in /-jɕ/, the remaining intermorphemic clusters /-jɲɕ/, -ɕɲɕ/, -jɕɲɕ/ are found in verbs. The clusters /-jɕ/, -jɕɲɕ/ are exclusively morphologically-motivated, whereas /-jɲɕ/, -ɕɲɕ/ are mixed and motivated both phonologically and morphologically.

Table 5. The frequency of cluster types and words containing a cluster in the Polish dictionary.

Cluster size	Cluster types	Different words containing a cluster	
	all types	words with phonological clusters	words with morphological clusters
-CC	77.8 %	82.1 %	16.3 %
-CCC	22.2 %	1.4 %	0.2 %
Total	100 %	83.5 %	16.5 %

We observe a correlation between cluster motivation, its structural complexity and frequency. As regards word frequency, the phonologically-motivated clusters, which constitute 83.5% of words containing a final sequence, are more frequent than the morphologically-motivated clusters, whose word frequency equals 16.5%. As far as cluster complexity is concerned, 98% of the intramorphemic and 99% of the intermorphemic sequences are doubles. Triples do occur, however, their total frequency in the dictionary does not exceed 1.4% for types and 0.2% for words.

Our objective is to address the issue regarding type and word frequency of the intra- and intermorphemic clusters. In line with the markedness continua established earlier (see 2.3.), we calculate frequency for clusters which are exclusively

phonological, exclusively morphological and for clusters with dual motivation. Let us start the analysis of the first group of clusters.

### 3.2. Exclusively intramorphemic clusters

The group of exclusively phonologically-motivated clusters is well-represented in the dictionary. In the collected data, we find 122 intramorphemic clusters (see Table 4), among which there are 95 -CC and 27 -CCC types. This means that nearly 78% of the intramorphemic sequences are doubles. Type and word frequency of the clusters found at each markedness degree is provided in Table 6. The graphical representation of the data is given in Figure 2.

Table 6. The number and frequency of exclusively intramorphemic clusters for the 4 markedness degrees.

Exclusively phonologically-motivated clusters						
MDs	dictionary types			dictionary words		
	no. of types	dictionary total	% of types	no. of words	dictionary total	% of words
1	57	126	45.2 %	1350	6916	19.5 %
2	38	126	30.2 %	1679	6916	24.3 %
3	15	126	11.9 %	31	6916	0.4 %
4	12	126	9.5 %	63	6916	0.9 %

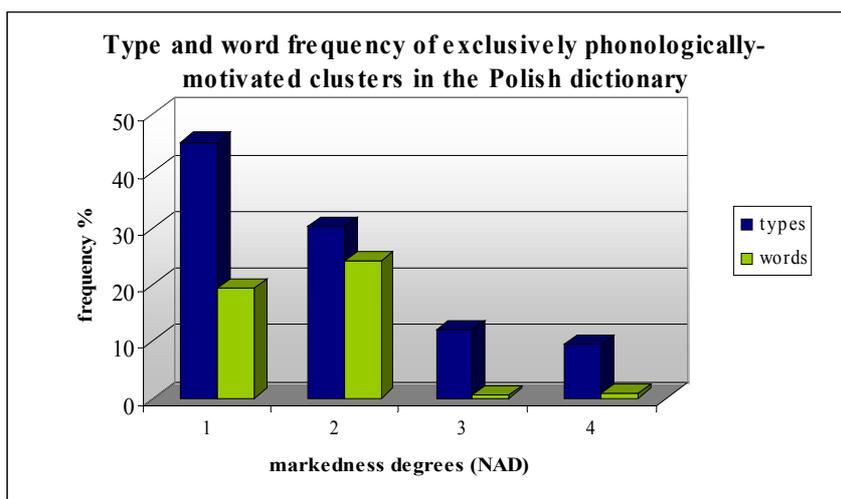


Figure 2. Type and word frequency of exclusively intramorphemic clusters for the 4 markedness degrees.

As shown above, type frequency reflects the established markedness degrees.

I.e. the frequency of types gradually decreases from 45.2% to 9.5% as the markedness degrees increase from the preferred -CC to the dispreferred -CCC clusters. To the contrary, the frequency pattern observed for words does not correspond with that of types. The classes of the dispreferred and preferred doubles subsumed under the MD = 2 and the MD = 1 have the highest word frequency, which amount to 24.3% and 19.5% respectively. Word frequency for all the triples gathered under the MDs = 3 and 4 is extremely low and does not exceed 1% in either case.

These observations lend support to the claim that phonology produces a wide range of unmarked types, i.e. preferred doubles, and incomparably fewer marked clusters, namely dispreferred triples. The tendency holds to a large extent for word frequency, which is much higher for -CC than -CCC clusters. Additionally, there is a greater percentage difference between the types subsumed under the MDs = 1 and 2 than the MDs = 3 and 4. More specifically, we observe a 15 percentage point difference between the groups of the preferred and dispreferred doubles. To the contrary the groups of the preferred and dispreferred triples differ from one another only by 2 percentage points. This may suggest that preferentiality in terms of phonological characteristics is a relevant indicator of markedness only for -CC. Clusters longer than doubles are too complex for phonology to apply efficiently. This claim, however, can only serve as a tentative hypothesis which should be verified in larger-scale research. No verification of the claim can be provided on the basis of the intermorphemic dictionary clusters, due to their paucity.

### 3.3. Exclusively intermorphemic and mixed clusters

The dictionary data contains two clusters which are exclusively morphologically motivated and two clusters which can emerge both intra- and intermorphemically. The first pair of clusters is represented by /-jɕ/ and /-jɕɕ/, which occur in the pronoun *czyj+ś* and verbal infinitives such as *odejś+ć* 'leave' and *wejś+ć* 'come in'. Similarly, /ɕ(+ )ɕ/ and /ɲ(+ )ɕ/, found in the mixed group, are phonologically-motivated in examples such as *liś* /liɕɕ/ 'leaf' and *pamięć* /pamiɕɕ/ 'memory', and morphologically-motivated in *nieś+ć* /niɕɕ/ 'carry' and *rosnąć+ć* /rosnoɲɕ/ 'grow'. Type and word frequency for the exclusively intermorphemic and mixed clusters are provided in Tables 7 and 8 respectively.

Table 7. The number and frequency of exclusively intermorphemic clusters for the 2 markedness degrees.

Exclusively morphologically-motivated clusters						
MDs	dictionary types			dictionary words		
	no. of types	dictionary total	% of types	no. of words	dictionary total	% of words
1	1	126	0.8 %	1	6916	0 %
2	1	126	0.8 %	17	6916	0.2 %

Table 8. The number and frequency of intra- and inter-morphemic clusters in the mixed group.

Phonologically-and morphologically-motivated mixed clusters						
MDs	dictionary types			dictionary words		
	no. of types	dictionary total	% of types	no. of words	dictionary total	% of words
Intramorphemic clusters						
1	2	126	1.6 %	2651	6916	38.3 %
Intermorphemic clusters						
1	2	126	1.6 %	1125	6916	16.3 %

Due to the fact that the group of exclusively intermorphemic clusters is represented by  $/-j\text{ç}/$  and  $/-j\text{çt}\text{ç}/$ , only two markedness degrees can be established. Type frequency for the MDs = 1 and 2 are equal, whereas word frequency is generally very low and amounts to 0% and 0.2% respectively. As far as the mixed group is concerned,  $/-j(+)\text{t}\text{ç}/$  and  $/-\text{ç}(+)\text{t}\text{ç}/$  are both preferred doubles subsumed under the MD = 1, from which it transpires that no markedness continuum can be proposed. What we can see, however, is that  $/-j\text{t}\text{ç}, -\text{çt}\text{ç}/$  are twice more frequent in the phonological than morphological context, which can be attributed to the fact that phonologically-motivated clusters are generally favoured in the dictionary.

Moreover, it should be noted that the intermorphemic and mixed clusters are marked by a specific phonological property.  $/-j\text{ç}, -j\text{çt}\text{ç}, -\text{çt}\text{ç}, -j\text{t}\text{ç}/$  are all native and contain at least one soft consonant. All the verbs end in the alveolo-palatal voiceless affricate  $/-t\text{ç}/$ , which is the infinitival desinence, whereas the pronoun ends in the soft voiceless fricative  $/-\text{ç}/$ , which marks indefiniteness on the pronoun. This observation ties well with the discussion on cluster markedness. It can be the case that the native status of the clusters, i.e. their phonological familiarity, is likely to neutralize the markedness effects that morphology has on phonotactics.

#### 4. Conclusions

Our analysis confirms the markedness-related effects in Polish phonotactics. Phonology was shown to produce primarily unmarked intramorphemic types (MD = 1) which are much more frequent than their marked counterparts (MD = 4). That is, we observed a gradual decline in type frequency for the increasing markedness degrees. This tendency, although largely preserved, is weaker for words containing types. As far as the morphologically-motivated and mixed clusters are concerned, they are heavily underrepresented in the dictionary. This results in only two markedness degrees for the exclusively intermorphemic clusters and no degrees for the sequences with dual motivation. Therefore, substantial generalizations on Polish dictionary phonotactics can be formulated only on the basis of the intramorphemic sequences.

The interesting by-product of our analysis is the observation that morphology is oblivious to phonological well-formedness and therefore only doubles seem to rely on the preferability degrees established by NAD. The tentative conclusion thus is that the phonological well-formedness is too weak a tool for determining the preferentiality degrees for clusters more complex than -CC, which strengthens the universal preference for the CV structure. Whether structural complexity is really a filter for the application of phonological features (such as the place and manner of articulation and voicing) should be verified on the basis of, e.g. corpora, whose intermorphemic clusters present a variety of morphological contexts. This remark is an implication for our future research. Since the dictionary data provides us with limited insights into word-final Polish morphonotactics, we stress the necessity of a corpus-based research. It is our contention that only such an exhaustive and a systematic study lays the foundations for the formulation of solid generalizations on morphonotactics.

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# How Levels of Consonantal Similarity Interact with Vocalic Information in L1-L2 Consonant-/i/ Syllabic Identification

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## Abstract

This paper investigated how consonant-/i/ syllable pairs initiated with L1 (Mandarin) and L2 (English) consonants varying to different degrees of similarity are perceived by Mandarin speakers of English. In the first experiment, 25 participants were tested with six such pairs varying in degrees of similarity in the initial consonant. In Experiment 2, another 26 participants were tested with the same syllables with the vowel /i/ either juxtaposed from a different production of the same stimuli (the same language) or from the corresponding syllable (the other language). Two competing models, the speech learning model (Flege, 1995) and the perceptual assimilation model (Best, 1995), were examined. The former proposed that the greater the perceived dissimilarity between an L2 sound and its closest L1 counterpart, the easier it is for L2 speakers to discern the difference, while the latter proposed that L2-to-L1 assimilation corresponds to their articulatory distance. For L2 sounds corresponding to the same L1 target, perceptual performance may still differ depending on how similar the L2 sounds are to the target. Results supported the SLM in that the accuracy for discerning individual consonants of the “dissimilar” pairs was higher than that of the “similar” pairs, which in turn was higher than that of the “identical” pairs. However, the fact that the accuracy for discerning the “similar” pairs was higher than that of discerning the “identical” ones indicated that L2 speakers were still able to distinguish different levels of similarity contrast between the two. To this, the PAM provides a better explanation. In addition, through these two experiments, vocalic information was found crucial in facilitating participants’ differentiation.

**Keywords:** L2 perception, consonantal similarity.

## 1. Introduction

Compared with children, adults are believed to be less sensitive to nonnative phonetic differences (Goto, 1971; Werker *et al.*, 1981; Werker & Tees, 1984). The relationship between second-language (L2 hereafter) sound differentiation ability and native (L1 hereafter) versus nonnative sound differences has been an important topic in

the field of L2 sound acquisition (Aoyama *et al.*, 2004). By now, most studies have been conducted on either lexical representation examination or minimal pair comparison (Hayes-Harb, 2007). In order to examine the degree of success among listeners in perceiving nonnative sounds, the speech learning model (SLM hereafter, Flege, 1995) and the perceptual assimilation model (PAM hereafter, Best *et al.*, 1988; Best, 1995), among others, provide the prediction based on the perceived phonetic distance between native and nonnative sounds. The two models differ in that the former focuses on the aspect of L2 learning, while the latter is established on the fact that some foreign language sounds are harder than others to distinguish (Guion *et al.*, 2000).

Regarding language contrasts, the SLM proposes that the coexistence of L1 and L2 phonetic systems in the same phonological space results in their mutual influence. If a new category is not formed for an L2 sound because of its similarity to the closest L1 counterpart, the L1 and L2 categories tend to assimilate, which will in turn result in the L2 sound being merged with an inter-category. On the contrary, if a new category is successfully established, this L2 sound may dissimilate from its neighboring L1 sound, thus preserving the phonetic contrast. Specifically, Flege (1995) believes that the greater the perceived dissimilarity of an L2 sound from its closest L1 sound, the more likely a new category will be formed. He is also convinced that adults can detect cross-language phonetic differences, and store the information into their long-term memory representations.

Modeling language contrast from a different perspective, the PAM proposes that sounds in a foreign language are perceived in accordance with their similarities to or differences from those that are articulatorily closest in one's L1 (Guion *et al.*, 2000). Following the assimilation pattern of the PAM, when two sounds are assimilated to two categories, the perceptual performance is expected to be good, whereas when they are assimilated to a single category, the performance is not (Sebastian-Galles & Soto-Faraco, 1999). One thing worth noticing is that when two sounds are assimilated to the same category, participants' performance may still differ according to their category goodness: If one of the two candidates is considered a better exemplar of the corresponding L1 target, the performance will be fairly good; if they are regarded as comparable candidates for the L1 target, the performance will be worse (Guion *et al.*, 2000).

To investigate which of the SLM and the PAM offers a better explanation in the case of Mandarin and English, the first experiment in the following session focused on how ESL speakers with Taiwan Mandarin as their L1 discern Mandarin and English consonant-/i/ syllables initiated with consonants of different levels of similarity from

both languages. Both the SLM and the PAM were investigated to see which one offers a better explanation.

## **2. Experiment 1**

### *2.1. Participants*

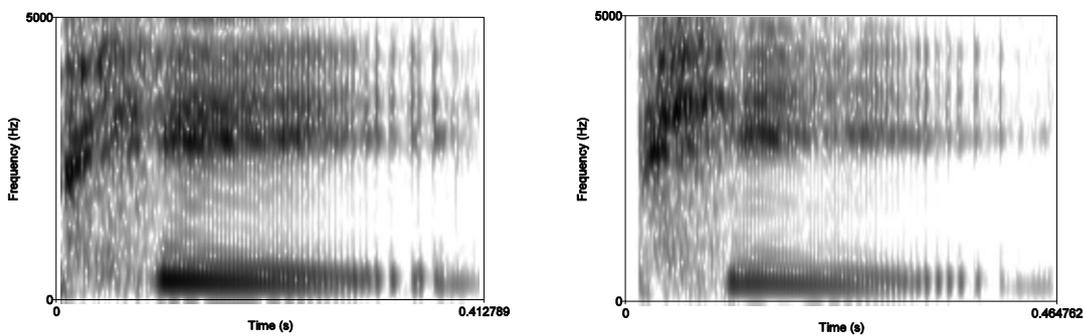
Participants of this experiment were 25 undergraduate students recruited from National Taiwan University. They received a compensation fee for their voluntary participation. Since L2 proficiency did not have any effect in our pilot study (N=15), participants of different English proficiency levels were collaborated in this experiment to explore whether consonantal similarity is robust.

### *2.2. Material*

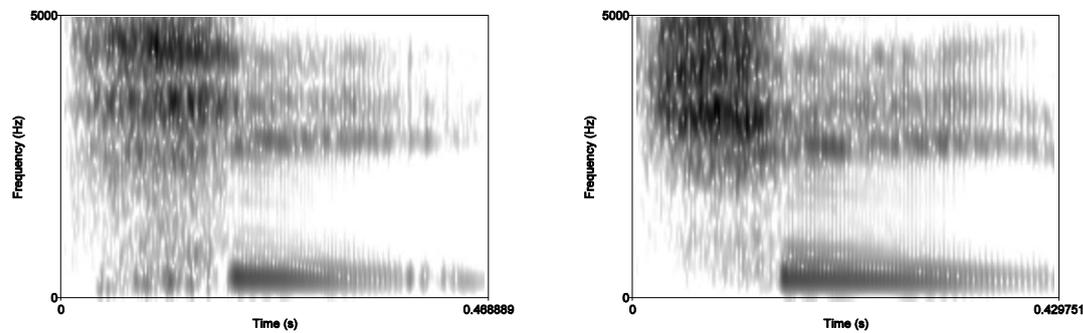
As shown in Table 1, six pairs of consonant-/i/ (C-/i/ hereafter) syllables were used as the stimuli of this experiment. The initial consonants of these Mandarin and English syllables differed in places of articulation to various extents, evident from their accompanying auditory and acoustic cues: First, bilabial /p/ and /m/ sounds are of the same place and manner of articulation in both languages, thus these C-/i/ syllables were categorized as “identical” pairs (See Figure 1a for acoustical evidence). Second, /t/ and /l/ are dental sounds in Mandarin but alveolar in English, and these two C-/i/ pairs were categorized as “similar” due to this closeness in place of articulation. Last, for [çi]-[ji] and [tç<sup>hi</sup>]-[tji] pairs, as shown in the spectrogram (Figure 1b), the two sounds of the same pair differ from each other to a great extent, as exhibited in their distribution of friction. In addition, the two English syllables, [ji] and [tji], also sound very differently from their Mandarin counterparts due to the auditory effect of lip protrusion. They were thus termed as “dissimilar” pairs.

**Table 1.** C-/i/ pairs used in Experiment 1

Mandarin			English	
關 ‘explore’	[p <sup>h</sup> i]	Identical	[p <sup>h</sup> i]	<i>pea</i>
密 ‘dense’	[mi]		[mi]	<i>me</i>
替 ‘help’	[t <sup>h</sup> i]	Similar	[t <sup>h</sup> i]	<i>tea</i>
力 ‘power’	[li]		[li]	<i>Lee</i>
系 ‘department’	[çi]	Dissimilar	[ʃi]	<i>she</i>
氣 ‘air’	[tɕ <sup>h</sup> i]		[tʃi]	<i>chee(se)</i>



**Figure 1a.** Acoustical contrast of the identical pair Mandarin [p<sup>h</sup>i] (left) vs. English [p<sup>h</sup>i] (right)



**Figure 1b.** Acoustical contrast of the dissimilar pair Mandarin [tɕ<sup>h</sup>i] (left) vs. English [tʃi] (right)

A female native speaker of Mandarin with near-native English proficiency was recorded for all stimulus words. The selected production of each item had been tested on native speakers of Mandarin (N=7) and English (N=5) and obtained an average of 6 on a 7-point (7 = 100% native) scale.

### 2.3. Procedure

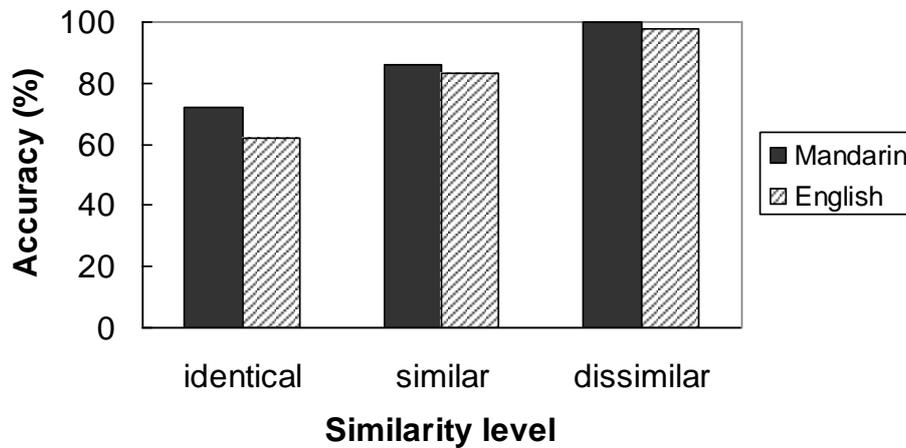
The experiment was conducted using a desktop computer with E-Prime 1.0 installed and a SR Box (model 200A) connected. All stimuli were repeated once. For each trial, participants were first given the orthographical spelling of syllable pairs of both languages on the screen in front of them. After 1000 ms, a sound was played via the headphone, and participants were told to press the corresponding button (left or right) based on their percept of this incoming sound—whether it was the Mandarin or an English syllable on the screen. The response window was 3000 ms. The direction of the orthographical spelling of both languages was counterbalanced.

### 2.4. Results

A 2 (language, Mandarin or English)  $\times$  3 (similarity level of the initial consonants of the C-/i/ syllables) repeated measure ANOVA was used to analyze the two factors manipulated in this experiment.

Results showed that both effects were significant, and no interaction was found. As shown in Figure 2, the overall accuracy was high (over 80%) for differentiating these C-/i/ syllables of the two languages [ $F(1, 99) = 4.98, p < .05$ ]. Specifically, Mandarin syllables were perceived with a higher accuracy than their English counterparts.

Similarity levels of the initial consonants were also found significantly influential to participants' performance [ $F(2, 198) = 34.20, p < .001$ ]. As shown in the figure, the accuracy was nearly perfect for differentiating syllables initiated by consonants of the “dissimilar” pairs, followed by the 80% accuracy for those of the “similar” pairs, which in turn was followed by the 70% accuracy for those of the “identical” pairs. Pairwise comparisons showed that differences between each two of the three similarity levels were all significant. The contrast was robust.



*Figure 2. Language and similarity effects of Experiment 1*

Results of this experiment conformed the native language advantage, and supported the SLM in that consonants took from the “dissimilar” pairs were perceived with higher accuracy than those from the other two similarity levels. However, the SLM made no clear prediction on how L2 learners would react on sounds of different similarity levels, *i.e.* similar and identical pairs in this experiment. It seems to treat similarity more as a dichotomous (instead of gradient) concept. On the other hand, equipped with the category goodness concept, the PAM seemed to provide a better explanation for the fact that the accuracy of /t/ and /l/ (“similar” pairs) differentiation was significantly higher than that of /p/ and /m/ (“identical” pairs), which in turn was significantly higher than the chance level.

With this unexpected overall high accuracy in the previous experiment, we suspected that supplementary information may be provided from the following vowel /i/ and facilitated participants’ perception. Thus we designed the following experiment in order to investigate the weighting of vocalic information in influencing participants’ decision on the differentiation of these C-/i/ syllables.

### 3. Experiment 2

#### 3.1 Participants

Participants were another 26 undergraduate students recruited from the same university. They also received a compensation fee for their voluntary participation. Following the previous experiment, English proficiency was not held as an independent factor in this experiment.

#### 3.2 Material

As vocalic information was the main factor in this experiment, the vowels of each C-/i/ item underwent manipulation to some degrees. As shown in Table 2, we had a two-by-two combinations between language (Mandarin or English) and vowel manipulation (of the same language as the consonant or not). For example, a newly combined syllable with a Mandarin consonant followed by the /i/ of its corresponding English syllable would be termed “ME”; if it’s the other way around, “EM”. One thing worth noticing was that even for those with consonants and vowels from the same language, *i.e.* MM and EE pairs, the /i/ sound was spliced from another production of the same syllable (illustrated as in Table 2). In this way we could assure that each stimulus was of equal extent of unnaturalness by the manipulation.

**Table 2.** *Manipulated C-/i/ pairs used in Experiment 2*

		Vowel <sup>1</sup>	
		<i>Mandarin</i>	<i>English</i>
Consonant	<i>Mandarin</i>	<b>M<sub>1</sub> + M<sub>2</sub></b>	<b>M<sub>1</sub> + E<sub>2</sub></b>
	<i>English</i>	<b>E<sub>1</sub> + M<sub>2</sub></b>	<b>E<sub>1</sub> + E<sub>2</sub></b>

The same speaker was again recruited for the recording of these stimulus items for this experiment.

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<sup>1</sup> Segments extracted from different productions of the same syllable were marked with the lower-cased Arabic numbers 1 and 2.

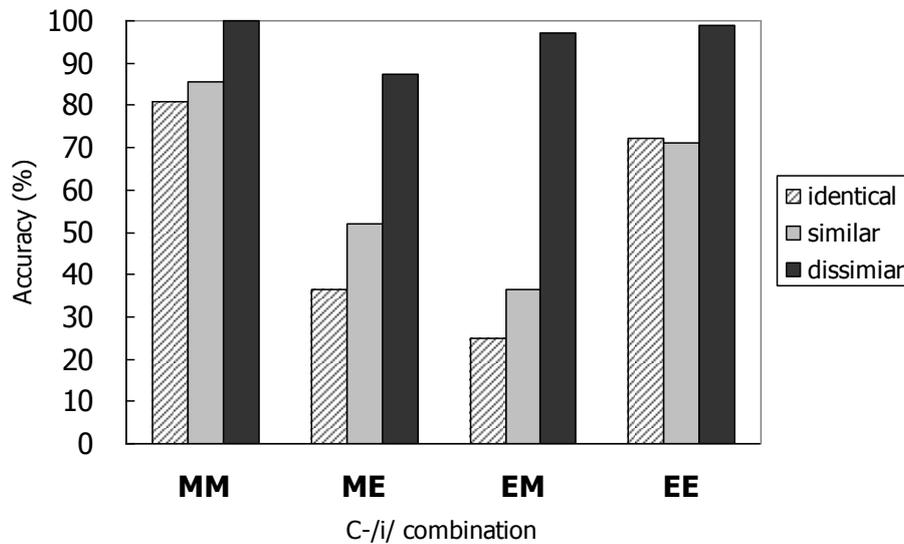
### 3.3 Procedure

Same as Experiment 1.

### 3.4 Results

In total, three factors were investigated in this experiment: In addition to language and similarity levels, vowel manipulation (/i/ from the same language as the preceding consonant or not) was also included as a within-group factor. Therefore, a 2 (language)  $\times$  3 (similarity level)  $\times$  2 (vowel manipulation) repeated measure ANOVA was conducted on the data collected.

Three main effects and two interactions were obtained in the analyses: Language effect was found significant, which indicated that for MM and EE pairs, though with the vowel /i/ juxtaposed from a different production, syllables initiated with Mandarin consonants were still perceived with a higher accuracy [ $F(1, 103) = 9.68, p < .01$ ]. In addition, the similarity effect replicated the results of the previous experiment in that syllables initiated with consonants of the “dissimilar” pairs were again perceived with a higher accuracy than those of the “similar” and “identical” pairs [ $F(1, 103) = 289.00, p < .001$ ]. However, compared with those natural (unedited) syllables in Experiment 1, the average accuracy for the “similar” and “identical” pairs of MM and EE conditions in this experiment decreased due to the replacement of /i/ from a different production. Post-hoc analysis on the interaction between language and similarity level showed that for Mandarin pairs, the three similarity levels significantly differed from each other [ $F(2, 414) = 52.30, p < .001$ ] while for English syllables, significance was only observed between the “dissimilar” pairs and the other two types [ $F(2, 414) = 103.97, p < .001$ ]. The difference between the “similar” and “identical” pairs was not significant.



*Figure 3. Language and similarity effects of Experiment 2*

The remaining main effect came from the manipulation of the vowel /i/. As shown in Figure 3, syllables with consonants and vowels extracted from the same language (MM & EE combinations) were consistently perceived with a higher accuracy than those with their /i/ sounds spliced from the other language (ME & EM combinations) [ $F(1, 103) = 159.06, p < .001$ ]. An interaction was also found between the similarity level of the syllable-initial consonants and vowel manipulation. The two correlated with each other, and post-hoc analysis showed that for syllables with /i/ and the preceding consonant from the same language, significance was only observed between the “dissimilar” pairs and the other two types [ $F(2, 414) = 30.80, p < .001$ ], whereas for those with /i/ juxtaposed from the other language, significance was found between each of any two similarity levels [ $F(2, 414) = 142.76, p < .001$ ].

Results of this experiment indicated that dichotomous differentiation seemed to be enough (at least for synthesized stimuli underwent the same level of C-/i/ manipulation) since the subtle difference between the “similar” and “identical” pairs might have been eliminated during the process of juxtaposition.

#### 4. Discussion and Conclusion

Results obtained from the first experiment supported that Mandarin speakers of English make use of their native language advantage when asked to differentiate L1 and L2 syllables. In addition, regarding the research questions mentioned earlier, the results also supported the SLM to a certain extent in that syllables belonging to the “dissimilar” Mandarin-English pairs were much easier to differentiate. However, the PAM offers a more detailed explanation on the relatively better performance on syllables of the “similar” pairs: Category goodness to Mandarin was believed to provide our participants ideal /t/ or /l/ exemplars. Bearing the ideal exemplars in mind, when asked to differentiate Mandarin and English /ti/ or /li/ pairs, all these L2 listeners had to do was to use this ideal phoneme as an “anchor”—anything close to it should be Mandarin, else should be English (since they were forced to determine between two choices).

Following this, results of the second experiment further confirmed the nativeness effect by showing that with the /i/ substituted from another production (of syllables of the same language), participants could still tell the difference between syllables of the “similar” and the “identical” pairs with an accuracy higher than the chance level. Vocalic information was found essential in facilitating those L2 listeners’ performance in accomplishing thus high accuracy. The correlation between vowel manipulation and the similarity level of the syllable-initial consonants showed that it is helpful in facilitating L2 listeners’ distinction when consonantal information alone is relatively weak.

In fact, making use of extra cues for speech perception has been studied on special populations for different purposes. For example, Revoile *et al.* (1987) found that by enhancing acoustical cues of consonants, speech perception of the hearing-impaired people improved. Vocalic information was also found crucial among native speakers of English in differentiating whether the following stop was voiced or voiceless (Crowther and Mann, 1992). With the results obtained from this study, we may further extend the influence of vocalic information to the differentiation between syllables initiated with native or nonnative sounds: In the conditions where consonantal cues are relatively weak (as in the case of the “similar” and “identical” pairs of this study), vocalic information is indispensable for L2 learners to maximize their accuracy in the differentiation of syllables initiated with L1 and L2 consonants varying in different degrees of similarity.

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# Perception and production patterns of Korean phonemic contrasts by Japanese L2 learners

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## Abstract

This study investigated the error patterns of Japanese second language (L2) learners in the perception and production of Korean phonemic contrasts and assessed how their phonetic realizations differ from native Korean speakers. 31 Japanese subjects took identification and pronunciation tests. The following are the salient findings: (1) the Japanese subjects often failed to produce vowel target /u/ acoustically distinct from /ɨ/; (2) in the word-initial position, the Japanese subjects often misperceived three-way contrasts as similar sounds and showed a tendency to mispronounce fortis consonants as lenis or aspirated ones; and (3) in the word-final position, the Japanese subjects demonstrated a tendency to mispronounce both alveolar and velar consonants as velar ones.

**Keywords:** perception, production, Korean phonemic contrasts, Japanese L2 learners

## 1. Introduction

Cross-language studies have shown that adult learners of a second language (L2) have difficulty in both the perception and production of non-native phonological segments (Flege 2003). Focused on Korean language education, Kim and Song (2006a, 2006b) analyzed journal articles and dissertations related to Korean language education and reported increased researches related to Korean as a second language since the 1980s. However, it is still necessary to study Korean language education in the quantitative and qualitative aspects.

This study is an extension of a previous work (Park et al. 2007) that reported the degrees of difficulty faced by Japanese L2 learners while learning Korean phonemic contrasts that are not distinct in Japanese. In this study, we investigated the error patterns of Japanese L2 learners in the perception and production of Korean phonemic contrasts and assessed how the phonetic realization of their patterns is different from

native Korean speakers.

The Korean target phonemes investigated in this study were selected based on the commonly mentioned issues with regard to the Japanese L2 learners in previous researches (Umeda 1985; Hasegawa 1997; Woo 1998; Jung 2003). As for vowels, Korean vowel contrasts of /o, ʌ/ and /u, ɯ/ from standard Korean ten vowels /i, e, ε, a, o, ø, u, y, ʌ, ɯ/ were investigated. For the vowel contrasts of /o, ʌ/ and /u, ɯ/, Japanese L2 learners were predicted to perceive and produce these vowel contrasts imperfectly since they are not distinct in the five-vowel Japanese system: /i, e, a, o, u/. For word-initial contrasts, we examined three-way and two-way contrasts in Korean obstruent consonants. Korean stops, affricates and fricatives are different from Japanese in that they are opposed in the word-initial position as lenis, fortis and aspirated consonants (i.e., /p/, /p<sup>\*</sup>/ and /p<sup>h</sup>/ for bilabial stops, the diacritic “\*” is used to mark fortis consonants) and are all realized as voiceless while Japanese shows voiced versus voiceless opposition (i.e., /p/ and /b/ for bilabial stops). For word-final contrasts, we investigated Korean stops and nasals that show articulatory-positional contrast with bilabial, alveolar and velar sounds in the word-final position. Japanese has special phonemes, *sokuon* and *hatsuon*, which are often compared to Korean word-final consonants. However, *sokuon* and *hatsuon* are different from Korean word-final consonants. *Sokuon* and *hatsuon* are realized as labial, alveolar and velar sounds in accordance with phonetic circumstances (Dantsuji 1996).

## 2. Methods

### 2.1. Subjects

The 31 subjects were comprised of 19 and nine Japanese university students who participated in primary and intermediate Korean classes (JP and JI subject groups), respectively. The members of the JP and JI subject groups attended classes three hours a week. The three remaining subjects were classified as the JL subject group who had been learning Korean for over nine years. The subjects of all three groups started to learn Korean after entering university, had Japanese parents, and had not stayed in Korea for more than one month. We also collected data from eight Seoul dialect speakers (four males and four females, mean age 28) who spoke Korean as their first language. The characteristics of the three groups of subjects are shown in Table 1.

Table 1. Characteristics of three subject groups

Group	N	Mean age	L2 leaning experience
JP	(10m/9f)†	21	first year of class
JI	6m/3f	21	second year of class
JL	3m	31	over 9 years

†m and f stand for male and female subjects

## 2.2. Stimuli/Test words

Two sets of word lists were given to the subjects for identification and pronunciation tests. Each word list consisted of 132 minimally different Korean words containing the following phonemic contrasts: (1) vowel contrasts of /o, ʌ/ and /u, ɨ/; (2) word-initial consonant contrasts of /p, p\*, p<sup>h</sup>/, /t, t\*, t<sup>h</sup>/, /k, k\*, k<sup>h</sup>/, /tɕ, tɕ\*, tɕ<sup>h</sup>/ and /s, s\*/; and (3) word-final consonant contrasts of /p, t, k/ and /m, n, ŋ/. Examples of the minimal contrasts are shown in Table 2.

Table 2. Minimal contrasts

Minimal contrast	Example			N†			
/o, ʌ/	/tɕo/	“millet”	/tɕʌ/	“I”	10		
/u, ɨ/	/ku/	“nine”	/kɨ/	“he”	10		
/p, p*, p <sup>h</sup> /	/pul/	“fire”	/p*ul/	“horn”	/p <sup>h</sup> ul/	“grass”	4
/t, t*, t <sup>h</sup> /	/tam/	“fence”	/t*am/	“sweat”	/t <sup>h</sup> am/	“avarice”	4
/k, k*, k <sup>h</sup> /	/ki/	“energy”	/k*i/	“meal”	/k <sup>h</sup> i/	“height”	4
/tɕ, tɕ*, tɕ <sup>h</sup> /	/tɕim/	“baggage”	/tɕ*im/	“steamed dish”	/tɕ <sup>h</sup> im/	“needle”	4
/s, s*/	/sal/	“skin”	/s*al/	“rice”			4
/p, t, k/	/kap/	“tiny case”	/kas/‡	“leaf mustard”	/kak/	“each”	6
/m, n, ŋ/	/sam/	“three”	/san/	“mountain”	/sarŋ/	“prize”	6

†The number of contrasts in one word list set.

‡We included words with word-final /s/ as well as word-final /t/ in the word list since /s/ is realized as alveolar stop [t̚] in the word-final position.

## 2.3. Procedure

Data collection was conducted from December 2006 to February 2007 when the two semesters that started in April 2006 were about to end.

During the identification test, words spoken by a native Korean speaker (male, age 34, Seoul dialect speaker) were randomly presented and the subjects responded with forced-choice identification of the stimulus.

For the pronunciation test, randomized test words were presented in Korean

orthography, and the subjects were instructed to read words in isolation. Three repetitions of each word were recorded, and the total number of elicited tokens was 12,276 (132 words x 3 repetitions x 31 subjects). The recording was made in a sound-attenuated booth at Kyoto University at a sampling rate of 48,000 Hz using a TASCAM DA-P1 DAT recorder and an AKG TPS D3800 microphone.

#### *2.4. Data analysis*

We calculated the identification scores from the identification test. The identification score was the mean percentage of subject correct answers in the identification of each word.

For the pronunciation test, three native Korean speakers (one male and two females, mean age 25, Seoul dialect speakers) majoring in Teaching Korean as a Foreign Language evaluated the subjects' pronunciations, followed by the intelligibility score, which was the mean percentage of times that the pronunciation was identified correctly as intended.

We performed an acoustic analysis for the subject tokens. For the acoustic measurements, the recording was downsampled to 16,000 Hz, and a KayPENTAX Multi-Speech 3700 was used to measure the acoustic properties. For the vowels, we measured the first three formant (F1, F2 and F3) frequencies at the midpoint of each vowel by a linear predictive coding (LPC) analysis. A 20 ms Hamming window was centered at the acoustic midpoint of each vowel. 16 LPC coefficients were calculated for most tokens. Where they failed to produce reliable formant frequency values, the number of LPC coefficients was adjusted accordingly. Also, a fast Fourier transform (FFT) spectrum was used as a supplementary check. For the word-initial consonants, first, voice onset time (VOT) for stops and affricates was taken from the position of the stop release to the voice onset of the following vowel. Second, the durations of both frication noise and aspiration were measured for fricatives. The VOT and the fricative durations were measured from the spectrograms of each token. Third, we measured the fundamental frequency ( $F_0$ ) for stops, affricates and fricatives at the position of voicing onset. In addition, we normalized the measured raw  $F_0$  values as per Kang and Guion (2006). The way of normalization includes the calculation of the average raw  $F_0$  values of all the two-way or three-way consonants pronounced by individual subjects. Then we divided the individual raw  $F_0$  values by the average  $F_0$  values. For the word-final consonants, we checked the formant transition patterns on the spectrogram.

### 3. Results

#### 3.1. Vowel contrasts

We summarized the vowel's mean identification and intelligibility scores in Table 3. The overall results show that the JP and JI subject groups showed no substantial difference in their abilities, despite the year's gap between their learning experiences. Meanwhile, it is notable that the native Korean speakers often identified the JP and JI subjects' pronunciations of both /u/ and /ɨ/ as /ɨ/.

Table 3. Mean identification and intelligibility scores for JP, JI and JL subject groups

	Mean identification score (%)			Mean intelligibility score (%)		
	JP (n = 19)	JJ (n = 9)	JL (n = 3)	JP (n = 19)	JJ (n = 9)	JL (n = 3)
/o/	76	71	87	68	64	77
/ɔ/	75	63	87	71	67	78
/u/	69	67	83	42	36	86
/ɨ/	72	72	97	87	86	88

Regarding the pronunciation test, we performed a LPC analysis to measure the first three formant frequencies. For the acoustic analysis, we selected the words / $\text{t}\text{e}\Delta$ ,  $\text{t}\text{e}\text{O}$ / and /ku, kɨ/ from the word list since we could obtain the steady-state parts of the vowels from these words. Figure 1 shows the plots of the first and second vowel formant (F1 and F2) frequencies. The overall results shown in Figure 1 indicate that native Korean speakers produced acoustically distinct vowel targets, whereas the subjects failed to do that. Focusing on the intelligibility scores of /u/ in Table 3, the JP and JI subject groups have F2 values of /u/ much closer to /ɨ/. Though F2 is related to the advancement of the tongue, F2 values can also be lowered by lengthening the oral cavity with rounded lips. Thus, it can be concluded that the Japanese learners had insufficient lip rounding in pronouncing rounded vowel /u/.

To explore what acoustic properties the native Korean speakers paid attention to when they evaluated the subject pronunciations, we carried out statistical analysis. Through a multiple regression analysis, we can learn the influence of independent variables on dependent variables. With formant frequency values as independent variables and intelligibility scores as dependent variables, we carried out a multiple regression analysis. The results shown in Table 4 suggest that the intelligibility scores were significantly influenced by F1 for vowels / $\text{t}\text{e}\text{O}$ ,  $\text{t}\text{e}\Delta$ / and F2 for vowels /ku, kɨ/.

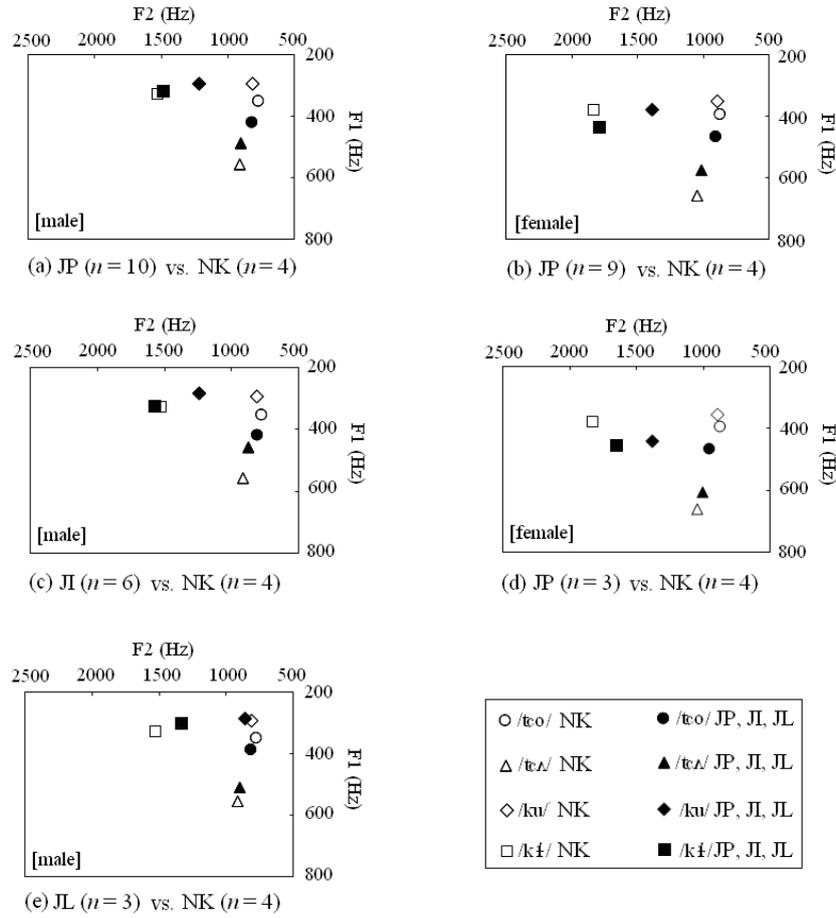


Figure 1. Mean F1 and F2 frequencies for JP, JI and JL subject groups and native Korean (NK) speaker group

Table 4. Multiple regression analysis results

Independent variable	/tɕo/		/tɕʌ/	
	Beta	<i>P</i>	Beta	<i>P</i>
F1	-.830	< .01	.846	< .01
F2	.215	.279	-.113	.626
F3	.099	.535	.040	.774
	/ku/		/kʰ/	
	Beta	<i>P</i>	Beta	<i>P</i>
F1	.268	.191	-.070	.811
F2	-.909	< .01	.647	< .01
F3	-.032	.852	-.100	.713

### 3.2. Word-initial consonant contrasts

#### 3.2.1. Three-way contrasts in stops and affricates

For three-way contrasts, we totaled the mean identification scores (underlined)

with a confusion matrix for the three groups of subjects in Table 5. The JI subject group's identification score for bilabial lenis stops was 83%. At the same time, however, the JI subject group's identification of bilabial fortis stops as lenis stops was 47% while their identification rate of bilabial aspirated stops as lenis stops was 31%. This result suggests that it is problematic to claim that the JI subject group does not have any problem identifying bilabial lenis stops based on the fact that the identification score for bilabial lenis stops was over 80%. Accordingly, we subjected the distribution of the identification scores and the error rates of each error type in Table 5 to an ALSCAL multidimensional scaling (MDS) analysis to map each group's perceptual space for the three-way obstruent contrasts.

Table 5. Perception confusion matrices: target consonants in rows and mean percentage values of subject identifications in columns (Percentages may not add up to 100% due to rounding)

	Mean identification score (%)								
	JP ( <i>n</i> = 19)			JI ( <i>n</i> = 9)			JL ( <i>n</i> = 3)		
	/p/	/p <sup>*</sup> /	/p <sup>h</sup> /	/p/	/p <sup>*</sup> /	/p <sup>h</sup> /	/p/	/p <sup>*</sup> /	/p <sup>h</sup> /
/p/	<u>71</u>	13	16	<u>83</u>	3	14	<u>92</u>		8
/p <sup>*</sup> /	37	<u>53</u>	11	47	<u>42</u>	11	42	<u>58</u>	
/p <sup>h</sup> /	22	18	<u>59</u>	31	11	<u>58</u>	8		<u>92</u>
	/t/	/t <sup>*</sup> /	/t <sup>h</sup> /	/t/	/t <sup>*</sup> /	/t <sup>h</sup> /	/t/	/t <sup>*</sup> /	/t <sup>h</sup> /
/t/	<u>76</u>	12	12	<u>89</u>	3	8	<u>83</u>	8	8
/t <sup>*</sup> /	32	<u>62</u>	7	22	<u>53</u>	25	17	<u>83</u>	
/t <sup>h</sup> /	24	21	<u>55</u>	22	25	<u>53</u>	8		<u>92</u>
	/k/	/k <sup>*</sup> /	/k <sup>h</sup> /	/k/	/k <sup>*</sup> /	/k <sup>h</sup> /	/k/	/k <sup>*</sup> /	/k <sup>h</sup> /
/k/	<u>76</u>	17	7	<u>75</u>	11	14	<u>83</u>		17
/k <sup>*</sup> /	33	<u>63</u>	4	33	<u>50</u>	17	17	<u>83</u>	
/k <sup>h</sup> /	37	25	<u>38</u>	58	19	<u>22</u>	17		<u>83</u>
	/tɕ/	/tɕ <sup>*</sup> /	/tɕ <sup>h</sup> /	/tɕ/	/tɕ <sup>*</sup> /	/tɕ <sup>h</sup> /	/tɕ/	/tɕ <sup>*</sup> /	/tɕ <sup>h</sup> /
/tɕ/	<u>68</u>	12	20	<u>83</u>	6	11	<u>92</u>		8
/tɕ <sup>*</sup> /	36	<u>45</u>	20	25	<u>47</u>	28	33	<u>58</u>	8
/tɕ <sup>h</sup> /	18	16	<u>66</u>	19	8	<u>72</u>	17	8	<u>75</u>

Figure 2 shows the MDS analysis results for the three subject groups and the native Korean speakers. The latter attained 100% identification scores for each phoneme. The results shown in Figure 2 indicate that the subjects often misperceived the three-way obstruent contrasts as they are similar to one another.

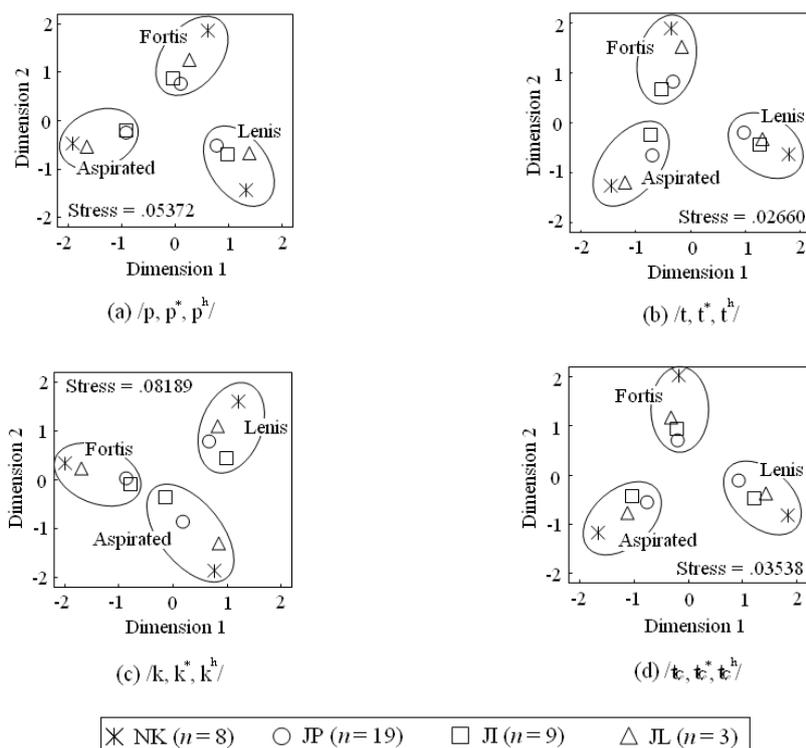


Figure 2. MDS analysis results for JP, JI and JL subject groups and native Korean (NK) speaker group

For the pronunciation test, Table 6 summarizes the mean intelligibility scores (underlined) with a confusion matrix for the three groups of subjects. The overall results show that the JP and JI subject groups had considerably lower intelligibility scores with respect to the fortis consonants compared to the others. This means that the JP and JI subjects had difficulty controlling the laryngeal tension necessary for pronouncing the fortis consonants. However, as seen in the results for the JL subject group, the tension control problem might be solved as the learning process continues. As for error types, the native Korean speakers demonstrated a strong tendency to judge the subject pronunciations of the fortis consonants as the lenis or aspirated ones.

We measured the VOT and F<sub>0</sub> values of all the tokens collected from the pronunciation test to further analyze the subject pronunciations. Figure 3 shows the mean values of VOT and normalized F<sub>0</sub> for the three subject groups and the native Korean speaker group. From the results shown in Figure 3, the JP and JI subject groups produced the three-way consonants as similar sounds compared to the native Korean speakers.

Table 6. Production confusion matrices: target consonants in rows and mean percentage values of native Korean speakers' identification on subject pronunciations in columns (Percentages may not add up to 100% due to rounding)

	Mean intelligibility score (%)									
	JP ( <i>n</i> = 19)			JI ( <i>n</i> = 9)			JL ( <i>n</i> = 3)			
	/p/	/p*/	/p <sup>h</sup> /	/p/	/p*/	/p <sup>h</sup> /	/p/	/p*/	/p <sup>h</sup> /	
/p/	<u>75</u>	7	17	<u>71</u>	11	18	<u>81</u>	9	9	
/p*/	43	<u>32</u>	25	43	<u>35</u>	22	9	<u>85</u>	6	
/p <sup>h</sup> /	34	7	<u>59</u>	43	6	<u>51</u>	10		<u>90</u>	
	/t/	/t*/	/t <sup>h</sup> /	/t/	/t*/	/t <sup>h</sup> /	/t/	/t*/	/t <sup>h</sup> /	
/t/	<u>51</u>	14	34	<u>58</u>	15	27	<u>64</u>	10	26	
/t*/	25	<u>37</u>	37	38	<u>37</u>	25	5	<u>86</u>	9	
/t <sup>h</sup> /	21	12	<u>67</u>	28	7	<u>65</u>	1		<u>99</u>	
	/k/	/k*/	/k <sup>h</sup> /	/k/	/k*/	/k <sup>h</sup> /	/k/	/k*/	/k <sup>h</sup> /	
/k/	<u>77</u>	3	20	<u>70</u>	6	24	<u>73</u>	6	20	
/k*/	39	<u>31</u>	30	34	<u>35</u>	31	9	<u>89</u>	2	
/k <sup>h</sup> /	33	5	<u>62</u>	42	2	<u>56</u>	12		<u>88</u>	
	/tɕ/	/tɕ*/	/tɕ <sup>h</sup> /	Others	/tɕ/	/tɕ*/	/tɕ <sup>h</sup> /	/tɕ/	/tɕ*/	/tɕ <sup>h</sup> /
/tɕ/	<u>45</u>	17	38		<u>46</u>	22	32	<u>62</u>	19	19
/tɕ*/	20	<u>50</u>	30		28	<u>44</u>	28	4	<u>90</u>	6
/tɕ <sup>h</sup> /	19	12	<u>68</u>	1	30	11	<u>59</u>	4	2	<u>94</u>

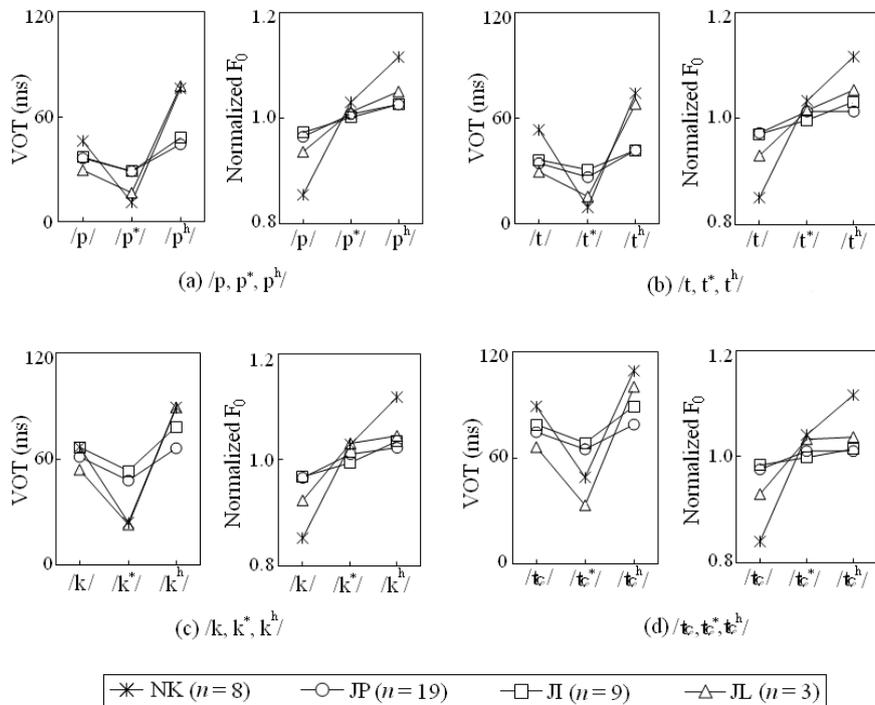


Figure 3. Mean values of VOT and normalized F<sub>0</sub> for JP, JI and JL subject groups and native Korean (NK) speaker group

We carried out a multiple regression analysis to assess the relation the acoustic analysis results have with those of the native Korean speaker evaluations of the subject pronunciations. The independent variables were the VOT and normalized F<sub>0</sub> values, and the dependent variables were the intelligibility scores. As seen in Table 7, the F<sub>0</sub> value of lenis, the VOT value of fortis, and both the VOT and F<sub>0</sub> values of aspirated consonants meaningfully influence the native Korean speaker evaluations of the subject pronunciations.

Table 7. Multiple regression analysis results

Independent variable	/p/		/p <sup>*</sup> /		/p <sup>h</sup> /	
	Beta	P	Beta	P	Beta	P
VOT	.332	.093	-.795	< .01	.453	< .01
Normalized F <sub>0</sub>	-.214	.273	-.145	.270	.415	< .01
	/t/		/t <sup>*</sup> /		/t <sup>h</sup> /	
	Beta	P	Beta	P	Beta	P
VOT	.109	.527	-.781	< .01	.604	< .01
Normalized F <sub>0</sub>	-.419	< .05	-.078	.510	.174	.246
	/k/		/k <sup>*</sup> /		/k <sup>h</sup> /	
	Beta	P	Beta	P	Beta	P
VOT	-.042	.819	-.833	< .01	.358	< .05
Normalized F <sub>0</sub>	-.400	< .05	-.088	.429	.450	< .01
	/tɕ/		/tɕ <sup>*</sup> /		/tɕ <sup>h</sup> /	
	Beta	P	Beta	P	Beta	P
VOT	.303	.066	-.744	< .01	.141	.411
Normalized F <sub>0</sub>	-.575	< .01	-.017	.900	.435	< .05

### 3.2.2. Two-way contrast in fricatives

Table 8 shows each consonant's mean identification and intelligibility scores for the two-way contrast. The identification scores are high with the fortis consonants, while their intelligibility scores are high with the lenis consonants in all three groups of subjects. It seems that the subjects tended to perceive and pronounce as fortis consonants what native Korean speakers perceived and pronounced as lenis consonants.

Table 8. Mean identification and intelligibility scores for JP, JI and JL groups

	Mean identification score (%)			Mean intelligibility score (%)		
	JP (n = 19)	JI (n = 9)	JL (n = 3)	JP (n = 19)	JI (n = 9)	JL (n = 3)
/s/	53	61	50	73	65	81
/s <sup>*</sup> /	63	64	92	54	56	72

For the pronunciation test, we carried out an acoustic analysis. /sal, s<sup>\*</sup>al/ and /sada, s<sup>\*</sup>ada/ were selected from the word list on the ground that their acoustic characteristics

were observed clearly. From the native Korean speaker results in Figure 4, it is frication noises and aspirations that distinguish between lenis and fortis. Though certain differences exist in the normalized  $F_0$  values between the lenis and fortis consonants, they were not prominent compared with the three-way contrasts (see Figure 3). On the other hand, it was notable that the productions of every subject group realized the lenis consonants as sounds with little aspiration and the fortis consonants as sounds with much aspiration compared to the native Korean speakers.

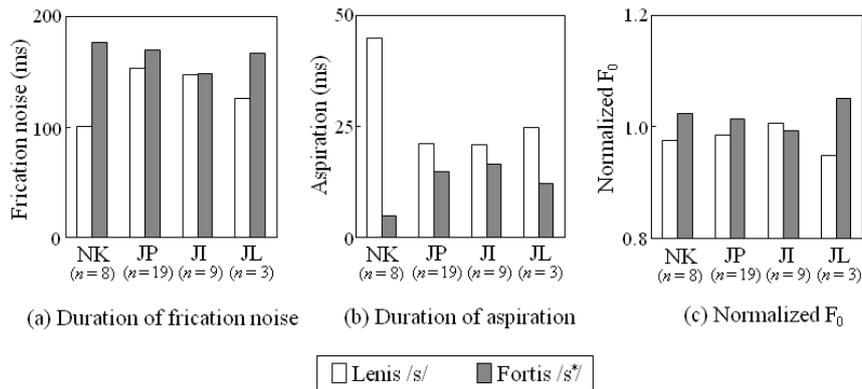


Figure 4. Mean values of durations and normalized  $F_0$  for JP, JI and JL subject groups and native Korean (NK) speaker group

To explore what acoustic properties the native Korean speakers paid attention to when they evaluated the subject pronunciations, we carried out a multiple regression analysis. The independent variables were the durations of the frication noise, the durations of the aspiration and the normalized  $F_0$  values; the dependent variables were the intelligibility scores. As seen in Table 9, the extent of aspiration included in subject production had the greatest influence on the native Korean speaker evaluations of the subject pronunciations.

Table 9. Multiple regression analysis results

Independent variable	/s/		/s*/	
	Beta	P	Beta	P
Duration of frication noise	-.309	< .01	.123	.128
Duration of aspiration	.731	< .01	-.881	< .01
Normalized $F_0$	.127	.164	.026	.739

### 3.3. Word-final consonant contrasts

In Table 10, we summarized the mean identification scores (underlined) with a confusion matrix for the three subject groups. To understand what perceptual spaces each group had for each paradigm, we carried out an ALSCAL MDS analysis for the distribution of the identification scores and the error rates of each error type in Table 10.

Table 10. Perception confusion matrices: target consonants in rows and mean percentage values of subject identifications in columns (Percentages may not add up to 100% due to rounding)

	Mean identification score (%)								
	JP ( <i>n</i> = 19)			JI ( <i>n</i> = 9)			JL ( <i>n</i> = 3)		
	/p/	/t/	/k/	/p/	/t/	/k/	/p/	/t/	/k/
/p/	<u>76</u>	15	9	<u>72</u>	11	17	<u>83</u>	6	11
/t/	11	<u>64</u>	25	17	<u>52</u>	31		<u>94</u>	6
/k/	7	24	<u>69</u>	9	20	<u>70</u>	6	33	<u>61</u>
	/m/	/n/	/ŋ/	/m/	/n/	/ŋ/	/m/	/n/	/ŋ/
/m/	<u>58</u>	25	17	<u>65</u>	28	7	<u>72</u>	28	
/n/	6	<u>61</u>	33	2	<u>81</u>	17		<u>94</u>	6
/ŋ/	4	39	<u>56</u>	7	44	<u>48</u>		22	<u>78</u>

The MDS analysis results are shown in Figure 5. The native Korean speakers achieved 100% identification scores for each phoneme. The results obtained by the MDS analysis indicate that the perceptual spaces for the alveolar and velar stops/nasals are shaped in positions far from the positions of the bilabial sounds both in the JP and JI subject groups.

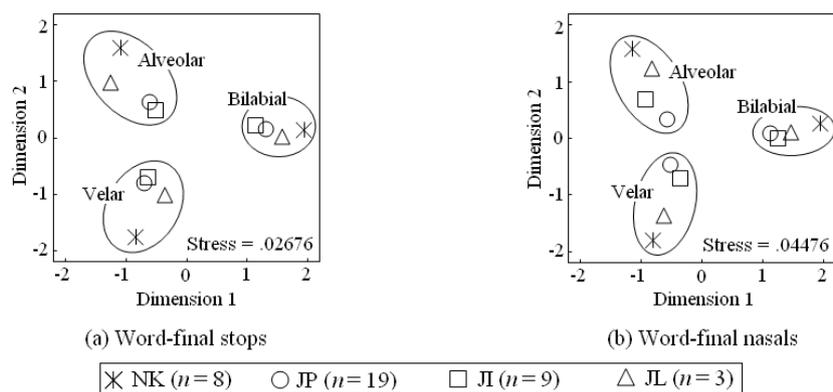


Figure 5. MDS analysis results for JP, JI and JL subject groups and native Korean (NK) speaker group

Table 11 summarizes the mean intelligibility scores (underlined) with a confusion matrix for the three groups of subjects. In Table 11, the results of the intelligibility

scores are characteristic in that the JP and JI subject group scores of alveolar sounds were significantly low. On the other hand, a strong tendency was found among the native Korean speakers to judge the JP and JI subject pronunciations of /n/ and /ŋ/ as /ŋ/. With regard to error types, what is interesting here is that there was a higher frequency of vowel insertion and consonant deletion errors in stops.

Table 11. Production confusion matrices: target consonants in rows and mean percentage values of native Korean speakers' identification on subject pronunciations in columns (Percentages may not add up to 100% due to rounding)

	Mean intelligibility score (%)															
	JP (n = 19)						JI (n = 9)					JL (n = 3)				
	/p/	/t/	/k/	VI†	CD‡	Others	/p/	/t/	/k/	VI	CD	Others	/p/	/t/	/k/	CD
/p/	<u>81</u>	6	4	6		3	<u>64</u>	14	5	11	5	1	<u>93</u>	7	1	
/t/	15	<u>37</u>	32	1	14	1	13	<u>41</u>	24	1	21		8	<u>85</u>	4	3
/k/	10	15	<u>65</u>	9	2		13	17	<u>49</u>	15	6		3	7	<u>90</u>	
	<u>/m/ /n/ /ŋ/</u>						<u>/m/ /n/ /ŋ/ VI</u>					<u>/m/ /n/ /ŋ/</u>				
/m/	<u>87</u>	4	9				<u>84</u>	6	8	2			<u>95</u>	4	1	
/n/	8	<u>38</u>	54				8	<u>49</u>	43				5	<u>89</u>	6	
/ŋ/	4	10	<u>85</u>				8	15	<u>77</u>				2	<u>98</u>		

†Vowel insertion

‡Consonant deletion

For the pronunciation test results, we examined what acoustic characteristics were observed among the subjects. Figure 6 (b) shows an example of frequently occurring pronunciation errors in the word-final consonants. The target sound of subject pronunciation (b) is an alveolar stop, which the native Korean speakers evaluated as a velar stop. The formant transition patterns reveal that subject pronunciation (b) resembles the velar stop in a native Korean speaker's result (a).

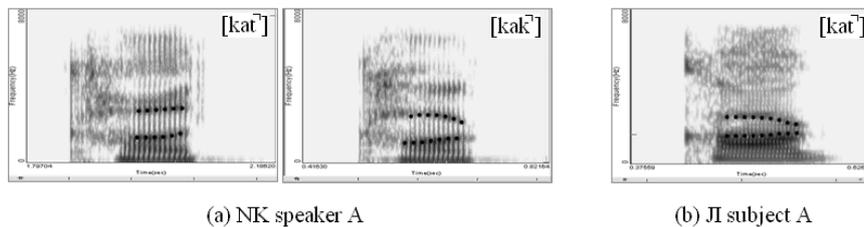


Figure 6. Formant transition patterns on spectrograms of a native Korean (NK) speaker and a JI subject

#### 4. Summary

In the present study, we investigated what error patterns Japanese L2 learners revealed both in the perception and production of Korean phonemic contrasts and observed the differences in their phonetic realizations from native Korean speakers. The following are the salient findings. First, for the vowels, Japanese subjects often failed to produce the vowel target /u/ acoustically distinct from /ɯ/. Second, Japanese subjects often misperceived the three-way contrasts in the word-initial position as similar sounds and demonstrated a strong tendency to mispronounce the fortis consonants as lenis or aspirated ones. Third, Japanese subjects often misperceived the alveolar and velar consonants in the word-final position as similar to each other and tended to mispronounce both the alveolar and velar consonants as velar ones. In general, the Japanese L2 learners whose first language is Japanese perceive and produce Korean phonemic contrasts on the basis of imperfect perceptual and productive criteria since they need to perceive and pronounce more diverse phonemes than those in their own language.

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# Loanword adaptation between Korean-Japanese plosives and the role of perception<sup>1</sup>

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## Abstract

In Korean loanword adaptation, Japanese voiceless plosives are adapted as lenis in the word initial position but as aspirated or fortis in the word medial position, regardless of the input pitch patterns. We carried out perception tests of Japanese, French, English and Korean laryngeal categories by Korean listeners with stimuli manipulated in F0 and temporal characteristics. The results show that Korean laryngeal categorization relies heavily on F0 and VOT. Japanese initial voiceless stops were categorized as ‘aspirated’ when F0 was high. We argue that perceptive factors are not all directly reflected in loanword adaptation.

**Keywords:** Korean loanword, Japanese plosive, English plosive, French plosive, laryngeal category.

## 1. Introduction

Relationships between loanword forms and L2 sound perception have been an issue in recent phonological studies. This paper argues that perceptive factors are not all directly reflected in loanword adaptation. The basic question lies in whether the adaptation process has access to L2 contrast (i.e. phonological categorization of raw L2 sounds through L2 grammar before being mapped to L1 categories; cf. Paradis and Lacharité 1997, Rose and Demuth 2006), or whether L1 grammar filters all L2 sounds to obscure the L2 categories (i.e. phonetic mapping between L2 sounds and L1 categories; Peperkamp and Dupoux 2003). Our study focuses on adaptations between Japanese and Korean plosives, which are interesting for testing the above theses.

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Japanese has only a typical laryngeal contrast [ $\pm$ voice] while Korean has a well known three-way laryngeal distinction (lenis, fortis and aspirated); these two languages also use partially overlapping phonetic cues. In this study we shall report our findings on the role of perceptive factors in loanwords. The results show that only selected information has an active role in loanword grammar. This may contradict the pure phonetic mapping hypothesis.

The paper is structured as follows. After a brief description concerning the Korean and Japanese laryngeal systems in Section 2, attested phonological mapping patterns between Japanese, French and English and Korean sounds are examined in Section 3. Section 4 reports our perception studies of laryngeal contrasts in plosives by Korean native speakers. Comparisons of Korean adaptations of English and French plosives with our perception study results are also reported. The paper closes with a conclusion and a list of remaining issues.

## **2. Korean and Japanese laryngeal categories and acoustic cues**

Korean has phonation contrasts in obstruents. Of the many analyses proposed for Korean three-way laryngeal contrast (see M-R. Kim and Duanmu 2004), we adopt the distinction lenis [-tense, -spread glottis (s.g.)], fortis [+tense, -s.g.], and aspirated [+tense, +s.g.] proposed by H-S. Kim (2005), as it is relevant to the loanword patterns discussed in Section 3. The lenis, fortis, and aspirated consonant series are represented as C, C' and C<sup>h</sup>, respectively. Japanese only has voicing contrast, [ $\pm$ voice], in obstruents.

The laryngeal contrasts in Korean are realized with multiple phonetic cues. Higher F<sub>0</sub> values in the following vowel signal [+tense] sounds (M-R. Kim *et al.* 2002). VOT, closure duration and spectral tilt differences are involved in distinctions within the [+tense] category: VOT is longer for C<sup>h</sup>, (it is the shortest for C' among the three categories); closure duration is longer for C', and the low spectral tilt also signals a C' consonant (M-R. Kim *et al.* 2002). A further complication is that temporal characteristics such as VOT and closure duration values vary considerably depending on the type of consonants and their position in a phrase (Baker 2002; Cho and Keating 2001). In contrast, Japanese seems to involve radically different phonetic contrasts for laryngeal distinction. The VOT is known to be in proportion with the voiced-voiceless continuum: voiced ones are accompanied with vocal fold vibration; voiceless plosives are lightly aspirated. A perception study by Shimizu (1996) shows that categorical discrimination of voiced/voiceless distinction is made between around -30 ms and around +15 ms of VOT (see also our measurements in Section 4.3.).

The roles of prosody on the segmental distinction also seem to differ. Japanese F0 value has a distinctive role in the lexical pitch accent. Durational cues might not vary as much as in Korean in function of position. This timing difference between the two languages is documented also in the following experimental studies (Sagisaka and Tohkura 1984; Cho and Keating 2001). A more constant segmental duration in different positions in Japanese is also understood by the fact that it is constrained by moraic timing (Sagisaka and Tohkura 1984; Kondo and Shinohara 2003).

### 3. Phonological patterns of Korean loanword adaptation

We shall first observe two different sources of loanword data for Japanese to Korean loanword forms. Data include Korean adaptations of French and English stops. These are interpreted through feature attributions.

#### 3.1. Positional asymmetry in Japanese loans

In Korean loanwords from Japanese, the original [ $\pm$ voice] is neutralized in the phrase initial position and distinguished in the phrase medial position. The Japanese phrase initial voiceless and voiced plosives and phrase medial voiced plosives are uniformly adapted as lenis plosives across available data (Ito *et al.* 2006; H-S. Kim and Shinohara 2006). Below is the Korean adaptation of Japanese voicing contrast from Kim and Shinohara (2006) based on the common usage. Pitch patterns are added by the authors. H stands for high tone; L: low tone (see Table 7 & Figure 3b for sample F0 values of H and L). Transcriptions are quasi-phonemic. The input phonemic sequences of any language are indicated by | |; the output Korean adaptation forms are written in phonemic sequences in //.

Japanese initial voiceless plosive adapted to Korean lenis:

(1)

|tojota| HLL → /tojot'a/ ~ /tojot<sup>h</sup>a/ 'Toyota'  
 |karate| LHH → /karat'e/ ~ /karat<sup>h</sup>e/ 'Japanese martial art'

Initial or medial voiced plosive to lenis:

(2)

|buçi| HL → /pusi/ 'soldier'  
|daci| LH → /tasi/ 'soup stock'  
|soba| HL → /sopa/ 'Japanese buckwheat noodle'  
|nagoja| HLL → /nakoja/ 'Nagoya'

The following patterns were reported for adapting medial voiceless plosives to fortis and aspirated (Kim and Shinohara 2006). Hence, word medial plosives in loans keep the Japanese [ $\pm$ voice] opposition.

Medial voiceless plosive to fortis or aspirated:

(3)

|narita| HLL → /narit<sup>ʔ</sup>a/ ~ /narit<sup>h</sup>a/ 'Narita (Airport)'  
|oosaka| HHHH → /osak<sup>ʔ</sup>a/ ~ /osak<sup>h</sup>a/ 'Osaka'

However, there is inconsistency in the adaptation data: another study showed that word medial voiceless velar plosives are adapted only as fortis stop and alveolar plosive to lenis (Ito *et al.* 2006). These data were based on the Korean Etymological Dictionary and assumed to be the actual pronunciation. Given that loanword adaptation might involve factors other than perception of acoustic properties, our first task is to verify whether the perception is reflected in the Korean loanword adaptation of Japanese.

### 3.2. *Distinct categories for English and French*

The second issue is to assess the reasons for the initial neutralization of Japanese voicing contrast. An interesting puzzle arises when we observe Korean adaptations of English and French words, which maintain the original voicing distinction in every position. As in Japanese, French and English have a two-way laryngeal distinction. Only English has aspirated allophones of the voiceless plosives in stressed position, and devoiced allophones of the voiced plosives at the phrase boundaries. Below is data drawn from H-S. Kim (2005).<sup>2</sup>

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<sup>2</sup> Transcriptions are adapted to ours.

Korean adaptation of French voicing contrast:

(4)

paRi	→ /p <sup>h</sup> ari ~ p'ari/	'Paris'
napɔleɔ̃	→ /nap <sup>h</sup> oreoŋ ~ nap'oreoŋ/	'Napoleon'
bɔRdɔ	→ /poruto/	'Bordeaux'

Here, French voiceless plosives are rendered as both fortis and aspirated. On the other hand, adaptations of English words show an alternation between lenis and fortis (the latter in an emphatic expression) of voiced plosives; while voiceless plosives are adapted to aspirated in every position.

English into Korean:

(5)

paɪp	→ /p <sup>h</sup> aɪp <sup>h</sup> u/	<i>pipe</i>
spi:kə	→ /suɪp <sup>h</sup> ik <sup>h</sup> ʌ/	<i>speaker</i>
ba:	→ /pa ~ p'a/	<i>bar</i> (the latter with emphasis)

These patterns suggest feature mapping during the adaptation process: [ $\pm$ tense] to [ $\pm$ voice] in French, and [ $\pm$ s.g.] to [ $\pm$ voice] in English (H-S. Kim 2005). Ito *et al.* (2006) report no variations in such cases: French voiceless stops are adapted as Korean fortis; English voiced ones as lenis. Therefore, the question is why Japanese initial voiceless plosives are adapted as lenis while French initial voiceless plosives are adapted as fortis, when both languages have only lightly aspirated voiceless plosives. Korean loanword data from different languages indicate that multiple factors are involved in identification of laryngeal contrast of L2. To find the acoustic factors, we have recorded laryngeal contrasts of these languages and carried out perception experiments with Korean listeners.

## 4. Perception Experiments

### 4.1. Recording

Three male speakers for each of Tokyo Japanese, General American, Parisian French, Seoul Korean and Mandarin Chinese uttered the two-syllabic nonsense words /papa/ and /bapa/ (/p<sup>h</sup>a-p<sup>h</sup>a/, /p'a-p'a/ and /pa-p<sup>h</sup>a/ for Korean) with HL/LH tone patterns

five times in carrier sentences.<sup>3</sup> For Japanese, French and Korean HL and LH tone patterns were demonstrated by the experimenter for imitation. For English, the experimenter presented to each speaker a board on which is written ‘papa’/‘bapa’ and ‘papah’/‘bapah’ to elicit HL and LH patterns, respectively. For Mandarin Chinese, ‘Tone 1’ (high level pitch) was employed for H tone pattern, and ‘Tone 3’ (low level pitch) was for L tone (for the Mandarin tones, see, e.g., Lin 2007).

The utterances were recorded in a sound-proof room onto a digital recorder (Marantz solid state recorder PMD671) with a microphone (Sony ECM-959DT) and digitized at the sampling rate of 48 kHz with 16 bit resolution. Three out of five tokens were retained for the listening tests. The target syllables were excised from the carrier sentences.

#### 4.2. Stimuli

We created 7 types of stimuli shown in Table 1, in order to discern the influence of each of the following parameters: 1) temporal characteristics in the first syllable (S1) and the second (S2); 2) F0 patterns. In our previous studies (Amino *et al.* 2007), it was found that the amplitude plays little role in identification of laryngeal categories; thus, except Type 2 and Type 4 which are normalized both in F0 and amplitude, we omitted the comparison of amplitudes this time.

**Table 1.** Stimulus Variations (7 conditions)

ID	Description	F0 contour	Syllable order
Type 1	Original	HL	As uttered (S1S2)
Type 2	Normalized F0 & Amp.	MM	
Type 3	Original	LH	Reversed (S2S1)
Type 4	Normalized F0 & Amp.	MM	
Type 5	Normalized F0	MM	As uttered (S1S2)
Type 6	Reversed F0	LH	
Type 7	Original	LH	

<sup>3</sup> Chinese stimuli were employed in a broader study on correlations between perception and acoustic patterns. Acoustic data and results for Chinese are omitted for the purpose of this study.

Purposes of the experiments with regard to the stimulus variation are summarized as follows:

1. To verify whether the perception is reflected in the Korean loanword adaptation of Japanese (French and English) – Type 1.
2. To assess the reasons for the initial neutralization of Japanese voicing contrast – Type 2 vs. Type 4.
3. To assess the effect of F0 on [ $\pm$ tense] categorization – Type 1-5-6.

The stimuli were created by the methods described in Table 2. We used a computer software Praat Ver.4.4.07 (Boersma and Weenink 2006) for the pitch manipulation.

**Table 2.** Stimulus Creation

ID	Methods
Type 1	Originally recorded sound files
Type 2	F0 and rms amplitude were normalized in Type 1 stimuli (See the text below.)
Type 3	Created by transposing S1 and S2 of Type 1 stimuli
Type 4	Created by transposing S1 and S2 of Type 2 stimuli
Type 5	F0 of Type 1 stimuli was normalized among syllables using Praat pitch manipulation
Type 6	F0 of Type 1 stimuli was transposed between S1 and S2 using Praat pitch manipulation
Type 7	Originally recorded sound files

In order to create Type 2 stimuli, we calculated the rms amplitude for each syllable by using the computer program MATLAB. Then, coefficients  $m$  and  $n$  were calculated to give an average for both  $A_1$  and  $A_2$ ,  $A_{ave}$ . Thus,

$$(6) \quad n * A_1 = m * A_2 = A_{ave}.$$

where  $n$  and  $m$  are coefficients;  $A_1$  is the rms amplitude of S1;  $A_2$  is the rms amplitude of S2; and  $A_{ave}$  is the average of  $A_1$  and  $A_2$ .

Finally, each element in S1 and S2 was multiplied by the coefficients  $n$  and  $m$ , respectively.

For Type 3 and 4 stimuli, transposition between the two syllables was conducted as follows: first, the intervals (the start and the end) for S1 and S2 were determined based on the waveforms, and the duration of S2 closure was measured. The S2 interval

was extracted and put before S1; a silence was then added between S2 and S1 that had the same duration as the closure of S2.

#### 4.3. Acoustic measurements

The VOT and F0 values of the relevant segments in S1 and S2 were measured using Praat (Boersma and Weenink 2006). The VOT was measured based on the waveforms and the spectrograms, and the average values of F0 were calculated from each vowel part.

The data were then averaged over the tokens of the different speakers. The results of Type 1 stimuli are shown in Tables 5-8.

**Table 5.** VOT average values [ms] of the relevant segments in English (En), French (Fr) and Japanese (Jp) (first and second bilabial stops)

VOT [ms]	En		Fr		Jp	
	S1	S2	S1	S2	S1	S2
pa-pa	53.6	17.0	13.2	14.7	32.3	6.0
ba-pa	14.5	/	5.4	/	8.7	/

**Table 6.** VOT average values [ms] of the relevant segments in Korean (Kr)

VOT [ms]	Kr	
	S1	S2
p <sup>h</sup> a-p <sup>h</sup> a	110.0	42.6
p <sup>ʼ</sup> a-p <sup>ʼ</sup> a	10.8	10.9
pa-p <sup>h</sup> a	23.4	/

**Table 7.** F0 average values [Hz] of the first vowels in three languages

F0 [Hz]	En	Fr	Jp
<b>pa</b> -pa (Type 1)	128.1	141.4	166.5
<b>pa</b> -pa (Type 5)	107.1	123.3	139.8
<b>pa</b> -pa (Type 6)	89.7	107.6	125.0

**Table 8.** F0 average values [Hz] of the first vowels followed by three types of Korean laryngeal categories

F0 [Hz]	<b>pa- p<sup>h</sup>a</b>	<b>p<sup>h</sup>a-p<sup>h</sup>a</b>	<b>p<sup>h</sup>a-p<sup>h</sup>a</b>
Type 1	121.0	129.6	136.5
Type 5	110.2	118.7	121.4
Type 6	95.6	103.0	104.6

#### 4.4. *Listeners and procedure*

Twenty-five Korean monolingual listeners with normal hearing participated in the perception test. The listeners are university students of an average age of 22.4 years old, residing in Seoul and Kyunggi areas (Seoul dialect areas) for 17.3 years on average. Most of them had English lessons in Korean schools, and they self-reported that they are not fluent in any foreign languages.

The stimuli were presented to the listeners diotically through headphones (Sony MDR-CD900ST). The stimuli were originally created for three places [labial, alveolar, velar] and presented to the listeners, although here we only report the results relating to the bilabial plosives. Seven sets of manipulated stimuli (Types 1-7 in Table 2) were prepared: they were grouped into five language combinations shown in Table 9, and presented randomly to the listeners. No language information was provided to them beforehand. The experiment was divided into two parts: each part had 1134 (three languages other than Korean) or 1323 (including Korean) stimuli (corresponding to three tokens for three speakers for three of the five languages, seven conditions, and six consonants for each language except nine consonants for Korean) presented in a pseudo-random order. The listeners concentrated on the categorization of the first (S1) consonant in part 1 and the second (S2) consonant in part 2. Each language was evaluated by fifteen listeners.

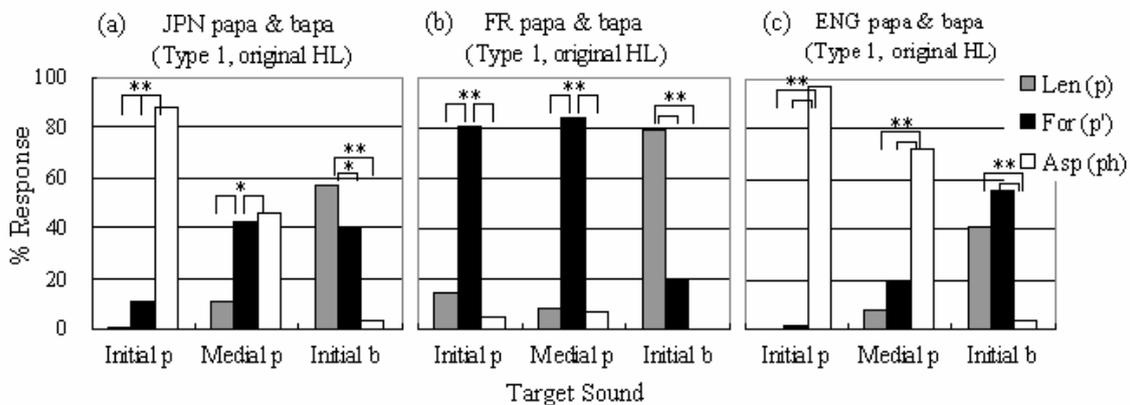
**Table 9.** Presented stimulus sets (Below Ch stands for Chinese)

Mixture of Languages	Number of Stimuli <sup>4</sup>	Number of Listeners
Ch- En- Jp	1134 (378 each language)	5
Ch- Fr- Jp	1134 (378 each language)	5
Ch- Fr- Kr	1323 (378 in Ch.& Fr. 567 of Kr.)	5
En- Fr- Kr	1323 (378 in En.& Fr. 567 of Kr.)	5
En- Jp- Kr	1323 (378 in En.& Jp. 567 of Kr.)	5

#### 4.5. Results

##### 4.5.1. Responses of the perception test of the first syllable of the original stimuli (Type 1)

The results for the original stimuli (Type 1) are shown as to Japanese, French and English in Figure 1(a), 1(b) and 1(c), respectively. The data were analyzed by one-way ANOVA, and the significantly different pairs are shown in the figures by asterisks.



**Figure 1:** Percentages of responses for the Type 1 stimuli: (a) for Japanese, (b) for French and (c) for English stimuli

Japanese voiceless |p| is perceived aspirated in the initial position (cf. loanword initial voiceless plosives are rendered as lenis). Voiceless |p| in medial position varies within [+tense] category. Voiced [b] is perceived with [-s.g] variation (cf. loanword |b| goes to lenis in every position.). Thus, initial neutralization between |p| and |b| does not

<sup>4</sup> Stimulus calculation

- Language sets without Korean: 2 laryngeal categories × 3 speakers × 3 repetitions × 3 places of articulation × 7 stimulus types = 378.
- Language sets including Korean: 3 laryngeal categories × 3 speakers × 3 repetitions × 3 places of articulation × 7 stimulus types = 567.

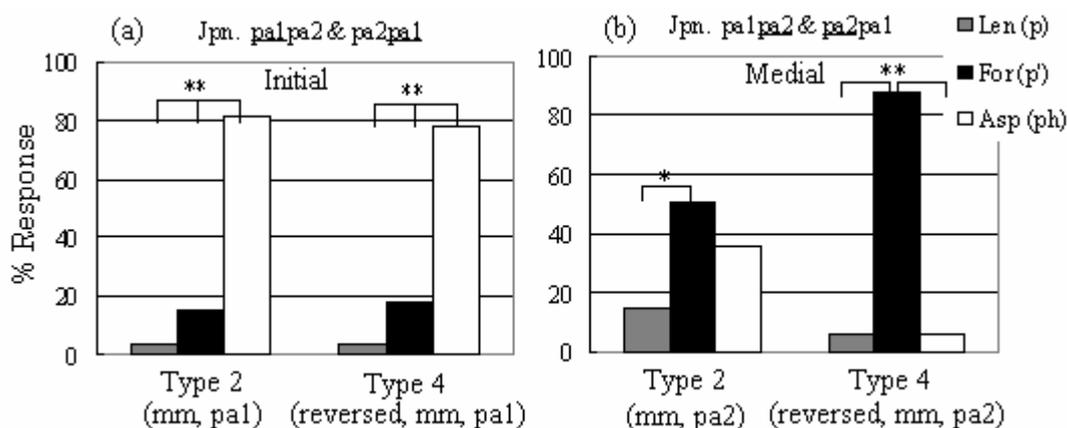
appear here. Recall that the voiced [b] was in initial position, hence H-toned; this might be reflected in 40% of fortis response.

French voiceless [p] is perceived overwhelmingly as fortis [+tense]; French voiced one overwhelmingly as lenis [-tense]. Clearly both voiceless and voiced ones are treated as [-s.g]. These results must be due to the short VOT in the stimuli. The responses to French stimuli correspond to the loanword patterns of H-S. Kim (2005). As her phonological analysis suggested, French voiceless and voiced distinction seem to differ in [ $\pm$ tense] values in the Korean laryngeal categories in this acoustic perception as well.

For English stimuli, voiceless [p] in initial and medial positions are mostly perceived as aspirated, hence [+s.g.]. Thus, clearly, VOT is the guiding factor. For English stimuli, voiceless [p] in initial and medial positions are mostly perceived as aspirated, hence [+s.g.]. Voiced one varies between fortis and lenis, hence within [-s.g] category, as in H-S. Kim's loanword data.

#### 4.5.2. Responses of the perception test of the syllable reversing of the equalized stimuli (Types 2-4)

We report in this sub-section the results of the second experiment. The purpose of this experiment was to observe whether Japanese plosives in different positions in a word are perceived distinctly by Korean listeners. For this second experiment, we reversed the first and second syllables with the normalized F0 (Mid-tone, hereafter, M-tone) and amplitude.



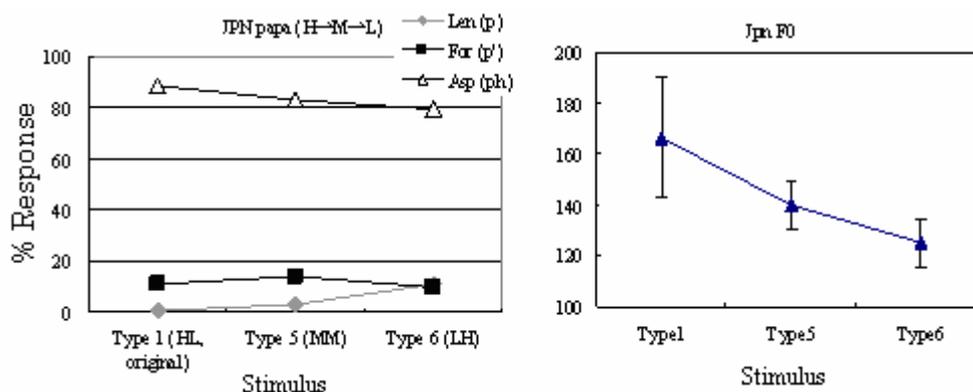
**Figure 2:** Percentages of responses for pa1 (a) and pa2 (b) of Japanese Types 2 and 4

Figure 2(a) shows that the [p] that originated from the first syllable is almost always identified as aspirated when moved to the second syllable. Figure 2(b) shows that the [p] that originated from the second syllable is perceived less often as aspirated and more often as fortis when moved to the initial position. This is an expected result, since, in Korean, aspirated plosives in the initial position have much longer VOT than ones in the medial position (cf. Table 6) We observe here that the categorization is guided by VOT variation.

Together with the results in 4.5.1, we can draw a conclusion from the results of this experiment that the Japanese [ $\pm$ voi] neutralization in initial position in loanwords is not due to the acoustic properties of the inputs since in this experiment there was no lenis percept of the initial [p].

#### 4.5.3. Responses to influence of F0 variation

We investigated in the influence of F0 because F0 is an important cue for [ $\pm$ tense] categorization in Korean, and because Japanese words have pitch specification. Figure 3(a) shows the responses given to the first syllables of Type 1 (the original H-toned stimuli), Type 5 (M-toned) and Type 6 (L-toned) stimuli. Figure 3(b) shows the corresponding F0 values of the stimuli.



**Figure 3:** Percentages of responses for Types 1, 5 and 6 (a) and the average F0s and their *S.D.* (b) of Japanese data

The results indicate that [+tense] response decreases and [-tense] increases as the F0 decreases. This tendency was consistent in the results of French and English voiceless [p] and the three Korean stop series in the initial positions. Other relevant graphs are omitted due to the space limitation.

#### 4.6. *Summary of the experiment*

Our experimental results indicate the following:

1. VOT determines the [ $\pm$ s.g] percept (English |p| as [+s.g]; French |p| as [-s.g]; Japanese |p| depends on the position).
2. F0 is an important cue for [ $\pm$ tense] categorization in Korean which is reflected in perception experiments across languages.

### 5. **Conclusion**

The general conclusion of this paper is that perception is only partially reflected in Korean loanword adaptation of Japanese plosives. Loanword patterns reported in H-S. Kim (2005) and Kim and Shinohara (2006) were overall closer to our acoustic perception results except that Japanese initial |p| was perceived as /p<sup>h</sup>/ (not as lenis as in the loanwords from Japanese). Given the perception results, reasons for the initial neutralization of Japanese voicing contrast may not be due to the acoustic properties investigated (VOT, amplitude and F0). The VOT information in the Japanese initial voiceless plosives is somehow neutralized in the loanword adaptation process.<sup>5</sup> F0 information from Japanese pitch accent is also completely cancelled in loanword adaptation of Japanese. Later research should see if there are any principles for the selection of acoustic cues for loanword rendition, where the factors other than acoustic perception are originating from and, ultimately, what the adequate model of loanword phonology is.

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<sup>5</sup> As a non acoustic perceptive reason, Ahn and Lee (2008) suggest that the orthographic convention for avoiding initial fortis influences the perception and pronunciation of words. This hypothesis could be tested by psycholinguistic studies.

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# Compensatory Lengthening is not Specific to Syllabic Positions

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## Abstract

Compensatory lengthening has become a favorite topic for phonological analysis since De Chene & Anderson's work based on the history of French (1979). The main purpose of this paper is to shed light on a special case of CL, tonal compensatory lengthening, provoked primarily by the loss of a diminutive suffix in Yue dialects. It will be shown that compensatory lengthening is not specific to syllabic positions. Tones can lengthen after the elision of a diminutive morpheme, showing that they cannot be treated as pure melodies in Chinese.

**Keywords:** compensatory lengthening, tone, Cantonese

## 1. Introduction

Compensatory lengthening (henceforth, CL) has become a favorite topic for phonological analysis since De Chene & Anderson's work based on the history of French (1979). It is assumed that CL, as a process of structure preservation, exists only in a language where there is a pre-existing vowel duration contrast. On the contrary, Hock (1986), Hayes (1989) and Lin (1997) show that a pre-existing vowel length contrast is not a necessary condition for CL, a distinction between heavy and light syllables being sufficient in the moraic framework. In this sense, the mora, rather than the pre-existing long vowel, is preserved, with the essential idea that the loss of one segment is compensated by the lengthening of another one. Kavitskaya (2002) and Morin (2007) recently suggest that CL results from the phonologization of phonetically long vowel duration, which concerns neither transfer of duration nor transfer of weight. Although considerable research has been devoted to CL, rather less attention has been paid to the role of tones during this process.

This article addresses the phenomenon of the Changed Tone in Yue dialects, primarily

provoked by the loss of a diminutive suffix. It has been reported that this Changed Tone, carrying a rising contour 35, has a slightly longer duration than the lexical rising tone (Wang 1931, Whitaker 1956, Chao 1959, Bauer & Benedict 1997). Chao (1959) uses *mora* to describe this relative long duration associated with the Changed Tone, suggesting that *mora* is, in Cantonese, a suffix taking the form of a high tone, rather than corresponding to a segmental melody. This conjecture, capable of explaining the additional duration, is contrary to current theories according to which tones, being suprasegmental objects, do not have temporal basis of their own.

The goal of this paper is two-fold. Through a phonetic study validating the post-1940 data in §2.2, we shall account for the origin of this additional duration compared with the lexical rising tone (Section 3). We claim that it is the tone that lengthens after the elision of a diminutive morpheme. Taking the Cantonese Changed Tone as a jumping off point, we shall show that CL is not specific to syllabic positions. Tones can lengthen after the elision of a diminutive morpheme, demonstrating that they cannot be treated as pure melodies in Chinese. Discussion and concluding remarks appear in Section 4.

## 2. Preliminaries

Yue dialects are spoken in the province of Guangdong, at the east of Guangxi, and in the south-east of Asia. There are six lexical tones in Cantonese, i.e. 33, 22, 35, 23, 53 (55)<sup>1</sup>, and 21. Three entering tones are observed in closed syllables, i.e. 5, 3, 2.

Apart from the rising tone 35, there exists also rising tones derived from morphological alternations, referred to as *Pinjam* (Changed Tone) in the literature. Unlike tone sandhi in most Chinese dialects, *Pinjam* is not caused by the contact with neighboring tones. In Cantonese, the function of *Pinjam* is to derive, among others, nouns and diminutives, the derived elements bearing always a rising contour tone. In (1), nouns are derived from semantically related verbs. The same thing goes for (2), where diminutives are purely indicated by a change in tone. Data are drawn from Yu (2007) et Chen (2000):

### (1) Verb nominalization

Level tone		Rising tone	
sou33	“to sweep”	sou35	“a broom”
pɔŋ22	“to weigh”	pɔŋ35	“a scale”
wɑ22	“to listen”	wɑ35	“an utterance”
tan22	“to pluck”	tan35	“a missile”

<sup>1</sup> There was a contrast between high level and high falling, however, this distinction has collapsed for most speakers nowadays.

(2) Derivation of diminutives

t <sup>h</sup> oi21	“terrace”		t <sup>h</sup> oi35	“table”
k <sup>wh</sup> ən21	“skirt”		wəi21 k <sup>wh</sup> ən35	“apron”
kɛŋ33	“mirror”		ŋan23 kɛŋ35	“eyeglasses”
t <sup>h</sup> ɔŋ21	“sugar”		t <sup>h</sup> ɔŋ35	“candy”
nøy23	“women”		nøy35	“girl”
ɔp3	“duck”	~	ɔp35	
kɔt2 tsɔt2	“cockroach”	~	kɔt2 tsɔt 35	
kɔp3	“pigeon”	~	kɔp35	

Several aspectual markers in Cantonese which have either an underlying high or rising tone often elide in colloquial speech, causing the tone of the preceding syllable to change to rising, as in (3a) and (3b). Cantonese allows moreover the ellipsis of certain morphemes in certain constructions. Thus *iat 5* “one” is optionally skipped in examples such as in (3c). The elided entering tone is realized as 35:

(3) a. Omission of the perfective marker *tsɔ35*

pɔŋ22 tsɔ35	→	pɔŋ35	“to weigh (PERFECTIVE)”
fan22 tsɔ35	→	fan35	“to transgress (PERFECTIVE)”
ki:n33 tsɔ35	→	ki:n35	“to meet (PERFECTIVE)”

b. Omission of the potential marker *tək5*

pɔŋ22 tək5	→	pɔŋ35	“to weigh (POTENTIAL)”
fan22 tək5	→	fan35	“to transgress (POTENTIAL)”
ki:n33 tək5	→	ki:n35	“to meet (POTENTIAL)”

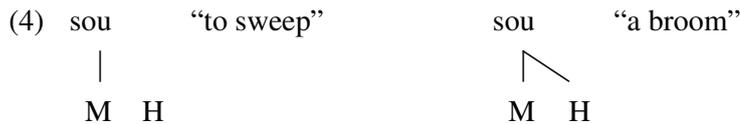
c. Omission of *iat 5* “one”

iat t <sup>h</sup> am iat t <sup>h</sup> am	→	iat t <sup>h</sup> am t <sup>h</sup> am	“puddle by puddle”
5 23 5 23		5 35 23	
iat hɔŋ iat hɔŋ	→	iat hɔŋ hɔŋ	“line by line”
5 21 5 21		5 35 21	
iat tip iat tip	→	iat tip tip	“plate by plate”
5 2 5 2		5 35 2	

According to Bai (1989), two conditions are required so that *Pinjam* could occur in (3). On the one hand, tones which give rise to the derived rising contour should be low tones such as 21, 23, 33, 22, 3 and 2, high tones (53/55, 35, 5) being not influenced by the process. On the other hand, the omitted syllable should carry 35 or 5.

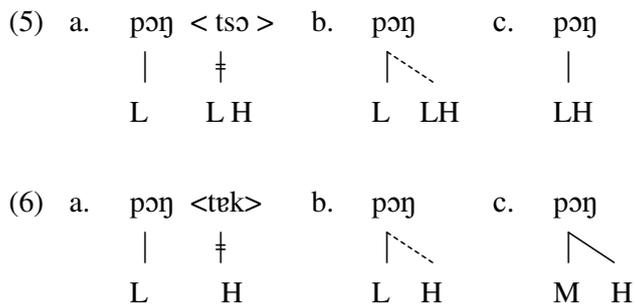
## 2.1 Traditional representations of the rising tone derived from *Pinjam*

In order to represent the derived rising tones in (1) and (2), Yip (1980) and Chen (2000) postulate a floating high tone associating to the end of the relevant syllable, creating thus a new rising tone.



When the stem has a falling contour tone such as 21 or 53, a rule of tonal simplification is added so that the floating high tone does not create complex contours, forbidden in Cantonese. However, when the stem has a rising contour tone such as 23, another rule is necessary. Based on tonal geometry, Yip (1980) assumes that \*25 is not allowed in the surface form since “cross-register” contours are banned in Cantonese. Chen (2000) suggests that Cantonese distinguishes only two rising contour tones, i.e. 23 and 35. As a result, \*25 is reduced to one of the two possible rising tones, and Cantonese chooses 35 as the final output. Nevertheless, the reason why 35 is preferred over 23 remains unexplained.

To derive the rising contour in (3a), Yip (1989) proposes the reassociation of the rising contour tone with the preceding host syllable. A set of tonal readjustment rules bans a succession of two adjacent low level tones, causing the loss of the first low tone of the verb, as is shown in (5). Concerning (3b), Yip (1980) and Chen (2000) hypothesize a floating high tone attaching to the previous syllable after the elision of the aspectual marker. A rule of register readjustment gives rise to the appropriate MH cluster in the surface form, as in (6).



The above treatments are problematic for two reasons. A floating high tone is postulated, in (4) and (6), in order to derive *Pinjam*. However, when the potential marker bears already a rising contour tone, as in (5), this hypothetical floating high tone disappears from the representation, and appears *ad hoc*. If *Pinjam* always carries the same rising contour tone,

why to explain it by two distinct hypotheses?

Moreover, these analyses predict that the derived rising tone is homophonous to the lexical rising tone. However, Chao (1959) notes that in Cantonese, when a word is pronounced with *Pinjam*, its duration is slightly longer than that of a word having a lexical rising tone. Chao uses *mora* to describe this relative long duration associated with *Pinjam*, suggesting that *mora* is, in Cantonese, a high tone taking the form of a suffix, rather than corresponding to a segmental melody. This conjecture, capable of explaining the additional duration associated with *Pinjam*, is contrary to current theories according to which tones, being suprasegmental objects, do not have temporal basis of their own. How to explain this paradox?

## 2.2 A phonetic experiment on Cantonese Pinjam

In order to verify the duration difference between the lexical rising tone and the derived rising tone, we conducted a phonetic experiment with a Cantonese native speaker of 77 years old, born in the Province of Guangdong. Five words were read with five repetitions. The duration of the tone was measured from the spectrogram window.

(7)

	Duration of lexical rising tone		Duration of derived rising tone
sister[ze]	0.29	girl [nø̃y]	0.51
bitter [fu]	0.21	candy [t <sup>h</sup> ɔ̃ŋ]	0.54
white [se]	0.25	apron [wø̃i k <sup>wh</sup> ɛ̃n]	0.4
speak [kõŋ]	0.29	call girl [mu nø̃y]	0.6
cause [saj]	0.24	table [t <sup>h</sup> oi]	0.54
Average duration	0.256	Average duration	0.518
Standard deviation	0.03	Standard deviation	0.08
Ratio lexical : derived	1 : 2.02		

The average duration of the lexical rising tone is 0.256 seconds, whereas the average duration of the derived rising tone is 0.518 seconds. Even the longest lexical rising tone averages shorter in duration than the shortest derived rising tone. Here are some spectrogramms of the lexical rising tone and the derived rising tone :

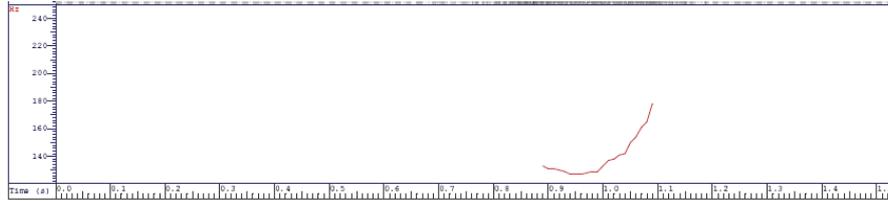


Figure 1 : [fu 35] "bitter" : lexical rising tone

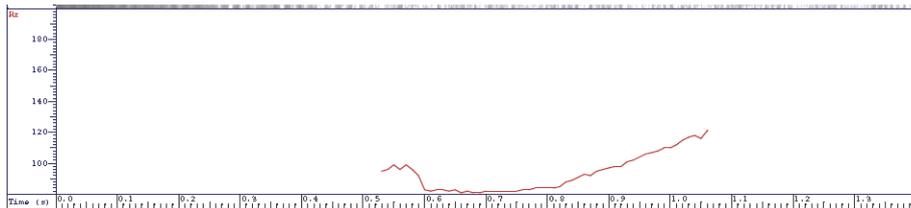


Figure 2 : [tʰɔŋ 35] "candy" : derived rising tone

The phonetic experiment confirms Chao's observation that the derived rising tone has a longer duration than the lexical rising tone.

### 2.3 Origin of *Pinjam*

From the phenomena observed in Yue dialects, a basic question follows: why does the derived rising tone always have a superior duration to that of the lexical tone?

Chao (1948) and Wong (1982) suggest that Cantonese *Pinjam* originates from the elision of certain morphemes which are no longer productif synchronically. Establishing a parallel between the function of *Pinjam* in Cantonese and the retroflex suffix [-ɿ] in Mandarin through a comparison of a hundred of lexical elements, Chao (1947, 1959) remarks that around sixty nominal morphemes with the suffix [-ɿ] in Mandarin correspond to *Pinjam* morphemes in Cantonese. Given this correspondance, Chao (1959) proposes to treat Cantonese *Pinjam* as a suffix. Diminutive suffixation is a very frequent morphophonological phenomenon in Chinese dialects. In Beijing Mandarin for exemple, the suffix takes a retroflex feature which is realised in the rime (Chao 1968, Cheng 1973). In other dialects, as a result of different historical developments, this suffix surfaces sometimes as an independent syllable, sometimes as a nasal integrated to the coda of the lexical stem.

Whitaker (1956) establishes a more explicit relation between Cantonese *Pinjam* and the suffix [-ɿ] 兒 in Mandarin, claiming that the latter is the ultimate source of *Pinjam*. She postulates that, at an earlier historical stage, Cantonese might have used the suffix 兒, pronounced as [-jī:]. At a later stage, the suffix disappeared, leaving a trace under the form of *Pinjam*. Her theory is based on a comparison with Bobai, a Yue dialect spoken at the southeast of Guangxi, where the process of suffixation might shed light on the origin of Cantonese *Pinjam*. Citing the study of Wang Li (1931) entitled *Une prononciation chinoise*

*de Po-pai*, Whitaker remarks that at the time when Wang Li described the dialect, there were two varieties. The more conservative variety used the diminutive suffix [ɲin] carrying a rising contour tone, as in (8a). When words ended in an occlusive coda, the final stop would change to its homorganic nasal counterpart and the word would acquire a long rising tone associated previously with [ɲin], as in (8b):

- (8) a.    kae32 ɲin25        “little chick”  
           iaŋ21 ɲin25        “little sheep”  
           ma21 ɲin25        “little horse”
- b.    œk54    “house” → oŋ25        “little house”  
           mat32    “thing” → man25        “little thing”  
           hɔp4    “box”    → hɔm25        “little box”  
           pak1    “uncle” → a33-paŋ25    “my little uncle”

In addition to suffixation with [ɲin25] and the homorganic nasalization of final stops, diminutivization in Bobai involved as well the change of the original tone to long rising *Pinjam* without suffixation, a pattern which closely resembles the Cantonese *Pinjam*. Whitaker sees these three synchronic processes as three diachronic stages in the development of the long rising tone: in the first stage, the suffix [ɲin] with a rising tone is used; by the second stage, the suffix has been lost, but left tonal (long rising contour) and segmental (nasalization of final stops) traces; in the third stage, the nasalization has disappeared, leaving only the long rising *Pinjam*.

Citing a study of Ye & Tang (1982), Bauer & Benedict (1997) remark that Xinyi, another Yue dialect, attests also similar *Pinjam* behaviors. There are two processes of nasal suffixation to indicate diminutivisation. In the first case, the nasal coda [-n] is suffixed to the lexical stem and the original tone of the stem becomes a rising contour, as in (10a). In the second case, the same type of nasalization as in Bobai is found, final stops becoming their homorganic nasal counterpart, as in (10b). Ye & Tang emphasize that the peak of this derived rising contour is so high that the traditional scale of five degrees proposed by Chao (1930) would not be capable of representing it. They use thus the symbol  $\uparrow$  for notation. Words already ending in a nasal consonant, or in a diphthong, do not take the nasal suffix, their lexical tone simply transforming to a rising contour, as in (9c).

- (10) a.    tɕy 53        “pig”            → tɕyn  $\uparrow$         “little pig”  
           lou 23 sy 35    “mouse”        → lou 23 syn  $\uparrow$     “little mouse”  
           sam 53 fu 33    “clothes”      → sam 53 fun  $\uparrow$     “clothes for kids”  
           hɔ 23        “river”        → hɔn  $\uparrow$         “little river”

b.	ʔap 22	“duck”	→	ʔam ʊ	“little duck”
	fət 22	“Buddha”	→	fən ʊ	“little Buddha”
	kək 33	“foot”	→	kɛŋ ʊ	“little foot”
c.	kɛi 53	“chicken”	→	kɛi ʊ	“little chick”
	k <sup>h</sup> ɛu 23	“ball”	→	k <sup>h</sup> ɛu ʊ	“little ball”
	sɛu 35 kən 53	“towel”	→	sɛu 35 kən ʊ	“handkerchief”
	kɔŋ 53	“jar”	→	kɔŋ ʊ	“little jar”

Unlike Cantonese *Pinjam* where 35(5) and 53(55) cannot be replaced, in Xinyi, the derived rising contour can substitute any lexical tone, even 53 and 35. Moreover, according to Ye & Tang (1982), in Xinyi, the rising *Pinjam* can distinguish easily from the lexical contour tone 35 in perception. This phenomenon is different from Cantonese where speakers have difficulties distinguishing them in perception (Yu 2007).

Given the data of Bobai and Xinyi, Bauer & Benedict (1997) consider that Cantonese *Pinjam* might be derived from a monosyllable which had carried a rising contour and was suffixed to words of different classes to represent diverse morphological functions. At an intermediate stage, this suffix might have been reduced to a nasal coda and to a rising contour tone which had replaced the lexical tone of the stem. The nasal coda lost later on, and the rising contour has become the only trace of the morphological process. We share Bauer & Benedict’s hypothesis on the origin of *Pinjam* and are skeptical about the postulate of a floating high tone, as is suggested by Yip (1980), Bao (1990, 1999) and Chen (2000). The analysis of a floating high tone needs several treatments depending on the lexical tone of the stem, and does not give a whole picture of *Pinjam* in Yue dialects. Furthermore, this hypothesis fails to explain why the rising contour derived from *Pinjam* has a superior duration to that of the lexical rising tone in Cantonese and Bobai. In Xinyi, the derived rising tone rises much more higher than the lexical rising tone, indicating that it might have a longer duration than the lexical rising tone as well<sup>2</sup>.

### 3. Compensatory lengthening is not specific to syllabic segments

To explain the duration increase of *Pinjam*, O’Melia (1939) et Whitaker (1956) had the intuition that it was to compensate the loss of the elided syllable. A question arises as to the

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<sup>2</sup> Articulatorily, a complicated tonal contour involving more pitch targets would involve more complicated muscle state change, and thus prefer a longer duration to facilitate implementation. Sundberg (1973, 1979) remarks that a contour with farther-apart pitch targets prefers a greater duration of its carrier. The greater the pitch excursion of a tone, the longer duration it requires. 15 requires thus more time than 13. Ye & Tang does not offer the spectrogram of the derived rising contour of Xinyi, and indicate only that the derived rising tone rises much more higher than the lexical rising tone. We infer that the derived rising tone should also have a longer duration than the lexical rising tone.

nature of this compensatory lengthening: how do we know if it is the vowel or the tone that lengthens? Two possibilities are at hand: the tone lengthens due to vowel lengthening, and the vowel lengthens under the pressure of tone. The first solution seems the only answer to the question: since Goldsmith (1976), only syllabic constituents and/or segmental melodies are likely to lengthen through their association to skeletal positions. Tones, being autosegments, cannot lengthen by themselves. We shall begin by examining vowel CL in different languages in order to see if this is the case in *Pinjam*.

### 3.1 *The nature of CL*

Compensatory lengthening designates a process whereby a segment lengthens *to compensate* the loss of another segment. Based on the history of French, De Chene & Anderson (1979) postulate that there was first of all a coalescence of two vowels with similar timbres — such as in CŪCŪLLĀM > coole > coule “*frock*” or SĀTŪLLĀM > saoule, soûle “*drunk*”. It was after this stage that the changes known under the name “compensatory lengthening” — such as in MŪSCŪLŪM > mosle > moûle (loss of preconsonantal *s*) or MŌDŪLŪM > molle [ˈmɔ̃lə] (monophthongization) > moule [ˈmu:lə] — might contribute to the formation of long vowels. They claim moreover that CL, as a process of structure preservation, only occurs in a language where there is a pre-existing vowel length contrast. However, it has been shown that a pre-existing vowel length contrast is not a necessary condition for CL (Hock 1986, Hayes 1989, Morin 1992, Lin 1997). Hayes (1989) and Lin (1997) particularly show that a distinction between heavy and light syllables is sufficient in the moraic framework. In this sense, it is the mora and not the pre-existing long vowel which is preserved.

Kavitskaya (2002) proposes another vision of CL, justifying that CL processes, i.e. those through consonant loss and through vowel loss, are similar diachronically: both of them result from the phonologization of phonetically long vowel duration, and none concerns the transfer of phonetic duration or of phonological weight. Rather, intrinsic phonetic vowel duration is reinterpreted as phonologically long because of a change in syllable structure. Based on the *listener-oriented model* (Ohala 1981), she distinguishes two types of CL, CVCV > CV:C through vowel loss, and CVC > CV: through consonant loss. We will be primarily concerned with CVCV > CV:C here as there are many words carrying the derived rising tone in closed syllables in Yue dialects. It would be necessary to comprehend the nature of CL in closed syllables in order to see if it is the case in Yue.

Regarding CVCV > CV:C, the change in syllable structure is responsible for the reinterpretation of vowel length as phonemic given that vowels in open syllables are phonetically longer than those in closed syllables. Consequently, when the second syllable is lost (failure to detect the final vowel), the duration of the vowel in the newly-closed

syllable becomes unexplainable, since it is longer than is expected in the closed syllable. The listener therefore parses the longer duration as intended by the speaker, and reinterprets the vowel in question as phonologically long. Here are some examples drawn from Kavitskaya (2002):

(11) a.	Latin		Friulian	
	lupum	> *lupu	> lo:f	‘wolf’
	novum	> *novu	> nu:f	‘pure’
	dekem	> *detʃe	> di:ʃ	‘ten’
	nivem	> *nive	> ne:f	‘snow’
b.	Old Church Slavic		Serbo-Croatian	
	boru	>	bo:r	‘forest’
	rogu	>	ro:g	‘horn’
	medu	>	me:d	‘honey’

The above process is compensatory only in the large sense of the word, i.e. the lengthening of a segment is correlated with the loss of a neighboring segment. However, there is no compensation in the direct sense of the term, since there is neither transfer of duration nor transfer of weight. In other words, the allophonic duration of the first vowel in CVCV is phonologized when the second vowel is lost.

Citing Gess’ work on French, Morin (2007) provides a similar hypothesis: researches on a series of ancient texts convinced Gess (1988) that the coalescence of vowels in ancient French happened only after the middle of the XIII century, longtime after the date normally admitted for the deletion of preconsonantal *s*. The chronology proposed by De Chene & Anderson is thus problematic. Morin remarks furthermore that Wallon de Liège, a French dialect, conserves well the system of vowel length contrast of Western Romance, such as NĀSŪM > [ne:] "nose", MŌSĀ > [mu:s] "Meuse" with a long vowel in open syllables in Romance, and GRŌSSŪM / GRŌSSĀM > [grɔ̃] / [grɔ̃s] with a short vowel in closed syllables in Romance. In other words, the vowel lengthening in Wallon de Liège is conditioned by the syllabic structure of Western romance: the vowel is already long in open syllables, and short in closed syllables.

The hypotheses of Kavitskaya and Morin challenge the nature of CL: if lengthening *always* precedes syncope, it is never “compensatory” in the sense that it does not occur “to compensate” the loss of a segment. There is no transfer of *weight*, but a transfer of the distinctive value of a disappeared element. We refer to these phenomena as a *false compensation*, considering that finalism (a segment is lengthened in order to compensate the loss of another segment) plays no role in CL. Just as in the case of palatalization: [tʲi] gives

rise to the phoneme /tʲ/ when /i/ is lost. The birth of a new phoneme /tʲ/ is not to compensate the inevitable loss of /i/ given that the palatalization of /t/ has happened before vowel loss.

Returning to Yue dialects, what is the ultimate source of the additional duration associated with *Pinjam*? If we explain this additional duration by vowel lengthening, we will encounter the following problem: in the case of Frioulia [lupu] > [lo:f], the first vowel is phonetically long at the beginning since it is in an open syllable. By contrast, in Yue, there is no long vowel duration pre-existing to the loss of the diminutive suffix: in the sequence [mat32 jin25] “little thing” in Bobai, the nominal stem is closed by a consonant; the suffix begins with a consonant as well. The vowel of the nominal stem has no possibility to have a long allophone. In other words, if the additional tonal duration had to be explained by vowel CL, we would have difficulties in explaining why there is a change of duration in closed syllables. Vowel lengthening in closed syllables, if any, is a rather marked process. Now, the additional length is observed systematically in open *and* closed syllables. The possibility of vowel CL is thus excluded. If we posit that the codas in Yue are moraic, we will encounter another problem: it is difficult to understand why, in the case of three entering tones, tonal duration is shortened by final stops in closed syllables in Cantonese, whereas the same final stops are capable of bearing a long rising tone in *Pinjam*.

Now, it remains the only possibility: there is *tonal compensatory lengthening* so that the underlying structure could be preserved. The trigger of the additional duration associated with *Pinjam* is tonal, vowel lengthening being only a correlate of tonal lengthening.

Unlike the two types of CL where the process is always accompanied by a change in syllable structure, in Yue, an additional duration is systematically found in *Pinjam* whereas the syllable structure of the nominal stem remains unchanged: it is always in closed syllables. Given the phonological aberration of vowel lengthening in closed syllables, it is the tone, the only element active, which spreads to the following position released by the elision of the diminutive suffix. We consider that *Pinjam* in Yue dialects constitutes a case of lengthening which is truly compensatory: there is a compensation of the loss of the diminutive suffix by an additional duration associated with *Pinjam*.

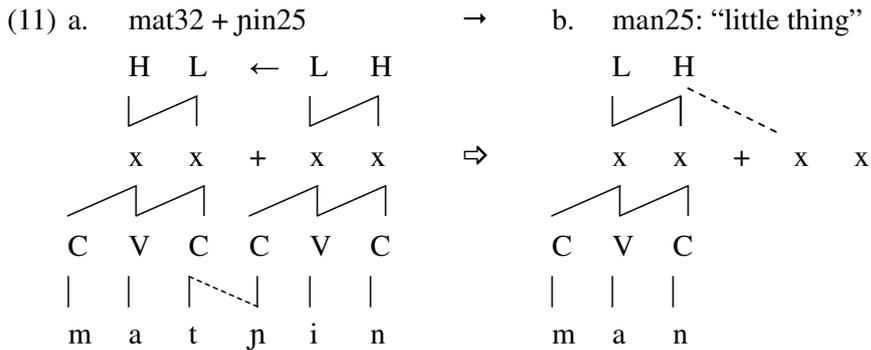
The compensatory nature of *Pinjam* being assured, the successive stages of its development in Yue dialects can be illustrated as in (10):

- (10) a. Suffixation  
       ⇒ ma21 jin25 “little horse” (Bobai)
- b. Nasalization of the occlusive coda  
       ⇒ mat32 “chose” → man25 “little thing” (Bobai)  
       Vowel nasalization  
       ⇒ hɔ 23 “river” → hɔn ʊ “little river” (Xinyi)  
       Emergence of a tonal suffix with compensatory lengthening

- ⇒ kəŋ 53 “jar” → kəŋ ʊ “little jar” (Xinyi)  
 ⇒ tʰəŋ21 “sugar” → tʰəŋ35 “candy” (Cantonese)

We can see that Cantonese is relatively innovative by comparison with other Yue dialects, the tonal suffix being the only morphological marker nowadays.

Nasalization of occlusive codas by the diminutive suffix is shown in (11)<sup>3</sup>:



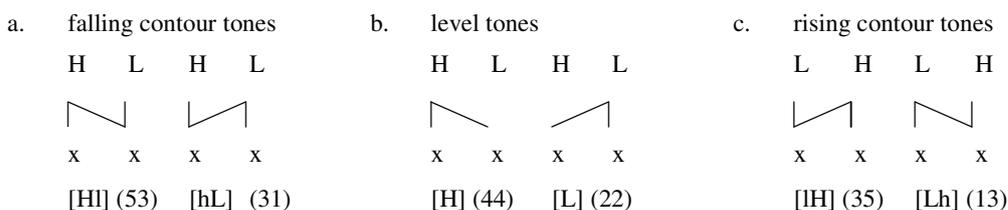
In (11a), the nasal feature provided by the diminutive suffix [jɿn25] nasalizes the coda of the preceding syllable. The rising tone of the diminutive suffix replacing that of the nominal stem, but their temporal positions remain, allowing the second tonal segment of the rising contour to spread to the following position released by tonal replacement. Hence there is the additional duration of the rising contour derived from *Pinjam*.

In sum, it is the tone, the only element active even in closed syllables, which lengthens after the elision of the diminutive suffix, not the vowel. In other words, if there exists vowel lengthening, it is the vowel which lengthens under the pressure of the tone, not the tone under the pressure of the vowel.

### 3.2 Implications of the present hypothesis

Tonal CL shows that tones are not pure melodies in Chinese: just as vowels which lengthen after the loss of final stops, the same thing goes for tones in Chinese. Consequently, tones do have direct access to temporal positions just as syllabic elements onset and rime.

<sup>3</sup> The interaction between tones and temporal positions is proposed as follows: the register is represented by the spreading of a tonal segment to an adjacent position. Notice that the capital letter indicates the register.



The duration increase of the contour tone derived from *Pinjam* reminds us of a study conducted by Carter & Gerken (2004) on the omission of unstressed syllables by English-speaking children. It is well admitted that pretonic syllables such as those in *bañana*, *Caśsandra* are often omitted by children. Traditional metric hypotheses assume that children have similar lexical representations to those of adults, but production constraints prevent them from pronouncing their targets correctly, which impose a reduced prosodic structure obeying to a trochaic feet (Gerken 1991, Demuth 1995). It follows from these hypotheses that omitted unstressed syllables are absent from children’s output. Carter & Gerken consider on the contrary that children simplify their production, deleting only the segmental material of unstressed syllables. The underlying representation of unstressed syllables might be present under the form of compensatory lengthening or other prosodic traces. They examined the duration of reduced dissyllabic forms pronounced by children, and compared them with dissyllabic forms having a real trochaic structure s-w, i.e. *Cassándra~Sandy*, *Lucínda ~ Cindy*. Their phonetic study shows that the average duration of verb-to-noun is longer for reduced formes (“\_cinda”, “\_sandra) than for non reduced forms (“Cindy”, “Sandy”)<sup>4</sup>. The same thing goes for *Pinjam* in Yue dialects, where the additional tonal duration preserves the underlying structure of the diminutive suffix.

### 3.3 Neutralization in Modern Cantonese

Bauer & Benedict (1997) note that there is a neutralization of contrast between the lexical rising tone and the rising tone derived from *Pinjam* in process in modern Cantonese:

*“According to both Benedict (1942) and Chao (1947) who were writing their descriptions of Cantonese tones in the 1940’s, the regular high rising tone had a mid to high rising contour of 35, and the high rising Pinjam had a long, low to high rising contour of 25:.. Based on his experience of learning Cantonese in Guangzhou on 1949-1950, Egerod (p.c. with Bauer, 1994) directly observed this difference in the two tones. However, at some time in the past 50 years the contours of the two tones have become identical and indistinguishable for both Guangzhou and Hong Kong speakers. Speakers now use the mid-low to high rising contour for both tones.”*

This tendency is also confirmed by a study carried out recently by Yu (2007). He

<sup>4</sup> Here are some examples of stimuli used by Carter & Gerken (2004) :

	<b>Disyllabic target names</b>	<b>Trisyllabic target names</b>
<b>Monosyllabic verbs</b>	He pushed Sandy.	He pushed Cassandra.
	He pushed Cindy.	He pushed Lucinda.
<b>Disyllabic verbs</b>	He pushes Sandy.	He pushes Cassandra.
	He pushes Cindy.	He pushes Lucinda.

The average duration of verb-to-noun (He pushed Sandy vs He pushed Cassandra) was analyzed in order to see if there was a trace left by an omitted syllable.

remarks that speakers produce, with subtle phonetic differences, different rising contours derived from *Pinjam*, but are unable to perceive the difference between the lexical rising tone and the derived rising tone. In other words, this difference systematically reported in the 1950s, is disappearing in modern Cantonese. Where does this neutralization come from? Moreover, admitting that, in more conservative dialects, the duration increase results from an elided diminutive suffix, another question arises: why is there no diminutive suffix in Cantonese? Before tackling this problem, it would be necessary to discuss another problematic, which appears to be unrelated to the neutralization in progress in Cantonese: verb nominalization through tone change.

Mai (1995) observes that in Jiansung, another Yue dialect, the word “bag” is realized with the lexical tone 22 among elderly speakers, but among young speakers, “the bag”, be it a big one or a small one, can be pronounced with a derived rising contour 35. This phenomenon illustrates that the derived rising tone, as a nominal marker, comes from the diminutive marker. Mai remarks, on the other hand, that the derived rising tone resulting from the diminutive morpheme has gradually become a derivation marker in adjectival, adverbial and verbal classes, where the function of *Pinjam* is to reduce the force transmitted by verbs or to express an action of short duration. Here are some examples of Xinyi and Cantonese:

(14) a. Xinyi, adjectival class (Ye & Tang 1982)

kam33 tɔ53	“so numerous”	kam33 tɔʔ	“so few numerous”
kam33 tai53	“so tall”	kam33 taiʔ	“so little”
kam33 tʃʰɛŋ11	“so long”	kam33 tʃʰɛŋʔ	“so short”

b. Xinyi, verbal class (Ye & Tang 1982)

mɔ53	“touch”	mɔ53 mɔnʔ	“touch gently”
tʃʰœ23	“sit down”	tʃʰœ23 tʃʰœnʔ	“sit down for a little while”
pʰak33	“hit”	pʰak33 paŋʔ	“hit gently”

c. Xinyi, adverbial class (Mai 1995)

tai22 kʰɔiʔ	“probably”
lœk22 lœkʔ	“a little”

d. Cantonais, verb nominalization (Yu 2007)

sou33	“to sweep”	sou35	“a broom”
pɔŋ22	“to weigh”	pɔŋ35	“a balance”

In other words, in Yue, the derived rising tone was, at the beginning, a diminutive marker. The diminutivization process has spread to other word classes later on. Given that it is in the nominal class that diminutivization was developed the most completely, and that it is

in the nominal class that the rising contour is the most numerous, speakers have taken it as a nominal marker.

Returning to Cantonese, we consider that, just as in Bobai, there was a diminutive suffix with a rising contour to produce nominal diminutivization. At a later stage, there were two ways of deriving diminutives: use of diminutive suffix with a rising contour, and tonal replacement by a long rising tone. Diminutivization by tonal substitution has been spreading to all classes of the language, and has become more and more productif and regular. Consequently, it supplanted the diminutive suffix with a rising contour which was used only in the nominal class. This substitution has provoked the loss of the suffix whose existence became redondant. The suffix loss caused the dissapearance of all traces of affixal positions, so CL cannot occur in Cantonese. As a consequence, the rising contour derived from *Pinjam* confused with the lexical rising tone, and become the only marker of diminutivization.

In sum, the derived rising contour, which was a diminutive marker in the nominal class, has gradually become a nominal marker and a diminutive marker in other word classes. This grammaticalization process creates new forms, introduces categories which had no linguistic expressions, and transforms the whole system (Meillet 1912).

This grammaticalization reminds us of the adverbs formed with *-ly* in English, where three forms were in competition, i.e. suffixation (*-ly*), zero formation (*just, pretty, very*), and compounding (*-wise, -ward, -style*). The derivation by *-ly* has spread later on, and supplanted other forms of adverbial suffixes, such as zero formation (Brinton & Traugott 2002).

### 3.4 *One mechanisme for different derived rising contour tones*

Two questions remain: why does the rising contour derived from *Pinjam* come from 33, 22, 23, 21, 4 and 3 in Cantonese, whereas 5 and 35 are not affected? On the other hand, why does the omitted syllable always carry 5 or 35?

Studying synchronic and diachronic aspects of Cantonese *Pinjam*, Lam (2002) remarks that, in modern Cantonese, there are few words from historical catogories *yinshang* and *yanshang*, i.e. high and low-register lexical rising tones. Moreover, historical categories *yanping*, *yanqu* and *yanru*, all low-register tones, are major “providers” of words having a derived rising tone<sup>5</sup>. This finding shows that the derived tone 35 comes from a passage of low-register tones which give rise to high-register tones. Consequently, the rising contour derived from *Pinjam*, resulting from low-register tones, has profited a system where there are few high melodies and where there are few lexical rising tones. A *virtual* empty space was thus filled through the derived high-register rising tone<sup>6</sup>. If we accept this hypothesis, the

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<sup>5</sup> Yanping: a low-register level tone historically (voiced onset)

Yangqu: a low-register falling contour historically (voiced onset)

Yangru: a low-register entering tone historically (voiced onset)

<sup>6</sup> By *virtual* empty space, we mean that the lexical contour tone exists in Cantonese, but is less numerous

reason why 5 and 35 are the only two tones which do not give rise to *Pinjam* becomes more clear: they are already high-register tones; 35 is, moreover, a rising contour tone.

However, in syllable contraction, why does the omitted syllable always carry 35 or 5? Recall that in familiar conversation in Cantonese, the aspectual markers *tsɔ35* and *tək5* as well as *iat 5* “one” are often omitted ; the *Pinjam 35* is the only attested surface form :

- (16) a. Omission of the perfective marker *tsɔ35*
- |              |   |        |                              |
|--------------|---|--------|------------------------------|
| pɔŋ22 tsɔ35  | → | pɔŋ35  | “to weigh (PERFECTIVE)”      |
| fan22 tsɔ35  | → | fan35  | “to transgress (PERFECTIVE)” |
| ki:n33 tsɔ35 | → | ki:n35 | “to meet (PERFECTIVE)”       |
- b. Omission of the perfective marker *tsɔ35*
- |             |   |        |                             |
|-------------|---|--------|-----------------------------|
| pɔŋ22 tək5  | → | pɔŋ35  | “to weigh (POTENTIAL)”      |
| fan22 tək5  | → | fan35  | “to transgress (POTENTIAL)” |
| ki:n33 tək5 | → | ki:n35 | “to meet (POTENTIAL)”       |
- d. Omission of *iat 5* “one”
- |   |   |   |                    |
|---|---|---|--------------------|
| iat t <sup>h</sup> am iat t <sup>h</sup> am | → | iat t <sup>h</sup> am t <sup>h</sup> am | “puddle by puddle” |
| 5 23 5 23                                   |   | 5 35 23                                 |                    |
| iat hɔŋ iat hɔŋ                             | → | iat hɔŋ hɔŋ                             | “line by line”     |
| 5 21 5 21                                   |   | 5 35 21                                 |                    |
| iat tip iat tip                             | → | iat tip tip                             | “plate by plate”   |
| 5 2 5 2                                     |   | 5 35 2                                  |                    |

What happens in (16) seems in contradiction with other phenomena found in the process of diminutivization, where the rising contour derived from *Pinjam* results from 33, 22, 23, 21, 4 and 3, whereas high tones (53/55, 35, 5) are not affected. On the contrary, in (16), the omitted syllables always carry 35 or 5. How to explain this paradox ?

Before tackling this problem, we shall mention a phonetic study conducted by Yu (2007). Experiments on different derived rising tones show that their registers depend largely on the lexical tone of the elided syllable: the rising tone derived from the elision of the potential marker *tək5* has a relatively high register compared with that derived from the lexical tone 35.

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compared with other lexical tones.

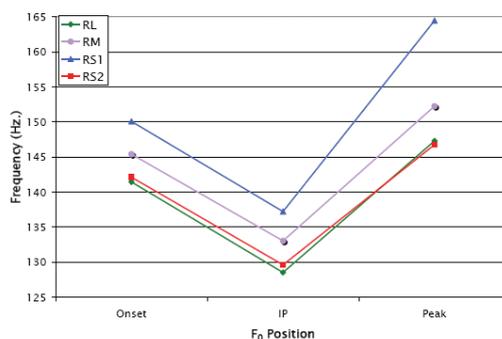


Figure 3

RS2 being a rising tone derived from the elision of the perfective marker *tsɔ35*, its register is the most close to the lexical rising tone (RL). RS1 is derived from the elision of the potential marker *tək5*, its register is the highest among all rising contour tones. The register of the derived rising tone marking diminutivization, RM, is between RS1 and RS2.

We suggest that there is a preservation of the elided syllable in (16), and that the high register induced by *tək5* is the realization of the entering tone 5 on CV or CVN. Consequently, in syllable contraction, 35 and 5 are not affected : 35 is preserved in (16a), and the entering tone 5 is preserved in (16b) and (16c)<sup>7</sup>; the result is necessarily a rising contour.

In sum, we consider that the different derived rising contours indeed originate from one mechanism, given that 35 and 5 are not affected in (16). Although one is a corollary of tonal replacement formerly productif in the language, and the other is a consequence of syllable contraction with register preservation, the two processes give rise to *Pinjam*. And since they have the same mechnisme, the possibility of tonal CL is not excluded in syllable contraction : the elision must have left empty temporal positions. A phonetic analysis might be necessary to verify this eventuality.

#### 4. Conclusion

CL which has been examined shows that tones are not pure melodies in Chinese: they do have direct acces to temporal positions. A theory based on segmental CL will encounter the following problem: if the additional tonal duration had to be explained by the CL of vowels, no change in length would be expected to occur in closed syllables. Now, the additional length is observed in both open and closed syllables in *Pinjam*. Consequently, it is the tone that lengthens under syllable elision, not the vowel. In other words, the vowel lengthens under the pressure of the tone, not the tone under the pressure of the vowel.

Moreover, we hope to have shown why there is neutralization between the lexical rising tone and the derived rising tone in modern Cantonese: the diminutivization process by tonal

<sup>7</sup> Observe that, in (16b) and (16c), the elided syllables always carry a high register lexical tone, i.e. *tək5*, *iat5*, and the preceding syllables always bear a low register tone, i.e. *ki:n33*, *t<sup>h</sup>am23*, *hɔŋ21*, et *tip2*. We postulate that there is a perservation of the register of two syllables. Hence the derived rising tone 35 in the surface form,

substitution has been spreading to all classes of the language, and has become more and more productif and regular. Consequently, it supplanted the diminutive suffix with a rising contour which was used only in the nominal class. This replacement has provoked the loss of the suffix whose existence became redondant. The loss of the suffix caused the disappearance of all traces of affixal positions. Consequently, the process of CL cannot happen in Cantonese.

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# Individual differences in production of voicing of French /ʁ/ sounds and the perception by Japanese adult listeners\*<sup>1</sup>

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## Abstract

The present study examines the individual differences in production of voicing of French /ʁ/ sounds and how Japanese listeners perceive and categorize them comparing with French /l/. This study also considers the following vowels and the listeners' knowledge of L2. The results show that some French speakers' /ʁ/ sounds are devoiced even in the initial and intervocalic context and that the individual differences in French rhotic voicing and the following vowels influence the perception and categorization by Japanese listeners. The results also indicate that French /ʁ/ can be categorized into Japanese /h/, /g/, and /r/. The PAM (Perceptual Assimilation Model, Best 1995) does not account for this assimilation pattern and this model should be extended.

**Keywords:** French liquids, voicing of French rhotic, perceptual assimilation, categorization.

## 1. Introduction

The present study examines the individual differences in production of voicing of French /ʁ/ sounds and how Japanese adult listeners perceive and categorize them in comparison with the French /l/ in their own language's phonological system. The vowels following /ʁ/ or /l/ and the listeners' knowledge of L2 (second language[s]) are also taken into consideration. This study also examines whether the PAM (Perceptual Assimilation Model, Best 1995) accounts for the assimilation of French liquids by Japanese listeners. This research aims to identify L2 sound contrasts that are difficult to produce and/or discriminate, and the reasons why they are difficult.

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This paper is structured as follows. After descriptions of French and Japanese liquids in Section 2, this paper points out the problems of the studies of French /l/ and /ʀ/ sounds in Section 3. The experiments and the results are reported in Section 4. This paper discusses and draws the conclusions in Section 5, and closes with some proposals for further studies in Section 6.

## **2. Descriptions of French and Japanese liquids**

Standard French has two kinds of liquids. While /l/ is usually realized as a voiced dental lateral approximant [l], /ʀ/ is usually realized as a voiced uvular fricative. However, this production of rhotic varies considerably among speakers and according to phonetic context (IPA 1999). In addition, this study indicates that voiced uvular trill is also fairly common in French. According to Vaissière (2006), voicing is not contrastive in the case of French /ʀ/. Depending on the speaker, the phonetic context and the prosodic position, French /ʀ/ can be realized as a voiced approximant or as a voiceless fricative, or sometimes as a mixture of the two. These studies suggest that there are individual differences in production of voicing of French rhotic. In other words, French /ʀ/ sounds can be devoiced in the initial and intervocalic context. Hereafter, this paper uses the symbol [ʀ] to refer to the French voiced fricative or approximant and the symbol [ʀ̥] and [ʀ̄] to refer to the voiceless uvular fricative and the voiced uvular trill respectively. Therefore, rat /ʀa/ ‘rat’ can be realized as [ʀa], [ʀ̥a], or [ʀ̄a] in French.

On the other hand, in Japanese, there is no contrast of /l/-/r/. This language has only one liquid phoneme /r/ and it is usually realized as post-alveolar flap [ɾ] (IPA 1999). Japanese syllabic structure is usually CV (one consonant and one vowel) and Japanese has five distinctive vowels. One syllable is written as one letter. Therefore, /ra/ is written as one letter in Japanese.

## **3. Problems**

### *3.1. Production*

Although some studies (Durand 2004, IPA 1999, Vaissière 2006) indicate that French /ʀ/ voicing is not contrastive in the same syllabic position, few researches or investigations on the individual difference in production of French /ʀ/ voicing have

been carried out. Its empirical recording, in particular, is not enough.

### 3.2. Perception

Few studies on the perception of French liquids by Japanese listeners have been conducted. Especially, the comparison of [ʀ], [ʁ] and [ʁ] has not been tested. Yamasaki & Hallé (1999) examined the categorization of French /ʀ/ by Japanese listeners. The results show that they tend to categorize French rhotic as Japanese /r/, /h/, and /g/. However, this study does not consider the speakers' individual differences of voicing. Cole & Iskarous (2001) indicates that the adjacent vowels influence the perception of consonants (especially plosives); this tendency can also be observed in the results of Yamasaki & Hallé (1999). However, this research used only three vowels: /a/, /i/, and /u/ for the stimuli. Therefore, the present study uses more vowels in order to clarify the relations between vowel context and consonant categorization by Japanese listeners.

Our preliminary study (Ooigawa *et al.* 2008) finds these following assimilation patterns by Japanese listeners: [l] is categorized as Japanese /r/ without exception, [ʀ] tends to be written as Japanese /h/; [ʁ] is categorized as /r/ or /h/ (depending on the following vowels, see Table 1). However, this study does not consider the listeners' knowledge of L2. In other words, it does not compare the results between French language learners and naïve listeners.

The PAM (Perceptual Assimilation Model, Best 1995) accounts for many assimilation patterns in diverse cross-language perceptions. According to this model, a foreign sound category is either assimilated into one native sound category or is not assimilated: “1 to 1” or “1 to 0” assimilation; /X/ (L1) → /Y/ (L2). For example, French /l/ is assimilated into Japanese /r/ (Ooigawa *et al.* 2008). According to the results of our preliminary study, however, the assimilation pattern of French [ʀ] exhibits a “1 to more than 2” assimilation pattern: /X/ (L1) → /Y/, /Z/... (L2). In other words, this result shows that one foreign sound category can be assimilated into more than one native sound category (see Tables 2 & 3). In addition, it is problematic that the PAM ignores the vowel contexts of the consonants. The present research aims to provide a further empirical account to extend the PAM.

**Table 1.** Assimilation patterns of French liquids by Japanese listeners (Ooigawa *et al.* 2008)

[l]	→	Japanese /r/
[ʀ]	→	Japanese /h/
[ʁ]	→	Japanese /r/ or /h/ (depending on the following vowels)

**Table 2.** Assimilation patterns of the PAM (Perceptual Assimilation Model, Best 1995)

L2		L1
/X/	→	/Y/, or not assimilable

**Table 3.** Assimilation patterns of French [ʁ] by Japanese listeners (from Ooigawa *et al.* 2008)

L2		L1
/X/	→	/Y/ & /Z/...

## 4. Experiments

This study carried out two experiments in order to examine the speakers' individual differences in voicing of French /ʁ/ sounds and the perception of the sounds by Japanese adult listeners.

### 4.1. Production experiment

#### 4.1.1. Procedures

In the production experiment, four native speakers of French participated in the recordings (see Table 4). No speaking or hearing difficulties were reported by them. The materials consisted of CV mono-syllabic words including /ʁ/ and /l/ followed by the vowels /i/, /e/, /a/, /o/, and /u/ (see Table 5). The speakers read out these words and some distractors at least three times in the carrier sentence as in the following example: 'Dis-moi "rat" et "rat".' /dimwa ʁa e ʁa/ 'Say to me "rat" and "rat".' The utterances were recorded in a sound-proof room of Sophia University Phonetics Laboratory onto a digital recorder (Marantz solid state recorder, PMD671) through a microphone (Sony ECM-959DT) and digitized at 48 kHz with 16 bits.

**Table 4.** Information of the speakers

Speaker 1:	male	22 years old	from Chalon-sur-Saône
Speaker 2:	female	77 years old	from Besançon
Speaker 3:	male	26 years old	from Thouars
Speaker 4:	male	22 years old	from Marseille

**Table 5.** List of the target words, /C<sub>2</sub>V<sub>3</sub>/

/l/:	lit	/li/	‘bed’	/ʁ/:	riz	/ʁi/	‘rice’
	les	/le/	‘the’		ré	/ʁe/	‘re’
	la	/la/	‘the’		rat	/ʁa/	‘rat’
	l’eau	/lo/	‘the water’		rot	/ʁo/	‘burp’
	loup	/lu/	‘wolf’		roué	/ʁu/	‘wheel’

#### 4.1.2. Analysis of voicing

Each part of the /ʁ/ and /l/ sounds of the tokens were judged “voiced”, “voiceless”, or “mixture of them” by the analysis of the spectrograms, the pitch contours, and the voice report of the pulse, using a computer software program Praat Ver.4.5.17 (Boersma & Weenink 2007, see Table 11 in the Appendixes for Praat settings). In other words, the existences of voice bar, pulse wave, fundamental frequency, and quasiperiodic waveform were analyzed. They are the signs of voicing in a sound signal (Kent & Read 1992, Ladefoged 2003).

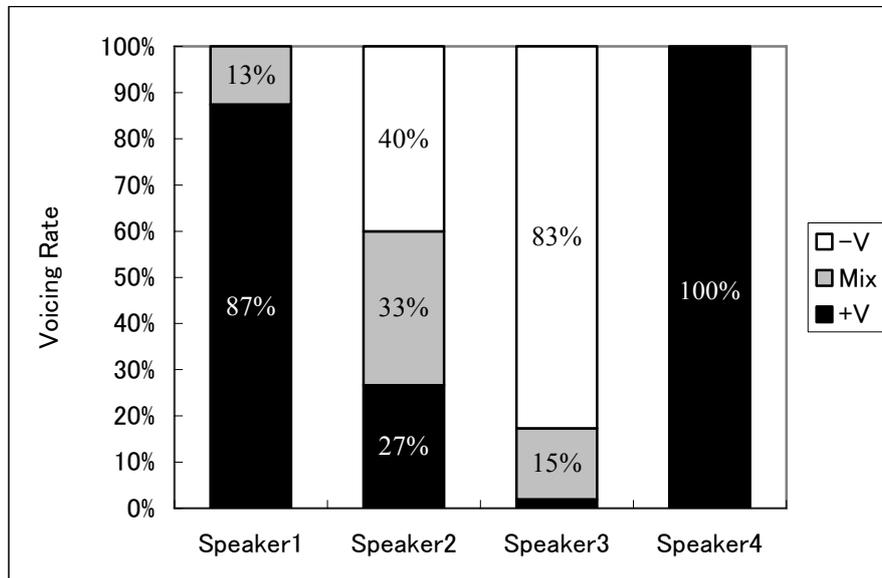
#### 4.2. Results of production experiment

The results show the clear individual differences in production of voicing of French /ʁ/ sounds (see Figure 1). While 87% of /ʁ/ sounds of Speaker 1 were judged “voiced”, Speakers 2 and 3 produced voiceless /ʁ/ sounds at the rate of 40% and 83% respectively. French /ʁ/ sounds are devoiced in the initial and intervocalic context.

There are also individual differences in manner of articulation. While all the tokens of /ʁ/ produced by Speaker 1-3 are fricatives [ʁ̥] or [ʁ], trill [ʀ] is dominant in the utterances of Speaker 4 (95%).

In contrast with /ʁ/, all the tokens of /l/ sounds were judged “voiced”. This result indicates that there are no individual differences in production of voicing of French /l/ sounds. French /l/ sounds are voiced in the initial and intervocalic context.

**Figure 1.** Production result: voicing rate



+V indicates “voiced”. -V indicates “voiceless”, and **Mix** indicates “mixture of the two”.

### 4.3. Perception Experiment

In the perception experiment, this study examined how the Japanese adult listeners perceived French /ʁ/ sounds and categorized them in their own language’s phonological system.

#### 4.3.1. Stimuli

From each of the recorded utterances, *et* “\_\_” /e \_\_/ was excited. For example, the tokens of /e ʁa/ are extracted from ‘Dis-moi “rat” et “rat” /dimwa ʁa e ʁa/. Tokens of voiced uvular fricative [ʁ], voiceless uvular fricative [χ], voiced uvular trill [ʀ], and voiced dental lateral approximant [l] were selected as the stimuli from the speakers (see Table 6). Hereafter, the tokens of [ʁ] recorded from Speaker 2 are indicated by [ʁ1] and [ʁ2] indicates the tokens of [ʁ] recorded from Speaker 3.

**Table 6.** Selected tokens for the stimuli

/ʁ/:	[eʁi] [eʁe] [eʁa] [eʁo] [eʁu]	from Speaker 1	
	[eʁi] [eʁe] [eʁa] [eʁo] [eʁu]* <sup>2</sup>	from Speaker 2	[ʁ1]
	[eʁi] [eʁe] [eʁa] [eʁo] [eʁu]	from Speaker 3	[ʁ2]
	[eri] [ere] [era] [ero] [eru]	from Speaker 4	
/l/:	[eli] [ele] [ela] [elo] [elu]	from Speaker 3	

#### 4.3.2. Listeners

Twenty-two native speakers of Japanese participated in this perception experiment. No speaking or hearing difficulties were reported by them. They were divided into two groups: R-acquired group and Non-R-acquired group. R-acquired group consisted of 12 listeners (19-43 years old, median 23.5 years; 8 women & 4 men) who had studied French or German languages or phonetics and could pronounce /ʁ/ sounds. In other words, they had knowledge of uvular rhotic sounds. Non-R-acquired group consisted of 10 listeners (21-25 years old, median 22 years; 5 women & 5 men) who had never studied French or German languages or phonetics and did not know the /ʁ/ sounds. In brief, they were naïve listeners.

#### 4.3.3. Procedures

In a sound-proof room of Sophia University Phonetics Laboratory, the target stimuli and the distractors were presented diotically and individually at a comfortable listening level through headphones (Sony MDR-CD900ST) connected to a personal laptop computer. The listeners were asked to transcribe each stimulus in katakana script which is used in Japanese to transcribe foreign names and loanwords. The listeners were allowed to ask the experimenter to replay each stimulus up to five times if they required.

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<sup>2</sup> No tokens of [eʁu] were recorded from Speaker 2. Therefore, this study uses the token [eʁu] as a stimulus.

#### 4.3.4. Analysis of the results

This paper focuses on the transcriptions of consonants. One stimulus equals to one /X/ point\*<sup>3</sup>. The same two consonants from one stimulus equal one /X/ point. The followings are the examples of the way how calculations were worked out. If the listener wrote /era/ in Japanese, it is worth 1 /r/ point. If the transcription is /ekuha/ for French [eʁa], it is valued at 0.5 /k/ points and 0.5 /h/ points. In the case of /erura/ for French [eʁa], it is worth 1 /r/ point.

Some listeners wrote two points (*dakuten*) on the upper right of katakana script of /ri/, /re/ or /ra/. In Japanese transcription these points indicate voicing of consonants\*<sup>4</sup>. As there is no voiceless counterpart of /r/ in Japanese, it is not necessary to add two points to /r/\*<sup>5</sup>. Though this paper does not consider this phenomenon because of its limited tokens, the transcription of /r/ with *dakuten* is indicated by r” (see Figures 2 & 8).

As the numbers of listeners of the two groups are different, this paper uses percentages in order to show the results in Figures 2-9. Statistical analyses were carried out with raw data (see Section 4.4.2).

#### 4.4. Results of perception experiment

##### 4.4.1. Percentage

All the listeners transcribed French [l] stimuli into Japanese /r/. This result is identical with that of our previous study (Ooigawa *et al.* 2008). On the other hand, French /ʁ/ sounds were categorized inconsistently.

The stimuli of [eʁi] and [eʁe] were transcribed largely into Japanese /r/ by the Non-R-Acquired group (85% & 60% respectively, see Figure 2). [eʁa], [eʁo] and [eʁu] were written as Japanese /h/ (100%). The same tendencies are observed in the results of the R-Acquired group, though the rate of /r/ is higher than that of the Non-R-Acquired group for every stimulus of speaker 1 (see Figure 3).

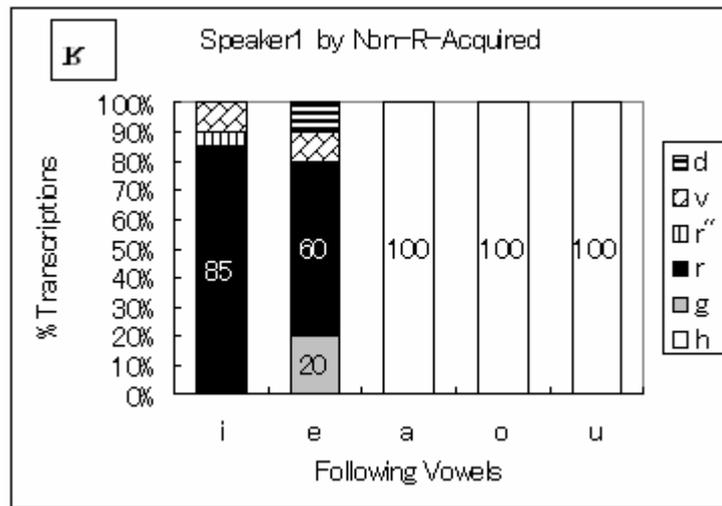
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<sup>3</sup> X indicates a certain consonant.

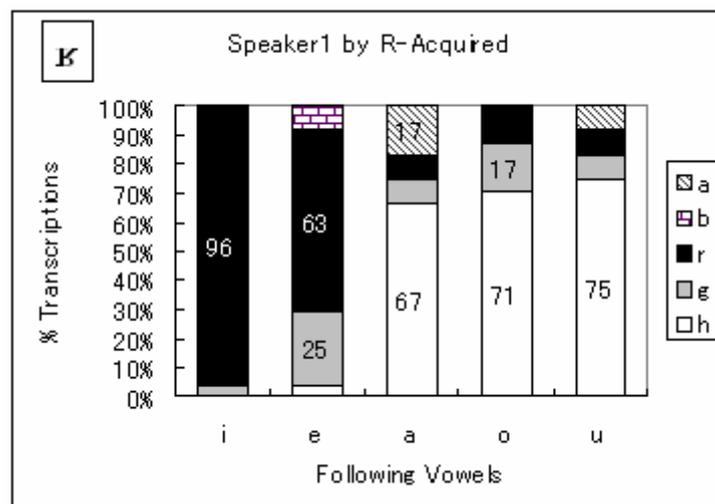
<sup>4</sup> Therefore, /da/ is written as /ta”/ in Japanese transcription.

<sup>5</sup> However, some Japanese cartoons (*manga*) add *dakuten* to the letters of vowels to express sudden fear or surprise, and some textbooks of Arabic language use it to explain the voiced pharyngeal fricative [ʕ].

**Figure 2.** Rate of transcriptions of [ɹ] by the Non-R-Acquired group

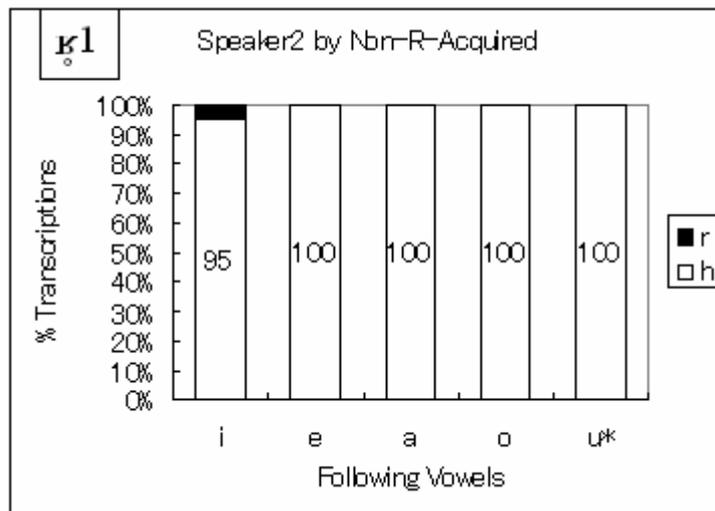


**Figure 3.** Rate of transcriptions of [ɹ] by the R-Acquired group

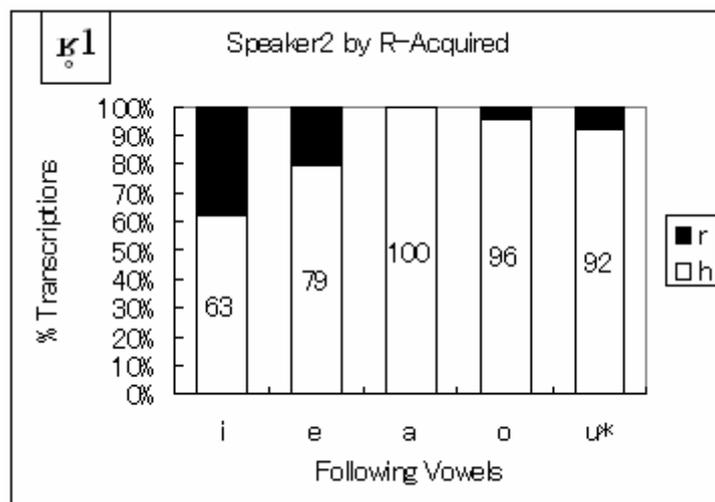


For [ɹ1], all the listeners of the Non-R-Acquired group transcribed [eɹe], [eɹa], [eɹo] and [eɹu] into Japanese /h/, and [eɹi] was categorized into Japanese /h/ at the rate of 95% (see Figure 4). The proportions of /r/ described by the R-Acquired group are higher than those of the Non-R-Acquired group except [eɹa]. Especially, [eɹi] had the largest rate of /r/ (see Figure 5).

**Figure 4.** Rate of transcriptions of [ɣ1] by the Non-R-Acquired group

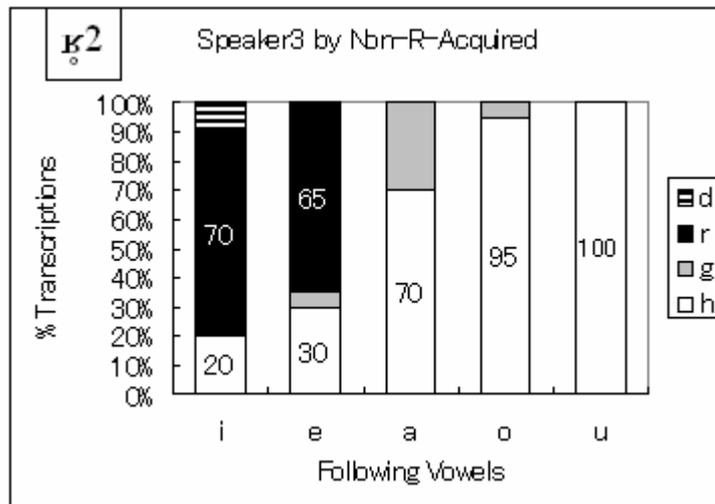


**Figure 5.** Rate of transcriptions of [ɣ1] by the R-Acquired group

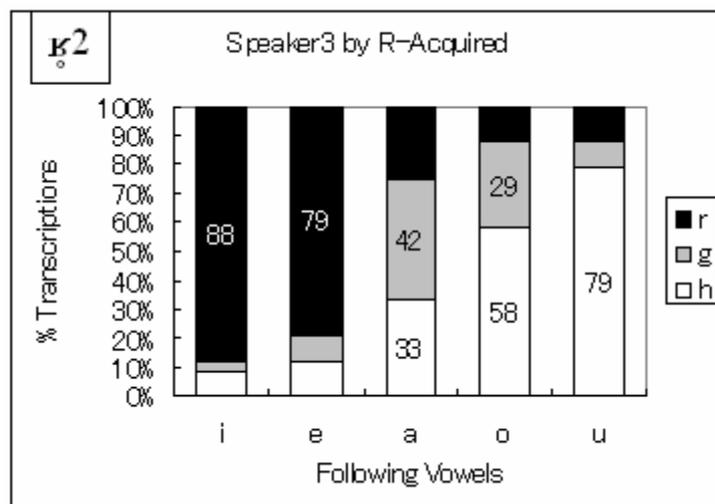


For [ɣ2], the stimuli [ɛɾi] and [ɛɾe] were transcribed largely into Japanese /r/ by the Non-R-Acquired group (70% & 65% respectively, see Figure 6). [ɛɾa], [ɛɾo] and [ɛɾu] were mostly written as Japanese /h/ (70%, 95% & 100% respectively). The same tendencies are seen in the results of the R-Acquired group though the rate of /r/ is higher than those of the Non-R-Acquired group for every stimulus of speaker 1 (see Figure 7). The results of [ɣ2] are rather similar to those of [ɣ].

**Figure 6.** Rate of transcriptions of [ɣ2] by the Non-R-Acquired group

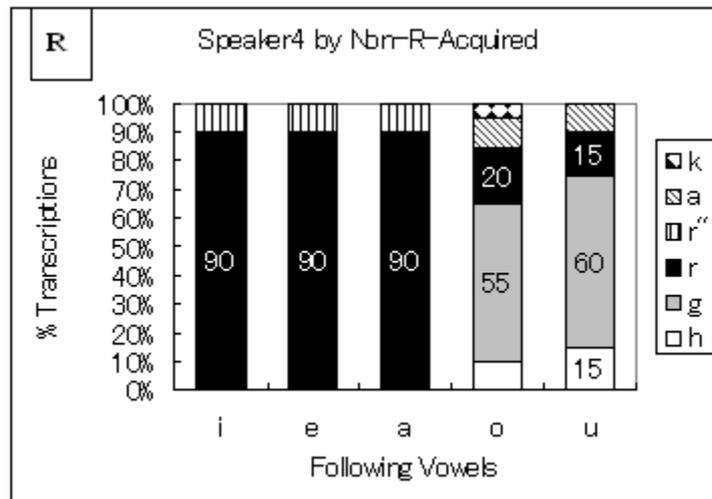


**Figure 7.** Rate of transcriptions of [ɣ2] by the R-Acquired group

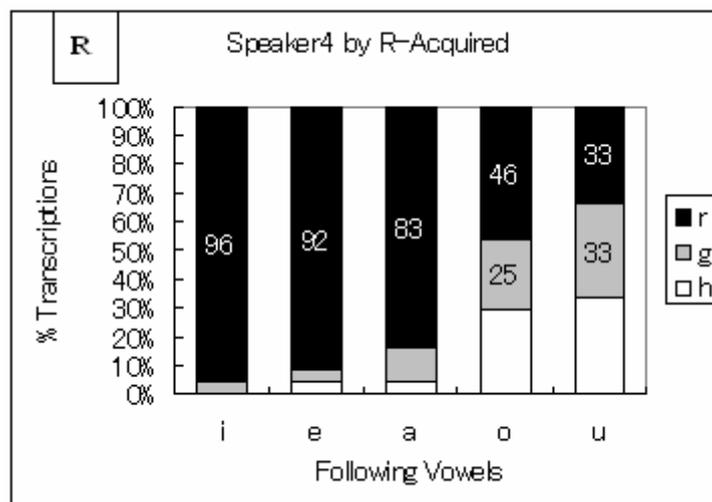


For [R], the Non-R-Acquired group overwhelmingly transcribed [eri], [ere] and [era] into Japanese /r/ while [eɣo] [eɣu] were mostly written as /g/ (see Figure 8). The tendencies of [eri], [ere] and [era] are identical to those for the R-Acquired group. However, the results of [eɣo] and [eɣu] for the R-Acquired group are different. There is no category which gained a majority (see Figure 9).

**Figure 8.** Rate of transcriptions of [r] by the Non-R-Acquired group



**Figure 9.** Rate of transcriptions of [r] by the R-Acquired group



#### 4.4.2. Statistical Analysis

In order to compare the two groups, the /r/ points were analyzed by *t*-test. Although the total /r/ points of the R-Acquired group are higher than those of the Non-R-Acquired group, this difference is not significant ( $t = -1.48, p = 0.147$ ). This result indicates that there is no difference between these groups. Because of this reason, this paper does not consider the knowledge of the listeners during the other comparisons

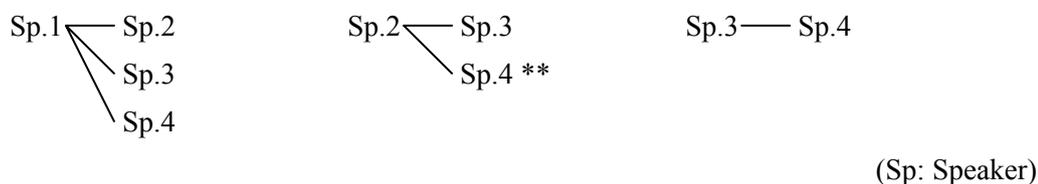
The /r/ points from all the listeners were analyzed by one-way ANOVA, and the significantly different pairs are shown in Table 7 by asterisks. The significant difference

can be seen only between Speaker 2 and Speaker 4 (see Table 7a). This result indicates that the individual differences in French rhotic voicing can influence the perception and categorization by Japanese listeners.

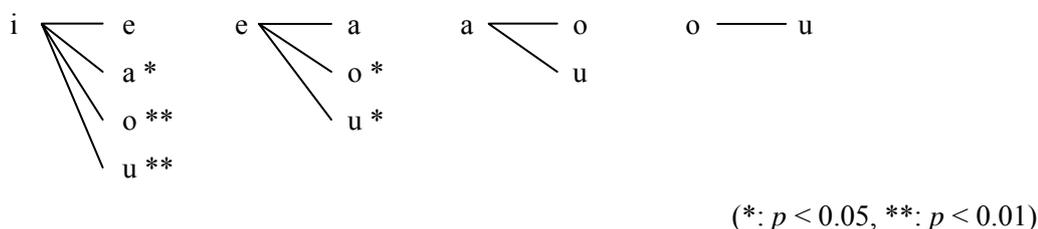
Table 7b shows the clear inter-vowel difference of /r/ points. The most significant differences are the pairs of /i/-/o/ and /i/-/u/: front vowels vs. back vowels. These results indicate that the vowels followed by a consonant in a CV mono-syllable influence the perception or categorization, and that its frontness and backness (either it is a front vowel or a back vowel) is most important.

**Table 7.** One-way ANOVA analysis of the /r/ points from all listeners

(a) *Inter-speaker difference*



(b) *Inter-vowel difference*



## 5. General discussions and conclusions

### 5.1. Production of French lateral and rhotic sounds

#### 5.1.1. Individual differences of voicing

The results of the production experiment of this study lead us to the conclusion that individual differences of voicing exist in the production of /ʁ/ sounds. On the other hand, French /l/ sounds are usually voiced in the initial and intervocalic context.

#### 5.1.2. Individual differences in the manner of articulation

In addition, this research indicates that individual differences in the manner of

articulation also exist. Though this phenomenon is not a new discovery, we should consider it together with the differences of voicing. In conclusion, in French, each speaker has his/her dominant rhotic sounds (see Table 8) while French lateral sounds are usually [l] in the initial and intervocalic context.

**Table 8.** Dominant rhotic sounds in initial and intervocalic context

Speaker 1:	voicing + fricative = [ʁ]
Speaker 2:	(de)voicing + fricative = [ʁ] or [ʁ̥]
Speaker 3:	devoicing + fricative = [ʁ̥]
Speaker 4:	voicing + trill = [ʀ]

## 5.2. Perception of French lateral and rhotic sounds

As all the listeners categorized all the [l] stimuli into Japanese /r/, this paper discusses the perception of /ʁ/ sounds.

### 5.2.1. Influence of listeners' knowledge

Figures 2-9 tell us that the listeners of the R-Acquired group tend to transcribe the French /ʁ/ sounds into Japanese /r/. However, this difference is not significant. Although it is possible that this group boundary is not adequate enough to permit comparisons, this study concludes that is no influence of listeners' knowledge for the perception of French /ʁ/ sounds. Further studies on the relation between listeners' knowledge and L2 sounds perception are needed.

### 5.2.2. Influence of the voicing of French rhotic sounds

It is difficult to conclude that only voicing influences the perceptual assimilation of French /ʁ/ sounds. We should consider it with the vowel context and the manner of articulation.

It is mysterious that the results of [ʁ] and [ʁ̥2] are similar to each other. It is natural to think that the results of [ʁ̥1] and [ʁ̥2] are identical. It is possible that these results indicate the limit of voicing analysis by only sound signals, and that [ʁ̥] has variants or that the voicing of French rhotic sounds is gradual. Further researches on the production of French /ʁ/ sounds are needed.

### 5.2.3. Influence of following vowels

The results of the perception experiment show that the categorization of French /ʁ/ [ʁ] [ʀ] [ʁ] depends on the following vowels. Especially, the frontness and backness are important. While fricatives [ʁ, ʀ] with front vowels /i, e/ tend to be written as Japanese /r/, fricatives [ʁ, ʀ] with back vowels /o, u/ tend to be transcribed as Japanese /h/. While trill [ʀ] with vowels /i, e, a/ tend to be written as Japanese /r/, trill [ʀ] with back vowels /o, u/ tend to be transcribed as Japanese /g/ or /h/ or /r/. Table 9 summarizes these phenomena.

**Table 9.** Perceptual assimilation patterns of French liquids by Japanese listeners

French /l/ →	Japanese /r/
French /ʁ/	
[ʁ] + /i, e/	→ Japanese /r/
[ʁ] + /a, o, u/	→ Japanese /h/
[ʀ1]	→ Japanese /h/
[ʀ2] + /i, e/	→ Japanese /r/
[ʀ2] + /o, u/	→ Japanese /h/
[ʀ] + /i, e, a/	→ Japanese /r/
[ʀ] + /o, u/	→ Japanese /g/, /h/, /r/

### 5.2.4. Proposal for the PAM

From the results of the perception test of French rhotic sounds, this study concludes that the perceptual assimilation pattern of Table 3 in Section 3.2 is possible. In other words, one L2 sound category can be assimilated into more than one native sound category (see Table 10 below).

**Table 10.** Perceptual assimilation patterns of French rhotic sounds

French /ʁ/ → Japanese /r/, /g/, /h/

As the PAM does not include this pattern, it does not account for Japanese listeners' perceptual assimilation pattern of French /ʁ/ sounds. Therefore, this model should be extended.

## **6. Further studies**

In addition to the studies that this paper mentioned in Section 5, the following further researches are needed in order to advance this study.

- 1) Production of Japanese /r/ and French /ʁ/ sounds by Japanese speakers.
- 2) Goodness of Japanese /h/ and /g/ as French /ʁ/.
- 3) Goodness of Japanese /r/ as French /ʁ/ or /l/.
- 4) Production and perception of French liquids in the other syllabic positions such as in the coda and in the cluster.

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## Appendixes

**Table 11.** Praat settings

### **Spectrogram settings**

View range: 0.0-5000.0 Hz

Window length: 0.005 seconds

Dynamic range: 50.0 dB

### **Pitch settings**

Pitch range: 50.0-500.0 Hz

Unit: Hertz

Optimize for: Voice Analysis (CC method)

Drawing method: speckles

### **Advanced spectrogram settings**

Time and frequency resolutions:

Number of time steps: 1000

Number of frequency steps: 250

Spectrogram analysis settings:

Method: Fourier

Window shape: Gaussian

Spectrogram View settings:

Maximum: 100.0 dB/Hz

Pre-emphasis: 6.0 dB/oct

Dynamic compression: 0.0 (0-1)

### **Advanced pitch settings**

Analysis settings

Very accurate

Silence threshold: 0.03

Voicing threshold: 0.45

Octave cost: 0.01

Octave jump cost: 0.35

Voiced / unvoiced cost: 0.14

### **Advanced pulses settings**

Maximum period factor: 1.3

Maximum amplitude factor: 1.6

# Hetero-syllabic Split L-Geminates: English in Singapore and Hong Kong<sup>1</sup>

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## Abstract

Drawing upon data from Singapore English (SgE) and Hong Kong English (HKE), this paper demonstrates that coda /l/ geminates and splits into [-wl-] when sandwiched between a short vowel and another vowel. This split-gemination of /l/ is problematic for the currently established conception that geminates share phonological features. To solve this problem, this paper proposes that non-terminal nodes contain phonological information via correspondences to the terminal nodes.

**Keywords:** Inter-tier Correspondence, L-Gemination, English, Singapore, Hong Kong,

## 1. Introduction

This paper explores the case of the split gemination of /l/ in Singapore English (SgE) and Hong Kong English (HKE). It is difficult to demonstrate split gemination ( $X \rightarrow X_iX_j$ ) because there are after all two distinct consonants. In fact, “split gemination” is an oxymoron given that gemination means doubling.

A good place to begin would be to demonstrate gemination. Both SgE and HKE alike show consonantal gemination in the environment  $V_{\text{short}} \_ +V$ , i.e. a consonant that is preceded by a short vowel geminates when a vowel-initial suffix is attached, shown in (1). Otherwise there is no gemination, shown in (2).

- (1) Root-final Consonant Geminates (SgE and HKE alike)
- |    |    |        |        |     |           |            |
|----|----|--------|--------|-----|-----------|------------|
| a. | i. | [stɒp] | “stop” | ii. | [stɒppiŋ] | “stopping” |
| b. | i. | [put]  | “put”  | ii. | [puttiŋ]  | “putting”  |
- (2) Final Consonant Non-Geminates
- |    |    |        |        |     |          |           |
|----|----|--------|--------|-----|----------|-----------|
| a. | i. | [weit] | “wait” | ii. | [weitiŋ] | “waiting” |
| b. | i. | [paip] | “pipe” | ii. | [paipiŋ] | “piping”  |

The case in (1) is not unique to SgE and HKE. Such hetero-syllabic gemination is also found in Standard English (Hammond 1997). The words in (2) do not apply to SgE because in SgE, these words have short vowels. The standard analysis for such gemination is that the V-initial suffix desires an Onset (triggered by the universal ONSET constraint) while the preceding syllable desires bimoraicity that can only be satisfied if a

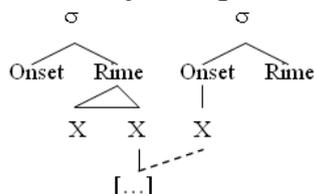
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<sup>1</sup> This work is supported by FRG/06-07/I-33. This paper is a modified version of Wee (to appear) which concentrates on HKE. The present paper brings SgE into the mix.

The author is grateful to the audience at CIL-18, especially Adam Albright, Bruce Hayes and James Myers for their insightful comments. Remaining errors mine.

short vowel is either followed by a coda consonant or else the vowel must undergo compensatory lengthening (Hayes 1989). In any case, gemination in (1) is understood as spreading, presented in (3).

(3) ONSET-triggered Consonant Spreading



Given (3), it becomes clear that to show that in SgE or HKE a consonant C splits in gemination if in the environment  $V_{\text{short}} \_ +V$ , the singular C surfaces as two distinct segments. Such a split is problematic for a representation like (3).<sup>2</sup>

In (3), the two Xs are linked to the same melody and hence cannot be distinct, contrary to what is needed for a split in the gemination. Split gemination is thus problematic for any theory that is based on such a representation. This paper proposes a possible way out of this problem.

Demonstrating that split-gemination exists is not the only difficulty. New Englishes such as SgE and HKE are hard to define since they typically range from basilectal varieties to acrolectal ones. Also, there are usually many languages involved. SgE for example, is variously considered to have been the combined influences of Standard English, Malay and various Chinese languages (Platt 1975; Lim 1996; Bao and Wee 1999; Goh 2002; Ng 2004; Bao and Hong 2006 among many others). In the investigation of new Englishes, one should be wary of making unqualified assumptions that any English-sounding item would automatically correspond with the English source (Mohanani 1992). For example, unless supported by evidence, it is imprudent to assume that “help” pronounced [heup] in SgE is underlyingly identical to RP /help/; it could have been /heup/ in SgE.

For current purposes, it is unnecessary to define SgE or HKE beyond the loose sense of what any familiar listener can identify as English spoken in Singapore or Hong Kong. The SgE and HKE data reported here comes from the author’s field research in the two cities, mostly over the last 2 years. For the most part, the investigator situates himself in some inconspicuous spot and make notes of what he hears in real everyday life speech of a large number of people. From these notes, a set of test words is constructed for data solicitation from willing informants of both genders, within the 18-35 age range. In so doing, the author presents only the notable and consistent features of the languages investigated.

<sup>2</sup> One way to avoid such a split is to think of it as phonological fission of /l/ which has two parts: an underlying [dorsal] feature and a [lateral] feature (for phonetic evidence, see Sproat and Fujimura 1993). However, the fission account falsely predicts that [-wl-] should appear in when CV prefixes to L-initial stems. Consonants at stem-initial positions do not geminate when CV is prefixed, but if [-wl-] is treated as fission, one would not have any devices left to prevent such [-wl-] from surfacing stem-initially. In short, though /l/ may have a [dorsal] feature, it must be treated like all other consonants in terms of where [-wl-] occurs, making the fission account unviable.

Section 2 demonstrates that split-gemination does occur in HKE and SgE, with respect to /l/. Section 3 provides a theoretical framework within which a solution is formulated in section 4. Section 5 concludes the paper.

## 2. From coda /l/ to split-L in SgE and HKE

This section lays out the context within which one can see that /l/ in SgE and HKE undergoes hetero-syllabic split gemination. To begin, it is noteworthy that /l/ vocalizes in the coda, exemplified here with some data from Hong Kong English (HKE).

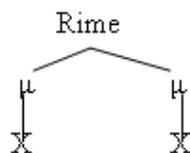
- (4) /l/ → [w] / (coda \_\_)
- |    |    |         |         |     |           |           |
|----|----|---------|---------|-----|-----------|-----------|
| a. | i. | [smaɪw] | “smile” | ii. | [smaɪliŋ] | “smiling” |
| b. | i. | [peɪw]  | “pale”  | ii. | [peɪliʃ]  | “palish”  |

This situation is also found in Malaysian, Estuary (Alterndorf 2003) and Adelaide Englishes (Borowsky 2001). The case for /l/ vocalization in modern SgE is less straightforward, though hints may be found in words like “help”, “milk”, “feel”, etc where the Standard English variety has /l/ in coda. In all these words, the SgE pronounces the <l> as [w]. To see /l/ vocalization in SgE, consider pairs like “smile~smiling”, “feel~feeling” and their SgE variations.

- (5) Two dialects in SgE
- |    | SgE   |        | Dialect A | Dialect B  |
|----|-------|--------|-----------|------------|
| a. | smile | [smaw] | smiling   | [smaw.liŋ] |
| b. | feel  | [fiw]  | feeling   | [fi:.liŋ]  |

One obvious difference between SgE and HKE is that in SgE words, the number of segments in the rime is limited to two, whereas HKE would allow up to three as in HKE [smaɪw]. The two-segment limit of SgE is true only for words where /l/ is involved morpheme-finally (in (2) for example, SgE would allow tri-segmental rimes). What one sees here is that there is a match between the number of morae and the number of segments for cases where there is a final /l/, (6).

- (6) Mora-Segment Match in SgE Rime involving final /l/



HKE does not adhere to (6) strictly since “smile” is [smaɪw] where there are three segments in the time. However, (6) does have an impact on HKE as can be seen in the syllabification of “smiling” in HKE as [smaɪ.liŋ] where the initial syllable no longer contains the [w]. Such an effect is easily accounted for in an Optimality Theoretic framework where the unmarked Mora-Segment Match emerges differently depending

on how it is ranked with respect to faithfulness (for this characteristic of OT, see McCarthy and Prince 1994).

Returning to (5), Dialects A and B are similar in unsuffixed forms, but differ when a vowel-initial is attached. In Dialect B one can see the [w~l] alternation, similar to HKE in (4) except for compensatory lengthening of the vowel in the root. So, it is reasonable to assume that an account for Dialect B would be along the following lines.

(7) Derivation in Dialect B

		/fɪl/	/fɪl + ɪŋ/
Step 1	Syllabification	fɪl	fɪ.liŋ
Step 2	Compensatory lengthening	-	fɪ:liŋ
Step 3	L-vocalization	fiw	-
	Output	[fiw]	[fi:liŋ]

Technically, it isn't so obvious if Steps 2 and 3 are to be ordered, but this is immaterial for the present discussion. In any case, it should be clear that Compensatory lengthening in Step 2 is motivated by demands for the syllable to be bimoraic.

Given this derivation, Dialect B speakers are also likely to take the words in (1) and produce them with vowel lengthening rather than with consonant gemination. This much seems to be supported by my observations, though more reliable statistics would require extensive investigation. Circumstantial evidence thus suggests that for the speaker of Dialect A, the underlying form would have a final /l/ without any preceding /w/. This is also supported by my field observations that many such speakers actually believed they have pronounced an [l] rather than a [w] as the final segment in “bill”, and that the pronunciation is different from that in “beau”. In fact, SgE speakers pronounce both words identically as [biw]. It is only when asked to compare the two utterances that most speakers eventually notice the similarity.<sup>3</sup>

If the explanation given in the preceding paragraphs is correct, then “smile” has moved from RP /smaɪl/ to SgE /smal/ by virtue of (6), and by virtue of the alternation rule in (4) /l/ → [w] to yield SgE “smile” as [smaw]. A picture on the correspondence between the UR forms of RP rimes and the UR forms SgE rimes is provided in (8).<sup>4</sup>

(8) UR of SgE rimes and RP sources

Rime RP source	Rime SgE (UR)	Example
/VC/	/VC/	“bill”
/VVC/	/VVC/	“pipe”, “wait”, “line”
/V:C/	/VC/	“beat”, “peep”
/VVL/	/VL/	“feel”, “smile”

Though (8) is not directly relevant to our understanding of hetero-syllabic split-gemination, the systematicity of the correspondence between RP and SgE (probably a

<sup>3</sup> It is possible to do this because almost all Singaporeans learnt English in school and can spell. Though the effect could have come from influence of “spelling”, the point nonetheless remains.

<sup>4</sup> For simplicity, I have deliberately left out discussions on coda consonant clusters in words like “last”. Such words do not participate in hetero-syllabic gemination anyway.

kind of historical change) shows that SgE patterns exactly like HKE with respect to gemination given the right UR forms.

Like HKE, SgE words with coda /l/ would vocalize into [w] when parsed into the coda. If one recalls the data in (4), one can similarly conclude that [l] and [w] are allophones in HKE at least for words like “smile”. If one further recalls the patterns of hetero-syllabic gemination of consonants in (1), things get interesting. The logical conclusion must be that the words in (9) below must contain a split geminate /l/.

- (9) Split-L Gemination (SgE and HKE alike)
- |    |    |       |        |     |           |           |
|----|----|-------|--------|-----|-----------|-----------|
| a. | i. | [piw] | “peel” | ii. | [piwliŋ]  | “peeling” |
| b. | i. | [hew] | “hell” | ii. | [hewliŋ]  | “hellish” |
| c. | i. | [kaw] | “cull” | ii. | [kaw.liŋ] | “culling” |

The split gemination of /l/ can be understood derivationally as in (10).

- (10) Comparing the Morpheme-final L with Morpheme-final C
- |           |   |                   |   |              |
|-----------|---|-------------------|---|--------------|
| /stɒp+iŋ/ | → | stɒp.piŋ          |   |              |
| /fil+iŋ/  | → | fil+liŋ           | → | fiw.liŋ      |
|           |   | <i>gemination</i> |   | <i>L-voc</i> |

The split-L geminate challenges the standard conception of spreading where two segments are associated to the same set of features. For /l/ to be both [l] and [w] at the same time is paradoxical.

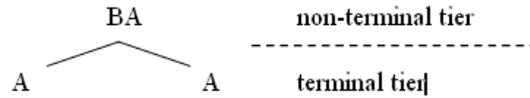
### 3. Inter-tier Correspondence Theory

The split-L paradox can in fact be resolved if one takes phonological outputs as structural representations that allow for content information to percolate across nodes via correspondence, (11).

- (11) Inter-tier Correspondence Theory (Wee 2004; Orgun 1996)
- i. Carriage of information  
All nodes (terminal or non-terminal) are information-bearing.
  - ii. Correspondence of information  
There is a correspondence of the information content between nodes that stand in immediate domination.
  - iii. Violability of correspondence  
Correspondence of information between nodes is not necessarily perfect.

With the setup in (11), the Inter-tier Correspondence Theory (ICT) stands phonological representations on their heads in that terminal nodes are now exactly identical to underlying (input) strings. What is traditionally construed as the phonetic output is now the entire representation with the root node looking identical to the traditional notion of surface strings. To illustrate consider a hypothetical language where /A+A/ → [BA]. In ICT, this would be represented as (12):

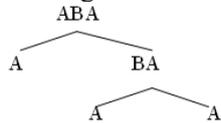
(12)



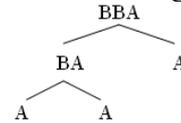
As can be seen in (12), it is the constituency of two adjacent A-s that triggers the “unfaithful” correspondence at the root node. To get the effect in (12), a constraint that favors preservation of information from the right branch would suffice. This can be easily done with positional faithfulness constraints and general faithfulness constraints. The power of ICT can be further illustrated with ternary strings using an additional rule  $CB \rightarrow CD$ , the examples in (13) should suffice:

(13) ICT with reference to Rule-ordering Effects<sup>5</sup>

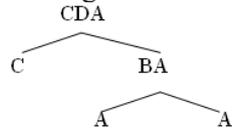
a. Bleeding



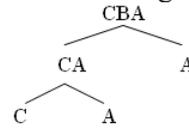
b. Counterbleeding



c. Feeding



d. Counterfeeding



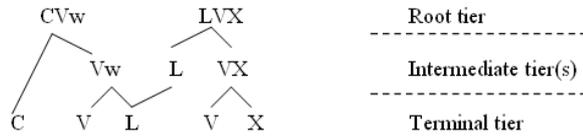
It should be clear from (13) that ICT captures directly the insight that opacity (and for that matter, effects of derivation) is often structurally motivated, something that was built into the levels of Lexical Phonology or the mechanisms of bracket erasures (Mohanam 1986). It further predicts that depending on whether the left-branch or the right-branch is more stable, opaque and transparent derivational effects simply fall out of the way the structure branches. Strictly speaking, there is no derivation in ICT since it is the entire structure and the correspondences of information across nodes that matters, but it would produce effects that pre-OT phonological analyses have described as derivational.

#### 4. Account for Split-L Geminataion

If one accepts the stipulations of ICT, then split-L can simply be represented as (14) where the given input is /CVL+VX/:

<sup>5</sup> The same effects can be achieved with a progressive rule  $AA \rightarrow AB$  coupled with the mirror-images of these structures.

(14) Representing the Split-L in ICT

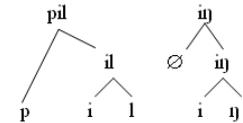


Following ICT, the terminal tier in (14) is identical to the input string /CVL+VX/. This string is then parsed into a structure equivalent to two syllables such that the “L” is doubly associated. Because information corresponds across nodes, higher nodes reconstruct the information of the lower nodes. In (14), there is one unfaithful correspondence: L to [w] in the coda of the first syllable. This unfaithful correspondence is triggered by a constraint that prohibits [l] in the coda of a syllable, which would yield the effect of split gemination.

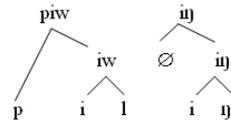
To see how ICT works, consider first a set of possible candidates when given an input such as /pil+iŋ/ “peeling” and /meil+iŋ/ “mailing”.

(15) Candidates for /pil+iŋ/ “peeling”

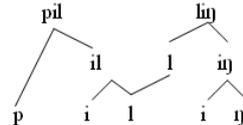
a. Faithful



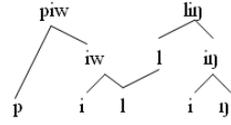
b. Vocalize



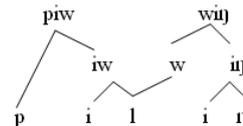
c. Geminate



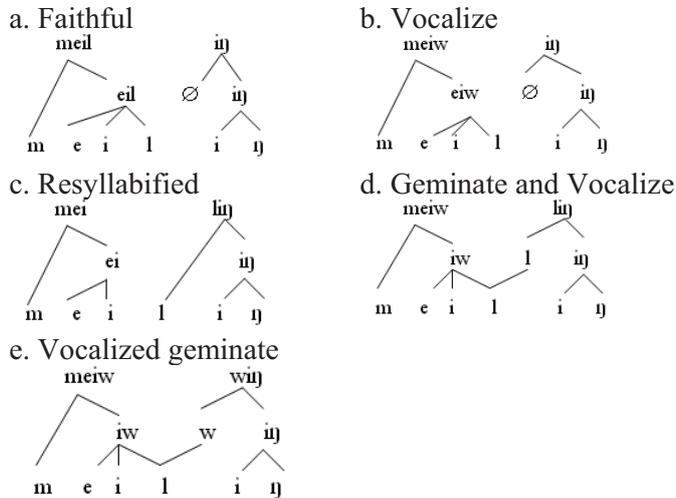
d. Geminate and Vocalize



e. Vocalized Geminates



(16) Candidates for /meil+iŋ/ “mailing” (HKE only)



The above is only a subset of all possible candidates, but that should suffice to illustrate how ICT would correctly predict the split-L gemination. The above candidates vary along various parameters: (i) where the final L is syllabified; (ii) if that L is geminate; and (iii) if correspondent of the L is faithful.

Armed now with the set of candidates, one can evaluate each candidate with respect to the constraints in OT tableaux in (17).

(17) ICT account of Split-L<sup>6</sup>

\*MULT ASSOC

A node cannot be dominated by more than one node.

INTER-TIER FAITH<sup>7</sup>

Dominating nodes must have identical information with subordinate nodes.

\*L-CODA<sup>8</sup>

[l] is not allowed in the coda.

BI-RIME<sup>9</sup>

The rime contains exactly 2 segments

ONSET

All syllables have onsets.

<sup>6</sup>Doug Pulleyblank (p.c.) suggests a classical OT solution where input /l/ has two correspondences [w<sub>i</sub>] and [l<sub>i</sub>]. This predicts languages that allow long distance split correspondence /X<sub>j</sub>/ corresponds to [Y<sub>j</sub>... Z<sub>j</sub>] by virtue of GEN's capacity, which as far as I know are unattested. ICT restricts such split correspondence to adjacency because cross-branching structures are impossible to GEN. Also, multiple correspondences require different IDENT to apply to each correspondent. These IDENT constraints would have to be positional in nature, which is the insight of ICT. So, while the split correspondence approach could in principle generate the L-voc effects, it overgenerates.

<sup>7</sup>This is really a collection of constraints akin to classical Faithfulness.

<sup>8</sup>Whether or not this is universal is immaterial here, but across languages [l] is often vocalized when in the rime.

<sup>9</sup>BI-RIME is most likely the effect of two constraints involving (i) the birmoraicity of the syllable which is the minimal phonological word and (ii) the biuniqueness correspondence of the mora and the segment.

/pil + ij/	*L-CODA	ONSET	*MULT ASSOC	INTER-TIER FAITH
a. Faithful	*!	*		
b. Vocalize		*!		*
c. Geminate	*!		*	
☞ d. Gem & Voc			*	*
e. Voc'd gem			*	**!

/meil + ij/ (HKE only) <sup>10</sup>	*L-CODA	ONSET	BI-RIME	*MULT ASSOC	INTER-TIER FAITH
a. Faithful	*!	*	*		
b. Vocalize		*!			*
☞ c. Resyllabified					
d. Gem & Voc			*!	*	*
e. Voc'd gem				*!	**

Violation counts in the above tableaux are obtained by evaluating each representation candidate at every node against the constraints. For example, in the faithful candidates (a), /l/ is kept as it is in the corresponding higher tier which constitutes a violation of \*L-CODA at that level. It is important to bear in mind that in ICT representations, adjacency and constituency are clearly different. When the /l/ is at the terminal tier, there is no indication of it being in the coda. That information is only available in the dominating tier when /l/ and the preceding vowel form a constituent.

As may be seen in (17), vocalization is only triggered when /l/ is syllabified into the coda.<sup>11</sup> (Recall that hetero-syllabic gemination is due to the need for syllables to have onsets and to the requirement that HKE and SgE rimes must be bimoraic). This explains why /meil+ij/ in HKE does not have split-L gemination, but /pil+ij/ does for both SgE and HKE. Of crucial importance here is the possibility of “unfaithful” inter-tier correspondence because it is this that allows for the same /l/ to surface differently according to its context (i.e. onset or coda positions).

## 5. Conclusion and Implication

Despite its success in resolving the paradox in split gemination, ICT stand phonological outputs on their heads since information at the terminal tiers would now be identical to the input strings, while the strings at the root node(s) would match the phonetic outputs. However, ICT derives for us the effect that depth of derivations is directly proportionate to depth of structural embeddings (cf. (13)). Further, it captures the insight that

<sup>10</sup> The UR for “mail” in SgE is very likely to be /mel/, which surfaces as [meu].

<sup>11</sup> Donca Steriade (p.c.) pointed out that in attributing the geminate and vocalization combination to resyllabification, there must be either (i) no morpheme-internal geminates in words like *silly*, *vanilla* or *dilly-dally* or (ii) these geminates, which do not stem from resyllabification, function differently. In SgE and HKE, *silly* is [si:li:], *vanilla* [wan.lei.la:] and *dilly dally* [di:.li:.de:.li:].

phonological alternations can only be triggered by constituency and not mere adjacency. These two observations have always been taken implicitly. When put this way, the representations generated by ICT are perhaps not as weird as may seem at first blush. In fact, they offer us new possibilities for exploring derivational effects (in particular opaque ones) that plagued much of modern OT.

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# Understanding VOT Variation in Spontaneous Speech

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## Abstract

This paper reports a corpus study on the variation of VOT in voiceless stops in spontaneous speech. Two speakers' data from the Buckeye corpus are used: one is an older female speaker with a low speaking rate while the other is a younger male speaker with an extremely high speaking rate. Linear regression analysis shows that place of articulation, word frequency, phonetic context, speech rate and utterance position all have an effect on the length of VOT. However, altogether less than 20% of the variation is explained in both speakers, which suggests that pronunciation variation in spontaneous speech is a highly complicated phenomenon which might need more sophisticated modeling. Our results also show a great deal of individual differences.

**Keywords:** VOT variation, spontaneous speech, corpus study.

## 1. Background

Voice onset time (VOT) is the duration between consonant release and the beginning of the vowel. English voiceless stops (i.e. [p], [t], and [k]) typically have VOT durations of 40ms – 100ms (Forrest et al., 1989; Klatt, 1975; Lisker & Abramson, 1964). In the broad literature on English VOT, it has been shown that VOT varies with a number of factors, including linguistic factors (place of articulation, identity the following vowel and speaking rate), and non-linguistic factors (age, gender and other physiological characteristics of the speaker). In this study, we report a corpus study on VOT variation that takes into consideration the features of the target word and the running context. We use two speaker's naturalistic speech data from interviews, and built separate regression models. Our main goal is to study the effect of lexical and contextual factors on VOT in running speech. The comparison of the two models also reveals individual differences between the two speakers.

The most well-studied factor in VOT variation is place of articulation. It has

been confirmed in various studies that VOT increases when the point of constriction moves from the lips to the velum, both in isolated word reading and read speech (Zue, 1976; Crystal & House, 1988; Byrd, 1993; among others), and this pattern is not limited to the English language (Cho & Ladefoged, 1999). Speech rate is another conditioning factor. Kessinger and Blumstein (1997, 1998) reported that VOT shortened when speaking rate increases (also see Volaitis & Miller 1992, Allen et al. 2003). It has also been proposed that phonetic context, in particular, the following vowel, has an effect on the length of VOT. Klatt (1975) reported longer VOT before sonorant consonants than before vowels. Klatt also found that voiceless stops typically had longer VOTs when followed by high, close vowels and shorter VOTs when followed by low, open vowels (also see Higgins et al. 1998). In addition, there is also an indirect influence from the following vowel context in that some VOT variation patterns are only observed in certain vowel environments (Neiman et al. 1983; Whiteside et al. 2004).

A different line of research on VOT variation focuses on non-linguistic factors. Whiteside & Irving (1998) studied 36 isolated words spoken by 5 men and 5 women, all in their twenties or thirties, and showed that the female speakers had on average longer VOT than the male speakers. The pattern was confirmed in several other studies (Ryalls et al. 1997; Koenig, 2000; Whiteside & Marshall 2001). Age has also been suggested as a conditioning factor of VOT. Ryalls et al. (1997, 2004) found that older speakers have shorter VOTs than younger speakers, though their syllables have longer durations. A tentative explanation is that older speakers have smaller lung volumes and therefore produce shorter periods of aspiration (see also Hoit et al., 1993). However, no age effect is found in some other studies (Neiman et al., 1983; Petrosino et al., 1993). Other non-linguistic factors that have been studied include ethnic background (Ryalls et al. 1997), dialectal background (Schmidt and Flege, 1996; Syrdal, 1996), presence of speech disorders (Baum & Ryan, 1993; Ryalls et al 1999), and the setting of the experiments (Robb et al., 2005). Last but not least, at least part of the VOT variation is due to idiosyncratic articulatory habits of the speaker. Allen et al's (2003) study shows that after factoring out the effect of speaking rate, the speakers still have different VOTs, though the differences are attenuated.

Despite the large size of the literature on VOT, most of the existing studies use experimental data from single-word productions and therefore typically have a limited set of target syllables and phonetic contexts. (The only two exceptions are Crystal & House [1988] and Byrd [1993], both of which used read speech data from speech corpora.) However, what happens in unplanned spontaneous speech? We know that speakers have more VOT variability in directed conversation than in single-word

productions (Lisker & Abramson, 1967; Baran et al., 1977). But does that mean that the conditioning factors are largely the same, only with aggrandized effects or that additional factors are at play? More importantly, what is the general pattern of variation when all factors are present? The current study is a first attempt to address these questions. We use naturalistic data from interviews and build models of VOT variation with features of the word and the running contexts. The features we consider have been suggested in the literature to affect either VOT (such as place of articulation, phonetic context and speaking rate) or pronunciation variation in spontaneous speech in general (such as word frequency and utterance position).

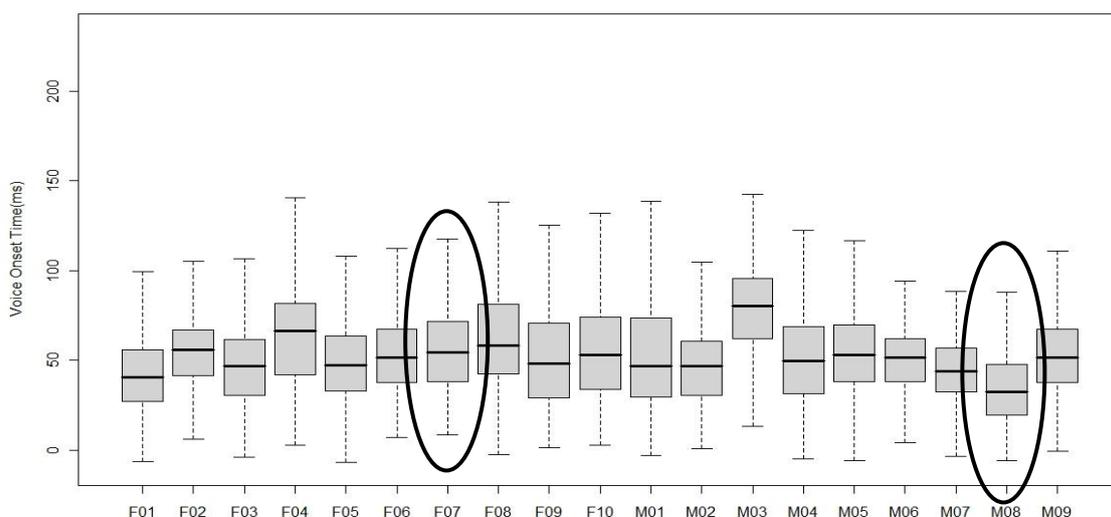
## **2. Methodology**

### **2.1. Data**

The data we use are from the Buckeye Corpus (Pitt et al., 2007), which contains interview recordings from 40 speakers, all local residents of Columbus, OH. Each speaker was interviewed for about an hour with one interviewer. Only the interviewee's speech was digitally recorded in a quiet room with a close-talking head-mounted microphone. At the time of this study, 19 of the 40 speakers' data were available. (In fact, 20 speakers' transcripts were available, but one speaker's data were excluded due to inconsistency in the transcription.) For this study, two of the 19 speakers' data are used. These two speakers, s20 (recoded as F07 in the current study) and s32 (recoded as M08), were selected because they differed from each other in all possible dimensions. F07 is an older female speaker with the lowest speaking rate among all 19 speakers (4.022 syll/s) while M08 is a young male speaker with the highest speaking rate (6.434 syll/s).

Since word-medial stops are often flapped in American English, we limited the dataset to word-initial position only. Speaker F07 has 231 word-initial voiceless stops and speaker M08 has 618 such tokens. An automatic burst detection program was used to find the point of release in each token. More than 57% (N=492) of the tokens were manually checked, and the error was under 3.5ms. 105 tokens (7 of F07 and 98 of M08) were excluded since the automatic program failed to find a reliable point of release in these stop tokens, due to either no closure-release transition or extraordinary multiple releases. (For a detailed discussion on the automatic burst detection program, please see Yao, 2008 in the same volume.) The average VOT of F07 is 57.41ms, with

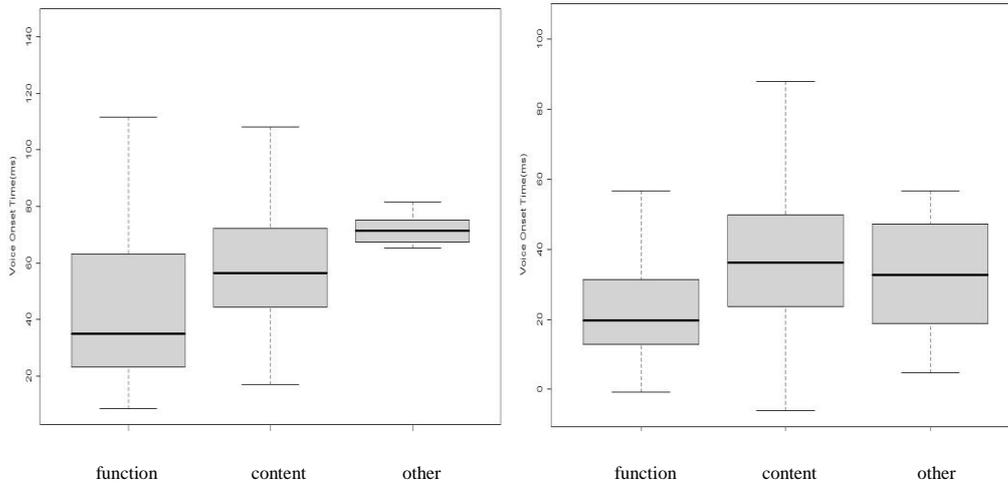
a standard deviation of 26.00ms, while M08's average VOT is 34.86ms, with a standard deviation of 19.82ms. In fact, as shown in Figure 2, M08 has the shorter average VOT of all 19 speakers. The large difference in VOT between the two speakers (~23ms) is probably due to the fact that M08 speaks much faster than F07 in general. Both speakers' VOT values show a great deal of variation (standard deviation > 19ms in both speakers), which will be the focus of the analysis in the rest of the paper.



**Figure 1.** Average VOT of all 19 speakers (F07's and M08's data are circled)

In order to test the effect of surrounding phonetic context, we excluded utterance-initial tokens (14 from F07 and 54 from M08), since the preceding context was not speech sound in these cases. This leaves speaker F07 with 210 tokens and speaker M08 with 466 tokens.

It has been suggested in the literature that content words and function words are processed differently (see Bell et al, to appear and the references in it). In our data, function words have shorter VOTs than content words in both speakers' data (see Figure 2), and the effect still remains after word frequency is controlled for. Since content words comprise the majority of the target tokens (see Table 1), we decided to model the variation of VOT in content words only. Thus, in the final dataset, speaker F07 has 155 tokens and M08 has 346.



**Figure 2.** Average VOT by word class in F07 ( left) and M08 (right)

	<b>Content</b>	<b>Function</b>	<b>Other</b>
<b>F07</b>	155	47	8
<b>M08</b>	346	104	16

**Table 1.** Token counts by word class

### 2.3. Regression model

Linear regression is used to predict the length of VOT in each stop token in the final dataset. Two speakers' data are modeled independently, using the same method. The independent variables that are considered are place of articulation (POA), word frequency, phonetic context, speech rate and utterance position. All predictor variables are added to the model sequentially (in the above order). Adjusted  $R^2$ , a model parameter that indicates how much variation is explained, is used to evaluate model performance. The general principle of modeling is that a predictor variable will stay in the model if  $R^2$  is improved significantly. Thus the results that are reported below should be understood as the difference in model performance after adding the current variable, on top of all previously added variables. For some variables, more than one measure is tested and the most significant one is kept in the model.

### 3. Results

#### 3.1. Effect of POA

The first variable added to the regression model is place of articulation. Various studies have confirmed that VOT in voiceless stops increases as the place of articulation moves backwards, from the lips to the velum. However, this trend is only observed in one of the two speakers in the current study. In speaker F07's data, POA doesn't turn out to be a significant factor for predicting VOT ( $p=0.216$ ), and doesn't explain any variation at all ( $R^2=0$ ). Moreover, the average VOT of [p], [t], and [k] doesn't follow the pattern of increasing VOT in more backward stops ([p]=68.56ms; [t]= 61.56ms; [k]= 68.40ms). For speaker M08, on the hand, POA is an important predictor for VOT ( $p<0.001$ ), with [p] having the shortest VOT (33.14 ms), followed by [t] (44.20 ms) and [k] (47.68 ms), which is consistent with the pattern reported in the literature. POA alone explains about 9.2% of the variation in VOT in M08's data. Figure 3 shows the average VOT of the three stop categories in two speakers. Despite the fact that POA only appears to be a significant predictor in one speaker's data, we decided to keep it in both speakers' models, mostly because it has been claimed to have an important effect on VOT in the literature and it is possible that the effect will show up in the interaction with other predictor variables.

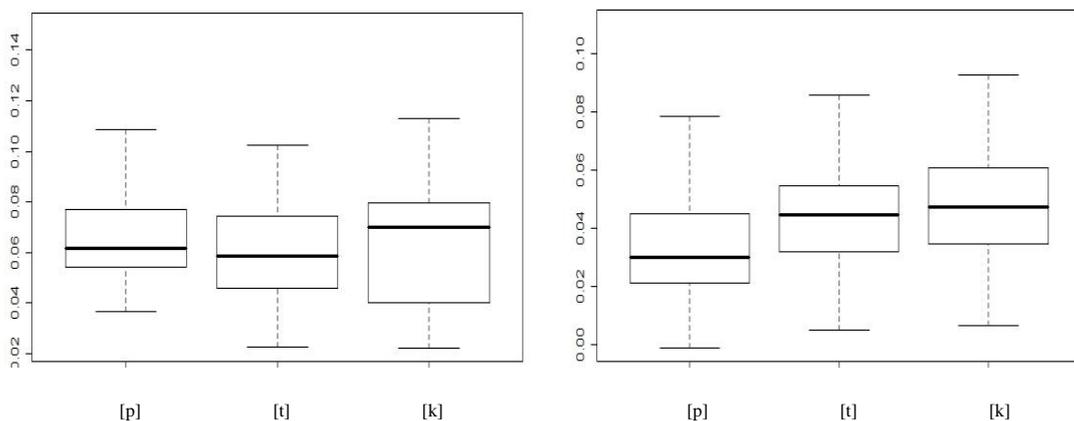


Figure 3. Average VOT by stop category in F07 (left) and M08 (right)

#### 3.2. Effect of word frequency

Word frequency is one of the most well-documented factors on pronunciation variation in spontaneous speech. Frequent words have shorter durations and are more

susceptible to various lenition processes, such as vowel reduction, tapping and palatalization, consonant deletion, etc. (Fidelholz, 1975; Fosler-Lussier and Morgan, 1999; Bybee, 2000; Bell et al., 2003, to appear; Pluymaekers et al., 2005; among others). However, to our knowledge, the effect of word frequency on VOT in connected speech hasn't been investigated yet.

In the current study, two types of frequency measures are examined: one is the log of the word frequency in the CELEX database (Baayen et al., 1995), the other is the log of the word frequency calculated from the Buckeye corpus over all speakers. Not surprisingly, the two measures are highly correlated ( $r=0.826$ ). In both speakers' data, the Buckeye frequency is a better predictor of VOT than the CELEX frequency (see Table 2). Adding the Buckeye word frequency to the model improves the performance by 1.7% in speaker F07 and 0.4% in speaker M08. In both models, there is a negative relation between word frequency and VOT, i.e. more frequent words have shorter VOTs. But the effect is not very strong, as shown in the relatively small change in  $R^2$ .

	Previous $R^2$ (%)	Term added	New $R^2$ (%)
<b>F07</b>	0	Celex frequency	1.3
		Buckeye frequency	1.7
<b>M08</b>	9.2	Celex frequency	9.4
		Buckeye frequency	9.6

**Table 2.** Change in model performance after adding word frequency

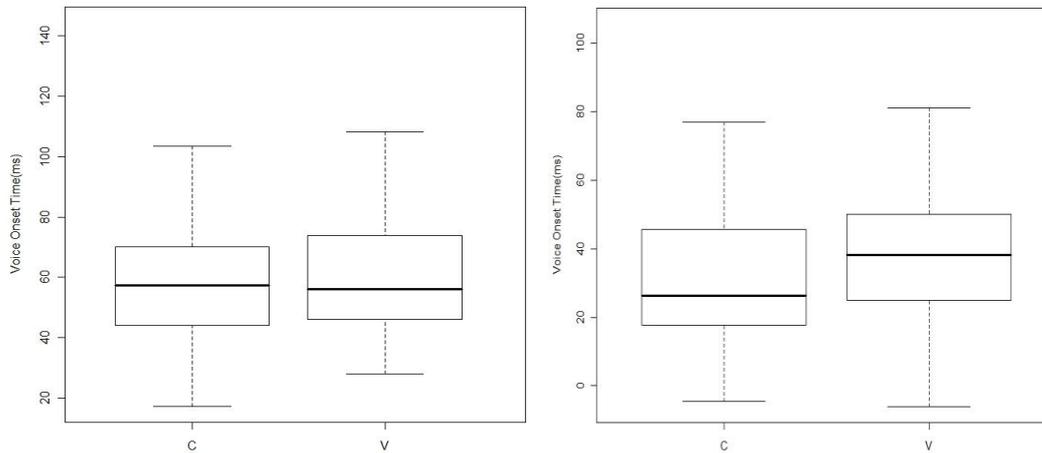
### 3.3. Effect of phonetic context

For studying the effect of phonetic context, we coded each token for whether the preceding/following phone is a consonant or a vowel. Interestingly, in speaker F07's data, only the preceding phone contributes to the prediction of VOT ( $R^2$  increases by 0.2%), but not the following one ( $R^2$  decreases by 1.1%); in speaker M08's data, it is the following phone that predicts VOT ( $R^2$  increases by 0.48%), but not the preceding one ( $R^2$  decreases by 0.33%) (see Table 3). In both speakers' models, however, the category of the preceding/following phone is not a strong factor in VOT variation (see Figure 4).

	Previous $R^2$ (%)	Term added	New $R^2$ (%)
<b>F07</b>	1.7	Category of the preceding phone	1.9
		Category of the following phone	0.6

<b>M08</b>	9.6	Category of the preceding phone	9.27
		Category of the following phone	10.08

**Table 3.** Change in model performance after adding phonetic context



**Figure 4.** Effect of phonetic context (left: average VOT by category of the preceding phone in F07; right: average VOT by category of the following phone in M08)

### 3.4. Effect of speech rate

Speech rate is intuitively easy to understand, but hard to measure in practice. Previous studies on the effect of speech rate have been predominantly using the number of syllables produced per second in the local pause-bounded stretch as a measure of the contextual speech rate. In this study, in addition to the stretch speed measure, two more local speed measures are also tested: duration of the next phone (in ms), and the average speed of the three-word chunk centered at the target word (in number of syllables per second).

In both speakers' regression models, all three speed measures improve the performance of the model, predicting that the faster the speech is, the shorter the VOT. However, among the three measures, the average speed of the three-word chunk, is the best VOT predictor in speaker F07's model ( $R^2$  increases by 9.9%), whereas in speaker M08's model, the most local one, i.e. the duration of the next phone, predicts VOT the best ( $R^2$  increases by 6.54%) (see Table 4). Curiously, the most often used speed measure, i.e. average speed of the local stretch, doesn't turn out to be the best speed predictor for VOT in either speaker's model. One might argue that this is at least partly because the calculation of both 3-word-chunk speed and local stretch speed

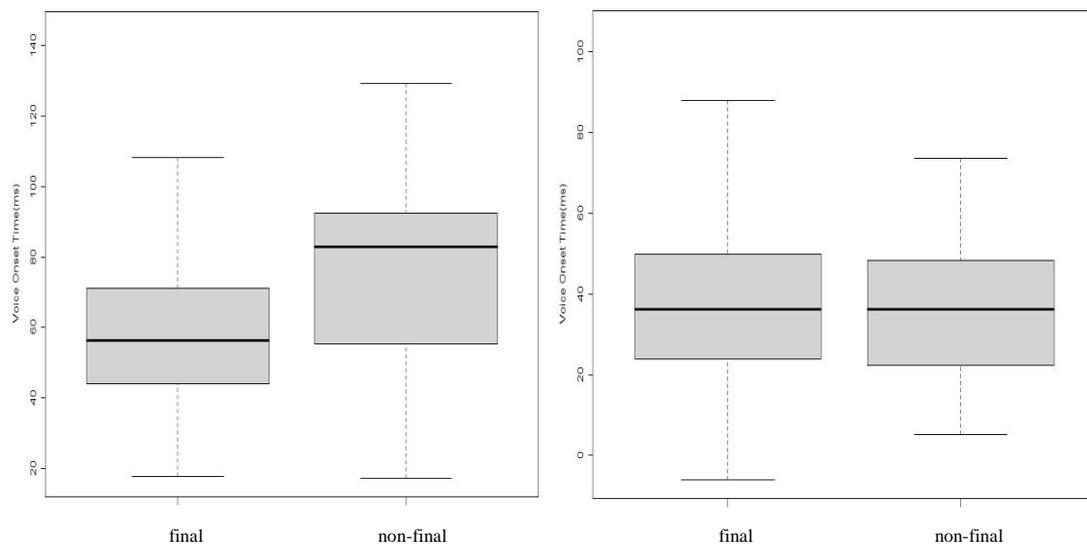
already include the target word (and hence also the predicted VOT) and this inherent correlation is higher in the more local speed measure, which makes it a seemingly better predictor. We agree that a better way to calculate these speed measures is to exclude the target word from the calculation to eliminate the inherent correlation. However, it should also be noted that even with the current calculation, 3-word-chunk speed is not necessarily a better predictor than local stretch speed (as in M08's model), which suggests that despite the different degrees of inherent correlation with VOT, the two speed measures do seem to be measuring different contexts.

	Previous R <sup>2</sup> (%)	Term added	New R <sup>2</sup> (%)
<b>F07</b>	1.9	Duration of the next phone	5.1
		Average speed of the local 3-word chunk	11.8
		Average speed of the local stretch	7.1
<b>M08</b>	10.08	Duration of the next phone	16.62
		Average speed of the local 3-word chunk	12.85
		Average speed of the local stretch	15.07

**Table 4.** Change in model performance after adding speed measures

### 3.5. *Effect of utterance position*

In order to test the effect of utterance position (mostly in the form of utterance final lengthening), each token is coded for whether the immediately following word is silence. Altogether 9 out of the 155 tokens in F07's data and 34 out of 312 in M08's data are coded as followed by pause, i.e. utterance-final. As shown in Figure 5, for speaker F07, utterance-final tokens have significantly longer VOT than utterance-medial tokens, whereas for speaker M08, the two categories have similar average VOTs. Not surprisingly, adding this variable to the regression model improves the performance by 7.31% in F07's model, but decreases it by 3.13% in M08's model (see Table 5).



**Figure 5.** Average VOT of utterance-final and non-utterance-final tokens in F07 (left) and M08 (right)

	Previous R <sup>2</sup> (%)	New R <sup>2</sup> (%)
<b>F07</b>	11.8	19.11
<b>M08</b>	16.62	13.31

**Table 5.** Change in model performance after adding utterance position

### 3.6. Overall performance of the model

Speaker F07’s final regression model has the following five variables: place of articulation, Buckeye word frequency, category of the previous phone, average speed of the three-word chunk centered at the target word, and utterance position. On the other hand, speaker M08’s model ends up with four variables, place of articulation, Buckeye word frequency, category of the following phone, and duration of the following phone. The performance of the models after adding each variable is summarized in Table 6. In the final stage, speaker F07’s model is able to account for 19.11% of the overall variation in VOT while speaker M08’s model is able to account for 16.62% of the variation. In F07’s model, the biggest increase in model performance happens when speech rate and utterance position are added; in M08’s model, it happens when place of articulation and speech rate are added.

	Terms added	R <sup>2</sup> (%)
<b>F07</b>	Place of articulation	0
	Buckeye word frequency	1.7
	Category of the previous phone	1.9

	Average speed of the local 3-word chunk	11.8
	Utterance position	19.11
<b>M08</b>	Place of articulation	9.2
	Buckeye word frequency	9.6
	Category of the following	10.08
	phoneDuration of the next phone	16.62

**Table 6.** Summary of model performance of speaker F07 and M08

#### 4. Discussion

In this study, we use naturalistic data from two speakers to model the variation of VOT in word-initial voiceless stops. The factors that are considered include place of articulation, word frequency, phonetic context, speech rate and utterance position. Overall, the following trends are observed, in at least one speaker's model: (a) VOT increases as the place of articulation moves from the lips to the velum; (b) higher frequency words have shorter VOT than lower frequency words, though the effect is not very strong; (c) when preceded by a vowel, VOT is shorter, and when followed by a vowel, VOT is longer, though the effect is weak; (d) in faster speech, VOT is shorter; (e) utterance-final stops have longer VOT.

The most interesting finding in the current study is that place of articulation is only shown to affect VOT in one speaker's model, but not in the other, though it has been claimed as an important conditioning factor of VOT in the literature. However, this doesn't mean that our results contest the canonical view, instead, our results show that in spontaneous speech, the VOT distinction among three stop categories can be overshadowed by other factors at play. In other words, for some speakers, the VOT distinction among [p], [t], and [k] is not strong enough to always be maintained. Our study also shows that word frequency, though widely reported as an important factor in pronunciation variation, doesn't have strong influence on VOT. In both speakers' model, there is a weak effect of word frequency that predicts shorter VOTs in higher-frequency words.

Speech rate is the only variable that has a strong effect on VOT in both speakers' models. Interestingly, the two speakers are shown to be sensitive to different speed measures. M08's data are best predicted by the most local speed measure, i.e. the duration of the following phone, while F07's data are best predicted by the medium local measure, i.e. the speed of the surrounding three-word chunk.

Even though we only examined two speakers' speech in the current study, they already show a wide range of individual differences. It is possible to attribute the differences to age and gender, since the older female speaker (F07) does have longer VOT than the young male speaker (M08), which is consistent with the results in the current literature. However, we think that a more important reason for the VOT difference is speech rate. As mentioned above, speaker F07 has the lowest average speech rate among all 19 speakers, and M08 has the highest, exceeding that of F07 by about 60%. In addition, our results also reveal individual differences in the variation pattern of VOT that can hardly be attributed to unknown differences in speech style. For one thing, speaker M08 shows a clear pattern of bilabial stops having the shortest VOT and velar stops having the longest one while in speaker F07's data, this pattern is not observed. It is not clear whether speaker F07 has no such distinction even in isolated word production, or the distinction is overshadowed by the various factors that are at play in spontaneous speech. In addition, utterance position is found to condition VOT values in F07, but not in M08, which indicates that the slower speaker slows down in utterance-final position while the fast speaker doesn't. This suggests that in addition to average speech rate, the variation in speech rate can also be an indicator of individual differences in speech style.

Altogether the model is only able to explain less than 20% of the variation in the data. One way to improve this model is to add more predictor variables. The literature on VOT and pronunciation variation has suggested a number of other factors that could potentially explain some of the remaining variation. These factors include contextual probability, prosody, the identity of the following vowel/consonant, neighborhood density and so on. (Note that disfluency is another factor that's not reported here. In fact, we did code cases for following disfluency, including (un)filled pauses and single word repetition, but the resulting division is very similar to that by utterance position.) It is possible that when these factors are considered, the performance of the model will be improved.

The other way to improve the performance is to use a different type of statistical model. As we know, linear regression models are limited to modeling linear relationship between the dependent variable and the independent variables. Therefore, it is inherently unable to model non-linear or non-homogeneous effects, which might exist in the VOT variation phenomenon. In addition, since all independent variables are internally coded as continuous variables, linear regression models also have difficulty in modeling the effect of categorical variables with more than two levels. Thus using a more general regression model might help explain more of the variation of

VOT in spontaneous speech.

## 5. Concluding remarks

In this study, we present a first attempt to understand VOT variation in voiceless stops in spontaneous speech, and in particular, its relation with characteristics of the target word and the running context. Our results show that previously proposed factors, such as place of articulation and phonetic context, are still at play in spontaneous speech but the effect might be attenuated by the presence of other factors. We also show that lexical features, such as word class and word frequency, as well as contextual factors, such as speaking rate and utterance position, also have an effect on VOT, though the size of the effect is subject to individual differences. Finally, the overall low percentage of variation predicted by the linear regression model (despite the fact that we already excluded possibly non-homogeneous data) suggests that the actual variation pattern in spontaneous speech is highly complicated. In order to better model the variation phenomenon, more factors need to be considered and it might be necessary to use more complicated statistical tools.

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# Resolving Conflicts of Prominence in Music and Speech

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## Abstract

Although it is generally acknowledged that there must be a non-trivial relationship between music and speech, not enough studies are available to elucidate the interface between these two areas of human cognition (Lerdahl & Jackendoff 1983, Kiparsky 2006). In this context, linguistic chants in cross-linguistic studies provide an invaluable window through which one can investigate the nature of the prosodic structure of a language as well as the musical constraints that are established through an available repertoire of chants. This paper addresses both the musical and linguistic aspects of vocative chant. We first identify conflicts that arise in the melodic and rhythmic realizations in typologically diverse languages, and then argue that the ways these conflicts are resolved are not arbitrary, but are systematically related to the kind of prosodic system that each language manifests.

**Keywords:** vocative chant, music, speech, prosody.

## 1. Introduction

Although it is generally acknowledged that there must be a non-trivial relationship between music and speech, not enough studies are available to elucidate the interface between these two areas of human cognition (Lerdahl and Jackendoff 1983, Kiparsky 2006). In this context, linguistic chants in cross-linguistic studies provide an invaluable window through which one can investigate the nature of the prosodic structure of a language as well as the musical constraints found therein.

It is often noted that there is a hierarchy of melodic forms that “from the least formalized (normal speech intonation) to the most formalized (accompanied singing)” (Gardiner, via Ladd 1978: 525), with the intermediate forms being those that are utilized by rap musicians, talking blues performers, street vendors, auctioneers, train conductors, etc. Even at the most formalized end of the hierarchy, music and language intersect,

albeit in an extremely constrained manner.

For instance, the matching between linguistic tone and musical melody in tonal languages is not random but quite systematic. In the Cantonese opera, the linguistic tones of the text serve in effect as a form of musical notation in the absence of conventional western-style notation; an actual performance is constructed through the mental compositional process of matching linguistic tones with a somewhat limited repertoire of available tunes provided by each performer (Yung 1991). For Mandarin folksongs, Wee (2002) demonstrates how the preservation of contrasts is accomplished between two distinct elements of prominence in music and language. The conflicts that arise when linguistic tone is articulated in the context of a prescribed musical melody are resolved by preserving the tonal integrity of the head syllable, whereas the conflicts in non-head syllables are tolerated and disambiguated by syntactic and semantic cues. Similarly, the intonation patterns of normal speech have been successfully described by means of aligning a sequence of H and L pitch contours with segmental material (Pierrehumbert & Beckman 1988), although in speech the tones are not sustained (or terraced) throughout the syllables that bear a certain pitch as they are in music. In addition, the intonation contours of normal speech are characterized by rhythmic organizations that we often associate with music.

There is a growing body of literature on *vocative chant* (henceforth, VC), where level pitches and durational specifications of stylized intonation clearly beg for interpretations that are both musically and linguistically based. VC refers to a set of tunes for calling people, often from a distance. It is also known as the “calling contour” of Gibbon (1976), the “stylized fall (associated with routineness)” of Ladd (1978, 1996), and the “chanted call” of Hayes & Lahiri (1992) and Gussenhoven (1993).

Most research on vocative chant has been focused on European languages. However, during the past decade or so, important cross-linguistic generalizations have emerged through the studies of vocative chant, concerning the nature of the tunes and the role of lexical and musical prominence. For example, Ladd (1978, 1996) associates a stepping-down sequence of two level tones with the semantic implication of “stereotyped,” “stylized,” and “routine,” rather than to the calling per se.

One of the most salient linguistic characteristics of this sequence is a highly exaggerated voice quality, melody and rhythm. Another significant linguistic generalization, first noted by Leben (1976), is the tendency of the English VC to change pitch only on rhythmically strong syllables, while other chants are less musically constrained and are often characterized by sparsely structured rhythmic patterns and melodies.

In what follows, we will discuss both the musical and linguistic aspects of VC. We will identify conflicts that arise in the melodic and rhythmic realizations in typologically diverse languages, and argue that the ways these conflicts are resolved are not arbitrary, but are systematically related to the kind of prosodic system that each language manifests.

## 2. Melodic realization in vocative chant

Linguistic information related to prominence provides crucial constraints on the melodic realization of VC. In particular, there is a strong tendency to preserve underlying linguistic prominence in VC melody, whether the prominence is derived by the foot structure or tonal structure (Cho & Saiki Forthcoming, 2007).

### 2.1. Language with lexical stress

In English and German, whose phonology is characterized with the distinctive stress system, the accentual H tone (H\*) is associated with the most salient syllable in the metrical structure in their VC, as illustrated in (1) and (2).

#### (1) English

segments: 'Name, where are you?'

VC melody: (L)H\*M L H\* M

a. A-mán-da	b. Vic-tó-ri-a	c. Jó-ohn	d. Jó-na-than	e. Jóh-nny
	\ /		\ /	
L H* M	L H* M	H* M	H* M	H* M

#### (2) German

segments: 'Name, wo bist du?'

VC melody: (L)H\*M L H\* M

a. And-ré-as	b. Mat-thí-as	c. Héi-ko	d. Wíl-helm
L H* M	L H* M	H* M	H* M
e. Mar-tí-na	f. Elí-sa-beth	g. Jú-li-a	h. Kérs-tin
		\ /	
L H* M	L H* M	H* M	H* M

In Dutch VC, just like English and German cases, H\* is associated with the main stress (with the strong foot), M is associated with the secondary stress (with the next strong foot), and, if there is no secondary stress, M falls on the final syllable. Moreover, in all three languages, Tones spread to right in VC.

However, according to Gussenhoven (1993), the last syllable always has a separate pitch level (a boundary tone) in VC. This is illustrated in (3), adopted from Gussenhoven (1993), where dotted lines indicate the stepping down of the pitch level.

(3) Dutch

a. -----	b. -----	c. -----
-----	-----	-----
(véduwe-tje)	---	---
‘widow+DIM’	(álma)(nàk-je)	---
	‘almanac+DIM’	(nép)-(álma)(nàk-je)
		‘fake-almanac+DIM’
		(Gussenhoven 1993)

2.2. Language without lexical stress

Contrary to English, German, and Dutch, in Hungarian and French, which do not have any distinctive lexical stress, the H tone occurs in a fixed location in VC. Just as the regular intonational phonology is determined by predictable phrasal mechanisms, the association of the vocative melody is determined by edge-alignment. Association of HM from the left-edge is observed in Hungarian VC, as in (4), while that of HM from the right-edge is for names in French VC, as illustrated in (5).

(4) Hungarian

a. An-na	b. Ka-ta-lin	or	Ka-ta-lin
			\ /
H M	L H M		H M

(5) French

a. Mo-nique	b. Ja-acques	c. Anne-Ma-rie
H M	H M	L H M

Bengali is another language with predictable stress system. The Bengali VC melody is HM, and the word-melody association is mechanical and not sensitive to stress. According to Hayes and Lahiri (1992), there are variants in VC association based on the number of syllables a word in VC bears. That is, for mono-syllabic words, words with two or three syllables, and words with four syllables or longer, one, two, and three variants are observed, respectively, in their melodic association in VC, as schematized in (6).

(6) Bengali VC variants

a. mono-syllabic word :  $\sigma$

/ \  
H M

b. word with two/three syllables :  $\sigma \sigma$

$\sigma \sigma$	or	$\sigma \sigma \sigma$	$\sigma \sigma \sigma$
			/ \
H M		H M	H M

c. word with four syllables or longer :  $\sigma \sigma \sigma \sigma$

$\sigma \sigma \sigma \sigma$	$\sigma \sigma \sigma \sigma$	$\sigma \sigma \sigma \sigma$
	/ \	\ / \ /
H M	H M	H M

2.3. Language with lexical pitch

In pitch-accent languages such as Serbo-Croatian (Inkelas & Zec 1988), Korean (Ko 1999, Cho 2002) and Japanese (Cho & Saiki Forthcoming), underlying prominence tends to be preserved regardless of whether the prominence is derived from the foot

structure or the tonal structure.

The Serbo-Croatian VC melody is (L)H\*M, and the association proceeds from the right-edge. Any underlying H is preserved by linking it with the accented H\* of the VC melody. Rightward spread of H to any toneless moras and default L insertion produce the surface structure.

(7) Serbo-Croatian

underlying:    Gospodjice    Slobodane  
                   |                    \ /  
                   H\*                    H\*

surface:        Gospodjice    Slobodane  
                   \ / |        | \ / |  
                   H M        L H M

(Inkelas and Zec 1988)

Tokyo Japanese and South Kyöngsang Korean provide another instances of VC where distinctive pitch patters are perfectly mirrored in the realization of the VC melody.

In Tokyo Japanese, the VC melody is MH and its association to the lexical pitches proceeds from the right edge from the vocative text. Regardless of the kind of lexical pitches, the vocative suffix and the penultimate mora are assigned the tunes H and M, respectively, and the other lexical pitches are faithfully reflected in the vocative melody, as exemplified in (8a-b).

(8) Tokyo Japanese

segments:    ‘Name (+tyaN), a- so- bo!’ (=Name, let’s play!)

VC melody:    { L } M    H    L    H\* M  
                   { H }

	a. Ma-yu-mi (+tyaN)	b. Ma-ri-ko (+tyaN)
lexical pitch:	L H H H	H* L L L
	\ /	\ /
VC melody:	L M H	H M H

South Kyöngsang Korean, with the distinctive lexical pitch system, shows a similar case as Tokyo Japanese in its association of the text and the melody in VC. In

this language, there are three lexical tone classes on the sequence of a name and the vocative suffix *+ya/a*, i.e., MHM, H\*M, and HHM, and they exhibit a three way distinction in VC melody. In addition, the alignment of the HM is done from the right edge of the word, as illustrated in (9a-b).

(9) South Kyöngsang Korean

segments: ‘Name *+ya/a*, no-ol-ca!’ (=Name+vocative suffix, let’s play!)

VC melody:  $\left. \begin{array}{l} M \ H \\ H^* \ M \\ H \ H \end{array} \right\} M \quad M \ H^* \ M$

	a. Ho-cun +a	b. Søn-suk+a	c. Kuk-wən+a
lexical pitch:	M H M	H* M M	H H M
		\ /	\ /
VC melody:	M H M	H* M	H M

2.4. Language without lexical pitch

Fukui Japanese and Seoul Korean are among the languages without lexical pitch distinction.

As explained in the above section, whereas the names in Tokyo Japanese VC have two way melodic realization (LMH and HMH), in Fukui Japanese, names are invariably realized as HMH. Similarly, while names in South Kyöngsang are divided into three in its VC melody (MHM, HMM and HHM), all names in Seoul Korean are realized as MHM.

(10) Fukui Japanese

segments: ‘Name (+tyaN), a- so- bo!’ (=Name, let’s play!)

VC melody: H M H L H\* M

	a. Ma-yu-mi (+tyaN)	b. Ma-ri-ko (+tyaN)
	\ /	\ /
VC melody:	H M H	H M H

(11) Seoul Korean

Segments: 'Name +ya/a, no-ol-ca!' (=Name+vocative suffix, let's play!)

VC melody: M H M M H\* M

a. Ho-cun +a      b. Søn-suk+a      c. Kuk-wən+a

VC melody:      M H M              M H M              M H M

Note that Fukui Japanese and Seoul Korean show the case where the musical aspect of their VC takes over language. In other words,

2.5. Conclusion to Section 2

In VC, lexical prominence, whether it is derived from tonal or stress system, is preserved in the mapping between the text and the melody.

3. Rhythmic realization in vocative chant

The interface between language and music also involves the rhythmic structure, which is manifested by the lengthening effect in linguistic chants, including VC.

There are two distinct cases in rhythmic organization in VC: one in which variability in rhythmic lengthening is closely correlated to the presence or absence of lexical stress, as in English and Bengali (Hayes and Lahiri 1992), and the other in which music systematically overrides language by disregarding pitch accent specifications, as in the *Pyongko* rhythm in Japanese (Mitsui and Takahira 2001, Saiki 2003).

3.1. Language with stress system

According to Hayes and Lahiri (1992), one and two syllable words obligatorily lengthen in English VC as illustrated in (12.a-b), and for words with antepenultimate main stress, the antepenult is optionally lengthened, and the final syllable is obligatorily lengthened, as in (12.c-d). They also point out that VC is mapped to the rhythmic structure with alternating strong and weak beats associated with the syllables of the VC

text, and lengthening occurs when a single syllable associates with more than one beat, where the lexical stress is associated with the strong beat in the rhythmic structure.

(12) Lengthening in English VC

- |   |  |
|---|--|
| <p>a. John → Joo-ohn</p> <p style="text-align: center;">   </p> <p style="text-align: center;">H* M</p>   | <p>b. Johnny → Jooh-nny</p> <p style="text-align: center;">   </p> <p style="text-align: center;">H* M</p> |
| <p>c. Melanie → Me-la-niie or Mee-la-niie</p> <p style="text-align: center;">\ /        \ /  </p> <p style="text-align: center;">H* M      H* M</p> |  |
| <p>d. Pamela → Pa-mee-laa or Paa-me-laa</p> <p style="text-align: center;">\ /        \ /  </p> <p style="text-align: center;">H* M      H* M</p>   |  |

While English manifests a “stretchable” VC, Bengali adopts a simple four beat timing in its VC (Hayes & Lahiri 1992), as schematized in (13). Thus, in Bengali VC, the stress pattern is ignored, and the rhythmic structure is optimized.

(13) Lengthening in Bengali VC

- |            |                                  |                                  |                                  |
|------------|----------------------------------|----------------------------------|----------------------------------|
|            | a. $\sigma \sigma \sigma \sigma$ | b. $\sigma \sigma \sigma \sigma$ | c. $\sigma \sigma \sigma \sigma$ |
|            | \ /                              |                                  | /\                               |
| VC melody: | H M                              | H M                              | H M                              |
|            | /\ /\                            | /\ /\                            | /\ /\                            |
| VC rhythm: | [x x] [x][x]                     | [x x] [x x]                      | [x x x x]                        |

3.2. Language with pitch system

*Pyongko* is a rhythm that is almost invariably observed in Japanese traditional folk songs including VC (Mitsui & Takahira 2001, Saiki 2003, Cho & Saiki 2007). According to Mitsui & Takahira (2001), this rhythm is characterized with two musical notes, where the durational ratio between the first and the second ranges from 3:1 to 1:1, where the first note is interpreted as being lengthened.

*Pyongko* lengthening occurs throughout the Japanese VC. More precisely, moras lengthen when embedded under the strong beat of the musical sphere of VC, regardless

of their lexical pitch specification (Cho & Saiki 2007). Thus, for instance, the first mora in the sequence of name and *+tyaN* (vocative suffix) as well as in the word *asobo* ('Let's play!') lengthens, bringing forth the rhythm of Pyongko together with the immediately following mora. These are all illustrated in (14)-(15), where the numerals indicate the ratio in time.

(14) Pyongko lengthening 1 (*Yuri+tyaN*)

	<i>Yu</i>		<i>ri</i>	+		<i>tyaN</i>
lexical pitch:	H		L			L
a.	3	:	1		:	4
b.	2	:	1		:	3
c.	1	:	1		:	2

(15) Pyongko lengthening 2 (*Koga+tyaN*)

	<i>Ko</i>		<i>ga</i>	+		<i>tyaN</i>
lexical pitch:	L		H			L
a.	3	:	1		:	4
b.	2	:	1		:	3
c.	1	:	1		:	2

Note that the Pyongko lengthening explained above implies that musical information totally overrides the linguistic information contained in the Japanese VC text. In other words, the linguistic prominence is ignored in the rhythmic formalization of Japanese VC, bringing forth an instance of the case where music is “winning” over language.

### 3.3. Conclusion to section 3

In summary, whether it is a stress accent language or a pitch accent language, unless musical specifications completely override linguistic information, there are bound to be conflicts between the articulation of linguistic accent and musical melody, on the one hand, as well as conflicts between the realization of rhythmic lengthening and the organization of music, on the other. In lexical stress languages such as English, the strong beat of the VC is mapped onto the stressed syllables. For marginal stress systems, as Bengali, the stress pattern of the text is ignored and the music wins. Lastly, for pitch accent languages, such as Japanese, music wins.



#### 4. Conclusion

In this paper, we have presented a cross-linguistic picture of the “battle” between speech and music both in tone/melody associations, and in rhythmic structure.

Our conclusion is that in the case of a lexical stress system, (e.g. English and German), linguistic accents win the battle and surface as prominent, being accentuated by a “rhythmic lengthening” of the linguistic head. However, in other systems (a pitch-accent system [e.g., Japanese and Korean] or a non-distinctive stress system [e.g., French and Bengali]), music wins by dictating its own logic of metrical structure of duration, and by imposing predictable melodies. A possible explanation might come from the difference between stress and pitch accent, in that the linguistic stress is based on relational prominence, much like musical rhythm, whereas the pitch accent manipulates tones in the parallel fashion to musical melody.

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# **Adaptation of English interdental fricatives by speakers of Taiwan Mandarin<sup>i</sup>**

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## **Abstract**

In this paper, I report new data on the adaptation of /θ/ and /ð/ from English to Taiwan Mandarin, which shows a substitution pattern which has not been discussed: 1) subjects sometimes substituted /l/ for the voiced /ð/, 2) subjects produced the voiceless interdental correctly more often than the voiced one, 3) the substitution for /θ/ was more consistent while the substitution for /ð/ varied, and 4) for both /ð/ and /θ/, the replacement rate was higher in onset position, and lower in coda position. Two factors are involved in explaining the findings, the difficulty caused by keeping both voicing and the place of articulation and the native interference in onset position.

**Keywords:** second language adaptation, phoneme substitution, interdental, language interference.

## **1. Introduction**

Phoneme adaptation has been the center of research on second language learning. It is commonly assumed that it is strongly influenced by one's native language (NL) (Eckman, Elreyes and Iverson 2003, Weinburger 1990). But how exactly do speakers choose substitutes for foreign language sounds with no native counterparts? Several hypotheses have been proposed to deal with this question, such as phoneme contrast (Brown 1998), acoustic similarity (Brannen 2002) and NL constraint ranking (Lombardi 2000). In this paper, I will report new data from an experiment on adapting English interdentals /θ/ and /ð/ by Taiwan Mandarin speakers, and try to answer this question.

Cross-linguistically, the English interdental fricatives are not common sounds due to their marked place of articulation.<sup>ii</sup> The substitution patterns for /θ, ð/ are reported either as /t, d/ or /s, z/.

(1) Different substitution (data cited from Weinberger 1990: 142)

Language	/θ/ substitution	/ð/ substitution
Russian	θ → t	ð → d
Japanese	θ → s	ð → z
French (European)	θ → s	ð → z
French (Quebec)	θ → t	ð → d (Brannen 2002)
Dutch	θ → t/#_ θ → s/#_	ð → d/#_ ð → s/#_
Hungarian	θ → t	
Mandarin	θ → t/#_ θ → f/#_ (θ → s in Miao 2005) <sup>iii</sup>	
Sinhalese	θ → t	ð → <u>d</u>
German	θ → s	ð → z

Two strategies are generally taken. First, second-language learners substitute /θ, ð/ with a less-marked manner of articulation /t, d/, as in Russian, Quebec French and Sinhalese. Second, second-language learners substitute /θ, ð/ with a less-marked place of articulation /s, z/ and keep the fricative feature, as in Japanese, European French, and German. In a language lacking voicing contrast, like Taiwan Mandarin (hereafter, TM), there are no paired-up sounds like those languages mentioned above to serve as substitutes. Thus, it is interesting to see how TM speakers adapt the English interdentals. And the result of the experiment turned out to show a substitution pattern that has not been discussed.

The remainder of the paper is organized as follows. Section 2 provides the process and results of the experiment. Section 3 introduces the questions raised by the pattern of the adaptation and an attempt to answer these questions from previous hypotheses. Section 4 presents my own hypothesis and section 5 is a conclusion.

## 2. Experiment

I adopted the general methodology for recording subjects. The results were judged by two trained linguists. Four native speakers of TM (two males, two females, aged from 23 to 26) were recorded. All speakers share a similar background of learning English. They all started to learn English in high school in Taiwan, and after college

education, they came to Stony Brook University for graduate education. A wordlist containing /θ/ and /ð/ in different positions, which is randomized with fillers, was constructed. To minimize the influence of vowel and stress, I tried to put words with /θ/ and /ð/ in pairs in the same stress position and before the same vowels. From the limited data I gathered, there is no influence of different vowel qualities on the substitutions.

(2) Wordlist (please see Appendix for the randomized wordlist)

<b>θ_</b>	<b>'θ_</b>	<b>_θ</b>
think	author	teeth
thumb	method	mouth
thousand	Cathy	Beth
<b>ð_</b>	<b>'ð_</b>	<b>_ð</b>
this	weather	breathe
thus	gather	clothe
therefore	soothing	loathe

A frame sentence was provided ("Say \_\_\_\_\_ again").<sup>iv</sup> Subjects were asked to give five repetitions of every word, and only the middle three repetitions were considered. A training session was given before the experiment. A recording of the wordlist was played to the subjects and they could ask to play any word that they were not sure of.

The results are as follows.

(3) /θ/

	<b>Word-initial /θ/</b>	<b>Word-medial /θ/</b>	<b>Word-final /θ/</b>
M1	/θ/ → /s/ 22.22%		
	/θ/ → /θ/ 77.78%	/θ/ → /θ/ 100%	/θ/ → /θ/ 100%
M2	/θ/ → /s/ 11.11%		
	/θ/ → /t/ 33.33%	/θ/ → /ð/ 33.33% <sup>v</sup>	
	/θ/ → /θ/ 55.56%	/θ/ → /θ/ <sup>vi</sup> 66.67%	/θ/ → /θ/ 100%
F1	/θ/ → /s/ 66.67%		
	/θ/ → /θ/ 33.33%	/θ/ → /θ/ 100%	/θ/ → /θ/ 100%

F2	/θ/ → /s/	33.33%		/θ/ → /s/	22.22%
	/θ/ → /t/	22.22%			
	/θ/ → /θ/	44.44%	/θ/ → /θ/	100%	/θ/ → /θ/

The substitution pattern was clear for /θ/: subjects consistently replaced /θ/ with /s/. There were some cases of /t/ and /ð/ substitutes, but they each occurred once for one speaker. If we look at the shaded part, we can notice that subjects were more faithful in producing /θ/ in coda position (words in the third column) than in onset position (the first and second columns). Take subject M1 for example, the correct rate is 100% in coda position. In onset position, subjects were more faithful in producing /θ/ in word-medial onsets (the second column) than in word-initial onsets (the first column). Take M2 for example, the correct rate is 100% in word-medial onset position, and 77.78% in word-initial onset position.

(4) /ð/

	Word-initial /ð/	Word-medial /ð/	Word-final /ð/			
M1	/ð/ → /l/ <sup>vii</sup>	88.89%	/ð/ → /l/	66.67%		
	/ð/ → /t/	11.11%	/ð/ → /θ/	33.33%	/ð/ → /θ/	100%
M2	/ð/ → /l/	66.67%	/ð/ → /θ/	33.33%	/ð/ → /θ/	100%
	/ð/ → /ð/	33.33%	/ð/ → /ð/	66.67%		
F1	/ð/ → /l/	100%	/ð/ → /t/	33.33%		
			/ð/ → /s/	11.11%		
			/ð/ → /θ/	22.22%	/ð/ → /θ/	100%
			/ð/ → /ð/	33.33%		
F2	/ð/ → /t/	66.67%	/ð/ → /t/	33.33%		
	/ð/ → /θ/	33.33%	/ð/ → /t <sup>h</sup> /	44.44% <sup>viii</sup>	/ð/ → /θ/	100%
			/ð/ → /ð/	22.22%		

As for the substitution pattern of /ð/, it is more complex. Subjects replaced /ð/ with /θ/, /s/, /t/, and most interestingly, /l/. As I mentioned earlier, there is no voicing contrast in TM consonant inventory.

(5) Consonant inventory of Taiwan Mandarin

Labials	p	p <sup>h</sup>	f	m
Alveolars	t	t <sup>h</sup>	l	n
Dental sibilants	ts	ts <sup>h</sup>	s	
Palatals	tʃ	tʃ <sup>h</sup>	ç	
Velars	k	k <sup>h</sup>	x/h	ŋ
Retroflex	tʂ	tʂ <sup>h</sup>	ʂ	ʐ <sup>ix</sup>


  
 No voicing contrast

Although TM lacks a voicing contrast, voiceless and voiced stops are adapted as aspirated and unaspirated stops. For example, /p/ is adapted as aspirated /p<sup>h</sup>/ and /b/ as unaspirated /p/. Substituting /l/ for /ð/ seems to imply that TM speakers do perceive the voicing feature of /ð/. The results for /ð/ show the same positional asymmetry as those for /θ/ (as in the shaded parts). Notice that subjects never substitute /l/ in coda position. And the replacement rate of /ð/ is overall higher than that of /θ/.

To sum up so far, four interesting findings are reported. First, subjects sometimes substituted /l/ for /ð/. Second, subjects produced the voiceless interdental correctly more often than the voiced interdental (79.63% vs. 47.22% of correct rates, the shaded part in (6)). Third, the substitution for /θ/ was more consistent while the substitution for /ð/ varied.

(6) Variety of substitution

	/θ/		/ð/	
/θ/ → /s/	12.96%	/ð/ → /l/	26.85%	
/θ/ → /t/	4.63%	/ð/ → /s/	0.93%	
/θ/ → /ð/	2.78%	/ð/ → /t/	11.11%	
/θ/ → /θ/	79.63%	/ð/ → /t <sup>h</sup> /	3.7%	
		/ð/ → /ð/	13.89%	

And fourth, for both /θ/ and /ð/, the replacement rate was higher in onset position, and lower in coda position.

(7) Replacement rate

	/θ/	/ð/
Word-initial	47.22%	88.89%
Word-medial	8.33%	69.44%
Word-final	5.56%	0% (100%) <sup>x</sup>

### 3. Previous hypotheses

Several questions are raised by the patterns found in TM.

- 1) Why did subjects sometimes substitute /l/ for the voiced /ð/?
- 2) Why did subjects correctly produce the voiceless interdental more often than the voiced?
- 3) Why was the substitution for the voiceless more consistent than for the voiced?
- 4) What is the relationship between position and replacement?

I will review some of the previous hypotheses and try to answer these questions and propose my own hypothesis in section 4.

#### 3.1. Phonemic contrast and inventory of NL (Brown 1998)

Brown (1998) proposes that if one's native grammar does not contrast a phonological feature, he or she is therefore unable to perceive or acquire the non-native feature. Based on this hypothesis, if one's L1 does not contain /θ, ð/, but contains /s, z/ (Strident non-contrastive) and /t, d/ (Continuant contrastive), one will replace /θ, ð/ with /s, z/ since one cannot perceive the difference between /θ, ð/ and /s, z/. This approach explain /s/ substitution for /θ/ very well in TM, but does not seem to explain the whole picture of the TM patterns. Based on this hypothesis, TM speakers should not be able to perceive the difference between /θ/ and /s/. Also, voicing is not contrastive in TM, so based on this hypothesis, TM speakers should not be able to perceive the difference between /ð/ and /s/ either. But obviously, from the results of the experiment, TM speakers did perceive some contrast between /θ/ and /ð/. Furthermore, this hypothesis runs into problem when two languages both have Strident feature non-contrastive and Continuant feature contrastive, but choose different substitutes.

- (8) European French /s, z/ } Exact same inventory } All have /t, d/, /s, z/  
 Quebec French /t, d/ }  
 Japanese /s, z/ }

European French, Quebec French and Japanese all have /s, z/ and /t, d/ in their inventory. According to Brown’s hypothesis, speakers of these languages shouldn’t perceive the strident contrast and substitute /θ, ð/ with /s, z/. However, they go for different substitutes. Even languages with the same inventory, as in European French and Quebec French, their choice differs. This implies that phoneme substitution is beyond phonemic contrast in L1.

### 3.2. Acoustic similarity (Brannen 2002)

Aware of the inadequacy of the phonemic contrast hypothesis, Brannen (2002) proposes that phoneme substitution is determined by acoustic similarity; in other words, by calculating the auditory distance, learners match up the closest sound of L1 with L2. English /θ, ð/ are less continuant-like perceptually, and more stop-like, and European French /s, z/ are less continuant-like perceptually. Learners match up the phonetic details of European French /s, z/ with those of English /θ, ð/. On the other hand, Quebec French /s, z/ are more continuant-like perceptually, so they are less similar to English /θ, ð/. Learners thus substitute /t, d/, which are the closest sounds in Quebec French, for the English interdental.

### 3.3. Universal ranking and NL constraint ranking (Lombardi 2000)

Lombardi proposes that, without NL interference, learners choose stop substitutes /t, d/ for /θ, ð/ because universally, markedness constraints ranked higher than faithfulness constraints.

#### (9) Universal approach

/θ, ð/	*θ, *ð	*Cont	*Stop	IDENTMANNER
a. /θ, ð/		*!		
☞ b. /t, d/			*	*
c. /s, z/		*!		

\*Cont ‘No continuants.’

\*Stop ‘No stops.’

IDENTMANNER ‘Manner of articulation of an input must be preserved in its output correspondent.’

Continuants are universally more marked than stops (\*Cont >> \*Stop). Unless the L1 grammar triggers the promotion of faithfulness constraints (the relevant constraint here, IDENTMANNER) higher than markedness constraints, stops will be the optimal substitutes.

(10) NL grammar

/θ, ð/	*θ, *ð	IDENTMANNER	*Cont	*Stop
a. /θ, ð/	*!		*	
b. /t, d/		*!		*
c. /s, z/			*	

This hypothesis does not seem to answer the questions above either, since the substitutes in TM are not of the same manner of articulation.

#### 4. Proposal

In this section, I will explain the TM patterns by positing new hypotheses.

*4.1. Why did speakers of TM use /l/ as a substitute for /ð/, and why was the substitution for /θ/ more consistent than /ð/?*

As I mentioned in the previous section, phoneme contrast can explain /s/ substituting /θ/ by TM speakers and /θ/, /s/, and even /t/ substituting for /ð/ (since voicing is not contrastive), but not /l/ substituting /ð/. My hypothesis is that /l/ substitution results from the attempt to maintain the English voicing. /n/ and /ŋ/ are the other voiced consonants in TM inventory, but /l/ is the closest match to /ð/. As for the ability of perceiving voicing contrast, it is not clear from this experiment alone.<sup>xi</sup> But the fact that subjects used /l/ as substitute and the inconsistency of /ð/ substitution seems to point to the direction that some subjects did perceive the voicing (or some kind of contrast between /θ/ and /ð/, so that they use a different phoneme to substitute /ð/) and try to maintain the contrast. If we assume along with Coetzee and Pater (2006) that [voice] feature should be specified for segments that don't contrast in voicing, then

subjects substituted the only oral voiced sound in TM for /ð/.

4.2. *Why are speakers of TM so much more successful in producing /θ/ than /ð/, when neither occurs in their inventory?*

There is an asymmetry of replacement rate between /θ/ and /ð/ (20.37% vs. 52.78%). From the point of view of previous hypotheses, adapting /θ/ and /ð/ should not be different since neither of the sounds occur in the inventory. If we take the hypothesis posited in 4.1, that is, see voicing as a separate factor, and only consider /θ/→/s, t/ and /ð/→/l, t/ (voicing not considered), then the difference between them becomes similar (20.37% vs. 42.59%). The attempt to maintain both voicing and place causes the difficulty of producing /ð/. Again, although there is no direct evidence of TM speakers perceiving voicing, the lower successful rate of producing /ð/ seems to suggest that they do.

4.3. *What is the relationship between position and replacement?*

The relationship between position and replacement rate is seldom discussed in previous literature. All of the hypotheses mentioned above don't seem to provide an answer to this question. I propose the replacement data reported in this paper with regard to different positions is because of the interference of the NL in onset position.

From a production point of view, fricatives are mispronounced more often in coda position than in onset position, which shows the opposite of the finding in this paper. It is reported that fricatives are produced more correctly as onsets in language acquisition. However, the timing of requiring fricatives in different position is not mentioned. Consider the following data.

(11) Errors in Repetition of Certain sounds within Sentences by Two Subjects (Yeni-Komshian, Kavanagh and Ferguson 1980: 216)<sup>xii</sup>

Sound	No. <sup>xiii</sup>	<u>Initial</u>		No.	<u>Final</u>	
		K.M.	V.S.		K.M.	V.S.
/s/	(6) <sup>xiv</sup>		1	(5)		3
/z/	(1)			(17)	1	15

From a perception point of view, onset consonants should have better cues than coda consonants (cf. Steriade 1997), and word-initial onsets in turn should have better

cues than word-medial onsets. That is to say, subjects should perceive onset /θ, ð/ better than coda /θ, ð/. Also, the proposal of positional faithfulness (Beckman 1997, Lombardi 1996) predicts that onsets should be pronounced more faithfully than codas, so word-initial materials suffer less from phonological processes like assimilation, neutralization or deletion than word-final materials. Again, the result in the experiment shows the opposite.

There is a correlation between the prosodic structure of TM and the replacement rate. In TM, only nasals /n/ and /ŋ/ can occur as coda. My hypothesis is that the absence of coda facilitates the perception of coda interdentals, since there is no interference of native sounds in that position. Similar hypotheses concerning NL interference have been proposed to deal with phoneme adaptation. One of those models is Speech Learning Model proposed by Flege (1987). He proposes that non-native sounds are "equivalence-classified" according to NL based on phonetic similarity. That is to say, sounds in NL are imposed to similar L2 sounds. But new phonological categories, without any similar counterparts in NL imposing on them, are perceived and thus produced more accurately. The model developed by Best (2001) proposes the similar idea that native phonological knowledge strongly affects non-native speech perception, so that listeners perceptually assimilate non-native sounds to native phonemes whenever possible (Best, McRoberts and Goodell 2001). To TM speakers, sounds that come in the coda position are new information. Thus, they pay more attention to it. On the contrary, there is native interference in onset position. TM speakers apply their native phonological knowledge to sounds that come in the onset position. Another piece of evidence supporting this hypothesis from the experiment is that subjects never substituted /l/ for coda /ð/. /l/ interference only occurs in onset position in TM. Thus, subjects were more faithful to /ð/ in coda position.

## **5. Conclusion**

I reported an experiment on adapting English interdentals by TM speakers and found that subjects sometimes replaced /ð/ with /l/. I propose that it is due to the attempt to maintain the English voicing. Although there is no direct evidence that TM speakers did perceive the voicing contrast from this experiment alone, the /l/ substitution, the inconsistency and the difficulty of producing /ð/ all point to the same direction that they did. A perception experiment needs to be done as future research to give direct support of this hypothesis. Also, /ð/ is reported to be sounded more like a stop /d/ in English

(Polka, Colantonio and Sundara 2001). Future research needs to be done on the acoustic properties of TM /l/ to see if the /l/ substitution is simply because of phonetic similarity. Furthermore, a question is worth researching that whether speakers of languages that don't have voicing contrast but have /l/ in the inventory ever substitute /l/ for /ð/. I also propose that the higher accurate rate of producing /θ, ð/ in coda position is due to the less interference of coda position. The prosodically new information increases the perception of coda interdentals. My prediction will be that TM speakers don't perceive /θ, ð/ in onset position. Future research needs to be done on the perception of interdentals in onset/coda position as well.

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## **Appendix**

Say \_\_\_\_\_ again (five repetitions)

1. pier
2. bouncing
3. author
4. powder
5. thumb
6. garbage
7. thus
8. rib
9. breathe
10. lover
11. method
12. toll
13. loathe
14. leading
15. Cathy
16. van
17. gather
18. torture
19. Beth
20. buzz
21. this

22. mouth
23. temper
24. thousand
25. beating
26. clothe
27. site
28. soothing
29. gossip
30. weather
31. teeth
32. clog
33. therefore
34. leave
35. think
36. deaf

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<sup>ii</sup> It is pointed out that /θ/ and /ð/ are the sounds mastered last and substituted most frequently by English native speakers (Schmidt 1977).

<sup>iii</sup> No /ð/ substitution is reported.

<sup>iv</sup> There was no resyllabification of coda /ð, θ/ with the vowel initial word *again* found for all speakers.

<sup>v</sup> Speaker M2 consistently replaced /ð/ for /θ/ in the word '*author*.'

<sup>vi</sup> M2 and F2 consistently put the target in coda position and pronounced '*method*' as [meθ].

<sup>vii</sup> Using liquids to substitute for fricatives is very rare. Another example of this is Shipibo, a Panoan language spoken in Peru where speakers substitute /r/ for /ð/ (Elias-Ulloa 2007).

e.g. [espaða] "sword" (Spanish) → [ispara] (Shipibo)

<sup>viii</sup> Speaker F2 consistently replace /t<sup>h</sup>/ for /ð/ in the word '*soothing*.'

<sup>ix</sup> The alveolar retroflex fricative is the only voiced consonant in Mandarin. However, Taiwan Mandarin speakers often replace the sound with /l/.

<sup>x</sup> 100% is the percentage when only /ð/→/l, t, s/ is considered (/ð/→/θ/ is not considered).

<sup>xi</sup> Faithfulness constraints universally are ranked lower than markedness constraints. If there is no trigger in a given language to promote faithfulness constraints, then markedness constraints should overpower

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faithfulness constraints. Thus, in TM, IDENTVOICE should rank low, if it exists in the grammar at all.

<sup>xii</sup> The timing of acquiring fricatives in different position is not mentioned in this report.

<sup>xiii</sup> Number of instances when sound appeared in position.

<sup>xiv</sup> Number of omission of sound.

# **Problems Encountered in the Research of the Voice System in an endangered language**

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## **Abstract**

A language used as a research medium is indispensable to fieldwork linguists today. It enables and facilitates our research. At the same time, however, it may distort the direction of the research as well as mislead and confuse our analyses. Further problems arise when the linguistic consultants of the target language are ‘semi-speakers’ who adopted the medium language as their first language. When their intuitions about the target language are already fragile, the language used for the research significantly influences their linguistic decisions in such a way that they unnecessarily resemble the medium language. This presentation aims to give an example of such difficulty and its solution, focusing on the voice system of an endangered Austronesian language.

**Keywords:** Austronesian, Bantik, medium language, voice system, language contact.

## **1. Introduction**

### *1.1. Background*

In this paper, I will present one of the problems that sometimes arises in a linguistic fieldwork research. The area which concerns the below discussion is located in North Sulawesi province in Indonesia. Three varieties of languages are spoken there; Standard Indonesian, Manado dialect of Indonesian and Bantik. Here are brief explanations of each language.

Standard Indonesian, which is sometimes called Bahasa Melayu, is the national language of Indonesia. It is similar to the national language of Malaysia, Brunei, and one of the official languages of Singapore, and is spoken by over 300 million people, first and second language speakers combined. It is understood throughout Indonesia, thus it is naturally the most major medium language for the researches of indigenous

languages in Indonesia.

The Bantik language, which is the target language of the author's research, is said to be spoken by around 10,000 people in the vicinity of Manado, which is the provincial town of the North Sulawesi, but the real number of the fluent native speakers, most of whom are over sixty, would not exceed 3,000 (cf. Noorduyn 1991).<sup>1</sup> It is, like the other indigenous languages in the vicinity, one of the seriously endangered languages. It belongs to Sangiric subgroup of Philippine language group, which in turn belongs to Western Malayo-Polynesian language family (cf. Noorduyn (1991), Sneddon (1984) among others).

In addition to the two languages above, Bahasa Manado, or Indonesian Manado dialect is spoken in this area. Indonesian Manado dialect is one of the dialects of Indonesian, which has its origin in pidgin-derived Malay or, in other words, Trade Malay (cf. Adelaar and Prentice (1996)), then creolized. This is the most widely used language in the North Sulawesi area. All the speakers of Bantik also speak Manado dialect, which has distinct features from Standard Indonesian. Morphological and syntactic features of Manado dialect are simpler than those of Standard Indonesian, and many of its vocabulary items are not found in Standard Indonesian or colloquial Indonesian of other regions.

As already noted, every Bantik speaker can speak Indonesian Manado dialect, and many of them use Manado dialect most in their daily life. In contrast, Standard Indonesian has high prestige and used in government offices, broadcasting, education and religious services. Fluency in Standard Indonesian production varies among Bantik speakers, but all of them have no difficulty in understanding it. Although the influence of Manado dialect cannot be overlooked, only Standard Indonesian, which is the medium language of the research, and Bantik will be focused in the below discussion.

## *1.2. Problems discussed in this paper*

The problem to be discussed in this paper arises under the following conditions.

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<sup>1</sup> The Bantik language has five vowels /i, e, a, o, u/ and fourteen consonants /p, b, t, d, k, g, s, h, j, P, m, n, N, // . The glottal stop occur only base-finally with a few exceptions. A word consists of a base, or a base with one or more affixes. The basic word order is SVO while VOS word order frequently occurs when the verb is in an Undergoer Voice. Like many other Philippine type languages, Bantik has more than one Undergoer Voices (at least two) in addition to an Active Voice. Verbs in Bantik show tense opposition. This opposition may seem to be that of mood, but in this paper, I take the position that Bantik verbs show non-past vs past tense opposition. For detailed description, please refer to Bawole (1993) and Utsumi (2005).

First, a target language has many similarities with a medium language. Second, a target language is endangered, so there are many semi-speakers. It is sometimes difficult to discern fluent speakers from semi-speakers especially when a researcher who is about to start the research does not have much knowledge on the target language because of the scarcity of literature. Finally, semi-speakers may alter the traditional structure of the target language through language attrition.

Under these conditions, the medium language used in the research can distort data given by semi-speakers through elicitation. Since both the medium language and the target language belong to Western Malayo-Polynesian group of the Austronesian language family, they have similar characteristics at every linguistic level. On one hand, this helps the researcher to prepare the questions to be asked during the session. Quite often she would find one-to-one correspondence between vocabulary items and affixes in both of the languages. Their syntactic characteristics are also quite similar. This makes it easy for a linguistic consultant to compose sentences in the target language and facilitates a researcher to interpret the elicited sentences. On the other hand, the similarity easily misguides research especially when a researcher asks a consultant to elicit sentences in the target language by ‘translating the medium language’. In this case, the sentences that a researcher obtains can be natural utterances, but they can also be directly translated sentences which are not normally used in daily conversations. Moreover, the researcher can easily fail to find constructions that do not exist in the medium languages. Using a medium language that is similar to a target language may be assistance as well as an obstacle.

In the following discussion, I will give an example of difficulty which is encountered in the research of an endangered language, in which a researcher uses similar language as a medium.

### *1.3. Source of the research*

The data which are used in this paper were obtained through my fieldwork research from year 1996 to 2006. Research, which extended three to six weeks, was done once in a year or two. Over twenty Bantik speakers were consulted. Among them, three male linguistic consultants, all of whom were born within 1972 to 1976, gave data of young speakers’ Bantik. Two other male speakers, who were born in 1954 and 1956 helped me to get data of traditional Bantik lexicons and structures. I also used data obtained from three female aged speakers, all of whom were born in 1950s. Unfortunately, no young female Bantik speakers were consulted because very few of

them use Bantik in daily life. Young Bantik speakers who have enough command of the language are mostly male. In contrast, it is easy to find female aged speakers, who were born before 1960.

## **2. Similarities between Indonesian and Bantik**

### *2.1. Overview*

As already mentioned above, both Indonesian and Bantik are Austronesian languages, and they belong to West Malayo-Polynesian language family. The two share cognate lexicons which consist up to 20 - 30 % of the basic vocabulary (cf. Sneddon 1984). Moreover, in Bantik, there are many newly borrowed lexicons from Indonesian. Lexical items which denote abstract notions and technical terms of various fields are in principle do not exist in Bantik, so Bantik speakers usually use terms borrowed from Standard Indonesian or Indonesian Manado dialect.

Both Standard Indonesian and Bantik have rich derivational morphology. Their word formations are similar: a word in these languages can consist of just a base, or of a base and one or more affixes. Basic word order of the two languages is Subject – Verb–Object. Their syntactic features are also similar. For example, they share symmetrical voice system (cf. Himmelmann 2005), but there certainly are differences. One of them will be illustrated below.

### *2.2. The voice systems of Indonesian and Bantik*

Indonesian has two voices; Active Voice (or Agent Focus) and Passive Voice (or Goal Focus). Bantik, on the other hand, has at least three; Active Voice and two Undergoer voices, which will be called Passive Voice and Conveyance Voice in this paper. Bantik verbs are categorized in three groups depending on the number of voice(s) it takes. First group consists of what I call intransitive verbs. They take only Active Voice form. Second group comprises of transitive verbs, which can take Active and Passive Voices. Finally, there are ditransitive verbs which can take all of the three voices; Active, Passive, and Conveyance voices. One or two more voices may be postulated depending on the analysis, but in the current discussion, I take the view that Bantik has three voices. To illustrate the difference in the voice systems of the two languages simply, I will first show examples concerning verbs without derivational affixes, which

will be called ‘simple verbs’ from now on.

Quite often subject nominals of each voice have common semantic features. I will use following terms expressing semantic roles in the below discussion: ‘ACTOR’, ‘PATIENT’, ‘GOAL’, ‘CONVEYED THEME’, ‘LOCATION’, ‘INSTRUMENT’, ‘CAUSER’ and ‘CAUSEE’. ‘CONVEYED THEME’ is used to denote objects which moves as a result of the action denoted by the verb, such as money in ‘buying’ situation.

In Indonesian, the verb denoting ‘to give’ has Active and Passive Voices, as shown in example (1), whereas Bantik verb denoting ‘to give’ has three voices and can take three constructions. In the examples below, the Indonesian sentence in (1a) corresponds to the Bantik sentence in (3a), and (1b) to (3b), but there is no corresponding Indonesian sentence (and verb form) for (3c), as (1c) is ungrammatical. In order to posit the conveyed theme, which is *uang* ‘money’, as subject, the derivational suffix *-kan*, which forms applicative or causative verbs, should be added as shown in (2)b. The corresponding Active Voice sentence with *-kan* is shown in (2)a. In Bantik, no further affix is needed, but the different voice form is sufficient to posit the conveyed theme as a subject. *MaN-* in (3a) is an active voice marker of the non-past tense which alternates with *naN-* in the past tense.<sup>2</sup>

- (1) a. *wati mem-beri uang-nya kepada desi* (Active Voice)  
 Wati meN-give money-NYA to Desi  
 “Wati gives money to Desi”  
 b. *desi di-beri uang-nya oleh wati* (Passive Voice)  
 Desi DI-give money-NYA by Wati  
 “Maarten and Stefanie have split up”  
 c. \**Uang-nya di-beri oleh wati kepada desi*
- (2) a. *wati mem-beri-kan uang-nya kepada desi* (Active Voice)  
 Wati meN-give-KAN money-NYA to Desi  
 b. *Uang-nya di-beri-kan oleh wati kepada desi* (Passive Voice)  
 money-NYA DI-give-KAN by Wati to Desi
- (3) a. *i-wati ma-mihei doiti/ si-desi* (Active Voice)  
 I-Wati maN-give money SI-Desi  
 “Wati gives money to Desi”  
 b. *i-desi bih-an ni-wati doiti/* (Passive Voice)  
 I-Desi give-AN NI-Wati money

<sup>2</sup> *MaN-* is attached to non-past verbs and *naN-* to past verbs. *N* in *maN-/naN-* realizes as nasalisation of the first consonant of a base or insertion of the nasal that is homo-organic with its first consonant. When a base begins with a vowel, insertion of velar nasal will occur.

c. *doiti/ bihei ni-wati si-desi* (Conveyance Voice)  
 money give NI-Wati SI-Desi

Therefore, if a researcher sticks to the translation as a research method of collecting data, she would never find (2c) in Bantik. One's knowledge about Philippine languages, which have at least four voices and are in close relation with North Sulawesi languages including Bantik, will encourage a researcher to search for another voice form resulting in a discovery of the verb form such as in (2c), but it would take some effort in devising the way to extract the expected data. Although less than ten verbs without derivational affixes show this three-way voice alternation, it is frequently observed with verbs with derivational affixes.

When a verb base takes either the prefix *paki-*, which derives causative verbs, or *paN-*, which derives applicative verbs, it becomes transitive or ditransitive. More than half of them are ditransitive, which take Active, Passive and Conveyance Voices, as shown in example (4). In principle, Active Voice verbs have one of the following affixes; the prefix *ma-/na-*, prefix *maN-/naN-*, and infix *-um-/im-*.<sup>3</sup> Passive Voice verbs have the suffix *-AN*, while Conveyance Voice verbs do not have specific affixes to mark the voice.<sup>4</sup> Passive Voice and Conveyance Voice verbs take the prefix *ni-* when they are in past tense.

- (4) a. *i-titin ma-paki-tutuN bono su-ana/=ne* (Active Voice)  
 I-titin MA-CAUS-burn rubbish SU-child=NI.3sg  
 "Titin made her child burn rubbish"
- b. *ana/=ne paki-tutuN-an ni-titin bono* (Passive Voice)  
 child=NI.3sg CAUS-burn-AN NI-Titin rubbish
- c. *bono paki-tutuN ni-titin su-ana/=ne* (Conveyance Voice)  
 rubbish CAUS-burn NI-Titin SU-child=NI.3sg

As for Indonesian Manado dialect, which is the first language of young Bantik people, does not show morphologically distinctive voice alternation. Actor-orientation and Goal-orientation are shown mostly by word order (cf. Prentice (1994)). Since Standard Indonesian has more similar voice system to Bantik than Indonesian Manado dialect, I will compare only the first two, not mentioning Manado dialect.

It is very important to discern ditransitive derivational verbs from transitive ones in order to understand features of each verb base and draw a comprehensive picture of Bantik verbs. When linguistic consultants are second language speakers or semi-

<sup>3</sup> *Ma-* indicates non-past tense and *na-* expresses past tense. Similarly, *-Um-* indicates non-past tense and *-im-* expresses past tense.

<sup>4</sup> The suffix *-AN* has three allomorphs; *-n* occurs after /e, a, o/, *-en* occurs after the serial /a/ + consonant, *-an* elsewhere.

speakers who do not have full knowledge of Bantik, but have full command of Indonesian, which is the medium language, they sometimes fail to give the third voice form of the ditransitive verb. There is also a possibility that they give non-existent voice forms of transitive verbs. These will make a lot of difficulties in extracting traditional (true) three voice alternations in Bantik using Standard Indonesian. The aged speakers of Bantik has full knowledge of the language so as to be able to give sentences in Conveyance Voice, such as (3)c and (4)c when they are asked persistently, but young speakers who undergo language attrition may not be able to do so. In the following section, some instances of the generation difference will be referred to.

### 3. Generation differences

It is widely reported that endangered languages show morphological reduction and structural change (Campbell and Muntzel (1989), Schmidt (1985) among others). In other words, one can find considerable generation difference between older speakers who maintain traditional language structure and younger speakers who lost some parts of the linguistic knowledge in a research of an endangered language. In my research of Bantik too, many different features between aged and young speakers were found. People who were born before 1950s have large vocabulary and complete grammatical knowledge. On the other hand, young speakers, especially those who were born after 1970s, fail to give even basic words such as *ake mimihi* ‘river’, *daki* ‘north’ or *Poboso* ‘kitchen’.

Morpho-phonemic differences are also evident. For example, the younger speakers do not use the linker /N/ (/N/ stands for a nasal which is homo-organic with the following consonant) when a numeral is combined with morphemes such as ‘ten (*puPo*)’, ‘hundred (*hatusu*)’ and ‘thousand (*hibu*)’. Thus the younger speakers would say ‘*dua puPo*’ for ‘twenty’ or ‘*dua hatusu*’ for ‘two hundred’ (*dua* means ‘two’), when the older speakers say ‘*dua-m-puPo*’ or ‘*dua-ŋ-hatusu*’. Similarly, /N/ in the prefixes *maPiN-* (deriving adjectives which mean the states indicated by them are insufficient) and *mahiN-* (deriving reciprocal verbs) are completely omitted by younger speakers. Older speakers, however, realize /N/ when the base begins with a stop and /s/, but realize it as zero elsewhere (i.e., when the base begins with a nasal, a fricative, a flap, or a vowel). It can be said that the younger speakers do not distinguish those two phonological subcategories of bases, and apply the rule for one of them to both of them. Here, we can find over-generalizations of morpho-phonemic rules in younger speakers,

just as reported in Schmidt (1985). This kind of overgeneralizations can be found in the morpho-syntactic level too, as illustrated in the following section. For detailed description of generation difference in Bantik, please refer to Utsumi (2002).

#### **4. Young people's confusion concerning the voice alternations**

Young speakers, as I saw them, are always confident in giving Active and Passive Voice forms of transitive verbs, but are very unsure about the presence of the third Voice, which is Conveyance Voice. A possible reason for this is because Conveyance Voice lacks a clear marker, in contrast to the other two voices which are always clearly marked with voice-indicating affixes, as already noted in section 2. It seems that young generation has lost the voice system owned by aged speakers. They are used to the two-way voice alternation in Standard Indonesian which they use more often than Bantik, so that their idea of Bantik voice system is influenced by it. What I will examine below is an example of change in Bantik structure which is affected by both language contact with Indonesian and imperfect learning of the Bantik language.

Although many young speakers do not realize there are three voices in Bantik, it is often the case that once they recognized that there are three different verb forms reflecting three voices in Bantik, they start to overgeneralise this morpho-syntactic rule and apply a three-way voice alternation to many verbs. Some of them elicited more than twenty simple verbs (i.e. verbs without derivational affixes) as ditransitive, over half of which were not attested to be so by aged speakers. As mentioned above, there are eight simple ditransitive verbs according to aged speakers, and while young speakers fail to point three of them, they insisted that fifteen other verbs, which are in fact transitive, are ditransitive.

As for derivational verbs, young speakers' confusion about the voice system increases radically. I have given an example of derivational verbs in example (4), in which a verb with *paki-*, the causative prefix, forms a ditransitive verb, *ma-paki-tutuN*, from an originally transitive verb base *tutuN*. Sometimes young speakers fail to give the Conveyance form of *ma-paki-tutuN*, which is *paki-tutuN*. Even when they realize there are two Undergoer voices, they are often not able to give grammatical sentences using those forms, because they do not know which Undergoer Voice requires what kind of semantic role for its subject nominal. For example, *paki-tutuN*, the Conveyance Voice form, should take PATIENT as a subject nominal, but young speakers often put CAUSEE as a subject nominal.

One more example of such confusion among young speakers is illustrated below. The prefix *paN-* is a derivational affix which forms applicative verbs when attached to dynamic verb bases, and these applicative verbs take three voice forms. Not every dynamic verb base, however, can take this applicative prefix. Verb bases which take this is lexically determined and thus not predictable. Active Voice form of this applicative verbs is ‘*ma-/na- + paN- + base*’, Passive Voice form is ‘*paN- + base + -AN*’, and Conveyance Voice form is ‘*paN- + base*’.

What is confusing is that the phonologically identical prefix *paN-* forms Locative verbs and Instrumental verbs. A Locative verb is formed with the prefix *paN-*, the suffix *-AN* and a dynamic verb base, which can be schematized as ‘*paN- + base + -AN*’, and it always take a subject nominal whose semantic role is LOCATION. Similarly, an Instrumental verb consists of *paN-* and a dynamic verb base, schematized as ‘*paN- + base*’, and take a subject nominal whose semantic role is INSTRUMENT. Both Locative verbs and Instrumental verbs do not have corresponding Active Voice form that takes the prefix *ma-/na-*. In other words, dynamic verb bases are divided in two groups. The first group consists of around one third of dynamic verb bases which, when *paN-* is attached, can form applicative verbs. These verbs can take all of the three voices, including the Active Voice form which is expressed as ‘*ma-/na- + paN- + base*’. The rest of dynamic verb bases, around two thirds of them, form either a Locative Verb or an Instrumental Verb or both when *paN-* is attached. They never take the form of ‘*ma-/na- + paN- + base*’.

As is apparent from these descriptions, Locative Verbs and the Passive Voice of the applicative verbs have an identical form of ‘*paN- + base + -AN*’. Similarly, the form of Instrumental Verbs is identical with Conveyance Voice form of applicative verbs, that is, ‘*paN- + base*’. Old speakers know which dynamic verb bases are categorized in the first group, and which are not. Young speakers, on the other hand, cannot distinguish the first group from the second.

Table 1 shows the first group of dynamic verb bases and their simple and applicative verb forms. *St* in the table represents something, and *sw* somewhere. Verb bases *bohe/* (rub), *paPeŋ* (take by throwing), *tuPi* (touch), *susu* (pierce), and *dahuŋ* (sew) are bases which take *paN-* to form applicative verbs. A new argument which is required by these applicative verbs are either an INSTRUMENT or a LOCATION nominal. For example, *ma-pa-mohe/* (write something with something), *ma-pa-maPeŋ* (take something by throwing something) and *ma-pa-nuPi* (touch with something), require INSTRUMENT as the third argument, which is posited in a subject slot when the verb is in its Conveyance Voice form. In contrast, *ma-pa-nusu* (pierce something on

something), and *ma-pan-dahuŋ* (sew something onto something) take LOCATION as the third argument, which will be a subject of the Passive Voice form verbs. All of these words take three voice forms; for example, *ma-pa-maPeŋ*, an Active Voice form, will turn into the Passive voice form *pa-maPeŋ-an* and the conveyance voice form *pa-maPeŋ*. Further examples are shown in (5).

Table 1: Applicative verbs with the first group of dynamic verb bases.

root	simple verb	meaning	applicative verb	meaning
<i>bohe/</i>	<i>ma-mohe/</i>	write	<i>ma-pa-mohe/</i>	write with st
<i>paPeŋ</i>	<i>ma-maPeŋ</i>	take st	<i>ma-pa-maPeŋ</i>	take st with st
<i>tuPi</i>	<i>ma-nuPi</i>	touch	<i>ma-pa-nuPi</i>	touch with st
<i>susu</i>	<i>ma-nusu</i>	pierce	<i>ma-pa-nusu</i>	pierce sw
<i>dahuN</i>	<i>man-dahuN</i>	sew	<i>ma-pan-dahu</i>	sew on st

- (5) a. *ia/ ma-pa-nahuŋ nu-konop su-Paku/ ie* (Active Voice)  
 I-1sg MA-APP-sew NU-button SU-clothe this  
 ‘I will sew buttons on this clothe’
- b. *Paku/ ie pa-nahuŋ-an=ku nu-konop* (Passive Voice)  
 clothe this APP-sew-AN=NI-1sg NU-button
- c. *konop pa-nahuŋ=ku su-Paku/ ie* (Conveyance Voice)  
 button APP-sew=NI-1sg SU-clothe this

Examples of verb bases of the second group, which cannot take the prefix *ma-/na-* with the applicative prefix *paN-*, are shown in Table 2. Active Voice forms with the prefix *ma-/na-*, which are shown in table 2 with an asterisk, are sometimes elicited by young speakers. In other words, the younger speakers generate applicative verbs by attaching *paN-* to every dynamic verb base, and make three voice forms. For example, *ma-pa-nekoso/□* from *tekoso?* (steal), *ma-paŋ-gogaha/* from *gogaha/* (break), *ma-pa-ŋaPa/* from *kaPa/* (scoop out), *ma-pa-meŋkoŋ* from *beŋkoŋ* (bend) are the words created by them, but these forms are not attested in the data taken from the older speakers. On the other hand, these bases can form Locative and/or Instrumental verb(s) with *paN-*. Thus, *ma-pa-nekoso/* from *tekoso/□* ‘steal’ in table 2 does not exist but Instrumental verb *pa-nekoso/□* which means ‘to steal by using something’, does exist. Similarly, the locative verb *pa-ŋaPa/-en*, which means ‘to scoop out something from somewhere’ exist, while *ma-pa-ŋaPa/* does not. Young speakers,

however, accept those active voice forms of non-existing applicative verbs.

Although they also gave their meanings as shown in the table 2, young speakers often change their mind about them after a day or two. More importantly, they often fail to point out the third argument of a such verb. Sometimes they say *ma-paŋ-gogaha/* takes INSTRUMENT as the third argument, but at other times they insist that LOCATION is the real third argument.

Table 2: Dynamic verb bases of the second group.

root	simple verb	meaning	applicative verb form	meaning
<i>ki/aŋ</i>	<i>ma-ŋi/aŋ</i>	lift	<i>*ma-pa-ŋi/aŋ</i>	*lift with st
<i>tekoso/</i>	<i>ma-nekoso/</i>	steal	<i>*ma-pa-nekoso/</i>	*steal with st
<i>gogaha/</i>	<i>maŋ-gogaha/</i>	break	<i>*ma-pa-ŋogaha/</i>	*break with st
<i>kaPimu/</i>	<i>ma-ŋaPimu/</i>	make	<i>*ma-pa-ŋaPimu/</i>	*make with st
<i>kaPa/</i>	<i>ma-ŋaPa/</i>	scoop out	<i>*ma-pa-ŋaPa/</i>	*scoop out sw

Sentences in (6) show example sentences using a dynamic verb base of the second group. Whereas sentences (6)b with Locative verb and (6)c with Instrumental verb are attested with aged speakers, (6)a, which contains non-existing Active Voice form of an applicative verb, is not.

- (6) a. *\*i-stenli ma-paŋ-gehe/ nu-pahigi su-kahatasa/*  
 I-Stenly MA-PAN-tear NU-knife SU-paper
- b. *kahatasa/ paŋ-gehe/-an ni-stenli nu-pisou* (Locative verb)  
 paper INST-tear-AN NI-StenlyNU-knife  
 ‘Stenly will tear a piece of paper with a knife’
- c. *pisou paŋ-gehe/ni-stenli su-kahatasa/* (Instrumental verb)  
 knife LOC-tear NI-StenlySU-paper

The over-generalization of the morpho-syntactic rule for the applicative prefix *paN-* is partly caused by existence of Locative verbs and Instrumental verbs which take the phonologically same prefix *paN-*. Inconsistency and uncertainty of meaning which young speakers give, together with rejection of their forms by aged speakers, leads to the conclusion that young speakers show radical language change, possibly undergoing language attrition as a result of imperfect learning.

## 5. A Cognitive Account and the Conclusion

Shibatani (2006) posits, 'voice opposition reflect conceptual distinctions pertaining to the evolutionary properties of an action'. The conceptual distinctions will be reinforced by the formal distinctions of the language one uses everyday. If speakers of an endangered language switches to another language of stronger social and economic power, the voice distinctions of the newly employed language will influence that of less used language. As a result, the conceptual frame of the voice system in an endangered language could be lost.

In Standard Indonesian, the Active vs Passive (or Agent vs Goal) opposition is clearly marked, thus the younger speakers of Bantik do keep the two-way voice distinction, and they do not waver in their decisions about the transitive verbs which have only two voices that corresponds Active vs Passive opposition of Standard Indonesian. They, however, seem to be unfamiliar with a three-way voice alternation. They may not recognize existing ditransitive verbs with three voices, but they may also create non-existing ditransitive verbs.

The prototypical core participants for transitive verbs with Active vs Passive opposition are generally ACTOR and PATIENT, and young Bantik speakers have no difficulty in making sentences with Active and Passive Voice verbs in which either ACTOR or PATIENT occupies a subject position. In contrast, verbs which take a three-way voice alternation in Bantik vary considerably with regard to the member of the core participants. Some of them require ACTOR, PATIENT and BENEFICIARY, others need ACTOR, GOAL and CONVEYED THEME. Causative verbs, as shown in example (4) in section 2, require ACTOR, CAUSER and CAUSEE. Applicative verbs would require either a set which consists of ACTOR, PATIENT and INSTRUMENT, or that consists of ACTOR, PATIENT and LOCATION.

The notion that some verbs exhibits three-way voice alternation and knowledge of semantic roles of their core participants should be deeply embedded in the speakers conceptual sphere in order to generate grammatical words and sentences. However, younger Bantik speakers who adopted Indonesian as their first language has lost the idea of three-way voice alternation, and as a result, they are uncertain whether a verb needs three core arguments, or just two. They are also unsure about what other participant other than ACTOR and PATIENT is required by a ditransitive verb.

Using Standard Indonesian as a medium of research naturally influences decisions of the speakers, which makes it difficult to collect the reliable data of the verbs with a three-way voice alternations. To avoid unreliable data, one should look for an adequate number of linguistic consultants who have different socio-linguistic variables, such as gender, education level, and most importantly, age.

## Abbreviations

1sg	first person singular
2sg	second person singular
3sg	third person singular
-AN	suffix attached to verb bases, which indicates passive voice
I-	a nominative case marker attached to nominals
MA-, MAN-	prefix attached to verb base, indicating non-past tense
NA-, NAN-	prefix attached to verb base, indicating past tense
NI-	a genitive case marker attached to nominals that denote singular human
NU	complementizer
NU-	a genitive case marker attached to nominals that denote non-human and human plural
PAN-	applicative prefix attached to verb bases

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# Causative and Politeness

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## **Abstract**

In a contrastive research on causative expressions in Japanese and Slovene, a common phenomenon is observed in relation to the permissive reading of Causative. Both languages combine some means of causative expression with an expression of politeness towards the listener in order to express the desire for, or to give notice of, the speaker's action in formal situations. The phenomenon is closely analysed morpho-syntactically and semantically. Existing literature and statistic facts from corpora show that the causative-for-politeness strategy seems more advanced in grammaticalization in Japanese than in Slovene. The analysis also shows some language-specific uses of grammatical elements with no direct correspondence in the other language, i.e. the Japanese receiving verb and the Slovene dative reflexive.

**Keywords:** polite request, permissive, benefactive, formal situation, Slovene, Japanese.

## **1. Causative in Japanese and Slovene**

### *1.1. Definition of Causative*

This paper is based on a synchronic contrastive corpus research on Causative in Slovene and Japanese. The two languages are contrasted in the framework of a broader definition of Causative.

A causative situation is such that an event is brought about by some outside entity. For example, Comrie (1985) states:

If we take a sentence containing a non-causative verb (or other predicate) to be describing a certain situation [s], then a sentence containing the corresponding causative verb will describe a situation [s/cause/] where some entity (person, thing, abstract force) either brings about situation [s] or, at the very least, fails to

prevent [s]. Syntactically, one of the main differences between non-causative and causative constructions will be the increased valency (or potential valency) of the latter, since in addition to the participants in [s] there will also be the actant that brings about [s]. (Comrie 1985: 330-331)

This broad definition of Causative takes into account not only events in which the causer and causee are animate (e.g. example (1) below), but also those in which the causer (or the "effector", the entity that brings about some situation) is inanimate (e.g. example (2) below), as well as those in which the causee (the entity with which some change occurs) is inanimate (e.g. example (3) below).

- (1) I let my student use a dictionary.
- (2) The explosion made him die.
- (3) The explosion made the house collapse.

According to Teramura (1982) the Japanese causative morpheme *-(s)ase-* is most typically used when both the causer and the causee are human beings, and usually when the causer is superior to the causee. (Teramura 1982: 301) However, there are cases when the morpheme *-(s)ase-* appears even when the causer and/or the causee are inanimate. A research on Agency of the causer and the causee in modern Japanese literary texts also show that Japanese causative expressions with the causative morpheme *-(s)ase-* include all possible combinations (causer [+/- agency] and causee [+/- agency]). (Shigemori Bučar 2006: 198)

Within this semantic framework, the morpho-syntactic means of all causative expressions are contrastively analysed in Slovene and Japanese.

## *1.2. Means of causative expressions*

Types of causative constructions have been generally classified based on the formal fusion between the predicate of cause and that of effect. (Comrie 2003, Moore 2005, Song 2006) They may be firstly divided into lexical and productive devices, the latter may then be further classified into two different types: synthetic and analytic.

Dixon (2000) also mentions various causative mechanisms, i.e. lexical, morphological, complex predicate and periphrastic construction. The latter two correspond to the so-called analytical constructions. Both of the contrasted languages actually possess all these variations for causative expressions, but when frequency is concerned Japanese by far abounds in the morphological type with the productive causative suffix *-(s)ase-*. Slovene, on the other hand, has no comparable productive

morpheme, and therefore causation is often expressed by lexical transitive verbs, and in other cases analytically, either in complex predicate or periphrastic construction.

Formal mechanisms of causative expressions in Japanese and Slovene are summarized in Table 1.

Table 1: Morpho-syntactic forms of causative expressions in Japanese and Slovene

Type of mechanism (Dixon 2000:74)	<u>Japanese</u>	<u>Slovene</u>
Lexical	<i>korosu</i> "to kill" 42%* <i>osou</i> "to attack"	<i>ubiti</i> "to kill" 70% <i>strašiti</i> "to frighten"
Morphological	<i>hashir<u>aseru</u></i> "to let run" 48% <i>nom<u>aseru</u></i> "to make drink"	<i>po<u>mladiti</u></i> "to rejuvenate" ** <i>o<u>srečiti</u></i> "to make happy"
Complex predicate	<i>hashitte morau</i> "to have s.o. run" <i>koroshi wo shiiru</i> "to force killing"	<i>dati</i> <i>piti</i> 3% "to give s.o. s.th. to drink" <i>povzročiti padec</i> "to drop (to cause falling)"
Periphrastic construction	<i>komaru yôni suru</i> "to do that s.o. is in trouble" <i>hashiru yôni iu</i> "to tell s.o. to run"	<i>prositi, naj mi odpusti</i> 18% "to ask to forgive me" <i>dovoliti, da jé</i> "to permit to eat"

\*appearance ratio in a parallel corpus analysis (Shigemori: In press)

\*\* The verbal prefix never has a pure deriving function in Slovene and cannot be

discussed parallel to the Japanese verbal infix *-(s)ase-* which is very productive. For example, the verbal base *mladiti* ("to make young, rejuvenate") without the prefix *po-* also exists as a transitive verb in today's standard Slovene (SSKJ 1995: 560), while *srečiti* does not. (The adjective *sreča* "luck, happiness" is a frequent lexical item.)

Simple example sentences to express the one and the same situation in which both the causer and the causee are animate, "I let my student use the dictionary.", are given below. In Japanese this causative situation is expressed by the productive causative morpheme *-(s)ase-* attached to the verb *tsukau* "to use" [see example (4)]. In Slovene a causative verb combines with the lexical verb *uporabljati* "to use" either in complex

predicate [see examples (5) a. and b.] or in periphrastic construction [see examples (6) a. and b.]. Among several Slovene verbs used in these constructions for causative expressions, *dati* "to give" and *pustiti* "to leave" may be categorized as grammaticalized causative verbs, while other verbs, among them *dovoliti* "to permit" [seen in the example sentences (5) b. and (6) b.], may be called lexical verbs used for causative semantics.

- (4) *Gakusei ni jisho wo tsukawaseru.*  
 'student' DAT 'dictionary' ACC 'use'-CAUS-PRS  
 "(I) make/let my student use a dictionary."
- (5) a. *Študentu pustim uporabljati slovar.*  
 'student'-SG-DAT 'leave-let'-1-SG-PRES 'use'-INF 'dictionary'-ACC  
 "I let the student use a dictionary."
- b. *Študentu dovolim uporabljati slovar.*  
 'student'-SG-DAT 'permit'-1-SG-PRS 'use'-INF 'dictionary'-ACC  
 "I permit/let the student use a dictionary."
- (6) a. *Pustim, \_\_\_\_\_ da študent uporablja slovar.*  
 'leave/let'-1-SG-PRS 'that' 'student'-SG-NOM 'use'-SG-PRS 'dictionary'-ACC  
 "I let the student use a dictionary."
- b. *Dovolim, \_\_\_\_\_ da študent uporablja slovar.*  
 'permit'-1-SG-PRS 'that' 'student'-SG-NOM 'use'-SG-PRS 'dictionary'-ACC  
 "I allow the student use a dictionary."

## 2. Permissive reading of Causative

### 2.1. Semantics of Causative

Song (2006) in discussing semantic types of causation takes into account two distinct levels of description. The first level deals with the relationship between the causing event and the caused event, thus distinguishing direct and indirect causation. The second level concerns the interaction between the causer and the causee, which leads to the distinction between manipulative and directive causation. These distinctions, according to Song, are highly relevant to the three types of causative constructions i.e. lexical, morphological, and syntactic. (Song 2006: 266)

There are several semantic analyses of the Japanese productive causative morpheme

-(s)ase-. (Teramura 1982, Hayatsu 2004, Andô 2005) They all agree on the fact that this morpheme covers several semantic areas: coercion (*kyôsei*), permission (*kyoka*), non-interference (*hônin*), cause-and-effect relationship (*inga kankei*) and others. In case of Slovene, the grammaticalized causative verb *pustiti* ("let", originally "to leave") implies a meaning of non-interference, while the lexical verb *dovoliti* ("to permit, allow") denotes permission. This paper focuses on one of these semantic subcategories of Causative, the permissive reading, i.e. in English often realized by the grammaticalized lexical verb "let". It is an indirect and directive causation. When some permission is issued, the causer does not physically get in contact with the causee, but uses some words (or body movements) to communicate to the causee that the latter's wish to conduct (or not to conduct) some action is permitted.

The Japanese example sentence (4) mentioned in the foregoing section may be interpreted as a coercion "I make my student use a dictionary.", as well as a permission "I let/allow my student (to) use a dictionary.", or even as a case of non-interference "I let/leave my student (to) use a dictionary.", according to the context in which this sentence may appear. In Slovene, this semantic distinction is made by the choice of the causative verb: Non-interference when the verb *pustiti* "to leave" is used [example sentences (5) a. and (6) a.], and permission in the case of the verb *dovoliti* "to permit" [examples (5) b. and (6) b.].

## 2.2. Polite request for permission

One of the common phenomena related to causative expressions of permissive reading is that certain causative forms combine with some expression of interaction between 1st and 2nd person (speaker and addressee) to express *polite requests for permission*. Such expressions are discourse bound, as Podlesskaya (2006) asserts in her discussion on Russian "give" verbs. Permissive expressions show a tendency to be favored in speech acts of requesting a permission rather than in those issuing a permission. (Podlesskaya 2006: 291)

In case of Japanese, the causative morpheme *-(s)ase-* combines with the receiving verb *itadaku* (the humble form of *morau*, "to receive", also used as an auxiliary to the main verb for some beneficial action, in order to make requests polite), e.g.

- (7) *Sensei no jisho wo tsukawasete itadakemasu ka?*  
 'teacher' POSS 'dictionary' ACC 'use'-CAUS 'receive'-POT-POLITE Q  
 "May I use your dictionary?" (to a teacher)

In Slovene, one of several verbs with causative semantics usually occurring in complex predicate or periphrastic construction, *dovoliti* “to permit”, is used in its polite imperative, sometimes also in combination with the dative 1. person pronoun *mi* [example (9)], e.g.:

- (8) *Dovolite, da vam zastavim tole vprašanje.*  
 'permit'-2-PL-IMP 'that' 2-PL-DAT 'put'-1-SG-PRS 'this' 'question'-ACC

“Let me ask you this question.” [found in corpus FidaPlus]

- (9) *Dovolite mi parafrazirati gospoda Woodyja Allena.*  
 'permit'-2-PL-IMP 1-SG-DAT 'paraphrase'-INF 'Mr' Woody Allen-ACC

“Please let me paraphrase Mr Woody Allen.” [found in corpus FidaPlus]

In both languages, the use of causative of permissive reading refers to the fact that the initiative is (or should be) given to the 2nd person (addressee) to let the 1st person (speaker) carry out the action denoted by the lexical verb, i.e. 'to use', 'to ask', and 'to paraphrase' in example sentences (7), (8) and (9) respectively. The Japanese receiving verb *itadaku* "to receive" in (7) denotes that the speaker waits for the permission of the addressee (who is socially higher in rank than the speaker) for the action. Similarly in Slovene, the causative verb *dovoliti* "to permit" in (8) and (9) is in polite imperative which leaves it up to the addressee whether or not the action denoted by the relative clause or the infinitive is possible to carry out.

### 3. Expression of speaker's intention in formal situations

The practices in both language communities show that these constructions have become conventional formulae in giving notice of speaker's own intention for a further action in pragmatically formal situations, i.e. speaking before an audience etc.

Modrijan (2007) reports on Slovene parliamentary proceedings. According to her, formulations like examples (8) and (9) in the foregoing section are conventional forms to gain listener's attention and at the same time, signals that the speaker wishes to keep his turn in conversation. Though the verb is in the imperative form, the formulation does not expect any concrete answer from the listener(s). (Modrijan 2007: 11-12)

Kikuchi (1997) explains that the formulation with *-(s)asete itadakimasu*. (literally, "I receive your favor of letting me do s.th.") is primarily a benefactive expression in which the speaker receives the permission from the hearer to do something, and the

choice of the receiving verb *itadaku* adds the meaning that the hearer is socially higher in rank than the speaker. In some contexts, this expression is used also when nobody in particular is present to give any permission. It has become a conventional phrase just to express the humble attitude of the speaker to talk about his planned action. (Kikuchi 1997: 41-43) See example (10):

- (10) *Watashi kara mo hitokoto go-aisatsu sasete itadakimasu.*  
 I 'from' 'too' 'one word' HON-'greeting' 'do'-CAUS 'receive'-POLITE-PRS  
 "I would also like to say some words to greet you."

Further, the next Slovene example (11) is taken from an E-mail correspondence. The writer tries to be polite in stating the decision for his own action.

- (11) *Dovolil bi si pripisati malo komentarja.*  
 'permit'-PART-M-SG 'would' REFL-DAT 'add' 'little' 'comment'-SG-GEN  
 "I would let myself add some comments."

In both cases, the speaker (1st person) actually does not ask for addressee's permission but takes it for granted that he/she carries out the action mentioned. This is syntactically realised in Japanese [example (10)] by not formulating a question but a formal affirmative, in Slovene [example (11)] by stating the decision for action using the 1st person reflexive (detransitivization). The use of the Japanese formula *-(s)asete itadaku*, as in sentence (10), has recently become very frequent and is observed as a new trend, a handy expression of humble attitude but not necessarily in relation to the hearer/addressee. (Kikuchi 1997) What is common to both expressions in two contrasted languages is that though there is the causative element (the verbal morpheme *-(s)ase-* and the verb *dovoliti*) still present, no definite causer (besides the speaker himself) may be identified.

Though the syntactic strategy seems somewhat similar between the systems of contrasted languages, there are crucial differences between them. The greatest difference is in the type of causative mechanism in each language: While Japanese possesses the productive causative morpheme *-(s)ase-*, Slovene has no comparable morpheme. In Slovene, the causative-for-politeness phenomenon is observed only with one of the lexical causative verbs used in serial verb constructions. The second difference is the function of Japanese giving and receiving verbs for which there is no corresponding verbs with the auxiliary function found in Slovene. The role of giving and receiving verbs in Japanese may be related to the socio-linguistic situation. The Japanese society is sensitive to the interpersonal relationship and how to express oneself according to one's social position in relation to others is regarded quite important

(Matsumoto 1988).

#### 4. Corpus data

The causative-for-politeness formulations, *-(s)asete itadaku* in Japanese and *dovolite (mi)* in Slovene, were searched in large corpora, JapWac and FidaPlus. The frequencies of these conventional formulations in relation to the causative morpheme *-(s)ase-* or the causative verb *dovoliti* are summarized in Table 2 below.

Table 2: Frequency of *-(s)asete itadaku* and *dovolite (mi)* in corpora

Corpus	word (A)	word combination (B)	ratio B/A
JapWac*	<i>-(s)ase-</i> 366,474 hits	<i>-(s)asete itadaku</i> 57,098 hits	15.58%
FidaPlus**	<i>dovoliti</i> 13,522 hits	<i>dovolite (mi)/(mi) dovolite</i> 171 hits	1.26%

\*JapWaC: SketchEngine <http://www.sketchengine.co.uk/> 409,384,405 words

\*\*FidaPlus: <http://www.fidaplus.net/> 621,150,000 words

We must take into account that the two corpora are not directly comparable because of the difference in size and text medium. JapWac is a web corpus using a list of URLs, but FidaPlus is made up of various texts (internet 1.24%, books 8.74%, newspapers 65.26%, magazines 23.26%, rest 1.50%). The causative-for-politeness formulation is discourse bound and thus expected to occur more often in spoken language (or semi-spoken language as in letters or internet texts) in order to gain listener's attention and to talk about speaker's planned action. The frequency ratio of the Slovene phrase *dovolite (mi)* "please allow (me)" may become higher if we are to look for it in a pure web corpus or a corpus of spoken language.

Nevertheless, we may say that the phenomenon of causative-politeness combination is more frequent and more advanced in grammaticalization in Japanese. This is probably due to the existence of the productive causative morpheme *-(s)ase-* and the sociolinguistic conditions of the Japanese language, typically characterised by the grammaticalized function of giving and receiving verbs.

## 5. Conclusion

Though this contrastive research is conducted in the framework of a broad semantic definition of Causative, the current paper focuses on only a part of it, namely, on the use of the permissive reading of Causative, observed in rather formal situations in discourse. This is limited to the spoken or semi-spoken language, and the causer (the listener) and the causee (speaker) are both animate/human.

The contrasted means of causative expressions are productive, in Japanese the morpheme *-(s)ase-*, in Slovene a lexical verb used as a causative verb, *dovoliti* "to permit, allow".

In the specific situation of *speaking in a rather formal situation about speaker's own action in the near future*, it seems universal to make use of Causative, i.e. to make use of an additional valency (additional participant), so that the responsibility for the intended action is at least partly passed on to the additional participant. But it is also common in the contrasted two languages, that the causative-politeness strategy has become conventionalized and the permission of the causer is barely felt in some cases.

This particular framework brought the language-specific uses of some grammatical elements to light: The function and syntactic/semantic mechanism of Japanese giving and receiving verbs on one hand, and the reflexive construction in Slovene on the other.

## Notes

1. I consulted Dr. Andreja Žele, Head of the Lexicological Section of Fran Ramovž Institute of the Slovenian Language, Scientific Research Centre of the Slovenian Academy of Sciences and Arts, for the exact semantics and function of the verbal prefix in the present context.

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# Argument Structure Binding and Event Nominal Polysemy

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## Abstract

It is well known that Event nominals tend to have both an *event* and one or more *non-event* interpretations and that non-event interpretations may pick out various aspects of the event, such as the *resulting object* or *state*, the *place*, the *instrument* and so on (Apresjan 1974; Bierwisch 1990/1991, 2008; Pustejovsky 2005). However, the representation of their polysemy can still be improved, especially for that which concerns their non-event interpretations.

For example, it has been assumed that Result nominalizations introduce an argument place over and above those found in the corresponding verb (see among others Asher 1993: 151). Engl. *analysis* for instance introduces reference to an abstract object which apparently is not originally an argument of the verb *analyse*. Not all Result nominals seem to behave this way, however. Some Result nominals fill an argument place of the corresponding verb: for example, *building* introduces reference to an entity which can be identified with the grammatical object of the verb *build*.

Given these premises, the overall aim of this paper is to contribute to the representation of the lexical ambiguity exhibited by event nominals by looking in particular at what argument of the base verb is bound in the non-event interpretations<sup>1</sup>. More specifically, I will be concerned with clarifying under what conditions the argument introduction posited for Result nominalizations takes place and when instead it does not. I will argue that this phenomenon depends to a large extent on the meaning of the underlying verb and that the base verbs of nominals which introduce reference to this extra argument are verbs of *covert creation*.

My analysis is based on the theories of Argument structure and Event structure as developed within the Generative Lexicon model (henceforth GL) (Pustejovsky 1995), which I briefly outline in section 2. The language discussed is Italian but the proposed generalizations may easily expand on a broader perspective.

**Keywords:** event nominals, polysemy, argument structure, binding, result, creation verbs.

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<sup>1</sup> *Event* is used here as a cover term for all sorts of dynamic eventualities.

## 1. The Process – Result ambiguity

The ambiguity of event nominals has been widely discussed within the distinction posited by J. Grimshaw between *Process* and *Result nominals* (Grimshaw 1990). Following Grimshaw, event nominals tend to be systematically polysemous between a process reading (exhibiting argument structure) and a result reading (exhibiting absence of argument structure):

- (1) a. It. la costruzione (del palazzo) è durata due anni = process  
'the building (of the house) took two years'
- b. It. la costruzione (\*del palazzo) è alta due piani = result  
'the building (\*of the house) is two floors high'

Although the Process-Result distinction captures an important generalization, for various reasons it is insufficient to account for all facets of event nominal polysemy.

First, Grimshaw classifies nominals on the basis of their syntactic properties rather than their semantic interpretation. Consequently, her classes are semantically very heterogeneous. For example, her Result class includes both nominals with temporal structure (*simple event nouns*) and nominals which lack temporal structure completely (*referential nominals*, cf. Borer 1999).

Second, it has been assumed that Result nominals are *argument transforming nominals* (Asher 1993: 151) i.e. that they introduce and fill an argument place over and above those found in the corresponding verb. Engl. *analysis* for instance introduces reference to an abstract object which apparently is not originally an argument of the verb *analyse*. Not all Result nominals seem to behave this way, however. Some Result nominals fill an argument place of the corresponding verb: for example, *building* introduces reference to an entity which can be identified with the grammatical object of the verb *build*.

Third, the Process-Result alternation does not exhaust all the possible semantic interpretations exhibited by event nominals. Non-event interpretations may pick out various aspects of the event besides the resulting state or the resulting object. For example, they can denote the place where the event occurs, the instrument which is used to accomplish the event, and so on (Apresjan 1974; Bierwisch 1990/1991, 2008; Pustejovsky 2005).

Given these premises, the overall aim of this paper is to contribute to the

representation of the lexical ambiguity exhibited by event nominals by looking in particular at what argument of the event expressed by the base verb is bound in the non-event interpretations. More specifically, I will be concerned with clarifying under what conditions the argument introduction posited for Result nominalizations takes place and when instead it does not. I will argue that this phenomenon depends to a large extent on the meaning of the underlying verb. In particular, I will argue that the base verbs of result nominals which introduce reference to this extra argument are verbs which licence a semantic hidden argument (i.e. a semantic participant which cannot appear in the surface as an argument to the verb) in verb-argument composition. This hidden argument denotes an incrementally created entity. For my present purposes, I will call *covert creation* the class of verbs expressing events in which an entity is put into existence which cannot surface in the syntax as an argument.

My analysis is based on the theories of Argument structure and Event structure as developed within the GL model (Pustejovsky 1995), which I briefly outline in section 2. The language discussed is Italian but the proposed generalizations may easily expand on a broader perspective.

## 2. Theoretical framework

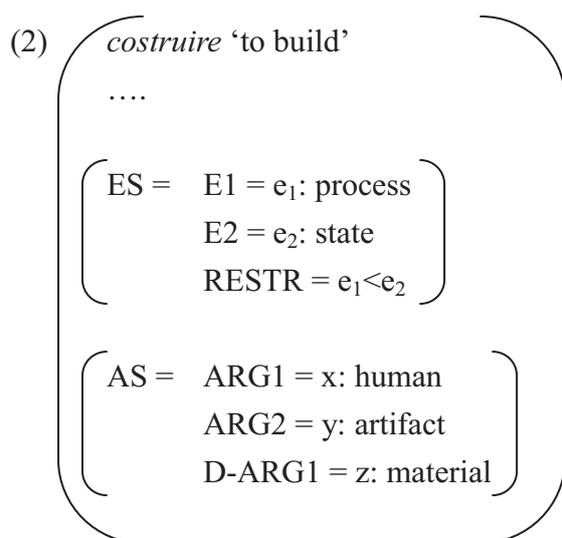
In this section, I briefly outline the components of the GL theory I adopt in my analysis, which are relevant for the present discussion. These are the levels of lexical representation of *Argument Structure* and *Event Structure*.

*Argument Structure* specifies the number and nature of the arguments to a predicate. Within GL, it is assumed that argument structure to a predicate may contain different types of argument, defined on the basis of the conditions which guide and constrain their realization in syntax. Those are: *True arguments*, *Default arguments* and *Shadow arguments* (Pustejovsky 1995: 62-67). A True argument is a semantic parameter which is obligatorily expressed syntactically, such as the internal argument in the expression “Mary rented *a car*”. A Default argument is a parameter which participates in the logical expression but is not necessarily expressed syntactically, such as the goal location in “John left (*the room*)”. A Shadow Argument is a parameter which is semantically incorporated in the verb semantics and can be expressed only by operations of subtyping, such as in “She phoned me *with her new phone*”.

*Event Structure* defines the event type of the predicate and any subeventual structure it may have. Within GL, complex events are represented as tree structures in

which subevents are ordered with respect to their temporal relations and to the prominence they play in the final interpretation (as well as in the mapping of the event arguments to syntax). Event Structures may be *States*, *Processes* or *Transitions* (Pustejovsky 1995: 67-75). States and Processes are durative non-bounded events, while Transitions are binary branching structures encoding change. Transitions may be *left-* or *right-headed*, depending on which one of the two subevents provides the focus of the interpretation. “Mary built a table” is a left-headed Transition and its head is the subevent Process; “The cup broke” is a right-headed Transition and its head is the resulting State.

In (2) I give a partial representation of the It. verb *costruire* (‘built’) using the type feature structure formalism and notation adopted in classic GL to represent lexical structures (ES stands for Event Structure, AS for Argument Structure and < indicates that the first subevent  $e_1$  precedes the second subevent  $e_2$ ):



### 3. Polysemy of Italian event nominals

In this section, I present the result of the corpus investigation I carried out in order to verify what senses nominals take on in context and which participant of the event is bound in the non-event interpretations.<sup>2</sup> From a theoretical point of view, I start

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<sup>2</sup> In the analysis, I consider both deverbal and simple nouns. I intentionally leave out stative nominals. Recent analyses on the polysemy of Italian event nominals include Gaeta 2004, Melloni 2007 (both from a morphological perspective), Simone 2000 and Jezek 2008.

from the assumption that the potentially restricted senses exhibited by nominals are originally arguments to their corresponding verbs.<sup>3</sup> Also, I assume that binding options for non-event nominals are not limited to syntactic arguments of the base verb but include semantic participants as well. A semantic participant can be roughly defined as *a semantic parameter which participates in the logical expression but need not be discharged syntactically* (sometimes its syntactic projection is ruled out). Summarizing, I assume that event nominals may bind one of the following elements of the event:

- (3) Binding options for event nominals
- i) the event variable;
  - ii) a subevent of the event structure of (i);
  - iii) a true argument of the event;
  - iv) a default argument of the event;
  - v) a shadow argument;
  - vi) the result argument introduced by the nominalization process;
  - vii) an adjunct.

The methodology I adopt to identify the sense alternations exhibited by nominals is basically distributional. In particular, following a methodology proposed in Pustejovsky et al. 2004 and Rumshisky et al. 2007, I automatically extract the typical verbal collocates of nominals organized per grammatical relation, and cluster them into types according to their selectional properties<sup>4</sup> (a key point being the distinction between verbs selecting for events on the one hand and verbs selecting for non temporal entities on the other hand).<sup>5</sup>

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<sup>3</sup> It has been pointed out to me – Seb. Loebner, p.c. – that the non-event readings exhibited by event nominals may also be interpreted as metonymic displacements. Although I don't exclude that metonymy may be at play in event nominal polysemy, I will limit myself here to verify to what extent the non-event interpretations bind the arguments of the corresponding verbs.

<sup>4</sup> The data are taken from the ITWaC corpus (Baroni and Kilgarriff 2006). In order to speed up the analysis, I use the Sketch Engine (Kilgarriff et al. 2004), a corpus query tool which provides word sketches, i.e. one-page automatic corpus-based summaries of a word's collocational behavior organized per grammatical relation (object\_of, subject\_of etc.).

<sup>5</sup> Although the analysis is carried out using statistical tools, it is meant as a qualitative investigation. Also, the analysis is not meant to answer the question whether there are correlations between the morphological properties of nominals and the polysemy patterns they fall into.

### 3.1. Event

Some nominals apparently tend to exhibit exclusively or predominantly an event reading.<sup>6</sup>

(4) *caduta* ‘fall’<sup>7</sup>

Direct Object:

- (a) event: *anticipare* ‘anticipate’, *rallentare* ‘slow down’, *arrestare* ‘stop’, *accelerare* ‘speed up’, *frenare* ‘slow down’, *affrettare* ‘speed up’, *ritardare* ‘delay’

Head Noun:

- (b) event:  *Brusco* ‘abrupt’, *improvviso* ‘sudden’, *repentino* ‘sudden’, *rapido* ‘quick’, *frequente* ‘frequent’, *precipitoso* ‘rush’, *progressivo* ‘progressive’, *lento* ‘slow’, *continuo* ‘continuous’, *imminente* ‘imminent’, *recente* ‘recent’

The event structure of these nominals may be a bounded Process (5a), a left-headed Transition (5b) or a right-headed Transition (5c). No aspectual constraint seems to be at stake here:

- (5) a. Ho fatto una *dormita* di sette ore  
‘I had a seven-hour sleep’  
b. lo *svuotamento* della vasca fu lento  
lit. ‘the emptying of the pool was slow’  
c. la *caduta* è avvenuta a un chilometro dall’arrivo  
‘the fall occurred one kilometer before the arrival’

If these nominals denote a Transition, next to denoting the change of state, they may denote the effects that such a change typically brings about (see Asher 1993: 150, 157). Hence:

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<sup>6</sup> We keep out of the present discussion the factive interpretations which, in principle, are available for all nominalizations but which are due to the coercive property of factive predicates rather than the inherent semantics of event nominals (Zucchi 1991, Asher 1993, Pustejovsky 1995). Similar observations hold for manner readings.

<sup>7</sup> The data below is presented following a layout proposed in Rumshisky et al. 2007.

- (6) *il cambiamento* è sotto gli occhi di tutti  
‘the change is there for all to see’

denotes the effects of the change.<sup>8</sup>

In all these cases, I assume that the event interpretation binds the event variable:

- (7) *caduta* (e, x)

Further examples are: *abolizione* ‘abolition’, *sparizione* ‘disappearance’; *guarigione* ‘healing’ *uccisione* ‘killing’; *cambiamento* ‘change’, *inseguimento* ‘pursuing’, *invecchiamento* ‘aging’, *spostamento* ‘displacement’, *svolgimento* ‘development’, *svuotamento* ‘emptying’; *dormita* ‘sleep’, *lavata* ‘wash’; *bocciatura* ‘rejection’, *cottura* ‘cooking’; *rottura* ‘breaking’; *atterraggio* ‘landing’, *montaggio* ‘assembling’ *salvataggio* ‘rescuing’; *dondolio* ‘swing’, *gocciolio* ‘dropping’; *avvio* ‘start’, *crollo* ‘collapse’, *rilascio* ‘discharge’.

### 3.2. Event / State (Result)

Nominals denoting an event encoding a change (that is, a Transition) may licence a result state reading (Bierwisch 1990/1991: 52; Osswald 2005).

- (8) a. *l’abbandono* delle campagne = event  
lit. ‘the leaving of the countryside’  
  
b. una casa in *abbandono* = state  
‘a house in state of neglect’

I assume that the result state reading binds the right sub-event of the event structure:

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<sup>8</sup> The ontological status of *effects* is controversial: Vendler 1967 considers them temporal object: “effects are not facts or physical objects, but events or processes which are due to other events or processes in the world” (p. 155), “results are not effects, because [...] they are not events or processes at all” (p. 155), “results are facts and they are due to other facts (p. 159)”. To sum up, for Vendler effects last in time, while results don’t.

(9) *abbandono* (e {e1, e2}, x, y)

By definition, nominals denoting Processes or States cannot license this reading, since their event structures do not include a resulting state to which reference can be made. Apparently, only a subset of verbs denoting Transitions, i.e. those defining Target States,<sup>9</sup> are good candidates for result state nominalizations (but see the discussion in Osswald 2005: 259).

Further examples are: *agitazione* ‘distress’, *disoccupazione* ‘unemployment’, *intossicazione* ‘intoxication’; *affaticamento* ‘tiredness’, *inquinamento* ‘pollution’, *arresto* ‘state of arrest’, *assedio* ‘siege’, *degrado* ‘degrade’.

### 3.3. Event / Interval (Time period)

Although in principle all nominals expressing an event involving duration may potentially denote the time span this event covers, some nominals more clearly than others denote an event and the overall period of time over which such event generally occurs:

(10) *il ricevimento* degli ospiti inizia alle 18 = event  
‘the reception of the guests will start at 6 pm’

durante *il ricevimento* si è sentita male = interval  
‘during the reception she felt bad’

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<sup>9</sup> Following Parsons 1990, it is important to distinguish between the *Resultant state* and the *Target state* of a culminating event. “For every event *e* that culminates, there is a corresponding state that holds forever after. This is “the state of *e*’s having culminated”, which I call the “Resultant state of *e*” or “*e*’s R-state”. If Mary eats lunch, then there is a state that holds forever after: the state of Mary’s having eaten lunch. [...] It is important not to identify the Resultant state of an event with its “target state”. If I throw a ball onto the roof, the target state of this event is the ball’s being on the roof, a state that may or may not last in time (pp. 234-235). “For a large number of verbs, there is a “typical” independently identifiable state that its object is in after the verb is true of it. If the state is transitory, then we come to use the adjective form of the part participle to stand for the transitory state instead of for the permanent resultant state (p. 252)”.

I assume that the interval interpretation binds a time expression (in particular, a time adjunct) (see Melloni 2007: 116). Further examples are: *inaugurazione* ‘inauguration’, *premiazione* ‘prize-giving’, *rivoluzione* ‘revolution’; *allattamento* ‘breastfeeding’, *fidanzamento* ‘engagement’; *fioritura* ‘blooming, blossoming’; *raccolta* ‘harvest’, *cerimonia* ‘ceremony’, *festa* ‘party’.

### 3.4. Event / Abstract Object (Result)

Let us now move to domain-shifting alternations, namely those where one reading introduces reference to a temporal entity and another reading introduces reference to a non-temporal entity, like in the case of *analisi* ‘analysis’, which may denote an event and the abstract object resulting from the mental operation expressed by the verb *analizzare* ‘analyse’:

(11) *analisi* ‘analysis’

Direct Object:

- (a) event: *effettuare* ‘perform’, *eseguire* ‘carry out’, *fare* ‘do, make’, *compiere* ‘make’, *condurre* ‘conduct’, *completare* ‘complete’, *svolgere* ‘carry out’, *concludere* ‘conclude’, *avviare* ‘to start’, *proseguire* ‘go on with’, *ultimare* ‘complete’, *terminare* ‘finish’, *cominciare* ‘begin’, *iniziare* ‘start’, *realizzare* ‘accomplish’, *rinviare* ‘postpone’
- (b) abstract object: *condividere* ‘share’, *confermare* ‘confirm’, *pubblicare* ‘publish’, *contestare* ‘contest’, *smentire* ‘deny’, *citare* ‘quote’, *illustrare* ‘illustrate’, *apprezzare* ‘appreciate’, *commentare* ‘comment’, *diffondere* ‘spread’, *presentare* ‘present’

il ricercatore ha completato l'*analisi* = event  
 ‘the researcher has completed his analysis’

condivido la sua *analisi* e la principale conclusione = abstract object (R)  
 ‘I agree with his analysis and the overall conclusion’

Apparently, the abstract object *analisi* does not bind any of the arguments (true, default or shadow) of the corresponding verb. As we mentioned above, Asher 1993: 151 proposes that the nominalization process in this case introduces an extra argument place which is filled by the output of the event:

(12) *analisi* (e, x, y, R:  $\underline{z}$ )

Further examples are: *autorizzazione* 'authorization', *classificazione* 'classification', *combinazione* 'combination', *descrizione* 'description'; *spiegazione* 'explanation'; *avvertimento* 'warning', *esperimento* 'experiment', *regolamento* 'regulation'; *accordo* 'agreement', *richiesta* 'request'.

### 3.5. Event / Physical Object (Result)

A situation similar to that of *analisi* seems to hold when the result (i.e. the output of the event) has a physical manifestation, as in *disegno* 'drawing':

(13) *disegno* 'drawing'

Direct Object:

(a) event: *eseguire* 'make', *fare* 'make', *completare* 'complete'

(b) physobj: *colorare* 'colour', *mostrare* 'show', *guardare* 'look at', *incorniciare* 'frame', *appendere* 'hang'

fare il *disegno* di una tigre = event

lit. 'to make the drawing of a tiger'

colorare il *disegno* in modo intuitivo = physobj (R)

'colour the drawing in an intuitive way'

Similarly to *analisi*, the result interpretation of *disegno* seems to bind a participant which is not included in the argument structure of the corresponding verb and introduce reference to the output of the event:

(14) *disegno* (e, x, y, R:  $\underline{z}$ )

Not all nominals introducing reference to the physical object brought about by the event seem to behave this way, however. Consider *costruzione* ('construction, building'):

(15) *costruzione* 'building'

Direct Object

- (a) event : *iniziare* ‘start’, *prevedere* ‘foresee’, *finanziare* ‘fund’, *avviare* ‘start’, *permettere* ‘allow’, *ultimare* ‘finish’, *accelerare* ‘speed up’, *impedire* ‘ostacolate’, *autorizzare* ‘authorize’, *vietare* ‘forbid’, *dirigere* ‘direct’
- (b) physical object : *demolire* ‘’, *abbattere* ‘’, *ampliare* ‘’, *vedere* ‘see’, *distruggere* ‘destroy’, *notare* ‘notice’, *circondare* ‘surround’

Hanno terminato la *costruzione* della nuova stazione = event  
lit. ‘they completed the building of the new station’

Presto saranno demolite molte *costruzioni* illegali = physobj (R)  
‘many illegal buildings will be demolished soon’

Similarly to *disegno*, *costruzione* introduces reference to the physical output of the event. In this case, however, the output can be identified with the internal argument of the corresponding verb *costruire*.

### 3.6. Event / Information

Nominals may denote an event and the information which is transmitted during the event (Pustejovsky 2005: 5). This alternation is a specialization of the Event / Abstract Object alternation:

#### (16) *discorso* ‘speech’

Direct Object

- (a) event: *riprendere* ‘start again’, *riavviare* ‘again’, *tenere* ‘hold’, *intavolare* ‘start’, *fare* ‘do, make’, *avviare* ‘start’, *troncare* ‘cut’, *interrompere* ‘interrupt’, *rimandare* ‘postpone’, *imbastire* ‘put together’, *concludere* ‘conclude’, *proseguire* ‘go on with’, *aprire* ‘start’, *rinviare* ‘postpone’, *terminare* ‘finish’, *iniziare* ‘start’, *continuare* ‘continue’, *finire* ‘finish’, *completare* ‘complete’
- (b) info: *apprezzare* ‘appreciate’, *commentare* ‘comment’, *capire* ‘understand’, *semplificare* ‘simplify’, *citare* ‘quote’, *condividere* ‘share’, *giudicare* ‘judge’, *accettare* ‘accept’, *rivedere* ‘go through again’, *criticare* ‘criticize’, *interpretare* ‘interpret’

interrompo il *discorso* per darvi una buona notizia = event  
‘I interrupt the speech to give you good news’

Clinton ha criticato il *discorso* di Arafat = information  
'Clinton criticized Arafat's speech'

The 'info' reading is not to be interpreted as Result, since no output of the event is at stake here. I assume that this reading binds a shadow argument of the event *discorrere* ('talk'), corresponding to the information which is transmitted during the event:

(17) *discorso* (e, x, Sarg:  $\gamma$ )

Further examples are: *dichiarazione* 'declaration', *discorso* 'speech', *esame* 'examination, exam', *intervista* 'interview', *lezione* 'lecture', *seminario* 'seminar', *storia* 'story'.

### 3.7. Event / Food

The Event/Physical Object alternation introduced in 3.5 has various specializations, one of which is the Event/Food alternation (Pustejovsky 2005: 6):

(18) *pranzo* 'lunch'

Direct Object

(a) event: *finire* 'finish', *terminare* 'finish', *fare* 'do, make', *concludere* 'conclude', *interrompere* 'interrupt', *chiudere* 'finish', *cominciare* 'start', *proseguire* 'go on with', *continuare* 'continue'

(b) food: *consumare* 'consume', *gustare* 'try', *cucinare* 'cook', *portare* 'bring', *vomitare* 'throw up', *digerire* 'digest', *comprare* 'buy', *assaggiare* 'taste', *distribuire* 'distribute', *cuocere* 'cook', *buttare giù* 'gobble'

hanno interrotto il *pranzo* e sono corsi a casa = event  
'they interrupted their lunch and ran home'

fare una passeggiata per digerire il *pranzo* = food  
'go for a walk to digest lunch'

As in 3.6, the 'food' reading is not to be interpreted as a Result, since no output of the event is at stake here. I assume that this reading binds a shadow argument of the event

*pranzare*, corresponding to what is consumed during the event:

(19) *pranzo* (e, x, Sarg:  $\underline{y}$ )

Further examples are: *pasto* ‘meal’, *cena* ‘dinner’, *colazione* ‘breakfast’, *picnic*, *spuntino* ‘light meal, snack’.

### 3.8. Event / Mean

Let us now move to a set of readings where the argument which is bound is the external argument. As noted in Bierwisch 1990-1991, nominals may denote an event and the mean used to accomplish the event. As in 3.7, this is again a specialization of the Event / Physical Object alternation:

(20) *riscaldamento* ‘heating’

Direct Object

(a) event: *provocare* ‘cause’, *contrastare* ‘contrast, oppose’, *ridurre* ‘reduce’, *rallentare* ‘slow down’, *evitare* ‘avoid’, *consentire* ‘allow’, *causare* ‘cause’, *produrre* ‘produce’, *frenare* ‘slow down’, *limitare* ‘limit’

(b) mean: *accendere* ‘turn on’, *spegnere* ‘turn off’, *azionare* ‘activate’, *attivare* ‘activate’, *staccare* ‘turn off’, *utilizzare* ‘use’, *sistemare* ‘fix’

un guasto non ha consentito il *riscaldamento* = event  
‘a breakdown prevented the heating’

la notte spengono il *riscaldamento* = mean  
‘at night they turn off the heating’

I assume that the ‘mean’ reading of *riscaldamento* binds the external argument and can be paraphrased as “the mean that Vs” or “the mean by which *y* is Ved”:

(21) *riscaldamento* (e,  $\underline{x}$ , *y*)<sup>10</sup>

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<sup>10</sup> Note that in addition to binding the external argument and denoting “the mean that Vs”, *riscaldamento* may take on a Result reading (“the output of V”) and bind a default argument: *riscaldamento* (e, x, y, R-Darg:  $\underline{z}$ ).

Further examples are: *illuminazione* ‘lighting, lamp’, *isolamento* ‘isolation’, *imballaggio* ‘packaging’, *imbottitura* ‘filling’.

### 3.9 Event / Human

Less frequently, nominals may denote an event and its agent. This is again specialization of the Event / Physical Object alternation.

(22) *aspettare sempre l'aiuto di qualcuno* = event  
‘always wait for the help of somebody’

*il nostro nuovo aiuto e' portoghese* = human  
lit. ‘our new help is Portuguese’

I assume that in this reading (‘person who Vs’) *aiuto* binds the external argument of the verb *aiutare*:

(23) *aiuto* (e, x, y)

### 3.10 Event / Human Group

The agent of the event may be a single person, as in (22) above, or a human group (institution, organization, company) as in (24) below:

(24) *assumere la direzione dell'azienda* = event  
‘take on the direction of the company’

*parlare con la direzione* = human group  
‘talk to the board of directors’

As with (22), I assume that the ‘human group’ reading binds the external argument of the activity expressed by the verb:

(25) *direzione* (e, x, y)

Further examples are: *organizzazione* ‘organization’, *redazione* ‘editorial staff’;

*schieramento* ‘line-up’; *equipaggio* ‘crew’; *accusa* ‘accusation, prosecution’, *balletto* ‘ballet’, *difesa* ‘defence’, *governo* ‘government’.<sup>11</sup>

### 3.11 Event / Location

Nominals whose base verbs express a change of location may denote an event and the location where the event takes place or where the action is carried out (Apresjan 1974):

(26) *partenza* ‘departure’

Direct Object

(a) event: *ritardare* ‘delay’, *rinviare* ‘postpone’, *impedire* ‘prevent’, *anticipare* ‘anticipate’, *rimandare* ‘postpone’, *posticipare* ‘postpone’, *scaglionare* ‘stagger’, *bloccare* ‘block’, *differire* ‘postpone’, *programmare* ‘schedule’, *spostare* ‘move’, *organizzare* ‘organize’, *aspettare* ‘wait for’, *attendere* ‘wait for’, *annullare* ‘cancel’, *cancellare* ‘cancel’

(b) location: *situare* ‘locate’, *presentarsi (a)* ‘show up at’, *schierarsi (a)* ‘line up at’

hanno ritardato la *partenza* = event  
‘they delayed their departure’

presentarsi alla *partenza* = location  
‘to show up at the departure’

I assume that the location reading of *partenza* (‘place where one V’) binds the default argument of the base verb *partire* ‘leave’:<sup>12</sup>

(27) *partenza* (e, x, Darg:  $\underline{y}$ )

Further examples are: *coltivazione* ‘cultivation, plantation’; *accampamento* ‘campsite’;

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<sup>11</sup> As noted in Levin 1993, nominals derived from verbs of ruling typically exhibit this reading.

<sup>12</sup> Note that locative readings may bind an element of the event which status with respect to the argument structure of the base verb is not clear. For example, Engl. *exit* in “she was blocking the exit” introduces reference to the place where the motion event takes place and not to the place expressed by the internal argument of the corresponding verb (“exit the *room* through the back door, please”).

*passaggio* ‘passage’, *entrata* ‘entrance’, *fermata* ‘stop’, *discesa* ‘slope’, *uscita* ‘exit’; *arrivo* ‘arrival’, *bagno* ‘bath, bathroom’, *deposito* ‘deposit’, *doccia* ‘shower’, *parcheeggio* ‘parking, parking lot’, *studio* ‘study, office’. In some cases, the location is a route or path: *passeggiata* ‘walk’, *cammino* ‘walk’, *percorso* ‘route’, *ritorno* ‘return’, *viaggio* ‘trip’, etc.

To sum up what I have discussed to far, we can conclude that 1) non-event nominals do not correspond to a fixed argument position within the verb argument structure; 2) all semantic arguments, including those whose syntactic projection is generally ruled out (shadows) or those which are projected but can be left unexpressed (defaults) might be bound in the derivation process; 3) apparently, in some cases, Result nominals cannot be associated with a syntactic argument or a semantic participant of the event expressed by the corresponding verb (*analisi*).

#### **4. Base verbs for Result Nominals**

In the previous section, I have examined the range of interpretations exhibited by event nominals and I have attempted to characterize them with respect to the arguments of their base verb. I have observed that while some Result nominals introduce reference to an entity which apparently does not correspond to a position in the argument structure of the base verb (*analisi*, *disegno*), other Result nominals introduce reference to an entity which does correspond to such a position (*costruzione*). This apparent inconsistent behaviour raises the following theoretical question: why would the nominalization process license an extra argument in some cases but not in others? In this final section, I briefly turn back to Result Nominals with the aim of contributing to clarify this phenomenon, which I assume is conditioned by the lexical semantic properties of the base verbs.

##### *4.1. Overt and covert creation*

Two semantic classes of verbs seem to be particularly relevant with respect to the Result interpretations of nominals and to the issue of the extra argument raised above. I shall call these classes *overt creation* and *covert creation* verbs.<sup>13</sup>

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<sup>13</sup> It is important to note that not all verbs of creation have corresponding Result Nominalizations and

The base verbs of Result Nominals which bind their internal argument are commonly *overt creation verbs* (Osswald 2005, Melloni, 2007). These verbs express events which put into existence the entity filling the direct object position. The created entity is both an *effected object* and an *incremental theme* (Dowty 1991: 568). *Costruire una casa* leads to the existence of the house, *scrivere un libro* leads to the existence of the book, and so on.

The base verbs of Result Nominals which introduce reference to an argument which is apparently not included in the verb argument structure are different. *Disegnare una casa* does not lead to the existence of the house. Rather, it leads to the existence of a representational object (the drawing). As observed in Badia and Saurí 1991, these verbs share the syntactic property that the entity created by the process described by the verb cannot appear in the surface as an argument, although its identification is relevant to the interpretation of the expressions in which the verb appears.<sup>14</sup> In this case, the *effected object* and the *incremental theme* is represented by this unexpressed entity, not by the entity occupying the object position (see Dowty 1991: 569 for further discussion).

For the present purposes, I shall call these verbs *covert creation verbs*;<sup>15</sup> it should be noted, however, that they are not properly speaking verbs of creation. Although the putting into existence of a new entity plays a role in the interpretation, this is not what the event expressed by these verbs is about: rather, the creation act represents a by-product of the event.

It is still somewhat unclear what the status of the created entity is with respect to the argument structure of the verb. With performance verbs like *disegnare* ‘draw’, which lexically denote an unbounded Process, it seems plausible to interpret this entity (*disegno* ‘drawing’) as a *semantic hidden argument* arising in verb-argument composition. Following this interpretation, while *A Luca piace disegnare* (‘Luca likes to draw’) expresses an activity, *Luca ha disegnato l’albero* (‘Luca drew the tree’) expresses a Transition where a new entity (namely, a representational object) is created

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that not all Result Nominalizations are derived from verbs of creation. However, the generalization that there is a strict correlation between Result interpretations and verbs of creation seems to hold on a large scale.

<sup>14</sup> Badia and Saurí 2001 also note that reference to this created entity can be introduced via the deverbal nominal or via the adjectival use of the past participle of the verb.

<sup>15</sup> Other labels proposed in the literature for this verb class are *implicit creation verbs* (Osswald 2005), *redescription predicates* (Badia and Saurí 2001), *resultative verbs of creation or modification* (Bisetto and Melloni 2008), *verbs of creation by representation or modification* (Melloni 2007).

(although it is not expressed).

With transition verbs like *ritrarre* ('portray') or *fotografare* ('photograph'), however, which lexically encode the attainment of a result, the situation is less clear. One could assume that in one of its possible senses *ritrarre* means 'make a portrait', i.e. that *ritratto* 'portrait' is a shadow argument of *ritrarre*. This created entity, however, exhibits properties which contrast with the definitorial properties of shadow arguments. Typically, a shadow argument is not created during the event (rather, it is already present in the semantic representation) and its syntactic projection is not completely ruled out, since as we said in 2. it can be expressed by operations of subtyping.

It is possible to identify various subclasses of covert creation verbs. For example, according to Melloni (2007: 162 ff.), cover creation verbs may either leave the entity denoted by the verbal object unmodified or they may tangibly affect this entity. A partial classification based on this distinction would be the following:

(28) Classes of *covert creation verbs*:

- a. verbs which leave the verbal object unmodified:
    - i. verbs of representation: *disegnare* 'draw', *dipingere* 'paint', *ritrarre* 'portray'
    - ii. verbs of mental operation: *analizzare*, *descrivere*, *progettare* etc.[...]
  - b. verbs which produce a concrete modification of the verbal object (affected object): *decorare*, *riparare* etc.
- [...]

It has been noted by several scholars (among others, Ramchand 2008: 68 ff.) that verbs may exhibit polysemy between an *overt creation* and a *covert creation* reading. Apparently, this variation in meaning is induced by the differences in semantic type of the entity occupying the object position. Consider *dipingere* ('paint'):

(29) Who paints *what*?

- a. *dipingere* {un quadro 'a painting', un affresco 'a fresco', un murales 'a mural', un capolavoro 'a masterpiece' ...}
  - *Overt creation verb*
- b. *dipingere* {un paesaggio 'a landscape', un volto 'a face', il cielo 'the sky', un fiore 'a flower', il tramonto 'the sunset', un albero 'a tree' ...}
  - *Covert creation verb*

- c. dipingere {un muro ‘a wall’, il soffitto ‘the ceiling’ ...}  
– *Modification verb*

In a. the entities in direct object position denote a representational object; accordingly, the verb expresses the event of creating that object. In b., the entities in direct object position denote existing objects, natural kinds, locations and so on, and the verb expresses the event of depicting them. In c., the entities in direct object position denote a physical object and the verb expressed the event of covering its surface with paint.

## 5. Concluding observations and future research

In this contribution I have attempted to characterize event nominal polysemy with respect the arguments of the corresponding verbs. In particular, I have attempted to identify which argument is bound in the non-event readings that event nominals may exhibit. The research confirms that non-event nominals do not correspond to a fixed argument position within the verb argument structure; all semantic arguments, including those whose syntactic projection is constrained (shadows) or those which are projected but can be left expressed (defaults) might be bound in the derivation process. Apparently, in some cases, R nominals cannot be associated with a syntactic argument or a semantic participant of the base verb (*analisi*). Result nominals which do not seem to bind any of the arguments of their base verbs tend to be associated with verbs expressing a *covert creation*. The following step is to develop a formal semantic representation that takes these insights into account.

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# Latvian Motion Verbs: Telicity Aspect

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## Abstract

The article deals with two subgroups of motion verbs from the telicity point of view. These subgroups are: verbs denoting running (on foot) and verbs denoting riding a vehicle. Combinations of semantic roles are analyzed to see if the verb in the sentence is telic or atelic. It has been found that most of the verbs can refer to both telic, and atelic motion depending on context. There are several verbs that normally refer to the atelic motion only. But no verbs have been found that can refer to telic motion only in the way that atelic usage would be completely impossible.

**Keywords:** motion verbs, semantic roles, telic verbs, atelic verbs.

## 1. Introduction

In linguistics the semantics of motion verbs is widely analyzed from different points of view (see Talmy 2000, Miller 1972, Asher & Sablayrolles 1995, Levin & Rappaport Hovav 1992 etc.), but there is almost no research done on Latvian motion verbs yet.

Until now the main focus of the research on Latvian motion verbs lied on the paradigmatic (semantic) relations between the verbs (Nešpore 2005). In that research meanings of verbs were split into components and the basic semantic relations (hyponymy, synonymy, incompatibility) in the motion verb group are described.

In this article a small group of Latvian motion verbs is analyzed in the telicity aspect.

Two subgroups of the motion verbs were chosen for analysis:

1. 17 verbs denoting motion on foot — running (RU verbs); verbs referring to running only are taken into account (verbs that may refer to any kind of motion on foot are ignored);

## 2. 12 verbs denoting motion by vehicle (VH verbs).

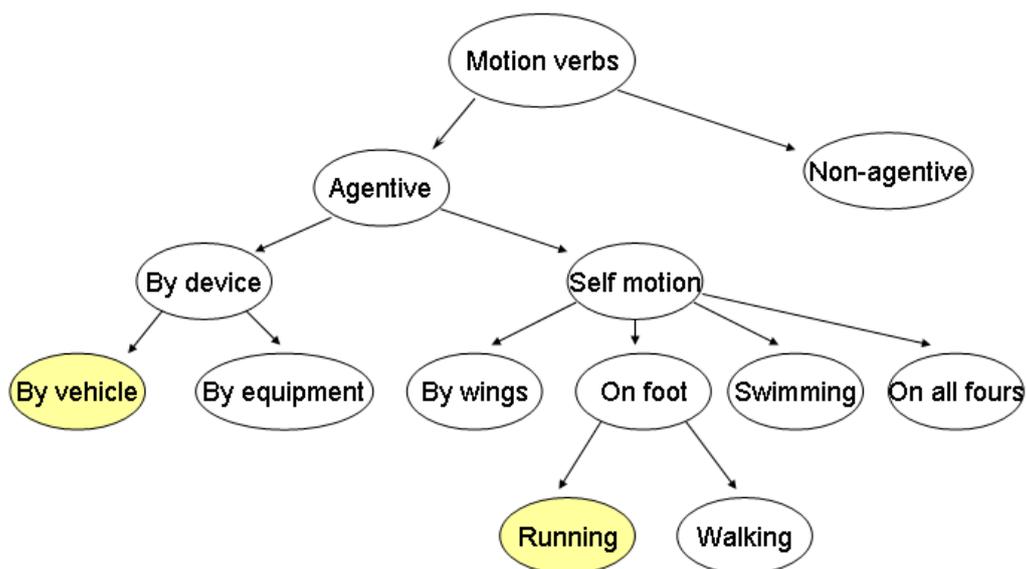
The position of the chosen verbs in the paradigm of motion verbs is shown in Figure 1.

Telic actions are those having a natural completion, finished in some sense (Saeed 2003: 122), these actions (in our case — motion) are goal-directed. For example, if we compare actions in (1) and (2), we see that action in (1) has this natural completion — going home a person sooner or later arrives at home; if the action is interrupted, its purpose is not accomplished. The action in (2) may go on for a long time or for a moment — the result is the same. Consequently, the former action is telic, the latter — atelic.

(1) *iet uz mājām* ‘to go home’

(2) *vizināties pa pilsētu* ‘to take a ride (by vehicle) around a city’

Analyzing the typical combinations of the semantic roles (patterns) in sentences with motion verbs these verbs are described from the telicity aspect — there are certain patterns for telic and atelic motion.



**Figure 1. The analyzed verbs in the system of motion verbs**

## 2. The semantic roles characteristic for sentences with RU and VH verbs

The semantic role<sup>1</sup> is the general relationship between the participant and the main verb of the clause. There are different views on the set of semantic roles that is necessary to describe successfully the function of any word in any sentence. To choose a set of semantic roles for sentences with words of certain thematic group is less problematic. In this research the semantic roles necessary for the analysis of motion verbs are chosen. Their definitions here are adapted for the analysis of motion verbs.

**AGENT** — the participant that performs the action (changes location) intentionally — in the case of motion verbs analysed — when the participant performs self-motion or rides/drives a vehicle.

**GOAL** — the place, the object to which motion is directed — the final point of motion.

**SOURCE** — the place, the object from which motion proceeds — the starting point of motion.

**PATH** — the trajectory of motion — the section between **SOURCE** and **GOAL**.

**PLACE** — the area where the action takes place if it cannot be regarded as **PATH**. Usually it is mentioned when motion is not linear, as in (3), or a broader territory is mentioned, in (4). In the **PLACE** the agent is located all the time of motion — there it usually both starts, and finishes.

(3) *Bērni skraida **pa māju*** ‘Children are running-MULTIDIRECTIONAL **around the house.**’

(4) *Meitenīte **mežā** gāja pa taciņu* ‘A little girl walked along the footpath **in the forest.**’

**DIRECTION** — the direction of motion (*uz priekšu* ‘forward’, *pa labi* ‘right’, *pa kreisi* ‘left’ etc.) that is not the final point of motion.

**VEHICLE** — the device that is used to change place; a special case of the semantic role that is known as instrument (Saeed 2003: 150, Jakaitiene 1988: 63, etc.). As in sentences with motion verbs the instrument always is a vehicle, for convenience the name of the role is made more specific here.

**MANNER** — the manner of motion (*ātri* ‘fast’, *lēni* ‘slowly’, *steigšus* ‘in a hurry’ etc.).

**DURATION** — the duration of motion (*divas stundas* ‘for two hours’, *pusi dienas* ‘for half a day’ etc.).

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<sup>1</sup> Other terms for the same notion are *deep semantic cases* (Fillmore 1969), *thematic relations* (Jackendoff 1972), *thematic roles* (Saeed 2003), *participant role* (Allan 1986), semantic functions of actors (Jakaitienė 1988) and other.

TIME — the time of motion (*no rīta* ‘in the morning’, *puspiecos* ‘at five o’clock’ etc.).

PURPOSE — the purpose, aim of motion (*braukt slēpot, atpūsties, strādāt* ‘to go to sky, to relax, to work’ etc.).

### 3. General description of the analyzed motion verbs

#### 3.1. Agentivity

All the verbs denoting running and motion by vehicle are agentive — one of its arguments is agent and they denote intentional motion.

#### 3.2. Meaning of the agent

a. The agent of the VH verbs usually is a human (non-human agent can be met if it performs the action normally associated with a human, as in (5)), it follows from the nature of that kind of motion — vehicles are in disposal of people and only people can use them on their own initiative.

(5) *Suns vizinās ar autobusu* ‘A dog goes for a ride (for pleasure) by bus.’

b. The agent of the RU verbs can be human and animal — living beings that are capable of a particular self-motion — running. For several verbs of this subgroup the typical agent is a particular animal, for example, the agent of the verbs *aulekšot<sub>1</sub>*, *auļot<sub>1</sub>*, *lēkšot<sub>1</sub>* ‘to gallop’, *rikšot<sub>1</sub>* ‘to trot’ normally is a horse or other rideable animal; the agent of the verb *bizot<sub>1</sub>* ‘to gallop in order to escape from gadflies’ is a cow.

#### 3.3. Self-motion vs. motion by vehicle

a. RU verbs refer to self-motion of the agent — motion on foot running.

b. VH verbs refer to motion by different kinds of vehicles — part of the verbs can refer to motion by any vehicle (verbs *braukt* ‘to ride a vehicle’, *braukāt* ‘to ride-MULTIDIRECTIONAL a vehicle’, *vizināties* ‘to ride a vehicle for pleasure’), but several verbs refer to a particular vehicle (*kuģot* ‘to go by ship’ — a ship, *plostot* ‘to go by raft’ — a raft, *laivot* ‘to go by boat (for pleasure)’ — a boat) or to a particular group of vehicles (*jāt* ‘to ride an animal’, *jādelēt* ‘to ride-MULTIDIRECTIONAL an animal’ — a horse and other rideable animal, *airēties* ‘to move by rowing’ — a water

vehicle without engine, *lidot* ‘to fly’ — an aircraft).

### 3.4. Media of motion

- a. All the RU verbs refer to motion on the ground.
- b. VH verbs can refer to motion on the ground, by water (*laivot* ‘to go by boat (for pleasure)’, *kuģot* ‘to go by boat’, *plostot* ‘to go by raft’) and by air (*lidot* ‘to fly’) — all the media accessible by vehicles. Most verbs that typically denote motion on the ground (for example, *braukt* ‘to go by vehicle’) may be used also talking about motion in other media, as in (6) and (7), but verbs that typically denote motion by water or air cannot refer to motion on the ground. The possible reason of this asymmetry — motion on the ground is the most natural, neutral for humans, therefore this medium is not central in the meaning of verbs, other features of motion are more important.

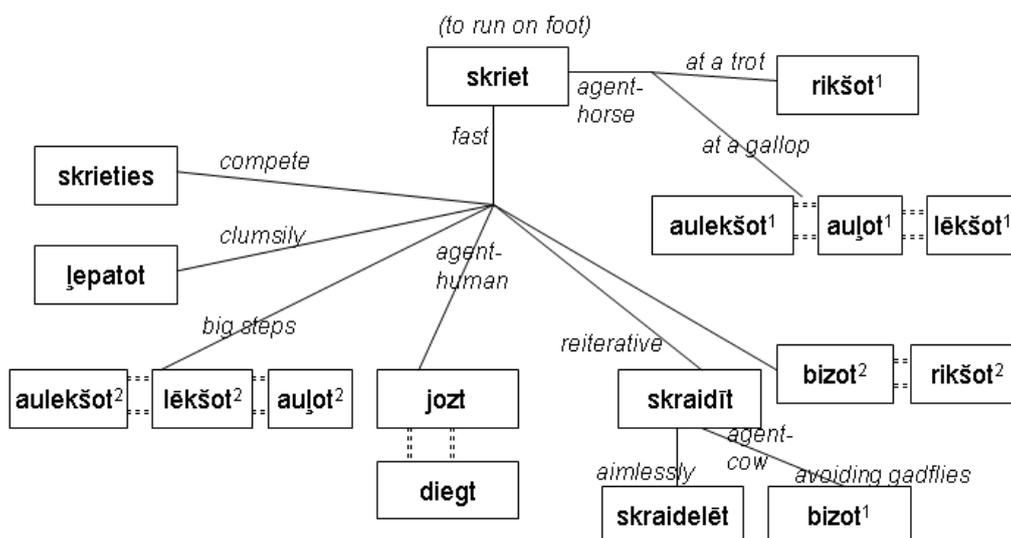
(6) *braukt ar lidmašīnu* ‘to go by plane’

(7) *braukt ar kuģi* ‘to go by ship’

### 3.5. Other features

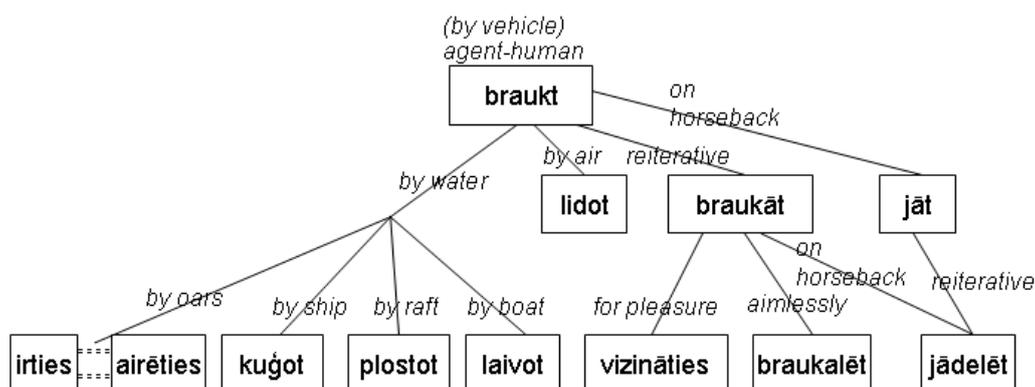
All the Latvian RU verbs with exception of verb *skriet* ‘to run on foot’ (Nešpore 2005: 27–28) have an information about the speed of motion — they denote fast motion; most of these verbs contain information about the manner of motion (‘clumsily’, ‘on trot’ etc.), but VH verbs normally do not contain that kind of information. The only information that is not on the type of vehicle in the meanings of VH verbs is connected with the purpose of motion — *vizināties* ‘to ride a vehicle **for pleasure**’, *braukalēt* ‘to ride a vehicle **aimlessly**’.

One of the reasons to pick two subgroups of verbs was the intention to find out how (if at all) the distribution of these verbs differs in the sentence — what are the typical combinations of semantic roles in both cases. Although differences are not many, semantic roles are basically the same, subgroups differ by the existence of the vehicle mentioned in the sentence and some features of motion resulting from the existence of a vehicle that usually is not reflected in the distribution of the verbs.



**Figure 2. The hierarchic relations of the Latvian RU verbs**

Figures 2 and 3 show the hierarchic relations of the RU and VH verbs. The higher in the hierarchy the verb is situated the more general is its meaning; the meaning components by which the lexical meanings of corresponding verbs differ are shown at the lines. Verbs that are linked with thicker lines (mostly horizontal) are regarded as synonyms.



**Figure 3. The hierarchic relations of the Latvian VH verbs**

#### 4. Telicity of motion

Examining the context where motion verbs occur certain patterns of the semantic

roles can be observed; they help to distinguish if motion described in the sentence is telic or atelic, i.e., whether the result of motion (to arrive in certain place) or the process of motion is of importance in the sentence.

Due to this feature (telicity) the motion verbs can be divided into several groups:

1. Most verbs in appropriate context can refer to both telic, and atelic action — the attention can be focused on the goal, and on the process of motion. For example, *jāt* in (8) and (9); *braukāt* in (10) and (11); *skriet* in (12) and (13).

(8) *jāt uz ezeru* ‘to ride (the animal) to the lake’

(9) *jāt mežonīgos auļos* ‘to ride (the animal) wildly at a gallop’

(10) *braukāt no mājām uz darbu* ‘to go (regularly) by vehicle from home to work’

(11) *braukāt apkārt pa pilsētu* ‘to go by transport about the town’

(12) *skriet uz mājām* ‘to run (on foot) home’

(13) *skriet katru rītu* ‘to run (jog) every morning’

2. Several verbs can denote atelic motion only — the emphasis lay on the process of motion (manner, duration, vehicle etc.), and these verbs normally cannot refer to telic motion. In the sentences with these verbs we cannot see the combinations of the semantic roles characteristic for telic motion. Examples of these verbs are: *vizināties* ‘to ride a vehicle for pleasure’, *braukalēt* ‘to ride a vehicle aimlessly’, *skraidelēt* ‘to run (on foot) about aimlessly’, *laivot* ‘to go by boat for pleasure’.

3. Theoretically, the third group of verbs could be verbs denoting telic motion only. But in the case of motion verbs this group is problematic. There are several verbs that usually refer to telic motion, for example, *jozt* and *diegt* in (14) and (15); still it is not impossible to use them in an atelic way as in (16) and (17), however this usage is not typical. The 3<sup>rd</sup> group could form the verbs that **typically** refer to telic motion.

(14) *jozt prom* ‘**to rush** away’

(15) *diegt uz mājām* ‘**to rush** home’

(16) *jozt ko kājas nes* ‘**to rush** as fast as possible’

(17) *diegt ko kājas nes* ‘**to rush** as fast as possible’

The absence of the clearly telic verbs results from the nature of motion — typically it is durative and it is always possible to focus on the inner structure of the event — to the process of motion.

#### 4.1. Telic motion

The most typical and clear pattern for the sentences denoting telic motion is as follows:

AGENT + VERB + GOAL.<sup>2</sup>

Example:

(18) *Bērni skrien uz mājām.* ‘Children run home.’

Often there are other semantic roles also in the sentence, but they do not give us the information on the telicity of motion, as in (19).

(19) *Mazi bērni ātri skrien uz savām mājām* ‘**Small** children run **quickly** to **their** home’.

In the above mentioned pattern there may be some variations — the aim of motion may be expressed other than by location — the GOAL may be substituted with some other semantic roles: PURPOSE, as in (20), or DIRECTION, in (21), provided that the meaning of the DIRECTION is not in conflict with telic, linear motion, for example, *uz priekšu* ‘forward’, *prom* ‘away’; in this position DIRECTION with meaning ‘back and forth’ is not possible — it is characteristic for atelic motion.

(20) *Bērni brauc slēpot.* ‘Children go (by transport) to sky.’

(21) *Bērni skrien prom.* ‘Children run away.’

Consequently the pattern for telic motion can be the following:

AGENT + VERB + PURPOSE or

AGENT + VERB + DIRECTION.

If there is no GOAL, PURPOSE or DIRECTION in the sentence, it usually means that motion is not telic (22); often in these cases there are other semantic roles in the sentence giving additional information about the process of motion.

(22) *Vīrietis skrien.* ‘A man is running.’

#### 4.2. Atelic motion

The meaning of these verbs is connected with the process of motion (manner, vehicle, location, duration etc.), instead of the result, goal of the motion, for example, verbs *vizināties* ‘to ride a vehicle for pleasure’, *jādelēt* ‘to ride-MULTIDIRECTIONAL an animal’, *plostot* ‘to go by raft for pleasure’, *laivot* ‘to go by boat for pleasure’, *bizot* ‘to gallop in order to escape from gadflies (about cows)’.

The minimal pattern for atelic motion is the following:

AGENT + VERB.

Example:

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<sup>2</sup> Here and hereafter only semantic roles that help to characterize the telicity of the motion are shown in the patterns.

(23) *Govis bizo* ‘Cows are galloping (in order to escape from gadflies).’

This minimal pattern is not very often met, it is characteristic of few verbs only; still it is possible for all the atelic verbs. Usually this pattern is used with verbs with meaning that gives clear information on the manner of motion, the vehicle (or other feature of motion that is important in the event) and there is no need to give this information in the sentence once more, as in (24) and (25). This pattern clearly emphasizes the manner of motion, other circumstances are not important.

(24) *Govis bizo*. ‘Cows are galloping (in order to escape from gadflies).’

(25) *Zirgs rikšo*. ‘A horse is trotting.’

More often atelic motion is expressed in sentences where apart from verb and AGENT is something more — often it is PLACE, motion is attached to a particular territory:

AGENT + VERB + PLACE.

Example:

(26) *Bērni skraidelē pa māju*. ‘Children is running (on foot) around aimlessly.’

If there is PLACE in the sentence and no other semantic roles with locative meaning (PATH, DIRECTION, GOAL), the motion usually is atelic. SOURCE and GOAL are not known or important, only the territory is mentioned.

Additionally or instead of PLACE there may be TIME, DURATION or MANNER.

Dealing with atelic motion sometimes it is difficult to distinguish PATH and PLACE — it is difficult to say whether the concerned object, for example, meadow, is PATH as a trajectory of motion, or PLACE as territory of the motion. Additionally to PLACE or PATH, DIRECTION with the meaning ‘back and forth’ is met. Then the pattern is:

AGENT + VERB + PLACE/PATH + DIRECTION.

Examples:

(26) *Jānis braukalē pa ceļu šurpu turpu*. ‘John is riding a vehicle (aimlessly) **back and forth**.’

(27) *Linda skraida apkārt pa pilsētu*. ‘Linda is running **around** the town.’

Sometimes DIRECTION with the meaning ‘back and forth; around’ is instead of PLACE, it emphasizes once more the atelicity of the motion, the absence of one GOAL. Still this DIRECTION does not occur very often, because: (a) if the motion is not linear, it is known from the meaning of the verb and the DIRECTION is not essential, (b) some verbs express atelic motion that normally is linear — goes to one direction, for example, *laivot* ‘go by boat (for pleasure)’ or *plostot* ‘to go by raft (for pleasure)’.

For VH verbs additionally to the above-mentioned semantic roles the name of the vehicle may occur:

AGENT + VERB (+ VEHICLE) + PLACE

Example:

(28) *Jānis vizinās ar mašīnu pa pilsētu.* ‘John is taking a ride by car around the city (aimlessly).’

VEHICLE can be also the only semantic role in the sentence apart from the agent. Then it is emphasized (the pattern corresponds to the pattern AGENT + VERB for RU verbs):

AGENT + VERB + VEHICLE.

Example:

(29) *Jānis braukā ar Mercedesu* ‘John is driving-MULTIDIRECTIONAL in Mercedes’.

Mostly the VEHICLE is mentioned in sentences with verbs that can refer to different kind of vehicles (*vizināties, braukalēt, braukt*) — if the kind of vehicle is important, it should be explicitly mentioned. If the verb denotes motion by one kind of vehicles only (*laivot* ‘to go by boat’, *kuģot* ‘to go by ship’, *plostot* ‘to go by raft’), it is not necessary to mention the vehicle once more.

#### 4.3. Verbs denoting both telic and atelic motion

When verbs depending on context can refer to both telic, and atelic motion, patterns characteristic for both types of events can be observed.

In some cases, verbs that are more often used to denote atelic motion may refer to telic motion. They are morphologically reiterative verbs *skraidīt* ‘to run (on foot)’, *braukāt* ‘to ride a vehicle’, *jādelēt* ‘to ride a horse’. As telic verbs they can be used in two ways:

1. To denote repeated movement between SOURCE and GOAL, as in (30). Usually both destinations are known and important, but SOURCE is seldom explicitly mentioned in the sentence (it can be inferred from context and/or situation) — GOAL usually is more important, in (31).

(30) *skraidīt no mājām uz darbu* ‘to run (on foot) from home to work (and back)’

(31) *skraidīt uz darbu* ‘to run to work (regularly)’

The pattern for this is following:

AGENT + VERB (+SOURCE) + GOAL.

2. To denote multidirectional motion in a particular territory, in (32), or to several

GOALS in the territory, in (33): a set of GOALS is known, not individual GOALS.

(32) *braukāt pa pilsētu* ‘to go (by vehicle) around the city’

(33) *skraidīt pa veikaliem* ‘to run to/through shops (to shop around)’

The patterns for these two cases:

AGENT + VERB + PLACE/PATH.

Example:

(34) *Mākslinieki braukā pa Eiropu.* ‘Artists are travelling (by vehicles) around the world.’

AGENT + VERB + GOAL.

Example:

(35) *Sievietes skraida pa veikaliem.* ‘Women run to/through shops (shop around).’

## 5. Conclusions

The analysed motion verbs (RU and VH verbs) are different from the telicity point of view. Most of them in different contexts can refer to both telic, and atelic motion. Several verbs (*laivot, braukalēt, vīzināties* etc.) can denote atelic motion only; it is almost impossible to use them to refer to telic motion. But the group of verbs that would refer to telic verbs only is problematic — there are verbs that normally are used as telic verbs, but it is possible to use them to refer to atelic motion.

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**The Morphology and Semantics of  
Hybrid Lettered Words in Chinese**  
**Short title: Hybrid Lettered Words in Chinese**

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**Abstract**

Chinese is showing the effects of internationalization through contact with English. *Lettered words* have emerged as a new phenomenon. Lettered words are primarily abbreviations and *hybrid words* composed of Roman letter and Chinese character components. We surveyed hybrid words in a Chinese newswire corpus to explore their morphological and semantic structure. We find that the orthography of hybrid words belies their essentially Chinese structure: Roman letter morphemes are used as new Chinese *zì* (syllable-morpheme-character), combining with other *zì* to create compounds. Hybrid words are created with the same compounding processes as *zì*-only words, but the Roman letter and Chinese *zì* constituents play different roles. Roman letter morphemes are used primarily as modifiers and Chinese *zì* are used primarily as heads.

## **1. Introduction**

As Chinese society continues to internationalize, the Chinese language is showing the effects of this development through greater contact with English. One resulting trend is the use of new types of words called *lettered words* (*zìmǔcí*). Lettered words are written fully or partly in Roman letters rather than Chinese characters. Many are borrowings from English, and most are initialisms (*WTO*), acronyms (*SARS*), or *hybrid words* composed of a Roman letter constituent and a Chinese character constituent in their written form, such as PC 机 ‘personal computer’ lit. ‘PC-machine’, in which *PC* is written as Roman letters and 机 ‘machine’ as a Chinese character.

Lettered words have become increasingly popular in Chinese in the last few decades and now form a recognized category of new words in the language. They are used frequently in written communication, especially in news writing, technical writing, and computer-mediated communication (Gao 2007). Their use in speech varies based on education, English fluency, personal interests, and age, factors that represent an individual’s level of participation in China’s modernization (Riha 2008).

## **2. Lettered Words as Innovations in Chinese Lexical Borrowing**

Lettered words are unusual because they depart from traditional forms of borrowing in Chinese through the use of Chinese syllable-morpheme-characters (*zì*). Two such traditional processes are loan translation, in which Chinese morphemes are used to translate the meaning of the morphemes in the original (e.g. 热狗 *règǒu* ‘hot dog’, lit. ‘hot-dog’), and transliteration, in which Chinese morphemes are used for their phonetic value only and their individual meanings are suppressed (e.g. 沙发 *shāfā* ‘sofa’, lit. ‘sand-disperse’). In lettered words, Roman letters morphemes replace some or all of what would traditionally have been Chinese *zì*.

To compare the significance of this phenomenon in Chinese with lexical borrowing in English, imagine the widespread use of Chinese syllable-morpheme-characters in English to represent borrowings from Chinese, such as 锅 for *wok* (a type of metal pan) and 豆腐 for *tofu*, and their use to form new words in English, such as 豆腐-burger ‘tofu-burger’. Although this seems improbable in a Western-language context, it is exactly what is happening in Chinese. Roman letter morphemes have been imported into Chinese in both lexical borrowing and in native word formation.

The use of lettered words in Chinese involves new issues regarding the role of the script in lexical borrowing that merit investigation. First, the *script* of lettered words is essential in their formation, a factor not usually considered in the study of the Chinese words or more generally in the study of lexical borrowing. When words are the focus of linguistic analysis, it is assumed that the written form follows the spoken form and that the written form is based on the spoken form (Coulmas 2003). This relationship does not necessarily hold for lettered words in Chinese, however, as a wide variety is used primarily in print (Liu 1999, Zhang 2005). Second, the fact that lettered words use a *foreign* script rather than Chinese characters represents an aspect of their form that has yet to receive attention in writing on lexical borrowing in Chinese, and is addressed only briefly in recent works (e.g. Lin 2001, Li 2004).

### **3. Hybrid words**

Many lettered words are hybrid compounds in which Roman letter constituents are combined with Chinese character constituents. Examples include borrowings (primarily from English) such as X 光 ‘X-ray’, in which *X* is written with a Roman letter and ‘ray’ with a Chinese character, and native creations such as XO 酱 ‘XO sauce’ (XO < extra old [a grade

of cognac]), in which *XO* is written with Roman letters and ‘sauce’ with a Chinese character. The appendix of lettered words in China’s authoritative dictionary of modern Chinese, *Xiàndài Hànyǔ Cídiǎn* ‘Dictionary of Modern Chinese’, includes numerous entries that are hybrid words of this type.

#### **4. Corpus search**

##### *4.1 Research question and method*

Examining the hybrid word entries in *Xiàndài Hànyǔ Cídiǎn* and in Chinese newspapers and other publications, we noticed that most hybrid words in Chinese appeared to be endocentric compounds with a Roman letter component as the modifier and a Chinese *zì* component as the head. Our goal in this study was to determine whether the ‘Roman letter modifier – Chinese *zì* head’ pattern is in fact the prevalent pattern for hybrid words in Chinese.

We used a Python script (<http://python.org>) to randomly select articles containing Roman letter sequences from the Xinhua (People’s Republic of China) and Central News Agency (Taiwan) portions of the *Chinese Gigaword Corpus Third Edition* (Graff 2007). We randomly selected 223 articles from the beginning, middle, and final years (1991, 1998, 2005) of

the two parts of the corpus to find Roman letter sequences. Roman letter sequences were defined as the regular expression

$([A-Za-z0-9-'.!]+)?[A-Za-z]([A-Za-z0-9-'.!]+)?$

which matches any instance of a Roman letter [A-Za-z] optionally preceded by one or more letters, digits, hyphens, apostrophes or periods and optionally followed by one or more letters, digits, hyphens, apostrophes or periods. Examples of Roman letter sequences we found include lettered words such as *IBM*, alphanumeric strings such as *F-16*, and hybrid words such as VCD 视盘机 ‘VCD player’.

#### 4.2 Results

A total of 687 Roman letter strings were extracted and catalogued by hand according to whether they formed compounds with the surrounding Chinese *zì*. Of these strings, 412 were classified as endocentric modifier-noun compounds of the form [M N]<sub>N</sub>. Of those strings, 382 had a Roman letter-based element as the modifier and a Chinese *zì* element as the head noun. Examples include ATM 机 ‘ATM machine’ (ATM < automated teller machine) in which *ATM* is the modifier and 机 ‘machine’ is the head and IT 业 ‘IT industry’ (IT < information technology) in which *IT* is the modifier and 业 ‘industry’ is the head. In addition to modifiers such as *ATM* and *IT* that are initialisms,

the 382 hybrid strings also included compounds in which individual Roman letter morphemes functioned as modifiers. Examples include K 金 ‘alloyed gold’ (K < carat) in which *K* is the modifier and 金 ‘gold’ is the head and X 染色体 ‘X-chromosome’ in which *X* is the modifier and 染色体 ‘chromosome’ is the head. Of the 412 hybrid compounds, only a small number (30) contained a Chinese *zì* modifier combined with a Roman letter-based head (for example, 蚊子 DNA ‘mosquito DNA’).

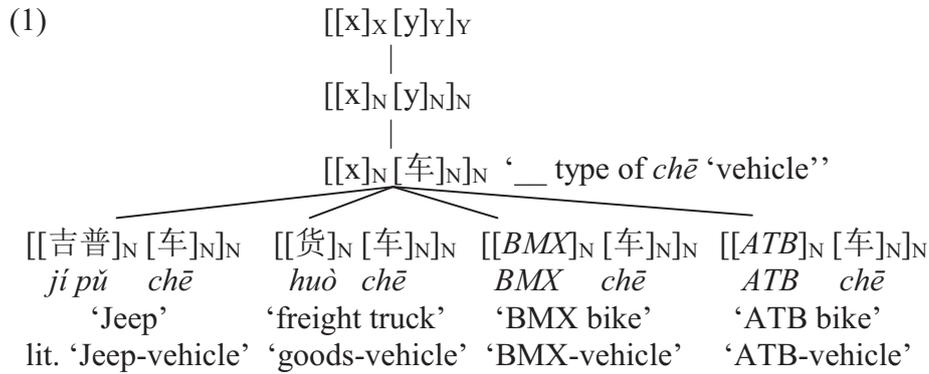
#### 4.3 Discussion

The corpus study results confirm that the ‘Roman letter modifier – Chinese *zì* head’ pattern is most frequent in hybrid compounds. We suggest that the preference for this pattern may be motivated by the opacity of Roman letter-based units relative to their Chinese *zì* counterparts. Roman letter-based units are more opaque than Chinese *zì* in part because they are written with a foreign script. They may therefore be selected to take on the secondary role of modifiers in hybrid compounds rather than the primary role of heads.

In comparing hybrid compounds and their *zì*-only counterparts, we suggest that hybrid compounds are formed by analogy with existing *zì*-only compounds in Chinese using established compounding processes. In particular, compounding *schemas* at various levels of abstraction are used to create both traditional *zì*-only compounds and hybrid compounds. The

notion of schemas has been developed in Construction Grammar (Goldberg 1995, 2006, Kay 1997) to argue that *constructions*, or “learned pairings of form with semantic or discourse functions” (Goldberg 2006: 5) at different levels of abstraction form native speakers’ knowledge of grammar and are used to form new utterances. Booij (2004) applies the concept of constructions at the level of morphology to develop a theory of *Construction Morphology*. Booij argues that morphological schemas are responsible for the formation of new derived words and compounds in a language. Following Booij (2004), we propose that Chinese speakers use schemas to form hybrid compounds by analogy with existing *zì*-only compounds of the same type at various levels of abstraction.

As in Booij’s (2004: 125) model, these levels of abstraction for Chinese compounds include fully abstract schemas such as  $[[x]_X [y]_Y]_Y$ , which combines two free morphemes to form a compound of the form Y; intermediate schemas such as  $[[x]_N [y]_N]_N$ , which combines two nouns to form a compound noun; and partially lexically specified schemas such as  $[[x]_N [chē]_N]_N$ , which combines a noun with 车 *chē* ‘vehicle’ to form compounds meaning ‘a type of vehicle’. These schemas are represented using an inheritance tree in which each lower node inherits the features of its dominating node. The inheritance tree for compounds with *chē* ‘vehicle’ as the head is shown in (1).



Example (2) shows that BMX 车 ‘BMX bike’ (BMX < bicycle motocross) and ATB 车 ‘ATB bike’ (ATB < all-terrain bike) are formed by analogy with other hybrid compounds and compounds expressed entirely with *zì*. They are also formed through the use of at least three compounding schemas: the fully abstract schema  $[[x]_X [y]_Y]_Y$  which combines two elements in a compound to give the lexical category Y, the intermediate schema  $[[x]_N [y]_N]_N$  which creates a nominal compound by combining two nouns, and the partially lexically specified schema  $[[x]_N [车]_N]_N$  in which the first position is filled with a noun and the second is lexically specified as the head *chē* ‘vehicle’. The example shows that even though hybrid compounds include a novel foreign component, they are actually formed with the native compounding schemas in the same manner as *zì*-only compounds.

The role of the lettered modifier is to express a new or foreign concept, while that of the Chinese *zì* head is to express the core lexical and semantic category of the hybrid word. The ‘foreign modifier – Chinese

head' structure also positions hybrid words in Chinese type hierarchies, facilitating their interpretation in terms of native semantic categories. The head 'sinicizes' the hybrid word by serving as its hypernym, and the hybrid word becomes one of its hyponyms. The lettered element is adapted to be a 'type of' the semantic category that forms the Chinese *zì* head. For example, *BMX chē* and *ATB chē* are both hyponyms of *chē*. Thus, although *BMX* and *ATB* denote foreign concepts, they are ultimately categorized as hyponyms of a *Chinese* semantic category, that is, they are types of Chinese *chē* 'vehicle'. The Chinese *zì* head allows speakers to determine the word's basic meaning and syntactic category even if they are not familiar with the lettered element, facilitating the use of the hybrid word in Chinese.

## **5. Conclusion**

We conclude that hybrid words are a unique innovation in modern Chinese. On the one hand, they represent a striking departure in Chinese lexical borrowing since they use Roman letter elements as morphemes, contradicting the tradition that foreign concepts "must be made Chinese in form and character" (Pasierbsky 1989: 102), or "sinicized", before they can enter the Chinese language. On the other hand, hybrid words *are* partly sinicized since they are formed with established compounding

schemas in Chinese by analogy with *zì*-only compounds. Roman letter elements are used to fill slots in existing compounding schemas rather than being used to create entirely new schemas. Thus, the semantic and morphological structure of hybrid words is an extension of existing compounding schemas and borrowing processes in Chinese rather than a departure from them. Hybrid words provide insights into the innovative ways that foreign elements have been incorporated into Chinese, and they reveal the productivity of compounding in absorbing new elements into the language.

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# A New Evaluation Method for the Graph Clustering of Semantic Networks Built from Lexical Co-occurrence Information

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## Abstract

As an example of engineering-based semantics, which consists of providing intellectually intuitive forms of language meaning, adjustment methods for semantic networks are proposed to render tangible their contextual structures and to objectively evaluate them. We develop a new windowing method that generates pairs of co-occurring words to be used in constructing semantic networks that are subsequently subdivided by graph clustering algorithms into sets of meaningful components. Computation results are evaluated employing the Modularity Q value and the F-Measure. The effectiveness of these techniques is tested by creating graphs representing the story networks of some literary texts.

**Keywords:** co-occurrence, semantic network, graph clustering, modularity Q, F measure

## 1. Background

### 1.1. What is meaning? -- Essentialist and performance-based semantics

When meaning within a language is considered as being rooted in both physical reality and in human consciousness, it tends to be evaluated from the dualistic view points of *success* or *failure* in terms of passing some test demonstrating intelligence. For example, the Turing test is worth mentioning in this context as it was conceived in order to evaluate a machine's ability to simulate the human faculty of reason. If a computer could successfully make us believe that it was a human individual by simulating the comprehension and production of human-like language, we would have to regard the mechanically-generated 'intelligence' as being completely equivalent to genuine intelligence. While this example comes out of the history of the *amodal theory* of meaning, similar essentialist approaches based on performance results have also been opposing

views on semantic science: Glenberg and Robertson (2000) hold linguistic meaning as being situated in successful *meshing affordance*. According to such protagonists of embodiment theory, meaning, in its ultimate essence, is expressed in and simulated by the experiences of imminent and instrumentally impoverished situations that humans constantly negotiate and resolve by determining the most appropriate alternative solution available to them, often in what appear to be flashes of inspiration. For instance, comparing the afforded meaning in "Marissa forgot to bring her pillow on the camping trip; As a substitute, she filled up her sweater with *leaves*" with the non-afforded example of "As a substitute, she filled up her sweater with *water*", Glenberg and Robertson (2000) affirm that "a sentence is meaningful to a particular reader to the extent that the reader can mesh the objects and activities as directed by the sentence," without providing any clear conceptual connections to explanations about how and why humans can perform well in such instinctive tasks involving meshing affordance.

Such an understanding derives from the essentialist view that, notwithstanding the extent to which linguistic behaviour is being elucidated scientifically, the *black box* still remains largely elusive with the only identifiable aspects being input-output characteristics: a situation that dissuades us from pursuing the internal mechanisms or structures of meaning processing. We must stress the lack of any interface that would allow us to sufficiently articulate the steps necessary to specifically model meaning production and comprehension. However, there is more to it than that. Essentialist approaches to meaning are based at the same time on performance-related concept values that only admit for singular forms of optimization where evaluations would be definitive and strictly binary (sense versus nonsense). Meaning comes into effect if a robot were to succeed in deceiving a human understander into thinking that it were congeneric (Turing) or were capable of determining the optimal match between bodily or physical conditions and situational or environmental ones (Glenberg & Robertson, 2000). It is thus far from being subject to evaluations of schema involving gradual differentiation.

### *1.2. Engineering-based semantics based on semantic networks*

Various approaches to defining meaning within language apparently exist. Essentialist and performance-based semantics leave the black box untouched as a source of meaning after trying to work out the details of linguistic mechanisms. Unlike these types of inquiry, however, we propose in this paper an engineering-based approach to meaning, that is eclectic (because meaning here is not identified with any idealized basis but is rather treated at the surface level of discourse) and interdisciplinary (because

meaning becomes a target for language technology, such as Natural Language Processing).

Our exploration model is neither preoccupied with transcending human understanding in meaning generation, nor with predetermining a special semantic field where detected meanings are unique and right. Instead, we assume that data relating to linguistic meaning must be exhaustively assembled from a target discourse without mystifying some opaque core of signification. It is worth referring to the well-known formula provided by Ferdinand de Saussure, a founder of modern linguistics and natural language processing: “*Language is a system of interdependent terms in which the value of each term results solely from the simultaneous presence of the others.*” If we follow the implicit idea of this thinker, the possibilities of defining semantics can be founded on the “associations” between words. Metaphorically speaking, meaning in language can be considered as being generated from a series of spaces *between* terms. In other words, meaning is by itself a *context*, which is actualized from a chain of words or a block of adjacent terms found in a document.

To that extent, meaning can be manipulated by engineering-based semantics as a form of intellectual intuition about what elements quantify as *entities* (things with distinct and independent existence). One appropriate way to express such transparent representations is to develop and visualize a *semantic network*, as far as meaning may be more or less communicable and thus have an inherent structure or function to convey the signification. Here, a semantic network is represented as a graph form: semantic relationships among words, as *nodes* (or *vertices*), are actualized as *paths* (or *edges*) that may be based on co-occurrence, synonyms or other types of context-shared associations. However, the merits of semantic networks are not limited to their excellent potential to make associations tangible. Their inherent manipulability allows us to generate, as the results of *recombination*, *grafting* and *pruning* operations, multiple graphs or sub-graphs that can be compared and evaluated from various viewpoints free from any commitment to a one-dimensional sense of values. Even the example of *affordance failure* (Glenberg and Robertson, 2000) could be reasonably comprehended by utilizing a set of semantic networks built from a large-scaled corpus and computing the respective connection weights for word strings of “*water pillow*” and “*a sweater in water*”.

Another advantage of our methodology is the availability of algorithms introduced from the science of *complex networks*. Some coefficients relating to graph evaluation turn out to also be useful for optimizing the design of semantic networks. A gradual differentiation schema is proposed from graph theory to construct mediating interfaces that fully employ diversity to be adapted to human viewpoints and utilities.

Meaning, as captured from the interconnected language system, can then be delivered from problems intrinsic to essentialist and performance-based semantics.

## **2. Introduction**

### *2.1. Semantic networks as a form of complex networks*

Rapid advances within network science are helping to transform our ways of understanding the world, by demonstrating that constituent elements are linked together in web-like patterns of connectivity across a range of phenomena from chemical responses cells to human social relationships. By detecting the structures of parts to whole in the world, it is possible to efficiently identify the interactive and explicit relations between constituent elements of a network, and, in turn, to potentially discover latent knowledge and perspectives about such networks. Research achievements by Barabási and his colleagues over recent years have had a major impact on network science, prompting a significant shift in the field due to the concept of "*small world, scale free*" structures.

Within the framework of *complex networks*, linguistic worlds have also been explored by researchers. For instance, studies by Ferrer i Cancho et al. (2001) and by Steyvers et al. (2005) suggest that the generic properties commonly found within natural networks can also be observed within language networks. The notion of linked-worlds can also contribute to a deep understanding of language, especially in yielding extensive insights into semantic worlds. Semantic networks are often used to represent linguistic information in intuitively accessible forms with a graph consisting of vertices that represent words or concepts and edges that represent lexical relationships, such as adjacency, association, or co-occurrence. The basic element of a semantic network is the pairing of two words, together with additional information about the connection weight (i.e., frequency, closeness, or similarity). Thus, the nature of a particular semantic network will depend on word pairings that are determined from a specific source or document according to some rules.

### *2.2. Graph clustering*

The main concern of this study is an analysis of semantic networks by decomposing them into small but strongly connected components. For this kind of graph clustering, the Markov Cluster algorithm (MCL) proposed by van Dongen (2000) is often ap-

plied, as it is effective in subdividing a semantic network into groups of similar or related words or concepts. Through the simulation of random walks within a graph, the MCL computes a stochastic matrix by alternating between the two algebraic operators of *expansion* and *inflation* until the stochastic matrix reaches a convergence. Through that process, a complete network graph would be partitioned into smaller groups without any overlaps among the subdivisions (called hard clustering). MCL allows us to effectively analyze semantic networks in a conceptual level by downsizing the graph structure.

However, as far as the quality of the resultant clusters is concerned, their evaluation is not a simple issue because the relative significance of key words and the granularity of concepts can vary greatly according to how a semantic network is constructed from document data. However, as discussed in our previous studies (Jung et al., 2006, 2007, 2008), the extraordinarily large clusters yielded by this method are undoubtedly a crucial problem for clustering semantic networks. Certainly we have observed many cases where the distributions of words within a document generally follow a power law, but where the distributions in cluster sizes are markedly unbalanced lacking any special features. In order to overcome these deficits, we have developed a series of graph clustering algorithms to improve on MCL in the Recurrent MCL (RMCL) and latent adjacency clustering (Jung et al., 2006, 2007, and 2008).

In contrast, this present study adopts a different approach to the problem, specifically exploring a method of controlling parameter settings so that the most appropriate graphs can be selected based on clustering results. By employing this method, we can obtain multiple semantic networks from the same document source and select from among them according to evaluation results for different purposes or from the standpoints of different analytical readers. The effectiveness of this procedure stems from the following advantage: the multitude of semantic network instances can facilitate the readjustment of concept size when multiple composition themes are untangled by using the derived MCL algorithms mentioned above.

### **3. Selecting word pairs from a document**

#### *3.1. Typical windowing methods*

A semantic network is built by extracting meaningful word pairs from a document. The initial extraction step can be regarded as the most significant work in the

sense that the conceptual structure and other features of a document reflected in the semantic network appear to rely considerably on the selection of word pairs. The pairing relationship between words can represent adjacent, associative, or co-occurring lexical information about the words. The “*window method*” is one well-known way of gathering word pairing data based on co-occurrence. In this method, it is assumed that the strongly-related words are closely located to each other within a context. By controlling some parameters, it is possible to extract different lists of co-occurring word pairs from a single document.

This method was developed and introduced within the Information Mapping Project at Stanford University (by Peters and his group, 1999) and in studies by Schütze (1997) and Takayama et al. (1998). Essentially, a moving frame referred to as a “window” is passed across the target document in order to pick up information about adjoining words appearing inside the window. In this process, the window size is fixed to control for the co-occurrence range of the words, and key words are selected in advance from the document based on frequency so that the window method only collects word pairs co-occurring within the neighbourhood of key words. However, as is also important issue in text analysis, it has been argued that determination of key words in the document should not be judged solely on the criteria of frequency. Rather, key words can be extracted based on analysis results for semantic networks built based on overall lexical co-occurrence data, as that approach would appear to better summarize the characteristics of a document.

However, alternative methods have also been proposed that collect all possible lexical co-occurrence data by incrementally advancing a window across an entire document, rather than a selective search for word pairs centered on key words. For example, Burgess et al. (1998) have advocated an automatic mechanism called HAL (Hyperspace Analogue to Language) for building a semantic information space from a corpus. In HAL, Multidimensional Scaling (MDS) is applied to a global co-occurrence matrix that is generated by a stepping frame collecting the entire neighbouring word relationship. Burgess et al. (1998) take an example of a garden-path sentence “The horse raced past the barn fell” in presenting a distance matrix for the words, as shown in figure 1. With a five-word moving-window frame, the distance value is assigned from 1 to 5 according to the distance between the words. That is to say, each row corresponds to the sum of the distances between the word for that row and preceding words, whereas each column corresponded to the sum of the distances between the word for that column and subsequent words.

	barn	horse	past	raced	the
barn		2	4	3	6
fell	5	1	3	2	4
horse					5
past		4		5	3
raced		5			4
the		3	5	4	2

Figure1. Example of a co-occurrence matrix in HAL

### 3.2. Incrementally advancing window

In building semantic networks in this study, we have essentially adopted the method to exhaustively obtain lexical co-occurrence data, as proposed by Burgess et al. (1998), although a more effective method is also explored from a different perspective. If we define window size  $n$  taking the value of a radius (thus, the diameter is  $2n+1$ ), we need only to extract from the window state  $[w(i-n), w(i-n-1), \dots, w(i), \dots, w(i+n-1), w(i+n)]$  (where  $i$  denote the temporary centre position) only co-occurring pairs based on the rightmost word  $w(i+n)$  to avoid double counting. Overall pairing instances and their frequencies can thus be obtained by incrementally advancing the window to build a graph-based semantic network.

In this method, it is possible to freely set two parameters which bring some advantages. The window size  $n$  can change from 1 to  $p$  and the threshold for word pair frequencies  $\theta$  can vary from 1 to  $q$ . For example, a theta value 3 ( $\theta = 3$ ) would mean that word pairs that appear less than three times in the window would be ignored. Overall pair instances that are weighted due to this use of the threshold  $\theta$  appear to enhance clustering results by grouping together sets similar or tightly related words within a cluster representing a concept, when the MCL is applied to a semantic network built based on such word pairings. Moreover, the two parameters allow us to construct multiple semantic networks. That is to say, when the window size is varied from 1 to  $p$  and the frequency threshold is varied from 1 to  $q$ , it is possible to obtain a total of  $pq$  different semantic networks from a document. Accordingly, the MCL would be run  $pq$  times in order to output  $pq$  semantic networks, which enhances the possibilities of discovering the inherent structures of a text. The next section presents comparison results for multiple semantic networks.

## 4. Graph-based text analysis

#### 4.1. Graph clusters as factors

The graph-based analysis of literary texts has drawn much attention as another effective approach to humanities computing or digital humanities. When the statistical methods of multivariate analysis are applied to windowing data, it is possible to discern implicit information from the lexical co-occurrence patterns gathered from the surface of a text, by yielding a kind of specific thesaurus useful for handling polysemy and synonymy. Graph clustering of semantic networks can highlight the architecture of a document in outputting graph clusters which may be seen as analogous to significant *factors* in multivariate analysis.

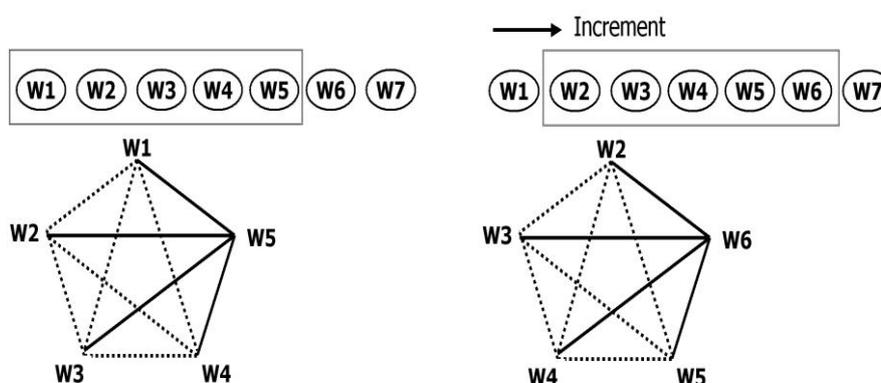


Figure2. Mechanism of our incrementally advancing window

#### 4.2. Text sources

In this study, the incrementally advancing window was applied to two French text sources; *Le Petit Prince* by Antoine de Saint-Exupéry (1900-1944) and a joint text by the two philosophers, Pierre Jean George Cabanis (1757-1808) and Franz-Anton Mesmer (1734-1815). The internationally famous work of the *Le Petit Prince* can now be easily accessed in the public domain because its copyright in Japan has expired. This has prompted the publication of various Japanese versions, which has, in turn, resulted in the situation where some key words have been translated with different meanings and terms (for example, the enigmatic verb, “*apprivoiser*”) bringing about synonymy and polysemy problems. The second source is a joint text written by two contemporary philosophers who shared a similar cultural background that had been influenced by the French Revolution, but who also had radically different thoughts and opinions (Cabanis represented a modern stoicism within the philosophy of medicine, whereas Mesmer

proposed a theory of animal magnetism). Akama et al. (2007) have argued for interesting similarities between these two philosophers based on analyses of their published texts, and this present study extends on that previous research by exploring a method of implicit semantic analysis based on graph clustering to investigate the appropriateness of historical interpretation.

#### 4.3. MCL results

The advantage of graph clustering is the application of parameters and coefficients to complex networks. In this study, we apply MCL to semantic networks built from two literary texts after employing a stop list for French. It is rather interesting that identical characteristics were observed for the two datasets in terms of the numbers of MCL clusters, as a function of changes in the two parameters (as shown in Figure 3): 1) monotonous decreases with increases in window size, when the  $\theta$  values are smaller, and 2) relatively flat curves when the theta values are greater than 4. In Figure 3, the left graph is for the Saint-Exupery network and the right graph is for the Cabanis-Mesmer network. The x-axis represents the window size, and the y-axis indicates the number of Markov clusters generated by the MCL. Each colored line corresponds to a different threshold setting for word pair frequencies. However, these plots raise the question of which line and which point can be regarded as representing the most appropriate results in terms of both rich and essential information. It is necessary to resort to a way of measuring the precision coefficient for each of these clustering results.

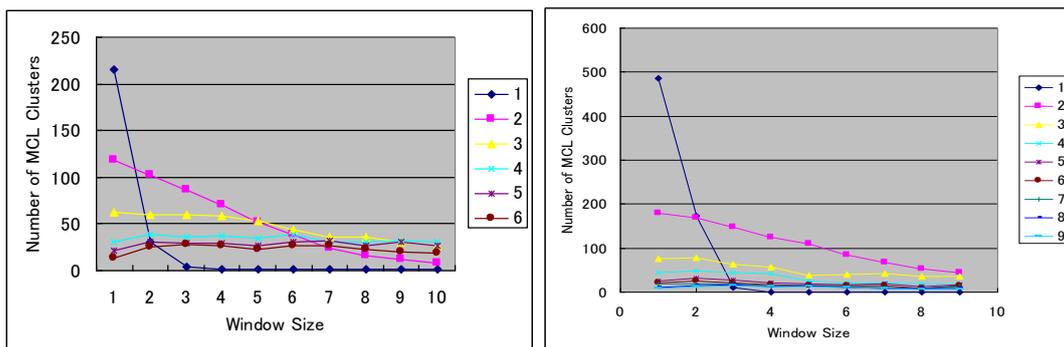


Figure3. Number of MCL clusters: *Le Petit Prince* (left) and Cabanis & Mesmer (right)

#### 4.3. Evaluation

For this, we computed, at the same time, the Modularity Q values as a measure of

the precision of each of the  $pq$  clustering results. Modularity Q (Newman et al., 2004) is a coefficient reflecting differences in edge distributions between graphs of meaningful partitions and random graphs under the same vertex conditions. It can be defined as in the formula,

$$Q = \sum_i (e_{ii} - a_i^2)$$

where  $i$  is the cluster number of cluster  $c_i$ ,  $e_{ii}$  is the proportion of internal links in the whole graph, and  $a_i$  is the expected proportion of  $c_i$ 's edges calculated as the total number of degrees in  $c_i$  divided by the total of all the degrees (2\*the number of all edges) in the whole graph. Clearly, if we regard high Q scores as informative, graph clustering can be considered to be more accurate as window size  $n$  decreases and as the frequency threshold  $\theta$  for word pairs increases.

As shown in Figure 5, however, when Modularity Q reaches a maximum value when window size  $n = 1$  and the threshold is maximally strict, the number of words clustered is at the lowest level. If the conditions for selecting word pairs are set to be the most severe, we can obtain the fundamental topic structure for a document with the smallest number of words and the largest Modularity Q score. Indeed, "The Little Prince" story might be summarized by the keywords contained in such a cluster, as illustrated in Figure 4.

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{"1(3)", "allumeur", "consigne", "réverbère"}
{"2(2)", "apprivoiser", "renard"}
{"3(3)", "éteindre", "volcan", "ramoner"}
{"4(4)", "étoile", "posséder", "regarder", "rire"}
{"5(4)", "fleur", "dessiner", "mouton", "manger"}
{"6(2)", "million", "cent un"}
{"7(3)", "boa", "fermé", "serpent"}
{"8(7)", "bonjour", "le petit prince", "chercher", "comprendre", "répondre", "homme",
"roi"}
{"9(3)", "cent", "mille", "région"}
{"10(2)", "géographe", "savoir"}
{"11(2)", "planète", "terre"}
{"12(2)", "monde", "unique"}
{"13(1)", "seul"}
({"Cluster number (number of elements)", "word1", "word2"...})

```



data condition is sufficiently controlled. However, whether this method is also applicable to languages with free word orders or to documents with idiosyncratic features remains an important issue for the future.

Be that as it may, the analysis of semantic networks, by this means, can be founded on a combination of graph theory (clustering of complex networks) and information retrieval (natural language processing evaluation). Our methodology may thus play a crucial role as an example of engineering-based semantics, because it follows some canonical procedures of computational linguistics. Furthermore, it can be construed as an interdisciplinary topic that commences from lexical co-occurrence data and involves artificial intelligence, as well as digital humanities (humanities computing). It may not be too much to say that such knowledge information processing technology can bring promising opportunities to future linguistics research on lexical semantics. Work in the near future will address more general adjustment systems for semantic structures that would allow us to absorb various differences within documents and language data conditions.

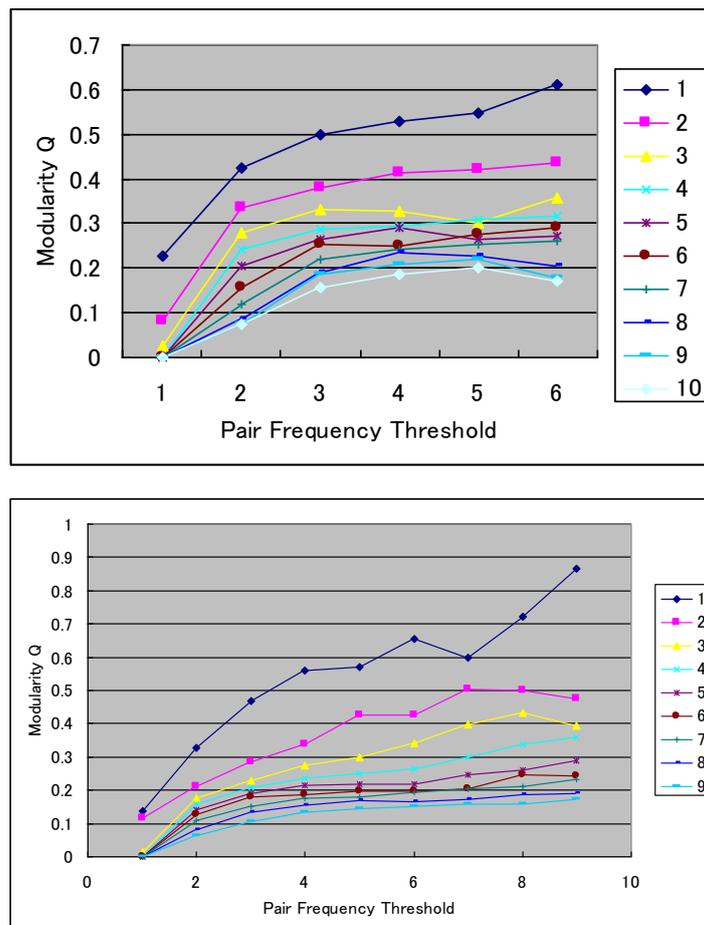


Figure5. Modularity Q: *Le Petit Prince* (upper) and Cabanis & Mesmer (lower)

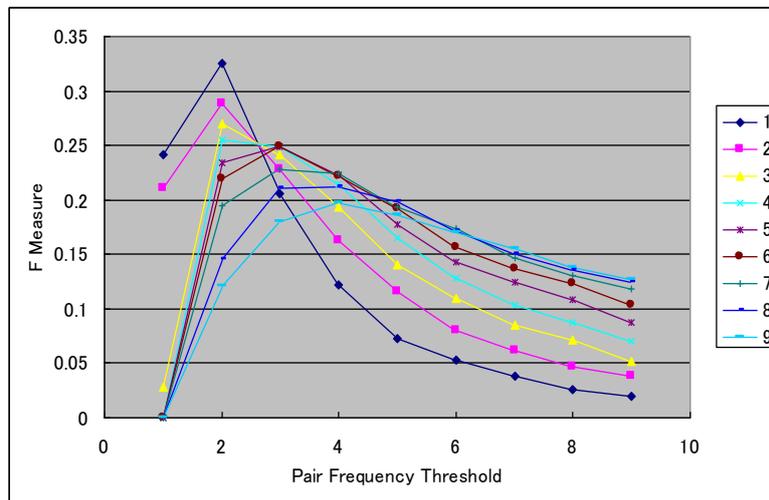
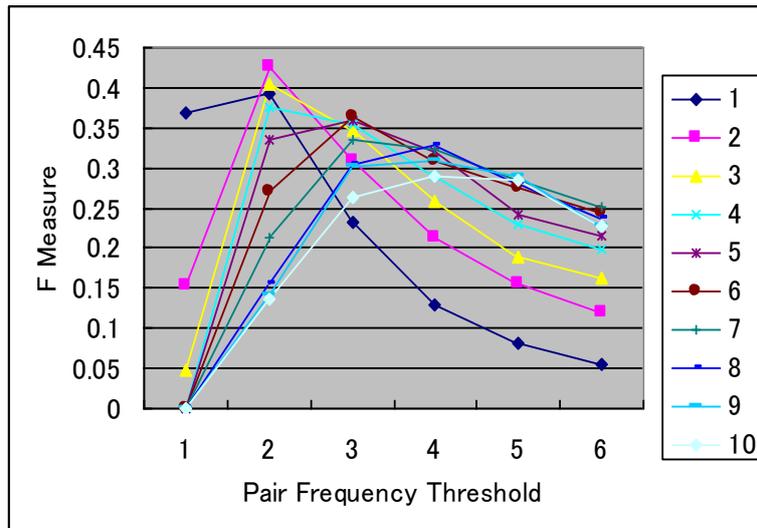


Figure6. F Measures: *Le Petit Prince* (upper) and Cabanis & Mesmer (lower)

## 5. Supplementary Discussion

To date, we have been developing an engineering-based approach to semantic networks starting from an operational definition of meaning. Meaning is not treated here as some opaque essence, but rather as a set of practical quantified entities. The forms of meaning are thus exteriorized and analyzed as graphs, both directed and non-directed and both weighted and non-weighted, with other features such as scale-free nature. The wiring manipulation of graphs provides us with a fine-tune control process in trying to focus on certain constellations of meaning entities. The Modularity Q value and the F measure can play crucial roles in the subtle adjustment process for evaluation. Criteria

for the application of these coefficients are not absolute in nature (treated simply as successful or not) but can be consistently related to the reader's particular interests. In this sense, our method can be a user-oriented approach in the field of scientific and objective hermeneutics (as science of interpretation).

There is an advantage to computing meaning as *patterns*. It can be maximized when a computer program happens to yield unexpected but meaningful results. Outcomes are to be taken as new positive findings obtained through knowledge detection tasks. Text mining combined with humanities computing (digital humanities) has turned out to be effective, as the literary examples presented here demonstrate. In this sense, we might emphasize that an advantage of our model derives from the cognitively clarified insight that meaning is essentially *context dependent*. If we borrow the expression of Burgess et al. (1998), meaning hinges on contextual experience. However, even though our windowing method is partly similar to that of HAL, we cannot agree with the argument advanced by Burgess et al. (1998) that any model deserving the adjective of "semantic" must go beyond episodic experiences and local associative patterns. As Steyvers et al. (2005) purposefully indicate in their network-based analysis, the boundary between *semantic* and *associative* is not so clear. From a slightly different angle, the *paradigmatic* axis strengthened in the research of Burgess should be complemented with situational representations that could be developed by combining various forms of lexicons.

The theory of comprehension advanced by Kintsch (1997) would seem to be promising in this respect if it could be linked to a global theory of complex networks. At present, the networks of the CI model are limited to computation on the *syntagmatic* axis at the episodic level. (For example, the same garden-path sentence is used by Kintsch exclusively for the parsing solution instead of gathering lexical co-occurrence weights: "The horse raced past the barn fell.") Our future research will naturally move towards mediating between the two axis proposed by Roman Jakobson (*syntagmatic* and *paradigmatic*) by the possible application of global semantic networks treated as instances of complex networks. Graph analysis will have to assimilate syntactical factors in order to enhance control over the meaning process and to improve precision and recall values.

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# How Discourse/Cognitive Factors Can Influence Argument Realisation: A Case of Object Omission<sup>1</sup>

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## Abstract

In recent work several linguists have offered explicit and ambitious proposals for how semantic properties of verbs relate to the overt expression of arguments and predicates. In this paper, I shall argue that these analyses underestimate the role of cognitive and discourse factors that cannot be generalised in those taxonomical analyses. For example, researchers have proposed that causative verbs obligatorily express the argument that undergoes the change of state in all contexts (Browne 1971, Brisson 1994, van Hout 2000 among others). This generalisation is too strong to accommodate the fact that causative verbs do actually allow patient arguments to be omitted under certain discourse conditions and the exceptional cases ultimately lead to a deeper understanding of the general tendencies that exist.

**Keywords:** missing object, change of state verbs, Cognitive Grammar, argument realisation .

## 1 Introduction

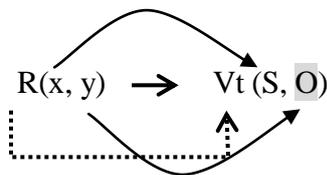
Recent work on lexical semantics shows that a number of linguists have offered explicit and ambitious proposals for how semantic properties of verbs relate to the overt expression of arguments and predicates. These proposals have offered broad taxonomies that divide the lexicon into large semantically uniform classes (e.g. Levin 1993). I contribute to this discussion here by arguing that these analyses underestimate the role of detailed lexical semantics, discourse factors and cognitive aspects that cannot be generalised in those kinds of taxonomical analyses.

Examples which illustrate the non-omissibility of the direct object of the transitive verbs are provided in (1) - (7). The example in (1), for instance, may have a reading where what she has taken in the second utterance is interpreted as 'her medicine'. However, the second utterance in (1) does not permit the direct object to be missed out; the direct object is necessarily retained. The rest of the examples below also

illustrate cases where the object cannot be missed out.

- (1) Has she taken her medicine? - \*She has taken. - Halliday & Hasan
- (2) *In the context where it is perfectly clear that a particular door is in question.*  
\*Did you lock? - Fillmore
- (3) \*I'll open an account if you'll open. - *CGEL*
- (4) \*I'll murder. - Kilby
- (5) The tiger killed \*(someone).
- (6) Chris broke \*(something).
- (7) The heat melted \*(the snow).

Assuming that mapping from the verb's lexical semantics to syntax involves association of arguments of the verb indicated as R in Figure 1, together with their syntactic realisation, we can only describe but cannot explain the above facts; one of two arguments (i.e. x and y) is mapped onto the subject, but the other is not mapped onto any position in syntax.



**Figure 1** Syntactic mapping

As many have observed, there may be a semantic and pragmatic requirement for object omission in English that the speaker must expect the hearer to be able to recover any argument that is omitted either from the lexical meaning of the verb as shown in (8) or the context as shown in (8); recoverability of the missing item may be a licensing condition for omission.

- (8) Recoverability
  - a. Have you *eaten* yet? - *CamGEL*
  - b. They played the club championship and *won*. - *ibid.*

This paper is organized as follows: in section 2, I outline the approach to this problem from lexical semantics. I assume the lexical semantic analysis of Rappaport and Levin (1998), whereby causative verbs obligatorily express the argument that

undergoes a change of state in all contexts, and I claim that Rappaport and Levin's (1998) argument realisation condition is too strong to accommodate real facts and the exceptional cases ultimately lead to a deeper understanding of the general tendencies that exist in lexical semantics and cognitive processes.

In section 3, I show that contrary to the generalisation, there are cases where externally caused change of state verbs do actually allow their objects to be omitted. Next in section 4, further data supporting the claim are presented.

Section 5 shows that (a)telicity, topic and focus do not contribute to object omission of externally caused change of state verbs.

After introducing seemingly relevant factors to explain the omission of the object in section 5, I present in section 6 accounts of object omission from a Cognitive Grammar-based perspective. I argue that the exceptional behaviour of externally caused change of state verbs is explained by this Cognitive Grammar-based analysis.

Finally in section 7, I discuss the implication of my analysis for object omission and further problems yet to be solved.

## **2 Lexical Semantic Analysis**

Before presenting my analysis, let us first have a look at what lexical semantics says about this problem of object omission of transitive verbs, in particular, that of externally caused change of state verbs.

In lexical semantics, the verb's semantic structure reflects the event structure (viz. event structure template) instantiated by the verb. In other words, the event structure is mapped in a consistent way onto syntax. Given that assumption, lexical semantics has the following characteristics in (9)

(9) Lexical Semantics:

- Many aspects of the syntactic structure of a sentence are predicted from lexical properties of the verbs (and other predicates in it).
- Verb meanings provide a key to verb's syntactic behaviour.

A number of researchers have proposed that causative verbs obligatorily express the argument that undergoes the change of state in all contexts (Browne 1971; Brisson 1994; van Hout 2000; Ritter and Rosen 1996, 1998; Rappaport Hovav & Levin 1998). A further condition that has been offered by Rappaport Hovav & Levin (1998) is the

## Subevent Identification Condition.

### (10) Subevent Identification Condition:

Each subevent in an event structure template must be “identified” by an argument and a lexical predicate (e.g., a V(erb), an A(djective) or a P(reposition)) in the syntax. (cf. Rappaport Hovav & Levin 1998: 112)

In most cases this identification comes about as a side effect of the association of the constant with an event structure template in their framework by way of one of the canonical realisation rules: the verb takes its name from the constant, and they assume that the verb also identifies any subevent in the event structure that results from the association of the constant with an event structure template by the relevant canonical realisation rule. The Subevent Identification Condition predicts that an end-state or result subevent may be identified in one of two ways: either it will be overtly identified by a resultative or directional phrase, or it will be implicitly identified by the lexical semantics of the verb (e.g. as with *break* or *kill*).

Following Rappaport and Levin (1998) and van Valin & LaPolla (1997), I assume that Universal Grammar provides an inventory of lexical semantic templates consisting of various combinations of primitive predicates, which correspond to a large degree to the generally acknowledged event types. For this reason, henceforth we refer to a lexical semantic template as an “event structure template”. The inventory of event structure templates assumed here includes those listed below.

- |         |      |  |                  |
|---------|------|--|------------------|
| (11) a. | run  | [x run'] <sup>2</sup>                              | [Activity]       |
| b.      | sing | [x <b>sing</b> ' y]                                | [Activity]       |
| c.      | dead | [x <b>dead</b> ']                                  | [State]          |
| d.      | die  | [BECOME [x <b>dead</b> ']]                         | [Achievement]    |
| e.      | kill | [[x <b>ACT</b> ] CAUSE [BECOME [y <b>dead</b> ']]] | [Accomplishment] |
- (cf. van Valin & LaPolla 1997)

Let us Consider the activity event type and its relation with the verb *sweep*. As illustrated in (12), the verb *sweep* has a variety of uses that qualify as accomplishments, as well as uses that qualify as activities; nonetheless, we assign this verb a basic classification as an activity verb because all its uses entail (or subsume) an activity involving a particular manner of surface contact.

(12) *Sweep*

- a. Terry *swept*.
- b. get things from the cleaning cupboard and stuff. ... I've seen, I've seen her *sweeping*. She *swept* earlier on today! She *sweeps everywhere* continually, she always sleeping, *sweeping* isn't she? I know er she *sweeps* in the hearth at lunchtime [COLT:b142103.cor]
- c. ... but they had to you know use paper and kindle and we *swept with brooms* and my life has never been easier she said [BNC:KBF 2197]
- d. Do you *sweep the floor* before you walk on it so you don't tread on any ants [ICE-GB:S1A-032 #79:1:D]
- e. Tom had *swept the room clean* and had fixed a lamp to a hook on the white plaster ceiling. [BNC: CAB 347]

Within the framework of Rappaport and Levin (1998), *Sweep* of activity sense, exemplified by the sentence in (13), has an event structure template consisting of a single event as in (13), where both participants (*x*, *y*) are associated with the same subevent, in fact the whole event but *only one (i.e. x) of the two (x, y) needs to be expressed* and the other (*y*) is a semantically invoked argument, rather than a structural participant, therefore, *not necessarily expressed* as is represented by *y* being underlined.

(13) Activity

- a. [*x* ACT <MANNER: SWEEP> *y*]
- b. Terry swept [the floor].

In their analysis, Rappaport Hovav and Levin (1998) claim that the notion of external causation is reflected in the complex nature of event structure template that the canonical realisation rules associate with constants naming externally caused change of state. For instance, the externally caused change of state verb *break* has the event structure in (14). In addition, accomplishments are complex events composed of two subevents: the causing event – typically an activity – and the change of state it brings about. Thus, in (14)a, the first subevent (shaded) of an accomplishment has the representation associated with activities, while the second subevent has the representation associated with achievements. More schematic representation of this complexity is illustrated in (14)b .

(14) Accomplishment (externally caused change of state)

- a.  $[[x \text{ ACT}_{\langle \text{MANNER: } \textit{BREAK} \rangle} ] \text{ CAUSE } [ \text{BECOME } [y \langle \textit{BROKEN} \rangle ] ] ]$
- b. The causing subevent → the result subevent [change of state]

Here *x* and *y* represent structure participants in the event structure. The italicised material in angle brackets represents the constant. This constant associated with *break* names a change of state that is conceptualised as “externally caused”. This event structure has two subevents, i.e. a causing activity and a change of state, therefore it is complex. Relevant subevents include simple actions, causes and states, associated with the sort of decomposition familiar from Vendler (1967) and Dowty (1979).

Each subevent is identified by a predicate ( $\text{ACT}_{\langle \text{MANNER: } \textit{BREAK} \rangle}$ ,  $\text{BECOME } [ \langle \textit{BROKEN} \rangle ]$ ) and is associated with argument NPs (i.e. *x*, *y*). Omitting the object would leave a subevent without an associated NP, leading to ungrammaticality (□ (10) & (16)):

(15) Chris broke \*(the vase).

With this much being set as as background, we are now ready to see if the application of Argument Realisation Condition applies to the event structure of an externally caused change of state verb.

(16) Argument Realisation Condition:

- a. There must be an argument XP in the syntax for each structural participant in the event structure.
- b. Each argument XP in the syntax must be associated with an identified subevent in the event structure.

(Rappaport Hovav & Levin 1998: 113)

This condition requires the obligatory expression of both the subject and the direct object of such verbs, since each realises a structural participant (e.g. *x*, *y*,...), one associated with each subevent of the complex event structure of the verbs.

On this account, the causer argument realises as the structural participant of the first subevent and the patient argument as the structural participant of the second subevent. Because they are structural participants and structural participants have to appear in syntax, therefore both arguments (or participants) are obligatorily expressed. In fact, Brisson (1994) and Rappaport Hovav & Levin (1998) say that regardless of the context, the direct object of *melt* cannot be omitted, as shown in (17).

- (17) a. The heat *melted* the snow.  
b. \*The heat *melted*.

In this paper, I shall examine open-ended classes of counter-examples that violate these generalisations, and argue that the generalisations are too strong to accommodate the real facts and the exceptional cases ultimately lead to a deeper understanding of the general tendencies that exist.

### 3 The Problem

As discussed in the previous section, lexical semantics of causative verbs entail that there is a change of state in their patient argument, which is by default expressed by their direct object. Several linguists have argued that causative verbs obligatorily express the argument that undergoes the change of state in *all* contexts.<sup>3</sup> However, causative verbs often do actually allow their direct objects to be omitted, particularly when they are indefinite and non-specific, as shown in (18) and (19).

- (18) Tigers only *kill* at night.  
(19) He'll *lie, steal, murder*--anything to further his ambitions. – Kilby

### 4 The Data

Further examples in (20)-(24) instantiate the claim that causative verbs do actually allow their direct objects to be omitted.

- (20) Some people *build* while others *destroy*.  
(21) a. The chef-in-training *chopped* and *diced* all afternoon.  
b. He *cut* and *chopped* and she felt herself detached from the rotten wood.  
[BNC]  
c. Tigers only *kill* at night.  
d. The police believe the man may *kill* again. [*LDOCE*<sup>4</sup>]  
e. Jailed murderer *killed* again on a day's parole.- *Daily Telegraph* (19/7/2000)  
f. Paroled murderer Jack Abbott, once the toast of New York's literary set,

*killed* again. Last month, he hanged himself. Clive Davis explores the perils of radical chic. A literary celebrity died in America this month, yet his passing aroused little co... - *The Times* (1/3/2002)

- g. Excessive tiredness while driving can *kill*. [OALD<sup>6</sup>]
- h. Cigarettes *kill*. [WordNet]
- i. The Sergeant: We don't *murder*; we *kill*. - *The Big Red One* (1980)
- j. stiff penalties for motorists who *kill*, *maim*, and *injure*. [COBUILD<sup>4</sup>]
- k. It is better to *die oneself* than to *kill*. [COBUILD<sup>3</sup>]
- l. The soldiers specialized in going out in small groups, to *kill* with a very high degree of selectivity. [COBUILD<sup>4</sup>]
- m. Thou shalt not *kill*. [COBUILD<sup>4</sup>]
- n. soldiers are not allowed to shoot to *kill* unless faced with a life-threatening
- o. amplex of money's power to *ruin and destroy* are everywhere, not least in the ... [Bank of English]
- p. for 30 minutes or so, then *rinse and dry* well on a tea towel. Heat oil in ... [Bank of English]

(22) Money markets are the places where people with money *buy* and *sell*.

(23) We *gave*, they *took*.

(24) He must be *convinced* if he is to *convince*. - COBUILD EG

In what follows we concentrate on finding a factor which is required to license object omission with causative verbs.

## 5 Alternative Explanations

### 5.1 Telicity is a relevant factor or not?

Let us start by examining (a)telicity to see if it is a relevant factor for object omission. It may be suggested that (a)telicity could supply the appropriate constraint. Repeated actions are often construed as *atelic* or temporally unbounded events. A simple test for atelicity is that atelic events are compatible with durative temporal phrases such as *for an hour* and incompatible with bounded temporal phrases such as *in an hour*.<sup>4</sup> Most of the iterative and generic contexts in (25) pass this test of atelicity (with the exception of (25), which allows both durative and bounded temporal phrases):<sup>5</sup>

- (25) a. The chef-in-training *chopped* and *diced* \*in an hour/for hours.  
 b. Tigers only *kill* at night \*in a period of their lives/for a period of their lives.  
 c. The singer always aimed to *dazzle* in an instant/for hours.  
 d. Pat *gave* and *gave*, but he just *took* and *took* \*in a year/for years.  
 e. These revolutionary new brooms *sweep* cleaner \*in a year/for years.  
 f. Always *cut* in straight lines \*in the first few years/for the first few years you *sew*.

Many researchers have observed that atelic contexts are more likely to be intransitive than telic contexts (Mittwoch 1971; Hopper & Thompson 1980; Dixon 1991: 288; Aarts 1995: 87; van Hout 1996:166-187; Rappaport Hovav & Levin 1998). However, atelicity *per se* is not necessary for object omission. Thus a telicity is not a sufficient condition for object omission. Notice that the following examples with verbs in the progressive form designate atelic but singular actions and require the patient argument to be expressed:

- (26) a. Scarface was *killing* \*(someone) when he got shot.  
 b. As she was *pleasing* \*(an audience), she thought about her upcoming audition.

Conversely, example (27) is telic, yet the example is fully acceptable:

- (27) Three days later Vernage *killed* again. [BNC]

This shows that atelicity is not a necessary condition for object omission either. The use of *again* in (27) indicates that *Vernage* has killed before. If the action is construed as an isolated occurrence, the sentence is unacceptable:

- (28) ?? Pam *killed* yesterday.

It is clear from the data above that the atelicity is not a sufficient or necessary condition for object omission for causative verbs. It seems that repetition of the action is more relevant than the atelicity of the event.

## 5.2 *Focal or not?*

In this subsection, we examine whether omitted argument is a focus or not. Focal arguments serve to convey the new information in a clause. More precisely, “the relation between the focus element and the proposition is assumed to be unpredictable and non-recoverable for the addressee at the time of the utterance. The focus relation relates the pragmatically non-recoverable to the recoverable component of a proposition and thereby creates a new state of information in the mind of the addressee”.

(Lambrecht 1994: 218)

As we have seen, the omitted patient arguments in the examples in (25) above are all highly predictable given the predicates and the sentence context. They are therefore not candidates for focal status.

## 5.3 *Topical or not?*

A sentence topic can be defined as a “matter of [already established] current interest which a statement is about and with respect to which a proposition is to be interpreted as relevant” (Lambrecht 1994: 119). It follows from this definition that topicality should be recognised as a matter of degree. Even so, the omitted patient arguments are deemed to be non-topical. Topical elements are most often definite, so the indefinite, non-specific nature of the patient arguments makes them ill-suited for topical status. As noted by Fillmore (1986), topical elements can be shown not to allow the type of object omission discussed here:

(29) What happened to *that carrot*?

I *chopped* \*(it).

(30) What happened to *that gazelle*?

The tiger *killed* \*(it).

The possibility of anaphoric reference is another reasonable measure of topicality, at least for entities, since one is likely to wish to continue discussing topical entities. As expected, the omitted arguments under discussion do not provide discourse antecedents as shown in (31) and (32). Topical elements, in contrast, are definite and syntactically active.

(31) The chef-in-training *chopped and diced* all day. \*They were put into a large

salad.

- (32) Tigers only *kill* at night. \*They are easily caught at that time.
- (33) a. This leads people to the following conclusion.  
b. This leads to the following conclusion.  
c. This leads people<sub>i</sub> [<sub>CP</sub> [<sub>IP</sub> PRO<sub>i</sub> [<sub>VP</sub> *t<sub>i</sub>* to conclude what follows]]].  
d. \* This leads [<sub>φ<sub>i</sub></sub>] [<sub>CP</sub> [<sub>IP</sub> PRO<sub>i</sub> [<sub>VP</sub> *t<sub>i</sub>* to conclude what follows]]].

To summarise this section, we have seen that atelicity does not contribute to object omission with causative verbs. In addition, the omitted object is not a focus or a topic in a sentence. It is now worth taking a closer look at this phenomenon from a different perspective, i.e. Cognitive Grammar.

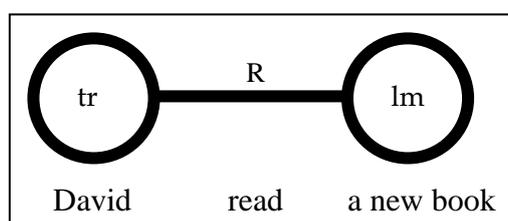
## 6 A Cognitive Grammar Analysis

I assume Langacker's Cognitive Grammar approach to object omission, according to which the contrastive behaviour of the object of the verb *read* as in (34) is due to the different conceptual structures for those constructions.

- (34) a. David *read* a new book.  
b. David is *reading*.  
c. The best way to learn is to *read*.

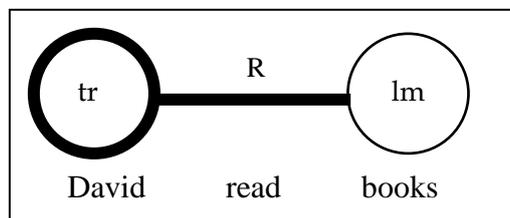
Each image schema in Figure 2 corresponds to each cognitive structure to three sentences in (34), respectively. Schema (a) is a default cognitive image for sentence (34)a, where both the subject and object are prominent (represented in thick line in the figure) in the base of a predication. In Schema (b) corresponding to (34)b, the indefinite object is not prominent in the conceptualiser's construal, therefore omitted in the linguistic structure. Lastly further omission is seen in Schema (c), the counterpart of (34)c, where neither the subject nor the object is prominent (represented in thin line) and they do not show up and the relation indicated by the verb alone is prominent.

a.

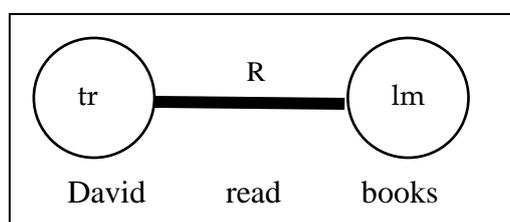


**Trajector [tr]:**  
The figure within a relational profile.  
**Landmark [lm]:**  
A salient substructure other than the trajector of a relational predication or the profile of a nominal predication.  
**Relation [R]:** A diadic relation represented by the verb

b.



c.



**Figure 2** Image schemas for *read*

In the above cognitive schemas, the base of a predication is its domain (or each domain in a complex matrix) enclosed by a square. Its profile is a substructure elevated to a special level of prominence within the base, namely that substructure which the expression “designates”. Thus an expression’s semantic value does not reside in either the base or the profile individually, but rather in the relationship between the two. The key points about this grammar are repeated in (35).

(35)

- Profile on a base
- The base of a predication is its domain (or each domain in a complex matrix)
- Its profile is a substructure elevated to a special level of prominence within the base, namely that substructure which the expression “designates”.
- An expression’s semantic value *does not reside in either the base or the profile individually, but rather in the relationship between the two.*

This Cognitive Grammar analysis extends quite easily to the cases with change of state verbs as in (36) and (37) where no object appears.

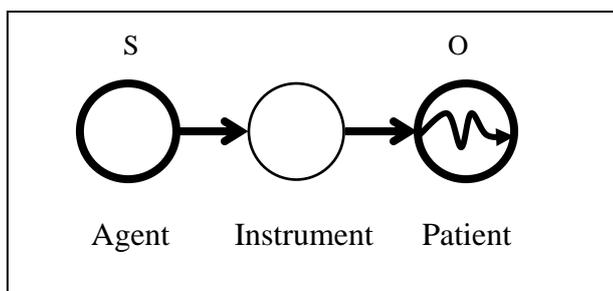
(36) A: When do these animals *hunt*?

B: Beavers *kill* during the day, but tigers only *kill* at night.

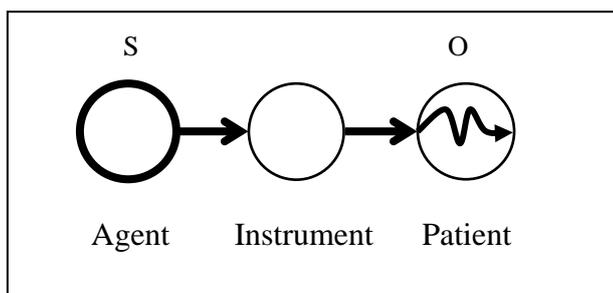
- (37) a. He was always opposed to the idea of *murder*, but in the middle of battlefield, he had no trouble *killing*.  
b. She picked up her carving knife and began to *chop*.  
c. Why would they give this creep a light prison term!? He *murdered*!  
d. How could Griselda get a lighter prison term than Zard? He *burglarized*, but she *murdered*.

The corresponding cognitive image for the structure in which the object turns up is seen in Schema (a) in Figure 3.

a. default



b. Non-default



**Figure 3** Schemas for change-of-state verbs

In other words, Schema in (a) illustrates a default organisation of relevant elements. The non-default case is shown, in contrast, in Schema (b) where the object element is not prominent and therefore does not show up at the surface.

Taking the above Cognitive Grammar analysis into account, what (38) claims is that the patient argument, when construed to be de-emphasized or unprofiled in its relation to the action, can be omitted contra Rappaport Hovav and Levin's Argument

Realisation Condition. That is, omission is possible when the patient argument is not topical (or focal) in the discourse, and the action is particularly emphasized (via implied repetition, strong affective stance, discourse topicality, contrastive focus, etc.). In other words, low discourse prominence or low profile makes it possible for the patient argument not to be made explicit by an elaborate noun phrase, because what should be emphasized or profiled there is the type of the action or the action itself rather than the relatively low-profiled patient argument. This in turn means that a certain discourse factor can override structural requirement imposed by the grammar as far as the suppressed argument, definite or indefinite, can be recovered in the discourse or the verb's lexical semantic content and at the same time the action itself is relatively profiled against the patient argument.

(38) Principle of Omission:

Omission of the patient argument may be possible when the patient argument is construed to be less profiled/emphasized in the discourse in comparison with the action itself via repetition, contrastive focus, etc.

Covert indefinite objects provide further evidence for the principle given above. Note that (39), with an indefinite object invisible at the surface, makes itself a generic statement; it characterises the property of the referent of the subject *He*. Given that covert indefinite objects *do* characterize the property of the subject referent, we correctly predict that the tense of sentence should be present. This is illustrated in (39) - (47), where only (44) with its tense marked as past sounds awkward in contrast to the others with the present tense.

■ covert indefinite objects →generic statements →characterising property

- (39) He likes to *shock*.
- (40) That movie always *shocks*.
- (41) He likes to *please*.
- (42) I'll aim to *please*.
- (43) He never fails to *please*.
- (44) ?His behaviour at lunch *pleased*.
- (45) Jesus *saves*.
- (46) Love *heals*.
- (47) That dog *bites*.

The example in (48), a typical instance of transitive verbs without objects in a contrastive context, may be associated with this property of covert indefinite objects.

- (48) “She *stole* but she could not *rob*.” (Beatles song: She came in through the Bathroom Window)

The analysis of covert indefinite objects presented here, in combination with the principle in (38), leads to the revised principle of (38) as formulated in (49) and makes an explanation of further data in (50) and (51) easier.

- (49) Principle of Omission (revised):

Omission of the patient argument may be possible when the externally caused two-participant event is construed not to be characterising the whole relation consisting of Agent + Predicate.

**Default: the whole relation profiled**

**Non-default: the relation excluding Patient (i.e. action/property) profiled**

- (50) A young woman who I imagined was older than myself got up in a bus to offer me a seat. I *declined*. She *insisted*. I realized she thought I was pregnant and accepted graciously. - M. Spark, *A Far Cry from Kensington*

- (51) Richard had drunk champagne at lunch for the first time in his life--old Amos Kerbes had *insisted* and, with the whole Somerset Club looking on, Richard could hardly have *refused*. - J. Archer, *Kane & Abel*

What I want to claim here is that although the whole relation of a transitive verb is profiled at default, in non-default cases, the relation excluding the patient argument, i.e. action, property or whatever of the subject referent, is more profiled than the object referent, and thus the object is not mapped onto the object position in syntax.

## 7 Conclusion

It is argued that given sufficient attention to lexical semantics and discourse factors in the framework of Cognitive Linguistics, the “exceptions” to object omission with externally caused change of state verbs and in fact their general tendencies themselves follow without additional grammatical stipulation.

A couple of questions remain open, a particularly important one being the behaviours of lexically and semantically related verbs *kill/murder/assassinate*, which we do not report on in detail here. The contrast in (52) shows that there is indeed a difference in grammaticality with these verbs in requiring the direct object.

- (52) a. The terrorists *killed/murdered/assassinated* three political figures.  
b. The terrorists *killed* again.  
c. ? The terrorists *murdered* again.  
d. \* The terrorists *assassinated* again. (Ritter & Rosen 1996)

The analysis sketched out in the previous sections predicts that any externally caused change of state verb, inherently with a complex event structure, should take the direct object. Thus we expect that these accomplishment verbs, because they follow the argument realization condition in (16), will behave in the same manner. However, as shown in (52), there appears a difference in obligatoriness of the direct object, which is probably due to *strength* of transitive verbs as noted by Ritter & Rosen (1996).

An additional issue concerns the omission of the direct object in the so-called recipe contexts or commands. It is generally the case that in recipe contexts, object omission is freely possible as in (53)-(55).

- (53) First warm the pot with hot water. Add one teaspoon of tea for each person and one for the pot. Pour on freshly boiling water, *stir* [ϕ] and *allow* [ϕ] to stand for five minutes. - Ridgways  
(54) Do not *allow* [ϕ<sub>i</sub>] [PRO<sub>i</sub> to boil]. - WPC  
(55) Roll up each piece into a round and *allow* [ϕ<sub>i</sub>] [PRO<sub>i</sub> to rest for 10 minutes]. - WPC

Omission takes place in commands as in (56). Notice the contrast in (57).

- (56) *Catch!* (can be said by the speaker, who threw the hearer a ball)  
(57) \*I threw him the ball but he failed to *catch*.

This phenomenon is extended to the following case where *dry*, an externally caused change of state verb, is used in the utterance of offer.

(58) Shall I *dry* (“the dishes”)? (In a context of washing-up)

(59) \*The dishes were still wet so I *dried* (“them”).

The above case is not explained in my analysis either and for the moment an issue for further research.

## Notes

<sup>1</sup> This text is based on work which was presented at the 18th International Congress of Linguists in Seoul (21-26 July 2008). I would like to thank the reviewers of the abstracts and the audience for their comments and remarks. Special thanks are due to Prof. Dr Sebastian Löbner, the organiser of Lexical Semantics parasession of CIL18. Funding for this research was provided by the Japan Society for the Promotion of Science Grant-in-Aid for Scientific Research *Kiban-kenkyu* (C) 20520444 and by the Great Britain Sasakawa Foundation.

<sup>2</sup> A predicate in bold and with an apostrophe represents a constant predicate in the event structure.

<sup>3</sup> Obviously the generalisation must be relativised to English, since many topic-comment languages instantiated by Japanese, etc. do allow the patient or theme argument to be unexpressed when it represents topical information.

<sup>4</sup> See Jackendoff (1996) and Michaelis (2003), for certain caveats on the use of this test.

<sup>5</sup> Examples such as those in (25) demonstrate that, contra occasional claims made in the literature, causative verbs do not necessarily express telic events (see also Van Valin and LaPolla 1997: 97).

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## **Dictionaries**

*Collins Cobuild English Language Dictionary*. 2001<sup>3</sup>, 2003<sup>4</sup>. [*COBUILD*<sup>3,4</sup>]

*Longman Dictionary of Contemporary English*. 2003<sup>4</sup>. [*LDOCE*<sup>4</sup>]

*Oxford Advanced Learner's Dictionary*. 2000<sup>6</sup>. [*OALD*<sup>6</sup>]

## **Corpora**

*BNC*

*ICAME* on CD-ROM (2nd ed.) including Corpus of London Teenage Language

*ICE-GB*

## **Building and aligning Chinese and French paradigmatic Graphs**

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The work presented in this contribution takes place in a broader project proposing a cross-lingual approach of French and Mandarin verbs based on distance in a special kind of graphs. The contribution aims at presenting the aspects of the project which are the most relevant for lexical semantics. This abstract is more a presentation of the project and the level of achievement we plan to reach by the time of the conference. However, we will also introduce some elements of the methodology we will use for constructing lexical graphs based on existing resources.

In a nutshell, we use a method proposed in (Gaume, 2004) which takes traditional dictionaries as input and generates a graph capturing a certain kind of similarity between words. Such a graph can be used to identify in a precise way the senses of a given lemma. This methodology can be applied to any language, given that significant lexical resources are available for it. We will then compare and align the graphs obtained for Mandarin Chinese, French and English. We expect this work to contribute to foundational investigations of lexical structures.

In this project, graphs are instantiated by lexical information : their vertices are verbs and their edges are lexico-semantic relations and more specifically paradigmatic relations (here synonymy and hyperonymy). In order to compare systematically French and Mandarin, a computational model (PROX, Gaume (2004)) calculating the semantic proximity between two lexical entries on lexical paradigmatic graphs allow to develop a “sense metrology” for both languages. PROX is a stochastic method to obtain the metrology and cartography of local and global structures of big sized lexical graphs. PROX transforms a graph in a Markov chain whose states are the vertices of the graph. Energy particles are wandering on the edges of the graph, jumping from vertex to vertex. It is the particles trajectories dynamics that measures the structural properties of the graphs. PROX allows to compute a semantic distance between the words that are vertices of a lexical network.

The independent and drastically different studies we conducted in parallel (psycholinguistics experiments that are not the focus of the present contribution and linguistic modelling based on paradigmatic graphs) allow to perform a cross-validation of our approach. Such a validation is already well advanced on French, for which it has shown that (i) the paradigmatic graph of French verbs is a hierarchical small world, and (ii) the semantic approximates produced during the psycholinguistic experiments are verbs that are very close according to PROX measurement. The project has for aim to push these investigations further for French and to extend them to the Mandarin Chinese case, a language from a different family in order to discover language invariants and variability for French and Mandarin Chinese.

Moreover, the creation of the cross-lingual translation relations enables to measure the topological properties of various lexical areas and to test their dependency to language. The project also consists in determining which structures of the lexical networks are shared between these two languages and at which specificity level they exhibit the same lexical organization. Finally, we also foreseen the development of a multilingual resource consisting of the monolingual paradigmatic graphs and their mappings onto each other.

In order to achieve these tasks, we first need to build the graphs mentioned above. We use existing traditional resources such as dictionaries to create a graph of verbs. In the case of French we are creating the graph (Pgf.v) as a fusion of DicoSyn (a composite synonym dictionary derived from 7 traditional dictionaries), TLFi (a reference general electronic dictionary for French developed at ATILF) and the French graph included in EuroWordNet (Vossen, 1997). Concerning the Mandarin Chinese graph, the source for building (PGm.v) is mostly Chinese WordNet (Huang et. al, 2004), a sense lexicon that has about 8,000 lemmas and over 13,000 senses. In this resource, synonymy link are continuously added with traditional lexicographic methods as well as with automatically and semi-automatically ones. To this resource we will potentially add HowNet, a famous lexical resources that includes synonymy and other paradigmatic relations.

In order to perform cross-lingual experiments we must align French and Mandarin graphs. We plan to use the resources available (the existing Papillon platform as well as the links from French entries to EuroWordnet interlingua indexes) together with Sinica BOW (Huang et al, 2004) English to Traditional Chinese, generating WordNet synset based correspondences. In case of missing translation equivalents our mapping will be completed with traditional bilingual dictionaries. However, since we need

high quality mapping for our experiments all dubious translations for verbs will be manually checked.

From French (PGf.v) and Mandarin (Pgm.v) graphs we will study how local and global properties are propagated across languages through the relation <-t-> (translation equivalence) from one graph to the other. For example, we will measure:

- to what extent the relation <-t-> preserves neighborhood relations in PGf.v et PGM.v (i.e whether two words that are neighbors in one graph are also neighbors in the other one)
- whether edges over-dense areas are preserved by <-t-> and which ones are the best/least preserved.

By the time of the conference, we will be able to present French paradigmatic graphs, that have already been constructed, a version of the Chinese graphs based on existing resources and on the development of the Chinese WordNet (Huang et. al, 2004) and an English graph based on Princeton Wordnet (Fellbaum, 1998) and New Oxford Dictionary of English. Therefore we will propose our first comparisons across languages. We will see how much lexical structures are conserved by the translation relations and propose very rich mapping across monolingual lexical graphs.

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## Adduction/Abduction et Catégorisation Lexicale

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### Résumé

Dans ses *Recherches logiques*, Husserl (1972) distingue *lois analytiques* et *lois synthétiques*. Les premières *pures* et *exactes* fondent l'eidétique des mathématiques, et les secondes, *matérielles* et *inexactes* fondent l'eidétique de la phénoménologie. Ces dernières sont porteuses de *signification langagière sémiotisable* et *adduction/abduction* en font partie. Dans le cadre d'une théorie *sémiophénoménologique* du langage (Cassirer 1972), nous allons montrer l'implication de ces principes dans la constitution sémantique d'une langue comme le français, mais sans s'y réduire, car *adduction* et *abduction* sont des universaux du langage, des principes que transposent toutes les langues du monde, selon leurs différentes façons de catégoriser l'expérience sensible correspondante.

**Mots clés** : sémiologie, phénoménologie, adduction, abduction, lexique, langue.

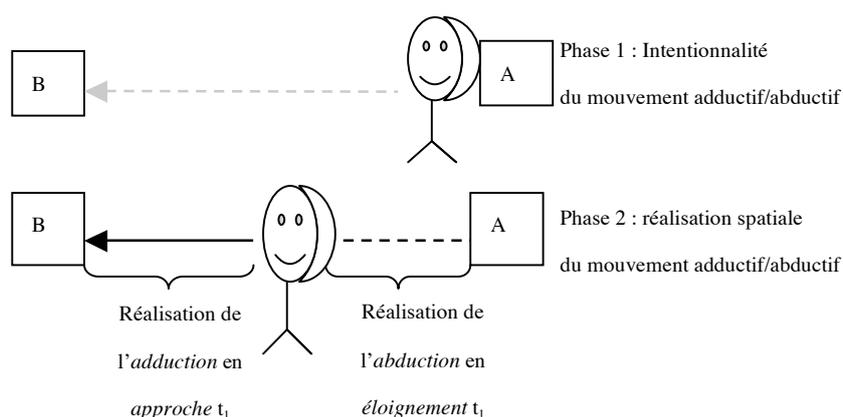
### Introduction

Quand il bâtissait sa théorie de l'*abduction*, Peirce avait en tête de créer une théorie sémiotique du langage. Mais en quoi ses travaux nous éclairent-ils sur le langage naturel parlé par les hommes ? Ses préceptes et raisonnements sur l'abduction relèvent plus de l'axiomatique mathématique que de la sémiolinguistique. Peirce a défini l'*abduction* en termes de « process of forming an explanatory hypothesis », une forme d'inférence mathématique permettant de formuler des hypothèses face à un dilemme posé. Peirce a dépouillé l'*abduction* de son caractère matériel et phénoménologique essentiel. Il l'a sortie de son cadre matériel et significationnel d'expression, l'a dépossédée de son contenu sémantique. Il a fait de l'*abduction* un simple principe abstrait, une coquille vide sans véritable consistance. En fait, la différence de traitement de l'*abduction* entre nous et Peirce, rentre dans le cadre de la fameuse dichotomie énoncée par Husserl (1972) entre lois matérielles synthétiques significatives et lois formelles

analytiques axiomatiques, les premières fondant l'eidétique phénoménologique constitutive du langage, et les secondes, l'eidétique mathématique dont l'*abduction* de Peirce fait partie. Aussi, d'un point de vue phénoménologique, on ne peut parler d'*abduction* sans parler d'*adduction*. Les deux principes se conditionnent réciproquement et c'est ce que nous allons démontrer dans les lignes qui vont suivre, au plan de leur transposition par le langage naturel.

## 1. Phénoménologie de l'*adduction* et *abduction* en mouvement aller $T_1$ .

Ce sont deux *facettes opposées et instantanées* du mouvement spatial, comme illustré ci-dessous :



*Abduction* et *adduction* sont liées par une causalité naturelle intrinsèque. Une instantanéité les caractérise dans leur nature phénoménologique d'être. L'*adduction* en  $T_1$ , c'est le *mouvement spatial aller vers* et l'*abduction* en  $T_1$ , *l'écart, la séparation, l'éloignement,...* qui se creusent derrière. Donc, c'est dans le sillage de l'*adduction* que l'*abduction* se développe, et chaque moment particulier de saisie de l'*adduction* comporte une contrepartie *abductive*. L'*adduction* étant un « *mouvement vers* », nous dirons spécialement qu'elle est *versive*.

La figuration ci-dessus présente deux phases : une *phase intentionnelle* et une *phase physique*. Dans la phase intentionnelle, le sujet a justement l'*intention d'aller* quelque part. L'*adduction* intentionnelle, c'est l'*envie d'aller vers...*, et l'*abduction* conséquente, l'*envie de se séparer du point de départ, de s'en écarter, s'en éloigner*. La phase 2 fait suite à la phase 1 intentionnelle. À cette phase 2, le sujet matérialise le mouvement de l'*adduction/abduction* dans l'espace. En même temps qu'il performe l'*adduction*, i.e., son mouvement spatial

vers la cible B, il se creuse entre lui et son point de départ A, un écart, un éloignement. La réalisation ultime de l'adduction se fait quand le *contact* ou la *fusion* est établi entre le sujet et le point d'arrivée B. À ce niveau, l'adduction a épuisé son mouvement, elle est devenue statique. La contrepartie abductive de cette phase est la *rupture* du mouvement adductif T<sub>1</sub>. Donc, le mot *rupture* - qui est *abductif* - peut signifier, soit *rupture d'un état statique adductif initial*, soit *rupture d'un mouvement adductif*. L'adduction est un mouvement causal : elle est au centre de tous les mouvements qui causent ou qui permettent les réalisations d'actions, d'objets, l'établissement de relations, la visualisation, la perception, etc. Elle est donc très riche en termes de transpositions sémantiques.

### 1.2. Affirmation/négation et expression de l'adduction/abduction intentionnelles.

L'adduction et abduction intentionnelles sont transposées en langue par le couple *affirmation/négation*. En effet, *affirmer*, *asserter*, *acquiescer*, etc. sont tous *adductifs intentionnels*. *Je veux manger* = *adduction intentionnelle* vis-à-vis de l'action de manger. D'un point de vue intentionnel, *manger* est une idée regardante réalisable en praxis et dont les séquences matérielles sont : *prendre de la nourriture*, *la mettre dans la bouche*, *mâcher*, *avalé*, etc. L'adduction intentionnelle veut dire *adduction* entre le sujet intentionnel et cette action. En disant : *je mange*, l'adduction intentionnelle est en train de se convertir en *mouvement adductif praxéologique*, celui de la réalisation de quelque chose qui est présentement *manger* ; action dans laquelle, on va vers la *nourriture* (mouvement adductif T<sub>1</sub>), on la *prend* (destination du mouvement T<sub>1</sub>), on la *ramène vers* sa bouche (mouvement adductif retour T<sub>2</sub>), et on la *mange* (destination du mouvement adductif T<sub>2</sub>).

En ce qui concerne l'*abduction intentionnelle*, habituellement traduite par la négation, elle traduit la *distance* entre le sujet intentionnel et une action de praxis. *Je ne mange pas* veut dire qu'il y a *rupture*, *écart* entre moi et l'action de manger qui relève de la praxis. L'*abduction intentionnelle* se réalise en toute forme d'expression de la négation (*ne*, *ne..pas*, *jamais*, *personne*, *rien*, etc.). Il faudrait donc, dans une étude plus détaillée, voir les modalités d'incrustation de l'adduction/abduction intentionnelles dans les différentes formes linguistiques d'expression de l'affirmation et de la négation.

### 1.3. Les termes adductifs spatiaux en $T_1$ (en mouvement aller $T_1$ ).

Tout terme de n'importe quelle langue qui laisse transparaître dans son sens un *mouvement versif en aller  $T_1$*  ou en *retour  $T_2$*  est *adductif*, ce mouvement pouvant être transposé dans sa *totalité générique* ou dans ses phases, *initiale, en cours, terminale, statique*. On peut donc créer des sous-classes de termes *adductifs*.

#### 1.3.1. Adductif dynamique $T_1$ initial.

Les termes de cette catégorie transposent la dynamicité de l'adduction en *mouvement aller  $T_1$* , mais cette dynamicité est transposée en phase initiale de sa réalisation. Il s'agit par exemple de *commencer, débiter, entreprendre, engager, entamer, introduire, partir*, etc. Leurs adductions sont incertaines au point de vue de leur aboutissement. Parmi les critères caractéristiques de ces termes, en plus de leur nature *adductive*, il y a le fait que leur adduction soit *dynamique*, qu'elle se conçoive dans le cadre du *mouvement aller  $T_1$* , et que cette dynamicité soit saisie à son *début*. D'autres critères peuvent s'y greffer: le critère de la destination du mouvement ou de son incidence (*hétéro-incidence*, si le mouvement est incident sur un objet autre que le sujet; *auto-incidence*, s'il est incident sur le sujet), le critère de sa performance (*auto-performé*, si c'est le sujet lui-même qui performe le mouvement; *hétéro-performé*, si c'est un sujet extérieur qui le performe). On pourrait aussi prendre en compte les critères de la *mécanicité* du mouvement, de sa *durabilité* (bref, long,...), etc.

De manière générale, ce sont les conditions de réalisation de l'adduction qui vont fixer ses caractéristiques, ce mouvement étant en lui-même un universel du langage. En disant: *je m'en vais à Paris*, je suis en même temps l'*auteur intentionnel* de mon propre *mouvement*, son performateur mécanique (auto-performance), et l'incidence de mon mouvement est Paris (hétéro-incidence). Il faudrait à l'avenir inventer un langage sémiotique viable qui cataloguerait l'ensemble des marques contextuelles de réalisation de l'adduction/abduction dans un usage donné.

#### 1.3.2. Termes adductifs dynamiques $T_1$ « en cours ».

Ici, la dynamique de l'adduction est saisie dans son *cours de réalisation*. Les termes et expressions: *marcher, courir/course, trotter, rouler, aller, se déplacer, avancer, cheminer, serpenter, conduire, voler, développer, aller*, etc. sont

tous *adductifs dynamiques* « en cours ». Par exemple, *marcher* = *adductif dynamique* « en cours »  $T_1$  avec *alternance de pas* ; *courir* = *adductif dynamique* « en cours »  $T_1$  avec *accélération de l'alternance des pas*, etc. L'*adductif dynamique* « en cours » peut connaître en soi des variantes en fonction des paramètres de *vitesse*, du *caractère étapiste* du mouvement adductif, etc. *Accélérer, hâter, se dépêcher,...* sont *adductifs dynamiques* « en cours » (ou même *initiaux*) avec indice relatif *vitesse* +. En intégrant les paramètres de *l'auto-incidence, hétéro-incidence, auto-performation, hétéro-performation, guide, mécanicité, intentionnalité*, etc. nous constatons que la situation se complexifie encore un peu plus. Exemple : *se hâter* est *auto-performatif, hétéro-incident*, en plus d'être *adductif  $T_1$ , dynamique, initial/« en cours », vitesse* +.

### 1.3.3. *Adductif dynamique terminatif $T_1$ .*

Il s'agit de termes et expressions au contenu sémantique dynamique en soi, mais qui transposent cette dynamicit  dans sa phase terminale d' tiolement. Comme exemples, nous avons : *aboutir/aboutissement, conclure, finir, achever, terminer, parachever, clore, arriver/arriv e, venue,  tioler*, etc. Ces termes transposent le mouvement adductif  $T_1$  dans sa phase terminale. Ils sont *adductifs dynamiques terminaux  $T_1$* . En plus des param tres  nonc s plus haut, des perspectives diverses peuvent influencer sur la saisie de leur adduction,   l'exemple des jeux de *protension* et *r tension*. Si je parle de *l'arriv e/venue de Paul*, il s'agit de *l'adductif dynamique terminal protensif* (perspectiv , imminence). Mais si je dis : *je viens/arrive de Paris*, c'est plut t l'effet de *r tension* sur le point de d part *paris* qui est mise en saillance. *Je viens de paris* = *adductif dynamique terminal  $T_1$  r tensif sur point de d part*.

### 1.3.4. *Adductif statique terminatif $T_1$ .*

De mani re g n rale, tout terme ou expression d notant en soi un * tat* statique r sultatif d'un mouvement adductif initial est *adductif statique terminatif  $T_1$* . Il s'agit par exemple de *contact, contigu t , voisinage, fig , fix , proximit *, etc. En effet, les situations spatiales que ces termes d notent ne peuvent qu' tre r sultatives de mouvements adductifs initiaux d'apport ou de rapprochement d'objets. Aussi, tous les  tats statiques r sultatifs de mouvements adductifs sont *adductifs statiques terminaux  $T_1$* ,   l'exemple de *l' tat d' tre assis, l' tat d' tre pos , l' tat d' tre arriv *, etc. qui sont des aboutissements des mouvements adductifs de *s'asseoir, poser, arriver*, etc. Ces termes construisent leurs

différences autour des modes de transposition des états adductifs statiques qu'ils sémiotisent. *Contiguïté*, par exemple, implique *l'adduction statique* selon que les éléments concernés *se touchent*; *voisinage/voisin*, selon que les objets concernés *se perçoivent réciproquement*; *entourage*, selon que les éléments concernés *entourent un élément situé au centre*, etc. Peut-on alors penser que *l'adductif statique initial* puisse exister? Cette situation pourrait correspondre à l'étape d'avant le Big-Bang.

#### 1.3.5. Les fonctions support adductif/ apport adductif/ adjuvant adductif.

Par *adjuvants adductifs*, nous entendons les termes comme *vis, clou, colle, puce, trombone, fermeture, épingle, gravité terrestre*, etc.; bref, tous les termes qui dénotent ces petits éléments qui permettent d'établir des relations adductives entre parties/contenus d'objets, et donc entre objets eux-mêmes. Parmi ces objets, on distingue des *supports adductifs* fonctionnels et des *apports adductifs*. Par exemple, quand on fixe une image au mur, le *mur* = support adductif, *l'image* = apport adductif, *clou* = adjuvant adductif. Une *table* est un support adductif des objets posés dessus, et ces objets, des apports adductifs. La *gravité* qui permet leur adduction est un adjuvant adductif. La *chaise* est support adductif de l'apport adductif: « celui qui est assis dessus ». La *route* est *support adductif* fonctionnel de l'apport adductif *voiture* qui roule dessus. La relation *support/apport adductif* peut être relative. Par exemple, la *chaise* est *apport adductif* par rapport au *support adductif* primaire *terre*, mais par rapport à la *personne* qui est assise dessus, la *chaise* est *support adductif* second. Donc, le contexte propose une relativité du rapport apport/support adductif. Mais dans la langue, il existe des termes qui sont prégnants sur leur fonction de *support fonctionnel adductif*, à l'exemple de: *sol, table, siège (chaise, canapé,...), lit, voiture, corps humain*, etc. En contexte des rapports partie/tout, le *tout* est support adductif de ses *contenus* qui sont ses *apports mérologiques adductifs*. *L'adduction* se trouve partout où il y a simple contact/contiguïté/voisinage physique/relation entre objets.

#### 1.4. Les termes abductifs spatiaux en $T_1$ (en mouvement aller $T_1$ ).

Tous les termes et expressions employés pour désigner linguistiquement *l'abduction*, à savoir: *rupture, séparation, écart, distance, éloignement*, etc. sont *abductifs*. S'y rattachent aussi les effets de *l'abduction* que sont: *évanouissement, disparition, absence* (termes *abductifs effectifs*). Ces effets participent des notions

de *manque, carence, insuffisance, défaut*, etc. qui sont elles aussi *abductives*. Les termes comme *arrêter/arrêt, ralentir,/ralentissement, freiner/freinage, ralentir, affaiblir*, etc. sont *abductifs*. En effet, ils sont tous *anti-adductifs* par essence. Ils prospectent en aval la rupture processive d'une dynamique adductive. Ils transposent le deuxième sens abductif de *rupture* qui est *rupture d'une dynamique adductive* (Vs *rupture d'un état statique*). Cette rupture de dynamique ne se fait pas d'un coup, elle se fait par *ralentissement*; et les termes *arrêter/arrêt, ralentir, freiner/freinage, ralentir, affaiblir*, etc. transposent cet état de chose. C'est pour cela que nous disons qu'ils sont *abductifs terminatifs* ( $T_1$ ). Ils sont différents de *rétrograder, régresser, arrière*, etc. qui sont *abductifs* plutôt *rétroversifs* que *terminatifs* (voir 2.1).

#### 1.4. Termes adductifs/abductifs partitifs en $T_1$ .

Il s'agit de voir l'importance de l'adduction/abduction dans la catégorisation des termes partitifs.

##### 1.4.1 Abductif partitif en $T_1$ .

Il s'agit des termes qui expriment le partitionnement comme *rompre, briser, casser, couper, scier, trancher, partager, diviser, disperser, disloquer, dissiper*, etc. Ils sont tous *abductifs partitifs* ( $T_1$ ). Ils transposent les idées de *rupture* d'unité de constitution avec *séparation* potentielle des parties/contenus. Par ailleurs, ils prospectent tous des états abductifs terminaux (l'état d'être cassé, brisé, etc.).

*Casser*, dans sa pratique, est évidemment un *mouvement adductif  $T_1$  vers*: c'est sa partie *adductive* nécessaire à la réalisation de l'acte en soi. Par son *mouvement adductif* donc, il cause un *effet*: celui de la *cassure* de l'objet. Mais dans son sémantème, son *adduction* est subduite, rendue implicite: ce qui est rendu saillant est *l'effet abductif* qu'il cause, à savoir: la *casse de l'objet*. *Casser* n'a de sens que par ce qu'il y a cassure de l'objet, et sans cette cassure, on ne saurait parler de *casser*. Cette explication est aussi valable pour tous les autres termes *abductifs partitifs*. Il faudrait se souvenir de ce que nous avons dit: *l'adduction est un mouvement causal: elle est au centre de tous les mouvements qui causent des situations ou qui permettent les réalisations d'actions, d'objets, l'établissement de relations, la visualisation, perception*. Quand *casser, briser, couper, diviser*, etc. portent sur un objet extérieur, on dira d'eux qu'ils sont *adductifs partitifs  $T_1$  hétéro-incidents*. Mais quand ils sont incidents sur le sujet

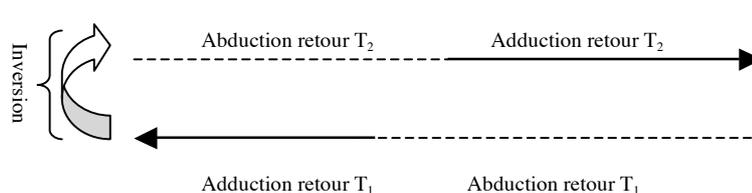
lui-même, comme dans *se casser la jambe, se briser les côtes*, on dira qu'ils sont *auto-incidents*. On pourrait aussi prendre en compte les critères de *l'auto-performance/hétéro-performance* pour les caractériser contextuellement.

#### 1.4.2 Adductif partitif en $T_1$ .

Il s'agit de *former, fabriquer, construire, composer, façonner, assembler, unir, synthétiser*, etc. Ils sont tous *adductifs partitifs en  $T_1$* . En substance, ils traduisent une dynamique adductive d'apport d'éléments dans le cadre d'une *formation, fabrication*, etc. d'objets de valeur scopique supérieure dont ils seraient des constituants. Également, les adductifs partitifs peuvent être *hétéro-incidents* (*fabriquer une voiture, construire une maison*, etc.), ou *auto-incidents* (*se former, se construire*,...). Etc.

## 2. Phénoménologie de l'adduction/abduction en mouvement retour $T_2$ .

L'adduction et l'abduction spatiales peuvent aussi se concevoir en *mouvement retour*. Les mêmes conditions de réalisation de l'*adduction/abduction en aller* (ou *adduction/abduction  $T_1$* ) se retrouvent en retour (*adduction/abduction  $T_2$* ). Mais ici, un nouveau paramètre entre en jeu : celui de *l'inversion/opposition* à d'une *situation adductive* acquise en amont. Cela peut schématiquement être représenté de la façon suivante, en se passant de la phase intentionnelle.



Le moment de *l'inversion/opposition* au mouvement *adductif/abductif  $T_1$* , est un moment essentiel qui détermine l'adduction et abduction *en retour*. Et nous verrons que les termes du français qui transposent *l'adduction/abduction  $T_2$*  (i.e., en mouvement retour) sont prégnants sur cette *inversion/opposition* à un *état, à une situation adductive/abductive aller  $T_1$* . Mais nous devons comprendre que les mêmes conditions et effets de réalisation de l'adduction/abduction en  $T_1$  sont transposées en  $T_2$ .

### 2.1. Termes abductifs $T_2$ .

Il s'agit par exemple de *dépoussiérer, dévêtir, débarquer, déridier, dénaturer, dépoussiérer, dévêtir, dévoiler, dévier, détourner, éviter, esquiver, dévoiler, etc.* Tous ces termes s'opposent à une situation *adductive initiale* (apport de poussière, port de vêtements, embarquement, apparition de rides, etc.). Leur *abduction*, pour se réaliser, a nécessairement besoin d'*adduction* (les mouvements de réalisation qui leur sont associés). Mais leur saillance sémantique est focale sur les idées abductives de *séparation/éloignement* de *poussière, habits, rides, etc.* *Éviter, esquiver* sont abductifs en  $T_2$ , car ils instituent des comportements réactifs vis-à-vis de mouvements adductifs  $T_1$  antérieurs incidents sur le sujet, par opposition/esquive de ceux-ci. *Dévoiler* veut dire : *enlever le voile* initialement en situation *adductive avec le visage, le corps*, avec effet de découverte. *Déplacer* est *abductif*  $T_2$ , car s'opposant à un état initial adductif de placement.

Considérons spécialement le couple *pousser/repousser* : si je dis, *l'ennemi a été repoussé*, dans cet usage, *repoussé* est *abductif*  $T_2$  *rétroversif intensif*. Il est *abductif* puisqu'il introduit l'idée de réalisation d'un *écart* entre le sujet et l'objet, *rétroversif*, car l'action *s'oppose* à un mouvement adductif initial  $T_1$  considéré sur son *propre itinéraire* (voir ci-dessous 2.1.1), et finalement *intensif* puisque cette abduction nécessite un investissement substantiel de force pour contrer une force adductive opérante.

Supposons que je dise: *il repousse l'échéance* ; *repousser* est *abductif*  $T_1$  *itératif temporellfutur*. Il est abductif en  $T_1$ , car son abduction n'est pas inverse de situation antérieure. Il est *itératif*, car son préfixe *re-* apporte l'information que son abduction est répétitive d'une abduction antérieure; et *temporel*, puisque l'idée de *repousser* est orientée dans le futur. Sur le cas de *pousser*, si je dis :*Paul pousse la voiture*, l'intention de Paul n'est pas d'établir un écart entre lui et la voiture. Son intention est de la faire *mouvoir*. Nous sommes donc en contexte d'*adduction* forcée. Mais si je dis : *pousse-toi*, l'intention est qu'il y ait écart entre nous deux. Dans ces circonstances, *pousser* est *abductif*  $T_1$ . Donc, le contexte est primordial dans la détermination du profil sémantique adductif ou abductif d'un terme.

### 2.1.1 Termes abductifs $T_2$ rétroversifs.

La *rétroversion* est une forme spécifique *d'inversion/opposition* au mouvement adductif  $T_1$  se réalisant sur l'itinéraire propre de ce mouvement. Les termes immédiatement concernés sont: *arrière, reculer, régresser, refluer, repousser, refouler, rétrograder, etc.* Ils sont tous *abductifs*  $T_2$  *rétroversifs*. Ils

sont *abductifs*, car s'opposant à un mouvement adductif initial  $T_1$ , et *rétroversifs*, car cette opposition emprunte l'itinéraire du mouvement adductif  $T_1$  en sens inverse. Quand vous dites aux gens : *reculez-vous*, ils font le contraire de leur mouvement adductif initial  $T_1$  vers vous sur le même itinéraire. Étant donné qu'ils performant eux-mêmes ce retrait, on parlera donc d'*auto-rétroversion*. Mais si je parle de *faire reculer la voiture*, nous nous retrouvons en contexte d'*hétéro-rétroversion*.

### 2.1.2. Quelques termes abductifs partitifs en $T_2$ .

*Soustraire, extraire, retirer (de l'argent), prélever, ...* sont *abductifs partitifs quantitatifs* selon les circonstances, la quantité prélevée pouvant être *numérale* ou *massique*. Alors que *retirer de l'argent* est *abductif partitif quantitatif*, « *se retirer* » de la course est lui *abductif rétroversif auto-performé*. L'abduction se reconfigure ainsi contextuellement. Les termes comme *réduire, diminuer, simplifier, perdre, ...* sont *abductifs partitifs quantitatifs  $T_2$*  ou *abductifs partitifs intensifs  $T_2$*  (diminuer d'intensité, diminuer de force,...). Leur *abduction* commune se conçoit en  $T_2$  par rapport à une situation adductive  $T_1$  précédente d'apport de quantité, d'intensité.

*Détacher, désassembler, désunir/désunion, dépiécer, démembrer, déconstruire, démonter, défaire, etc.* expriment aussi l'*abduction partitive (qualitative) en  $T_2$* . Cette abduction s'inscrit à l'inverse d'un mouvement  $T_1$  d'apport d'éléments dans le cadre de leur *assemblage, mise en union, montage, etc.* *Détacher* suppose en amont une situation  $T_1$  acquise d'adduction se donnant en termes d'*attache* (le verbe *attacher* étant adductif). *Détacher* induit donc un *mouvement retour  $T_2$*  à l'opposé (donc *inversif/oppositif*) du *mouvement aller* d'*attache* : c'est la raison pour laquelle nous disons qu'il est *abductif partitif  $T_2$* . *Désassembler* suppose lui aussi un *mouvement adductif initial d'assemblage* et un *état assemblé* conséquent. Il s'oppose à l'état assemblé initial en faisant le mouvement inverse (donc *rétroversion*) qui a abouti à cet état. Pareil pour *désunir/désunion, dépiécer, démembrer, démonter, etc.* Ce sont tous des termes *abductifs partitifs* (qualitatifs)  $T_2$  chacun selon ses propres critères spécifiques.

### 2.2. Exemples de termes adductifs en $T_2$

Le mouvement *adductif  $T_2$*  est un *mouvement versif* selon qu'il se conçoit en phase retour par rapport à un *mouvement versif initial aller  $T_1$*  ayant abouti à

un *état*, une *situation adductive*. Parmi les *termes adductifs*  $T_2$ , nous avons par exemple : *revenir, retour, déduire, représenter*, etc. Considérons le cas de *revenir* auquel nous opposons sa forme non préfixée *venir*. *Revenir* (avec préfixe *re-*) est *adductif*  $T_2$  *réensif point de départ* ; alors que « *venir de* » (sans préfixe *-re*) est *adductif*  $T_1$  *réensif point de départ*. Alors que le premier est  $T_2$ , le second est  $T_1$ . En effet, si je dis : *je viens de paris*, il n'y a pas nécessité que je m'y sois d'abord rendu en aller  $T_1$ . Cette nécessité est incontournable dans « *revenir de* ».

*Déduire* se conçoit par rapport à un *mouvement adductif-inductif aller*  $T_1$  du particulier vers le général. Son *mouvement adductif*  $T_2$  (du général vers le particulier) se définit donc par rapport au mouvement adductif  $T_1$  de l'induction. Par ailleurs, il existe un *usage abductif de déduction* où il signifie *soustraction*. En effet, la *soustraction* est *abductive*  $T_2$  par rapport à un mouvement adductif  $T_1$  *d'ajout de quantité*.

*Retour* est *adductif*  $T_2$  puisqu'il se conçoit par rapport à un mouvement adductif aller  $T_1$ . *Recevoir* est *adductif*  $T_2$  le plus souvent par rapport à un mouvement adductif aller de (*re*)quête, *recherche, demande*,... (*j'ai reçu mon examen, j'ai reçu mon courrier*, etc.). Supposons que je dise cette fois-ci: *j'ai reçu une fiente d'oiseau sur la tête* : *recevoir* est toujours *adductif* en  $T_2$ , non par rapport à un *mouvement adductif initial*  $T_1$  *de quête de fiente par le sujet* (hypothèse improbable), mais par rapport à un *mouvement adductif initial*  $T_1$  *de venue de fiente incident sur le sujet*. Donc les deux perspectives de validation du caractère  $T_2$  de son *abduction* sont admises. *Retourner* (chez soi) est *adductif*  $T_2$  par rapport à un *mouvement adductif*  $T_1$  *de venue*. Etc.

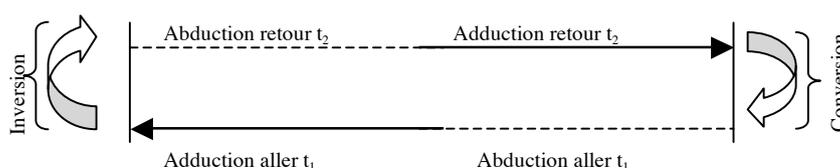
### 3. L'adductif/abductif vertical.

Si *monter, élever, grimper, hausser, ascendant, accroissement*, etc. sont *adductifs verticaux*  $T_1$  (ascendant), en ce qui concerne *descendre, baisser, Abaisser*, etc., ils sont eux *adductifs verticaux*  $T_2$  (descendants). *Dévaler, dégringoler, tomber, choir*,... sont eux aussi *adductifs verticaux*  $T_2$ , mais ils intègrent en plus une *modalité catastrophique* puisque leur mouvement est causé par une force supérieure qui échappe au sujet (la force de la gravité, de la loi, du destin, etc.). *Tomber* est un *mouvement adductif vertical catastrophique*  $T_2$  s'opposant à un état initial  $T_1$  (être debout, suspendu, monté, etc.). Les termes comme *altitude, plafond, hauteur*, transposent *l'aboutissement statique relatif du mouvement adductif vertical*  $T_1$ . Ils sont *adductifs statiques verticaux relatifs*  $T_1$ . *Plafonner* est

un *mouvement adductif vertical*  $T_1$  visant un niveau relatif suspensif qui est le « *plafond*. ». L'adduction verticale en  $T_1$  possède des qualités de *conquête*, *recherche*, *effort*,..., tandis que l'adduction verticale en  $T_2$  possède un relent *catastrophique*, *fataliste* de retour à une *assignation ontologique*.

#### 4. L'adductif conversif.

Si le *mouvement adductif retour*  $T_2$  connaissait lui-même, à son terme, une *inversion*, on aboutirait à une situation de *conversion* schématiquement représentable de la façon suivante.



La *conversion* exige que le mouvement adductif/abductif  $T_1$  soit converti en un autre mouvement de même nature  $T_1^2$  (ou substantiellement différent), avec possibilité que celui-ci soit converti à son tour en un autre mouvement de même nature  $T_1^3$ , ainsi de suite. Le conversif peut prendre les formes de l'*itération*, *duplication*, etc. Il a pour effets l'*intensification*, la *célérité*.

##### 4.1. Quelques termes adductifs conversifs.

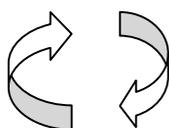
De nombreux termes du français préfixés en « re-, ré- » expriment l'*adduction converse*. Il s'agit par exemple de *reprendre*, *recomposer*, *relire*, *réinventer*, *redynamiser*, *retomber*, *revoir*, *reconsidérer*, *réimprimer*, etc. En eux, le préfixe « ré-, re » introduit un sens dit *duplicatif*, *itératif* opposé au sens *oppositif/inversif/réversif/rétroversif* que ce même préfixe peut introduire en abduction (voir 6.). *Reprendre* est *adductif conversif itératif* : il est *adductif*, car il profile l'idée d'un mouvement adductif d'ajout ; *conversif*, car ce mouvement n'est pas envisagé dans son opposition à un autre, mais dans son itération. *Redynamiser* est *adductif conversif intensif*, le préfixe « re- » introduisant la modalité *intensive* de l'itération. Nous avons dit que l'*intensité* est un effet de l'*adduction converse*. *Retomber* est *adductif vertical*  $T_2$  *conversif itératif*.

##### 4.2. Les termes abductifs conversifs.

Il s'agit par exemple de *re-écarter, re-séparer, re-éloigner,...*; *recasser, recouper*, etc. Considérons *retrancher* : il peut dénoter une *abduction T<sub>2</sub> itérative* (trancher une seconde fois). Mais dans sa forme réflexive *se retrancher*, il signifie une simple *abduction T<sub>2</sub> auto-performée* (*se retrancher derrière le mur*, etc.).

## 5. L'adductif conversif pur et transposition lexicale.

Il s'agit de la conversion en soi, hors de tout contexte de mouvement aller/retour. On pourrait la représenter de la façon suivante :



Ce mouvement *circulaire itératif, répétitif, fermé sur soi* nous rappelle le mouvement de la *roue* qui tourne autour de son axe. Ses variantes sont le *tore, tourbillon, tornade*, etc. Ce mouvement est *purement adductif conversif, itératif, duplicatif, intensif*, etc. Et pourrait-on y déceler de contrepartie abductive ? Mais en ce qui nous concerne, les termes qui transposent en soi l'*adductif conversif pur* sont, par exemple : *rouler, tourner, tourbillon/tourbillonner, tornade, tore, vriller/vrille*, etc.

Considérons les cas de *tourner* et *retourner*. Le premier (*tourner*) est *adductif conversif T<sub>1</sub>* pouvant être *itératif*. Dans : *la terre tourne*, le verbe *tourner* est *adductif conversif itératif auto-performé* avec *incidence nulle* (le mouvement étant convulsif en soi et sur soi). En ce qui concerne le second (*retourner*), son *re-* préfixal peut introduire un sens *inversif* contraire au mouvement conversif initial introduit par *tourner* : il serait ainsi *adductif inversif conversif*, ou simplement *adductif conversif T<sub>2</sub>* (sa conversion adductive T<sub>2</sub> étant contraire à la conversion adductive T<sub>1</sub> initiale). Son *re-* préfixal peut aussi introduire un sens *conversif itératif* : *retourner* signifierait ainsi *tourner une seconde, une troisième fois*, etc. Il y a donc possibilité de prédictibilité des sens, sans nécessairement passer par des enquêtes textuelles. *Rouler* est *adductif conversif itératif* en T<sub>1</sub> avec *effet de déplacement horizontal*, et *roue* est l'agent/ou objet de la *conversion itérative pure*. Etc.

## 6. Conflit adduction/abduction répercuté en langue.

Nous avons vu qu'*adduction* et *abduction* étaient instantanées. En même temps qu'elles s'opposent, elles se complètent aussi. Cela, le lexique et certaines particules grammaticales le reflètent aussi. Dans les termes : *désunir*, *désassembler*, *désosser*, etc. le préfixe *dé-*, *dés-* possède une *valeur abductive* (dite *négative*). C'est ce préfixe qui introduit l'abduction en ces termes. Par contre en *départ*, *dépendance*, *décupler*, *démultiplier*, etc., ce préfixe possède une *valeur adductive* dite *positive*. Même cas pour le préfixe *a-* qui est *adductif* en *arriver*, *approcher*, *amarrer*, etc., et *abductif* dans *asocial*, *amoral*, etc. L'élément initial/préfixal *in-*, *im-* est *adductif* en *intérieur*, *inviter*, *inféoder*, *importer*, *important*, etc. et *abductif* en *impossible*, *impropre*, *inclassable*, etc. Dans *reprendre*, *relire*, *rétablir*, etc. *re-* initial est *adductif conversif* et dans *retrait/retirer*, *repousser*, *renvoyer*,... il possède une *valeur abductive* contextuelle. Le fait qu'un même préfixe (en français, en anglais ou dans n'importe quelle langue) puisse avoir, selon les contextes, une *valeur adductive* ou *abductive* relève de la nature phénoménologique de ces deux principes qui sont duaux et toujours associés.

Par ailleurs, en français, l'adverbe *plus* peut être *adductif* (je veux *plus* de points – avec réalisation sonore du /s/ final), ou *abductif* (je *ne* veux *plus* de riz). Le mot *pas* est *adductif* dans le nominal *le pas* où il introduit *l'idée de réalisation d'un mouvement*, et *abductif* dans la construction négative *je ne veux pas* où il est un morphème de la *négation*. Le mot *licence*, en profil sémantique *adductif*, signifie une *autorisation* (*licence* d'exploitation), et en profil *abductif*, un *renvoi*, une *exclusion* (il a été *licencié* de l'entreprise). *Gâter* (être *gâté*) en *abduction*, désigne une situation de *dégénérescence*, *destruction* (la voiture est *gâtée*), et en *adduction*, une situation de *profusion* (cet enfant est *gâté* de jouets). L'expression «*se douter de*», selon les usages, peut induire l'*adduction* (confirmation) ou l'*abduction* (infirmité). *Déposer* est *adductif* T<sub>2</sub> dans *déposer le sac par terre* (après l'avoir pris auparavant), mais dans *le roi a été déposé*, il est *abductif* T<sub>2</sub> (après avoir été mis en place). Le mot *indubitable*, bien qu'il soit *abductif*, induit causalement un effet *adductif mental* de *confirmation*, *acceptation*,... Pareil pour *inlassable* qui est *abductif* (qui ne se lasse pas), mais qui introduit une *interprétation adductive* (idée de continuité du mouvement, de l'action concernée). Etc. Ces quelques exemples nous montrent la forte dépendance de l'*adduction/abduction*, et la complexité de leur étude en langue.

## Conclusion

Dans les grammaires, la notion d'*adduction* transparait dans l'étude de l'*aspect verbal* que M. Riegel (1994) définit en termes « *d'angle de déroulement interne d'un procès.* ». L'aspect accompli/perfectif correspond au *terminatif statique* de l'*adduction*, l'aspect inaccompli correspond au *dynamique en cours* de l'*adduction*, l'aspect *inchoatif* au *dynamique initial*, l'aspect *terminatif* au *dynamique terminal*, et l'*aspect itératif* au *conversif itératif*. La notion d'*aspect* est vague et incomplète: les points de vue relatifs qu'elle théorise sont des facettes de l'*adduction*. Donc, au lieu de rester sur une notion vague d'*aspect*, il faudrait revenir à l'essentiel qui est la théorisation de l'*adduction/abduction* pour une catégorisation lexico-sémantique plus large et riche. Nous avons présenté ces deux principes uniquement dans leur aspect spatial. Ces concepts sont aussi temporels et il faudrait voir comment permettent-ils la catégorisation du temps d'une façon générale, temps et espace étant liés. Par exemple, si je dis : *il repousse ses examens*, le verbe *repousser* (abductif) n'a pas d'ancrage spatial dans cet usage: il a un *ancrage temporel*, il est donc *abductif temporel itératif*. Les vues que nous avons développées sont des préliminaires à une analyse bien plus dépouillée de l'*adduction/abduction* et de leur incrustation en langue et en discours. Ces deux principes caractérisent le langage à tous les niveaux, prenant des couleurs diverses, se rentrant en conflit, s'harmonisant, se perspectivant, selon les contextes de leur réalisation.

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# V-V Compounds in Japanese and Deixis

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## Abstract

This paper explores the nature of syntactic V-V compounds including *iku* ‘go’ or *kuru* ‘come’ as the first verb on the basis of image-schemas. Although *iku* and *kuru* have similar meanings, an asymmetry exists between the *iki* ‘go’-V and the *ki* ‘come’-V compounds. There are far fewer *ki*-V compounds than *iki*-V compounds. This asymmetry arises from the difference in deictic characterization encoded in the meanings of *iku* and *kuru*. Some restrictions are imposed on the *ki*-V compound, because *kuru* requires the speaker’s deictic center as the goal of directed motion. Thus, the goal of this paper is to clarify how the deictic characterization of *iku* and *kuru* are related to the meanings of syntactic V-V compounds including *iku* or *kuru*.

**Keywords:** deictic verb, syntactic V-V compound, motion verb, image-schema.

## 1. Introduction

This paper is a small part of a large-scale empirical investigation into the nature of V-V compounds in Japanese on the basis of image-schemas, fitting squarely in the realm of cognitive semantics. Kageyama (1989, 1993) divided V-V compounds in Japanese into two types, lexical V-V compounds and syntactic V-V compounds. The two types of V-V compounds share some common characteristics. Morphologically, the second verb inflects for tense. The compound constitutes one morphological word. This paper, in particular, explores the nature of syntactic V-V compounds including *iku* ‘go’ or *kuru* ‘come’ as the first verb. The theoretical construct ‘image-schema’ is defined here as follows: Image-schemas are continually connected with embodied action and simulations of experience. Thanks to their embodied basis, image-schemas are powerful motivating factors.<sup>1</sup> Image-schemas are not necessarily represented schematically. The primary goal of this paper is to clarify how the deictic characterization of the verbs *iku* and *kuru* are related to the semantics of syntactic V-V compounds including *iku* or *kuru* as the first verb. This paper proceeds as follows. In order to provide the

image-schematic approach with an appropriate context, Section 2 briefly explains what the PATH schema is and how it is crucial to the investigation of the verbs *iku* and *kuru*. Section 3 explicates the nature of syntactic V-V compounds including *iku* or *kuru* as the first verb on the basis of the image-schemas. Section 4 offers some conclusions.

## **2. The PATH schema**

Image-schemas organize our experience independently of language. At the same time, they play an important role in connecting language to experience. Image-schemas can be formally characterized as follows (see Johnson & Rohrer 2007: 37): (1) recurrent patterns of bodily experience; (2) 'image'-like in that they preserve the topological structure of the perceptual whole, as evidence by pattern-completion; (3) operating dynamically in and across time; (4) structures which link sensorimotor experience to conceptualization and language; (5) realized as activation patterns in and between topological neutral maps; and (6) structures which afford normal pattern completions that can serve as a basis for inference. Image-schemas are traditionally described as a preverbal and pre-reflective emergent level of meaning. Some researchers such as Johnson (1987, 2005), Lakoff (1987), and Mandler (2004) note that image-schemas are not the same as real images and are more abstract than real images. Image-schemas are viewed as abstractions over experiences rather than as the specificity of rich experiences. In a sense, image-schemas are permanent properties of embodied experience.

By contrast, it is argued that image-schemas are generally understood as experiential *gestalts* that arise from recurring patterns of embodied experience, although it is widely acknowledged that image-schemas are essential aspects of thought and language (see Gibbs 2005).<sup>2</sup> This means that it is a mistake to assume that image-schemas are mental representations that are abstracted away from experience. Gibbs (2005) claims that image-schemas are different kinds of simulated action on the basis of real-life actions and potential actions that a person may engage in. In this regard, image-schemas as embodied simulations created in the very moment of understanding, which Gibbs claims, are completely opposite to ones as abstractions over experiences, which Johnson (2005) maintains. Image-schemas are not separated from embodied experience, but they are not structured as pre-conceptual entities. Even if image-schemas typically function without our conscious awareness of how they organize our experience, it is sometime possible to be reflectively aware of the image-schematic structure of a certain experience. Image-schemas are emergent

properties of human self-organizing systems that are continually recreated and re-experienced during cognitive and perceptual activity (Gibbs 2005: 132). Image-schemas are, therefore, stable states of embodied experience. This paper follows the latter idea of image-schemas as experiential gestalts.

Johnson (1987: 28) illustrates the traditional PATH schema, as shown in Figure 1.



Figure 1. The PATH schema

The PATH schema is one of the most fundamental image-schemas arising from our bodily experience and perceptual interactions with the world.<sup>3</sup> As shown in Figure 1, the PATH schema always consists of three elements, a source point A, a goal point B, and a vector tracing a path between them. Lakoff and Johnson (1999: 33) point out that the PATH schema itself is topological. It is obvious that the PATH schema is closely related to our understanding of motion. As Miller and Johnson-Laird (1977: 527) point out that ‘the verbs that describe movement are first learned, most frequently used, and conceptually dominant,’ our understanding of motion is without doubt related to the earliest and most basic bodily experiences.

The most typical verbs of directed motion in Japanese, as in probably most other languages, are the deictic motion verbs *iku* ‘go’ and *kuru* ‘come.’ Their typical uses are not quite different from those of English *go* and *come* (see e.g., Clark 1974, Fillmore 1971, Radden 1996). In the time specification, *iku* and *kuru* are respectively source-oriented and goal-oriented, as in (1).

- (1) a. *Taroo wa rokuji mise ni it-ta.*  
 Taro Top six.o'clock Loc shop Goal go-Past  
 “Taro went to the shop at six o'clock.”
- b. *Taroo wa rokuji ni mise ni ki-ta.*  
 Taro Top six.o'clock Loc shop Goal come-Past  
 “Taro came to the shop at six o'clock.”

In (1a) the time adverbial expression *rokuji ni* ‘at six o'clock’ represents the time of leaving the source place, while in (1b) it represents the time of reaching the goal. Also, in the specification of directional orientation, *kuru* basically requires the speaker’s deictic center as the goal of directed motion, but *iku* can take any place as a source place,

that is to say, the speaker's place or somewhere else, as in (2).

- (2) a. *Taroo wa mise ni it-ta.*  
Taro Top shop Goal go-Past  
“Taro went to the shop.”
- b. *Taroo wa mise ni ki-ta.*  
Taro Top shop Goal come-Past  
“Taro came to the shop.”

(2a) does not necessarily imply that the subject Taro started out from the place where the speaker was, while (2b) implies that the speaker was in the shop. It should be emphasized here that *iku* is an unmarked verb of directed motion that can be used in neutral descriptions, where the speaker is neither at the source nor at the goal, and that the asymmetry between *iku* and *kuru* exists.

This paper presents the IKU schema and the KURU schema as image-schemas, as shown in Figure 2 and Figure 3.



Figure 2. The IKU schema

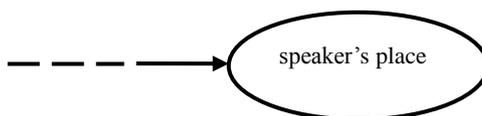


Figure 3. The KURU schema

The speaker's place as a source of directed motion, that is to say, the speaker's deictic center, is not always shown explicitly in the IKU schema, but the speaker's place as a goal of directed motion is absolutely necessary in the KURU schema. It is clear that the IKU and the KURU schemas are strongly related to the PATH schema. The distinction between these two schemas depends on what part in the PATH schema is highlighted. The KURU schema is always required to focus on the goal part. Consequently, as syntactic V-V compounds including *iku* or *kuru* as the first verb are generally related to motion, it is hypothesized that the meanings of such syntactic V-V compounds are based at the very least on the IKU or the KURU schema. In the following section, this paper explores the nature of syntactic V-V compounds including *iku* or *kuru* as the first verb

and demonstrates whether the meanings of such syntactic V-V compounds emerge from merely a process of composition or not.

### 3. Syntactic V-V compounds including *iku* or *kuru* as the first verb

The beginning part of this section demonstrates some characteristics of syntactic V-V compounds very briefly. Syntactic V-V compounds involve a particular complement structure. They are divided into two groups, aspectual compounds which take aspectual verbs, as in (3a), and non-aspectual compounds, as in (3b).

- (3) a. *Taroo wa uta o utai-hajime-ta.*  
Taro Top song Acc sing-begin-Past  
“Taro began to sing a song.”
- b. *Taroo wa kinoo hirugohan o tabe-sobire-ta.*  
Taro Top yesterday lunch Acc eat-miss-Past  
“Taro missed the chance of eating lunch yesterday.”

The second verbs in syntactic V-V compounds are limited to some classes of verbs. On the basis of Kageyama (1989: 75, 1993: 96), Matsumoto (1996: Ch.7), and Himeno (1999: 29-30), this paper lists 23 verbs co-occurring with *iku* or *kuru* as the first verb. As shown in Table 1, the 23 verbs are divided into aspectual and non-aspectual verbs on the basis of their meanings of syntactic V-V compounds. Also, the aspectual and the non-aspectual verbs are respectively divided into motion and non-motion verbs on the basis of their original verbal meanings.

	aspectual	non-aspectual
motion	<i>dasu</i> (bring.about) ‘begin’ <i>makuru</i> (roll) ‘continue actively’ <i>toosu</i> (pass) ‘finish completely’	<i>sugiru</i> (pass) ‘exceed’
non-motion	<i>hajimeru</i> (begin) ‘begin’ <i>kakaru</i> (hang) ‘be about to’ <i>kakeru</i> (hang) ‘be about to’ <i>tsukusu</i> (fulfill) ‘do something completely’ <i>tsuzukeru</i> (continue) ‘continue’	<i>aguneru</i> (struggle) ‘struggle’ <i>au</i> (join) ‘do each other’ <i>akiru</i> (get.tired) ‘get tired of’ <i>kaneru</i> (be.reluctant) ‘be reluctant to’ <i>machigaeru</i> (mistake) ‘mistake’ <i>naosu</i> (re-do) ‘re-do’ <i>nareru</i> (get.used) ‘get used to’ <i>okureru</i> (be.late) ‘miss the chance of’ <i>sobireru</i> (miss) ‘miss the chance of’ <i>sokonau</i> (fail) ‘fail’ <i>sokoneru</i> (miss) ‘miss the chance of’ <i>tsukeru</i> (attach) ‘get used to’ <i>wasureru</i> (forget) ‘forget’

Table 1. Second verbs co-occurring with *iku* or *kuru* in syntactic V-V compounds

The following subsections show that there is an asymmetry between the *iki*-V and the *ki*-V compounds, and they examine where the asymmetry originates.

### 3.1. Aspectual V-V compounds

In aspectual V-V compounds taking non-motion verbs as the second verb, the second verbs are aspectual verbs. Table 2 shows the second verbs co-occurring with *iku* or *kuru* in aspectual V-V compounds taking non-motion verbs.

	second verb	<i>iku</i> ‘go’	<i>kuru</i> ‘come’
initiation	<i>hajimeru</i> ‘begin’	<i>iki-hajimeru</i> ‘begin to go’	<i>ki-hajimeru</i> ‘begin to come’
	<i>kakaru</i> ‘be about to’	<i>iki-kakaru</i> ‘be about to go’	<i>ki-kakaru</i> ‘be about to come’
	<i>kakeru</i> ‘be about to’	<i>iki-kakeru</i> ‘be about to go’	<i>ki-kakeru</i> ‘be about to come’
continuation	<i>tsuzukeru</i> ‘continue’	<i>iki-tsuzukeru</i> ‘continue to go’	<i>ki-tsuzukeru</i> ‘continue to come’
achievement	<i>tsukusu</i> ‘do something completely’	<i>iki-tsukusu</i> ‘go to all the places’	

Table 2. Non-motion verbs co-occurring with *iku* or *kuru* in aspectual V-V compounds

Both *iku* and *kuru* co-occur with *hajimeru* ‘begin,’ *kakaru* ‘be about to,’ and *kakeru* ‘be about to’ representing initiation, as in (4), and *tsuzukeru* ‘continue’ representing continuation, as in (5).

- (4) a. *Gakusei wa hachiji ni daigaku ni iki-hajime-ta.*  
 Student Top eight.o'clock Loc university Goal go-begin-Past  
 "Students began to go to university at eight o'clock."
- b. *Gakusei wa hachiji ni daigaku ni ki-hajime-ta.*  
 Student Top eight.o'clock Loc university Goal come-begin-Past  
 "Students began to come to university at eight o'clock."
- (5) a. *Gakusei wa hachiji ni daigaku ni iki-tsuzuke-ta.*  
 Student Top eight.o'clock Loc university Goal go-continue-Past  
 "Students continued to go to university at eight o'clock."
- b. *Gakusei wa hachiji ni daigaku ni ki-tsuzuke-ta.*  
 Student Top eight.o'clock Loc university Goal come-continue-Past  
 "Students continued to come to university at eight o'clock."

*Iku* and *kuru* in aspectual V-V compounds taking non-motion verbs retain their deictic characterization. With respect to the time specification, in (4a) and (5a), the time adverbial expression *hachiji ni* 'at eight o'clock' represents the time of leaving the source place, whereas in (4b) and (5b) it represents the time of reaching the goal. With respect to the directional specification, (4a) and (5a) do not necessarily imply that the subject students started out from the place where the speaker was, whereas (4b) and (5b) imply that the speaker at the university.

The verb *kuru* cannot co-occur with both the verb representing termination such as *owaru* 'finish' and the verb representing achievement such as *tsukusu* 'do something completely.' Since the *ki-V* compound can occur only in the area of initiation and continuation, one restriction appears to be imposed on the *ki-V* compound: The speaker's place which the verb *kuru* expresses should not conflict with the focus of motion that the second verb expresses in the V-V compound. With respect to the first verb *kuru* and the second verb representing termination or achievement, the speaker's place where *kuru* expresses conflicts with the focus of motion which the second verb expresses, that is to say, the goal of motion. *Kuru* in syntactic V-V compounds cannot co-occur with the second verb representing termination or achievement. From a different standpoint, *kuru* focusing on the goal of motion on the PATH schema, as mentioned in Section 2, is likely to have priority over aspectual second verbs representing termination or achievement in syntactic V-V compounds. As a result, (6) means that all the students have already arrived at the station. However, (7) sounds strange or it is unacceptable, and (8) is not acceptable.

- (6) *Gakusei-tachi ga kuji ni eki ni ki-ta.*  
 Student-Pl Nom nine.o'clock Loc station Goal come-Past  
 “Students came to the station at nine o'clock.”
- (7) ?\**Gakusei-tachi ga kuji ni eki ni ki-owat-ta.*  
 Student-Pl Nom nine.o'clock Loc station Goal come-finish-Past  
 “Students finished coming to the station at nine o'clock.”
- (8) \**Gakusei-tachi ga kuji ni eki ni ki-tsukushi-ta*  
 Student-Pl Nom nine.o'clock Loc station Goal come-do.completely-Past  
 “Students finished coming to the station at nine o'clock.”

The first verb *iku* cannot co-occur with the second verb representing termination, but it can co-occur with the one representing achievement. As *iku* is unmarked with respect to the speaker's place, the speaker's place does not play an important role in determining the meanings of the syntactic V-V compounds including *iku*. However, it is the focus of motion that is crucial to the meanings of such syntactic V-V compounds. *Iku* inherently focuses on the source of a movement on the PATH schema. We cannot construe both the first verb *iku* and the second verb representing termination which focuses on the goal of a movement concomitantly, because the path between the source and the goal on the PATH schema is not highlighted in the situation where the speaker's place is uncertain. Therefore, (9) sounds strange or it is unacceptable.

- (9) ?\**Gakusei-tachi ga kuji ni eki ni iki-owat-ta.*  
 Student-Pl Nom nine.o'clock Loc station Goal go-finish-Past  
 “Students finished coming to the station at nine o'clock.”

By contrast, *iku* can co-occur with the second verb representing achievement, *tsukusu* ‘do something completely,’ as in (10).

- (10) *Taroo wa Kyooto no kankoochi o iki-tsukushi-ta.*  
 Taro Top Kyoto Gen sightseeing.spot Goal go-do.completely-Past  
 “Taro went to all the sightseeing spots throughout Kyoto.”

Generally speaking, the object of *V-tsukusu* is plural. In (10), the object *kankoochi* ‘sightseeing spot’ is plural. (10) shows that as a result of visiting one sightseeing spot after another, Taro went to all the sightseeing spots throughout Kyoto. The source, the goal, and the path between them on the PATH schema are all highlighted. We can

construe all these three elements on the PATH schema, even if the speaker's place is uncertain. The path in (10) represents the events of visiting sightseeing spots, and the goal represents the resultant state, that is to say, the state that Taro has visited all the sightseeing spots throughout Kyoto.

With respect to the distribution of syntactic V-V compounds, aspectual V-V compounds taking motion verbs as the second verb are fundamentally the same as the ones taking non-motion verbs, as shown in Table 3.

	second verb	<i>iku</i> 'go'	<i>kuru</i> 'come'
initiation	<i>dasu</i> (bring.out) 'begin'	<i>iki-dasu</i> 'begin to go'	<i>ki-dasu</i> 'begin to come'
continuation	<i>makuru</i> (roll) 'continue actively'	<i>iki-makuru</i> 'continue to go actively'	<i>ki-makuru</i> 'continue to come actively'
achievement	<i>toosu</i> (pass) 'finish something completely'	<i>iki-toosu</i> 'finish going'	

Table 3. Motion verbs co-occurring with *iku* or *kuru* in aspectual V-V compounds

*Iki-dasu* 'begin to go' in (11) is roughly equivalent to *iki-hajimeru* 'begin to go' in (12).

- (11) *Hachiji ni shoogakusei ga gakkoo ni iki-da-su.*  
 Eight.o'clock Loc pupil Nom school Goal go-begin-Npst  
 "At eight o'clock pupils begin to go to school."
- (12) *Hachiji ni shoogakusei ga gakkoo ni iki-hajime-ru.*  
 Eight.o'clock Loc pupil Nom school Goal go-begin-Npst  
 "At eight o'clock pupils begin to go to school."

However, there is a remarkable semantic difference between aspectual V-V compounds taking motion verbs and the ones taking non-motion verbs, that is to say, between (11) and (12). This is because *dasu* (bring.out) 'begin,' *makuru* (roll) 'continue actively,' and *toosu* (pass) 'finish something completely' are originally motion verbs. (11) conveys the implication of a vivid, lively expression with respect to initiation, but (9) which does not imply such an expression conveys objective reporting. The vivid, lively implication could arise from the original motion verb *dasu*. Consequently, it is pragmatically impossible to replace *iki-dasu* with *iki-hajimeru*. The same is true of all other aspectual V-V compounds taking motion verbs. The second verb *makuru* in (13a) involves implications of 'more frequently than is necessary.' However, (13b) merely conveys objective reporting.

- (13) a. *Kyonen Hanako wa madonna no konsaato ni iki-makut-ta.*  
 Last.year Hanako Top Madonna Gen concert Goal go-raise-Past  
 “Last year Hanako continued to go to the Madonna concert more frequently than was necessary.”
- b. *Kyonen Hanako wa madonna no konsaato ni*  
 Last year Hanako Top Madonna Gen concert Goal  
*iki-tsuzuke-ta.*  
 go-continue-Past  
 “Last year Hanako continued to go to the Madonna concert last year.”

As the second verb *toosu* in (14) conveys a sense of accomplishment, (14) conveys the implication of a sense of fulfillment and satisfaction.

- (14) *Taroo wa itsukakan no shuutyuukoogi o*  
 Taro Top five-days Gen intensive.program Acc  
*iki-tooshi-ta.*  
 go-finish.completely-Past  
 “Taro finished going to the five-day intensive program.”

Both *toosu* ‘finish something completely’ and *tsukusu* ‘do something completely,’ as in (10), represent achievement, but they convey different meanings. There is, therefore, no equivalent compound in aspectual V-V compounds taking non-motion verbs as the second verb.

To summarize this subsection, the meanings of syntactic aspectual V-V compounds are based on a process of composition. This means that despite different internal relations, aspectual V-V compounds do not convey additional meanings which are not reducible to each meaning that each verb originally has. At the same time, it should be stressed here that the image-schemas illustrated in this subsection can answer the question not only why grammatical aspectual V-V compounds are based on a process of composition, but also why ungrammatical aspectual V-V compounds do not emerge from a process of composition.

### 3.2. Non-aspectual V-V compounds

The second verb occurring in non-aspectual compounds taking motion verbs is only *sugiru* (pass) ‘exceed.’ It is necessary to account for the characteristics of the

V-*sugiru* compound before scrutinizing two V-V compounds, *iki-sugiru* and *ki-sugiru*. Generally speaking, V-*sugiru* is the syntactic V-V compound and it means ‘exceed’ with respect to number, amount, or degree. However, the V-*sugiru* compound can represent both the lexical V-V compound and the syntactic V-V compound, if the first verb represents motion. *Sugiru* in the lexical V-V compound means ‘pass,’ as in (15a), while *sugiru* in the syntactic V-V compound means ‘exceed,’ as in (15b).

- (15) a. *Taroo wa mise no mae o iki-sugi-ta.*  
 Taro Top shop Gen front Loc go-pass-Past  
 “Taro went past the shop.”
- b. *Taroo wa Hanako no tokoro ni iki-sugi-ta.*  
 Taro Top Hanako Gen place Goal go-exceed-Past  
 “Taro went to Hanako very frequently.”

One linguistic fact should be emphasized here: *Ki-sugiru* represents only the syntactic V-V compound, as in (16), whereas *iki-sugiru* represents both the lexical and the syntactic compounds, as in (15).

- (16) a. lexical V-V compound  
 \**Taroo wa mise no mae o ki-sugi-ta.*  
 Taro Top shop Gen front Loc come-pass-Past  
 “Taro came past the shop.”
- b. syntactic V-V compound  
*Taroo wa Hanako no tokoro ni ki-sugi-ta.*  
 Taro Top Hanako Gen place Goal come-exceed-Past  
 “Taro came to Hanako very frequently.”

To ascertain where the asymmetry originates, it is necessary to explain why the lexical *ki-V* compounds cannot exist very briefly. First, the sequence of the two verbs in the lexical compound corresponds to the natural temporal order of events: The event that the second verb expresses never precedes the one that the first verb does. This temporal characteristic is pivotal in determining the meanings of lexical V-V compounds including *iku* or *kuru* as the first verb. Second, such a temporal sequence supports the hypothesis that the meaning of a lexical V-V compound is based on the IKU or the KURU schema, as mentioned in Section 2. With respect to the verbs *iku* and *kuru*, while *kuru* must be used when the goal is the speaker’s place, that is to say, the

speaker's deictic center, *iku* cannot be used where *kuru* is called for. The verb *iku* is unmarked with respect to the speaker's deictic center. Obviously, these two restrictions are imposed on the lexical *iki-V* and the lexical *ki-V* compounds. The lexical *iki-V* compounds can exist, but the lexical *ki-V* compounds cannot. Therefore, one tight restriction is imposed on the lexical *ki-V* compound: The event that the second verb represents should not temporally occur after the speaker's place that the first verb represents. This means that the KURU schema plays a vital role in determining the meaning of the lexical *ki-V* compound.

The verb *sugiru* originally means 'pass.' It is closely related to motion. As shown in Figure 4, the SUGIRU schema is clearly based on the PATH schema.

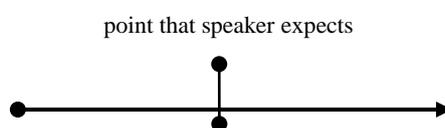


Figure 4. The SUGIRU schema

With respect to the meanings of *iki-sugiru* and *ki-sugiru* as lexical V-V compounds, two image-schemas, the IKU or the KURU schema are required to be juxtaposed with the SUGIRU schema. *Iki-sugiru*, as in (15a), is interpreted as a clear manifestation of the IKI-SUGIRU schema, as shown in Figure 5.

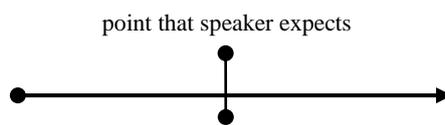


Figure 5. The IKI-SUGIRU schema

As *iku* is unmarked with respect to the speaker's place, a point that the speaker expects in the SUGIRU schema is not always equivalent to the speaker's place. However, a point that the speaker expects in the SUGIRU schema is equivalent to the speaker's place in the KURU schema. The KI-SUGIRU schema is shown in Figure 6, but it cannot be construed.

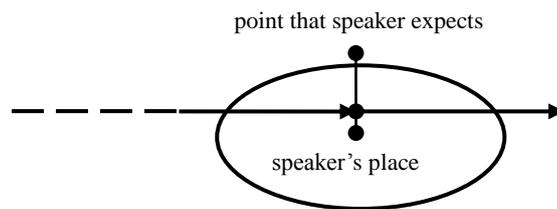


Figure 6. The KI-SUGIRU schema

Because of the restriction on the lexical *ki-V* compound, as mentioned above, the KURU schema cannot be juxtaposed with the SUGIRU schema. Indeed, the KI-SUGIRU schema cannot exist at all and also the lexical compound *ki-sugiru* itself cannot exist. (16a) is thus unacceptable.

The image-schematic approach goes one step further and demonstrates that the syntactic compounds *iki-sugiru* and *ki-sugiru* are also interpreted as clear manifestations of the IKI-SUGIRU and the KI-SUGIRU schemas. As Clausner & Croft (1999: 16) point out, the PATH schema and the SCALE schema are strongly related and are variants of the same schema, because both schemas accept an orientation or a directionality.<sup>4</sup> The SCALE schema is considered as a specified type of the PATH schema, since ‘SCALARITY does seem to permeate the whole of human experience, even where no precise quantitative measurement is possible (Johnson 1987: 123).’ With respect to the syntactic V-V compound, the arrow line in the SUGIRU schema, as shown in Figure 4, stands for excess. In other words, the arrow line representing ‘passing’ in the lexical V-V compound is transformed into the one representing ‘the degree of excess’ in the syntactic V-V compound. As a result, both the IKI-SUGIRU and the KI-SUGIRU schemas function in the area of syntactic V-V compounds. Indeed, *iki-sugiru* in (15b) and *ki-sugiru* in (16b) are acceptable.

This subsection ventures to explore the possibility that lexical and syntactic compounds including the verb *iku* or *kuru* as the first verb are not distinguished on the image-schemas, although both the semantic and the syntactic distinctions based on their internal relations between them are recognized. The IKI-SUGIRU and the KI-SUGIRU schemas could indicate a continuum between lexical and syntactic compounds with respect to image-schemas. The two image-schemas illustrate that both lexical and syntactic compounds have experiential realities. *Iki-sugiru* and *ki-sugiru* can be interpreted as manifestations of the compound image-schemas, the IKU schema or the KURU schema and the PATH schema. It is reasonable to conclude that image-schemas are different kinds of embodied simulations created in the very moment of understanding.

Finally, with respect to non-aspectual V-V compounds taking non-motion verbs as the second verbs, the *ki-V* compound cannot occur. At present there is no convincing explanation of why there are no *ki-V* compounds as non-aspectual V-V compounds taking non-motion verbs. There are some doubts as to whether the speaker's place and the focus of motion with respect to the verb *kuru* are related to non-motion verbs as the second verb or as to whether the meanings of non-aspectual V-V compounds taking non-motion verbs are based on a process of composition. Nevertheless, one of reasons why the *ki-V* compound cannot occur could be how much weight the deictic characterization and the focus of motion where the verb *kuru* involve carry on determining the meanings of the compound. Although this still remains a moot question, it would be fair to say that *kuru* can co-occur with only a motion verb in the area of non-aspectual V-V compounds.

#### **4. Concluding remarks**

Following Gibbs (2005), this paper maintains that image-schemas are continually connected with simulations of experience created in the very moment of understanding. It is reasonable to conclude that image-schemas are different kinds of simulated action on the basis of real-life actions and potential actions that a person may engage in. This paper illustrates that syntactic V-V compounds including *iku* or *kuru* as the first verb enhance the understanding of form-meaning pairings on the basis of image-schemas and it assumes that the interpretation of the image-schemas has enhanced research. This paper also clarifies how the deictic characterization and the focus of motion where the verbs *iku* and *kuru* involve are directly related to the meanings of syntactic V-V compounds including *iku* and *kuru*, and to some extent it demonstrates that the limited distribution of the *ki-V* compounds depends whether the original verbal meaning of the second verb represents motion or not as well as the characteristics of the motion verb *kuru*.

#### **Notes**

The abbreviations used in the examples are as follows: Acc=accusative; Gen=genitive; Goal=goal; Loc=locative, Nom=nominative; Npst=non-past; Pl=plural; Top=topic; and Past=past.

1. Researchers have emphasized the key role of image-schemas in structuring the conceptual system (e.g. Johnson 1987, Lakoff 1987, Gibbs & Colston 1995, Cienki 1997, Clausner & Croft 1999), metaphor (e.g. Lakoff 1990, Lakoff & Turner 1991), children's acquisition of concepts (e.g. Mandler 2004), historical change (e.g. Sweetser 1990), and detailed analyses of the spatial terms (e.g. Lindner 1981, Vandeloise 1991).
2. Experiential gestalts emerge throughout sensorimotor activity as we manipulate objects, orient ourselves spatially and temporally, and direct our perceptual focus for various purposes (see Lakoff & Johnson 1980, Lakoff 1987). In other words, experiential gestalts are ways of organizing experiences into structured wholes.
3. Mandler (1996: 373, 2004: Ch.4 & 5) points out that the first image schema that infants form is the PATH schema. The PATH schema is the simplest conceptualization of any object following any trajectory through space, without regard to the characteristics of the object or the detail of the trajectory itself.
4. Johnson (1987: 121-124) points out that the PATH schema is differentiated from the SCALE schema on several points. For instance, scales are inherently directional, but paths are not.

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# ***Eyes and Hands Expressions: Embodiment of Lexical Meanings***

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## **Abstract**

This paper focuses on compounds and idiomatic expressions containing body-part terms for the eye(s) and hand(s) in Mandarin Chinese, Russian and English. Conceptual metaphor (Lakoff & Johnson 1980) and THE PHYSIOLOGICAL EFFECTS OF AN EMOTION STAND FOR THE EMOTION (Lakoff 1987) are our theoretical background. It is found that (1) there are different conceptions in three languages, and (2) The BODY AS FUNCTION is equally displayed in all three analyses languages, but (3) BODY AS EMOTION as a particular conceptual model is characteristic only of Chinese. In Russian, BODY AS EMOTION is subcategorized in BODY AS FUNCTION. *Eyes* and *hands* are integral parts of languages, speakers of different languages who then project their own cultures and life experiences to create interesting language diversities.

Keywords: body-part expressions, Chinese, Russian, Cognitive semantic, body as emotion

## **1. Introduction**

The cultural experience and knowledge we gain while submerged in our culture inevitably shape our worldview, making our mind enculturated. The role of body-part metaphors in constructing a nonliteral world is considered particularly important. Rosch (e.g., 1973), Lakoff (1987), Johnson (1987), and others explicate the relationship between body-part metaphors and learning; children understand the world on the basis of their bodies and the relationship of their bodies to the world, and they build knowledge from the concrete to the abstract by metaphorically extending body relationships to new domains.

This study focuses on compounds and idiomatic expressions (viz. fixed expressions) containing body-part terms for the *eye(s)* and *hand(s)* in Mandarin Chinese, Russian and English. Data taken from three corpora form the database of the present study in order to provide a cross-linguistic comparison. The three corpora are:

*Academia Sinica Balanced Corpus of Mandarin Chinese, The National Corpus of the Russian Language, The British National Corpus and The American National Corpus.*

We take the theoretical perspective of conceptual metaphor (Lakoff & Johnson 1980) and THE PHYSIOLOGICAL EFFECTS OF AN EMOTION STAND FOR THE EMOTION (Lakoff 1987: 382). Evidence is taken from the corpora in order to provide a cross-linguistic perspective and in support of the claim that our bodily experience conceptualizes mental faculty and cultural values.

The bulk of the paper is as follows: (1) Introduction, (2) literature review and theoretical framework, (3) the presentation and discussion of the Chinese, Russian & English data under the categories of conceptions, and conceptual metaphor, (4) conclusion.

## **2. Literature review and theoretical framework**

There are a good number of research on body parts. This section presents those that focus on cross-linguistic comparison and those that concentrate on the body parts which our research purpose is oriented to. The theories of conceptual metaphor (Lakoff & Johnson 1980) and THE PHYSIOLOGICAL EFFECTS OF AN EMOTION STAND FOR THE EMOTION (Lakoff 1987: 382) will then be introduced.

### *2.1. Research on Body Part*

The mainstream of body part linguistic research is in the sphere of contrastive studies. Alekseenko & Khordy (1999), Nad (1996), Nad (1997), and Šileikaite (1997) focus on the problem of equivalency of Russian, Polish, Hungarian, Lithuanian phraseologisms. Mugu (2002) focuses on structural and semantic analysis of some

polysemous body part words in Russian, German and Adug languages, such as *head*, *heart*, *arm*, *hand*, *leg*, *foot*, *eye*, *ear*, and *nose*. Sakarugi & Fuller (2003) compare English and Japanese to see the perception of translatability based on body-part metaphors.

Wei (2001) focuses on national specifics of some Chinese and Russian body part expressions. He emphasizes that without knowing non-verbal language and body-part gestures in particular, it is impossible to make cross-cultural communication and contacts. And to master the non-verbal language, it is necessary to know what national specifics can be revealed in body-part expressions. The author postulates that body part expressions like other utterances have dual meaning: the meaning of visual activity and interpretative (connotative, symbolic) meaning. According to Wei, if we take into account both these meaning, we will find many equivalents in Chinese and Russian, e.g., *woshou3* 握手 ‘hold-hands = to shake hands’ and *polozha ruku na serdtse* *положа руку на сердце* ‘having put the hand on the heart = frankly’. But there are also many so called partially equivalent body part expressions with the foregrounding of interpretative meaning.

Some linguists also focus on particular body parts and study them on the basis of different research framework, using different methods. For example, Zacharenko (2004) concentrates on the cultural senses of the somatism *legs*. Yu (2000) studies *face*, and (2001) examines on *finger* and *palm* in Chinese and English. Ro, Friggel, Lavie (2007) investigate *face*.

Wang (2005) aims at cognitive analysis of *hand* metaphor. He compares and contrasts *hand* expressions in Chinese and English with Lakoff’s ICM and Johnson’s Image Schema. His conclusions state: (1) people have similar cognition toward the objective world; that is, object cognition and space cognition. (2) the metaphorical

meanings of *hand* expressions conform to this cognitive regular pattern in English and Chinese. (3) with the different cultural influences, the semantic *hand* expressions reflect difference cognition tendency in oriental and western world.

Cao, Cai & Liu (2001) observing the grammaticalization of body part metaphors in Chinese have detailed discussions. They think that *head* and *face* have become suffixes through grammaticalization, such as *shang4tou2* 上頭 ‘up’ and *shang4mian4* 上面 ‘the higher ups’, in which *head* is only focusing on a point, while *face* has wider distribution. Cao, Cai & Liu (2001) at the same time observe that body parts metaphors often evolve into measure words, such as head in *yi4tou2niu2* 一頭牛 ‘a cow’.

Hollenbach (1995) studied the body part nouns *face* and *foot* in the Mixtecan family of languages, spoken in Mexico, and found out an interesting series of semantic extensions and syntactic category shifts from nouns to prepositions. Two words demonstrate a surprising range of uses. Thus, the meanings *face* include not only the literal body part, but also ‘front of’, ‘top surface of’, ‘in front of’, ‘on top of’, ‘in the measure of’, ‘to’, ‘in place of’, ‘place (where)’, ‘time (when)’, ‘when’ and ‘if’. The meanings for *foot* include ‘bottom of’, ‘beginning of’, ‘basis of’, ‘at the foot of’, ‘at the beginning of’, ‘for the benefit of’, ‘on behalf of’, ‘about’, ‘in exchange of’, and ‘because’.

Sakuragi and Fuller (2003) focus on the body-part metaphors in the research of the mental lexicon. They attempt to refine the theory of second language lexical acquisition by incorporating into Kellerman’s (1978, 1983, 1986) theory the effect of perceived distance of the target language and by specifying the basis (appearance and function) of the perception of similarity between the prototype and its metaphorical

extensions. They examined the effects of the similarity between the human body part and the metaphorical expression in appearance and function; the frequency of the use of the metaphor in the native language; and the perceived distance between the first language and the target language. The results showed that both similarity in appearance and similarity in function correlated positively with translatability, while the effect of the former was stronger than the latter. Frequency correlated positively with translatability for the Americans, but not for the Japanese.

Some body part studies can be found in the mainstream of modern linguistics, focusing on the research of cognitive metaphors. According to an analysis of metaphoric transfers over three centuries, made by Smith, Pollio, & Pitts (1981), human body is consistently the most frequent source of metaphors. The richness of body-part metaphor derives from the combination of the universal, cultural, and individual dimensions of our figurative thought.

Soon we will realize that body code among codes of culture is an important issue in linguistics. Phraseology of any language is anthropocentric. According to Gak, a human is egocentric, he puts himself into the center of the universe and, comprehending and categorizing the surrounding world, he compares it with himself. Thus, the names of the upper parts of objects come from the notion of *head*, lower ones – from the notion of *foot*, central ones – from the notion of *heart*, and sides are defined by the notion of *hand* (to the right hand, to the left hand) (Gak 1998: 702).

We are especially interested in cross-comparative studies of body part expressions in Mandarin Chinese, Russian and English.

## 2.2. *Related Theories*

Conceptual metaphor (Lakoff & Johnson 1980) and THE PHYSIOLOGICAL

EFFECTS OF AN EMOTION STAND FOR THE EMOTION (Lakoff 1987) are the theoretical background of this study. We review them in turn below.

### 2.2.1. *Conceptual metaphor*

Lakoff & Johnson (1980) put forth that concepts can be reached out from the range of literal ways and are used repeatedly in our daily-life language in a figurative way; these are conceptual metaphors. They examine English and give a number of examples:

#### LOVE IS MADNESS

I'm *crazy* about her.  
She drives me *out of my mind*.  
He constantly *raves* about her.  
He's gone *mad* over her.  
I'm just *wild* about Harry.  
I'm *insane* about her. (Lakoff & Johnson 1980: 49)

#### HAPPY IS UP

I'm feeling *up*.  
That *boosted* my spirits.  
My spirits *rose*.  
You're in *high* spirits.  
Thinking about her always gives me a *lift*.

#### SAD IS DOWN

I'm feeling *down*.  
I'm *depressed*.  
He's really *low* these days.  
I *fell into a depression*.  
My spirits *sank*. (Lakoff & Johnson 1980: 15)

In the example LOVE IS MADNESS, the words “crazy”, “drives me out of my mind”, “rave about”, etc. are hints to show up the madness of the affection. They are our life experience expressed in a series of conceptual metaphors such as LOVE IS

MADNESS, HAPPY IS UP, SAD IS DOWN. They exist in our daily life natural languages. Such metaphors are used not only in our language but in our daily life, and also in our thoughts and actions.

They claim that most of our conceptual system is metaphorically structured; in other words, “most concepts are partially understood in terms of other concepts” (1980: 56). For example, the concept UP is grounded from the bodily experience that we have bodies and our bodies stand erect. Conceptual system is grounded in simple spatial concepts. Human spatial concepts like UP-DOWN, FRONT-BACK, IN-OUT, NEAR-FAR are relevant to our everyday bodily functioning. They further explain that physical experience is “never merely a matter of having a body of a certain sort; rather *every* experience takes place within a vast background of cultural presuppositions” (1980: 57). The same basic embodied experiences, in which many conceptual metaphors are grounded, may be defined differently by different cultural beliefs and values (Gibbs, 1999).

Our body is essential not only for living but also the indispensable candidate of our language. Body parts are taken enormously into languages to express a variety of concepts in different cultures. We hope a comparison between body-part expressions in Chinese, Russian and English will give a picture.

It is noted that the present research focuses on a division of daily language to study conceptual metaphors, viz. fixed expressions. Fixed expressions are different from creative literary expressions and personal usages. They are commonly accepted and used language device.

A fixed expression is traditionally defined as a string of words behaving as a unitary lexical item. Various terms are used to describe fixed expressions, such as freezes, binomials and frozen locutions (Pinker and Birdsong 1979, McCarthy 1990,

Landsberg 1995, Moon 1998). According to Moon (1998: 2), who proposes a broader approach to fixed expressions, they include metaphors, similes, proverbs, sayings, frozen collocations, grammatically ill-formed collocations and routine formulae.

### 2.2.2. *Body as Emotion*

To continue with Conceptual Metaphor, Lakoff (1987) puts forth a principle that THE PHYSIOLOGICAL EFFECTS OF AN EMOTION STAND FOR THE EMOTION (1987: 382). This principle is based on physiological effects of our body. When getting angry, our body heat increases and the internal pressure caused by blood pressure and muscular pressure will also increase. As a result, the effect agitates and interferes with the accurate perception of the body. Lakoff (1987) believes that all these effects including body heat, internal pressure, agitation, and redness in face and neck area are integrated into languages and bring in a system of metonymies for anger, such as in English:

#### Body heat

- Don't get *hot under the collar*.
- Billy's a *hothead*.
- They were having a *heated argument*.
- When the cop gave her a ticket, she got all *hot and bothered* and started cursing.

#### Redness in face and neck area

- She was *scarlet with rage*.
- He got *red with anger*.
- He was *flushed with anger*. (Lakoff 1987: 382)

Since increased body heat and/or blood pressure are supposed to make happen redness in the face and neck area, therefore such redness can also metonymically be a sign of anger. These data give evidence that emotions are not feelings alone and devoid of conceptual content, emotions have complex conceptual structure.

Consequently, Lakoff (1987: 383) claims that “the body is a container for the emotion” as shown in the conceptual metaphor below:

The body is a container for the emotion

- He was *filled* with anger.
- She couldn't *contain* her joy.
- She was *brimming* with rage.
- Try to get your anger *out of your system*.

When the ANGER IS HEAT metaphor connects to fluids, that is, combines with the metaphor THE BODY IS A CONTAINER FOR THE EMOTIONS, the central metaphor of the system produced:

Anger is the heat of a fluid in a container

- You make my *blood boil*.
- *Simmer* down!
- I had reached the *boiling point*.
- Let him *stew*.

The central metaphor is productive in both lexical items and mapping from source domain to target domain. Take lexical items as example, “the words and fixed expressions of a language can code, that is, be used to express aspects of a given conceptual metaphor to a greater or lesser extent” (Lakoff 1987: 384). The lexical “simmer” and “stew” above are of this kind. “Simmer” refers to a low boil and “stew” has a hot fluid in a container. Both give heat. In a word, Lakoff & Johnson (1999) concluded that our mind is embodied in the profound sense and that the structure of our thoughts comes from the natural character of our body.

Based on these theories, the present study will show that fixed expressions in terms of the body parts *eyes* and *hands* in Chinese, Russian and English not only support these theories, but show a cognitive model that is attained from the cross-linguistic comparison.

### 3. Data in Chinese, Russian & English

The eyes and hands are external body parts. According to encyclopedia, the eye is “the organ of vision and light perception. In humans the eye is of the camera type, with an iris diaphragm and variable focusing, or accommodation” (*The Columbia Encyclopedia*, 2007). The hand is a “grasping organ at the end of the forelimb of certain vertebrates, exhibiting great mobility and flexibility in the digits and in the whole organ.” (*Encyclopædia Britannica*, 2007). In man, the hand is used mostly for feeling and grasping (Wenig [*Encyclopedia Americana*], 2007). We present and discuss the body part expressions in figures of *eyes* (Chinese *yan3* and *mu4*, Russian *glaz*) and *hands* (Chinese *shou3*, Russian *ruka*) in the given languages according to the conceptions they express as well as the conceptual metaphors that are revealed.

#### 3.1. Conceptions

“Metaphor is an essential cognitive tool in that it structures many concepts, especially abstract ones, in our conceptual systems” (Yu 2003: 13). Groups of body-part expressions in our data show the same phenomenon. In what follows, we attempt to outline the cultural model for, or culturally shared understanding of *eyes* and *hands*. The conceptions of them in the given languages are abstracted and listed in Table 1.

Table 1. Conceptions of *eye & hand* expressions in three languages

Parts	Chinese	Russian	English
Eye	<p><b>Doer:</b> informer, spy, witness  <b>Abstract:</b> personality, wisdom, vision, judgment, attention, ability, means, power, ideas, consciousness, reason, goal, presence, action, vigor, profit, time, experience, thinking, cognition, care</p> <p><b>Personal quality:</b>            disdain, might, dignity</p>	<p><b>Doer:</b> eater, drinker, measurer, observer</p> <p><b>Abstract:</b> personality, sight, power, (any) condition (state), memory, accuracy, observation, absence/presence, supervision, darkness, source of tears, flirting, darkness, eyesight, sense of reality, impression, evil magic power, attention</p>	<p><b>Abstract:</b> goal, observation, attention, sight, discovery, sexual interest, interest, concern, time, power, practice, ability, sense, taste, understanding, reason, lifeblood</p> <p><b>Emotion:</b> love, affection</p>

	<p><b>Emotion:</b> happiness, anger, love, astonishment, fright</p> <p><b>Measurement, kind, orientation:</b> bull-like, frog-like, phoenix-like, dragon-like, mouse-like, chicken-like, as if of a phoenix, small, trifles, critical, tense</p> <p><b>Concrete &amp; others:</b> environment, life, good person, hole</p>	<p><b>Emotions:</b> malice, insincerity, greediness, calmness</p> <p><b>Measurement, kind, orientation:</b> instantly, approximately, nothing, never, direction, in front of, imperceptibly, anywhere</p>	<p><b>Measurement, kind, orientation:</b> small, extremely quick, standard</p>
Hand	<p><b>Doer:</b> helper, leader, people, labor, man power, owner</p> <p><b>Abstract:</b> means, sexual implication, power, duty, control, action, presence, order, desire, possession, ability, attention, experience, production, reason</p> <p><b>Measurement, kind, orientation:</b> small, portable, spending</p> <p><b>Concrete &amp; other:</b> hand, writing, wrist, weapon</p> <p><b>Emotion:</b> love</p>	<p><b>Doer:</b> personality, helper, owner, laborer, buyer, newsmaker, musician, bride, bridegroom, supporter, bread-winner, invader, physician</p> <p><b>Abstract:</b> power, possession, source, authority, handwriting, freedom, control, protection, dependence, influence, oath, valuable, luck, punishment, skill, quickness, workmanship, convenience, petting, attention, suicide, deal, convenience, responsibility, action, disagreement, applause, reality</p> <p><b>Concrete:</b> tool, signature</p> <p><b>Emotions:</b> mood, dishonesty, grief, unpleasant affair, interest, determination, indecision, joy, diligence, disobedience, willingness, eagerness, inactivity</p> <p><b>Measurement, kind orientation:</b> kind, small, sort, size, by hand, direction, together, close, distance</p>	<p><b>Doer:</b> owner, leader</p> <p><b>Abstract:</b> means, ability, experience, possession, power, control, order, fate, truth, presence, common sense</p> <p><b>Measurement, kind, orientation:</b> small, portable, direction, transfer, spending,</p>

### 3.1.1. Eyes

The conceptions of *eyes* shared by all three languages are vision, sight, power (supervision), attention, and time as shown in examples (1)-(4).

#### (1) vision

- a. *yinglyan3* 鷹眼 ‘eagle-eyes = vision (car name), chrysler; sharp expression in one's eyes’
- b. *khot glaz vykoli хоть глаз выколи* ‘eye cut out = completely dark’
- c. bird's eye view ‘a view from a very high place which allows you to see a large area’

#### (2) sight

- a. *yan3hua1* 眼花 ‘eye-flower = blurry eyesight’

- b. *idti kuda glaza glyadyat* *идти куда глаза глядят* ‘to go where eyes look = to follow one's eyes (to follow one's nose)’
- c. the naked eye ‘If something can be seen with the naked eye, it can be seen without the help of an instrument’

(3) power

- a. *tiang1yan3* 天眼 ‘god-eyes = eyes with supernatural power’
- b. *ruki ne dorosli* *руки не доросли* ‘hands didn't grow long enough = not possible to reach, having no power to get’
- c. the evil eye ‘a magical power to injure or harm people by looking at them’

(4) attention

- a. *diu1ren2xan4yan3* 丢人现眼 ‘throw-people-show-eyes = to lose face in front of people’
- b. *zakruvat glaza na chto-to* *закрывать глаза на что-то* ‘to close eyes on something = not to pay attention to something, to overlook’
- c. meet somebody's eye ‘to look at someone directly while they are looking at you’

The most popular conceptions expressed in the form of *eyes* are judgment, love, presence in Chinese. In Russian are vision, personality, opinion, supervision, and in English is attention. These productive conceptions form conceptual metaphors and will be discussed in the following section.

The vehicle *eyes* can convey measurement or show orientation. The measurement is ‘small’ and the orientation is ‘in the front side’ which shows the physical size of *eyes* in comparison with that of other organs and the location of eyes. The examples are: trifles (*yu2mu4hun3zhu1* 魚目混珠 ‘fish-eye-mix-pearl = pass off fish eyes as pearls; pass off the sham as the genuine’) and bull-like (*niu2yan3* 牛眼 ‘cattle-eyes = big eyes but look dumb’) in Chinese; approximately (*na glaz na glaz* ‘by eye, approximately’) and in front of (*pered glazami* *перед глазами* ‘in front of the eyes’) in Russian; as well as small (*hook and eye* ‘a device for fastening clothes consisting of a small bent piece of metal into which a hook fits’) in English.

The vehicle *eyes* can express personal qualities, such as proud, dignity, and frankness in Chinese, e.g., *bi4yan3zi3ran3* 碧眼紫髯 ‘jasper-eyes-purple-beard = to describe somebody who has a nice appearance and a mighty imposing manner’ and *mei2xin1yan3* 沒心眼 ‘no-heart-eye = frank’. In Russian, *glaz* ‘eye’ can also be used to refer to observation, supervision, e.g. *u semi nyaneck ditya bez glazu y semi nyaneck ditya bez glazu* ‘seven nurses leave the baby without an eye (supervision) = everybody’s business is nobody’s business; too many cooks spoil the broth’.

Furthermore, many conceptions are expressed only in a certain language: wisdom, means, profit, time, thinking in Chinese; sense of reality, memory in Russian; affection, taste, lifeblood, and sexual interest in English. The vehicle *eyes* is particularly favored in showing senses, for instance, vision, taste, sexual interest, interest, affection can be expressed with *eyes*. Below are some examples.

(5) Senses in the form of English *eyes*

- a. (sense) have an eye for something ‘to be good at noticing a particular type of thing’
- b. (sexual interest) give somebody the glad eye ‘to look at someone in a way that shows sexual attraction’

Thus, we see that basic conceptions of *eyes* shared by all three languages are vision, sight, power (supervision), attention, and time. But some conceptions are presented in two languages and still more conceptions are language specific.

3.1.2. *Hands*

Many conceptions of *hands* are shared by all three languages, such as owner, helper, leader, labor, control, possession. Given below (6)-(10) are some examples.

(6) owner

- a. *qian2shou3* 前手 ‘before-hand = predecessor; former owner’

- b. *perekhodid iz ruk v ruki nepexodit' iz ruk v ruki* 'to come from hands to hands = to come from one owner to another'
- c. second-hand 'not new; having been used in the past by someone else'

(7) helper

- a. *bang1shou3* 幫手 'help-hand = helper'
- b. *podat ruku pomoshchi komu-to podat' ruku pomochi komu-to* 'to give the hand of help to somebody = to help somebody'
- c. give/lend somebody a helping hand 'to help someone'

(8) leader

- a. *shou3xia4* 手下 'hand-under = subordinates; under the leadership'
- b. *pravaya ruka pravaya ruka* 'the right hand = the major assistant'
- c. leading hand 'the most experienced person in a factory, etc.'

(9) control

- a. *song1shou3* 鬆手 'loose-hand = to let go, to ease off on hold'
- b. *korotki ruki u kogo-to korotki ruki u kogo-to* 'short hands somebody has = somebody has no control over something'
- c. ready to hand UK 'close to you and therefore available for use when necessary'

(10) possession

- a. *tuolshou3* 脫手 'peel-hand = get rid of, sell (property, stocks)'
- b. *pribrat k rukam pribrat' k rukam* 'to take to hands = to possess'
- c. A bird in the hand (is worth two in the bush) 'said when you recognize that you should not risk losing something you already have by trying to get something you think might be better'

The vehicle *hands* can also convey measurement or show orientation. They are again extended from the physical size of a hand and the function of hand being able to carry things. The physical size of a hand is not only small (in comparison with the whole body) in that what it can hold is small, but also what the hands can carry usually has a limitation of weight, thus, 'portable' is an important concept found in all three languages, such as small (*shou3ti2bao1* 手提包 'hand-bring-bag = a handbag; a purse') and portable (*shou3ti1shi1 da3zi4ji1* 手提式打字機

‘hand-bring-kind-typewriter = a portable typewriter’) in Chinese. *Hand luggage* ‘the small cases or bags that a passenger carries with them onto an aircraft or bus’ and *hand grenade* ‘a small bomb consisting of explosive material in a metal or plastic container that can be thrown easily’ in English. In Russian the concept ‘small’, ‘portable’, expressed by the adjective *ruchnoi* *ручной* ‘related to hand’, can be met in many expressions, such as *ruchnye paltsy* *ручные пальцы* ‘hand fingers = handcuffs’, *ruchnaya melnitsa* *ручная мельница* ‘hand mill’, *ruchnoi platok* *ручной платок* ‘handkerchief’.

Other examples to show measurement and orientation are: kind, sort (*kakoi ruki* [*zhelezo*] *какой руки [железо]* ‘what hand is the [iron]’ = what kind of the [iron]) in Russian; direction (right-hand ‘on or to the right’), transfer (hand something around ‘to pass or offer something to all the people in a group’) in English.

Cultures attach special importance to the *hands*. Many conceptions are expressed only in a certain language. Love, desire, sexual interest, duty in Chinese, e.g., *qiang2tong2shou3zu2* 情同手足 ‘love-same-hand-feet = (the two) are close like brothers’; *guan1cai2li3shen3shou3* 棺材裡伸手 ‘coffin-timber-inside-stretch out-hand = to stretch a hand out from the coffin; someone who views money as more important than life’. In Russian, newsmaker, musician, bread-winner, e.g., the proverb *nogi nosyat, ruki kormyat* *ноги носят, руки кормят* ‘legs carry, hands feed’ opposes legs as the means of transportation and the hands as the major breadwinner as they not only feed, but also support, provide sustenance. In English, fate, truth, common sense, e.g., *hand in glove* ‘working together, often to do something dishonest’; *know something like the back of your hand* ‘to have very good and detailed knowledge of something’.

Besides, Chinese *hands* can also be used to represent concrete objects like weapon (*da3chu1shou3er* 打出手兒 ‘hit-out-hand-son = throw weapons back and forth on stage’), Russian conveys more conceptions of doer (laborer, buyer, newsmaker, etc.) than the other two languages, while English *hands* do not show emotions like Russian and Chinese.

The same conception is sometimes expressed with different vehicles in different languages. For example, sexual interest is expressed with the vehicle *eyes* in English (eye somebody up ‘to look at someone with sexual interest’), but *hands* in Chinese. Hence, *have a roving eye* ‘sexually interested in people other than their partner’ has a similar expression in Chinese *mao2shou3mao2jiao3* 毛手毛腳 ‘hair-hand-hair-foot = to take liberties with a woman by the actions of one's hands’.

Again, the conceptions expressed are mostly the function of that body part, e.g., *hand* for action, thus ‘help,’ e.g., Chinese *shu4shou3wu2ce4* 束手無策 ‘fold-hand-no-idea = to feel helpless’ and Russian *u nego ruki umelye y nego umelye pyku* ‘he has skillful hands = he knows how to help’. Functions of the *hands* and *eyes* stand for the related conceptual metaphors that are in the focus of the next section.

The most popular conceptions in terms of *hands* in Chinese are ability, action, control, power. In Russian are labor, power, possession and in English are power, direction, transfer. This will be further elaborated shortly.

All three languages give most “abstract” conceptions, for example, judgment (*bie2ju4hui4yan3* 別具慧眼 ‘other-have-wise-eyes = have special opinion or insight’) and ability (*shua3shou3yi4* 耍手藝 ‘play-hand-art = make a living by some skill’) in Chinese, standard (not look somebody in the eye/face ‘too ashamed to look

at somebody directly and speak truthfully to them’) and understanding (be more to this than meets the eye ‘it is more difficult to understand or involves more things than you thought at the beginning’) in English. The Specialization of Form (Lakoff 1987) is operating in these expressions. This approach says that a metaphorical mapping can be that of from physical action or physical space to a mental concept. The container schema tells the inner and the outer of an entity—the body. It is due to the transfer of various spaces, viz. body and business, or body and objects.

Finally, at the level of linguistic instantiation, Yu (2004: 663) indicates three major forms of both similarities and differences between Chinese and English. We see that adding Russian doesn’t change the result of the observation. These similarities and differences take: (1) similar expressions with similar meanings, (2) similar expressions with different meanings, and (3) different expressions with similar meanings, as shown in the example (13) below. This indicates that, although imagination is comprised in these metonymic and metaphoric expressions, “they seem to have experiential roots in common bodily experiences as they arise from the interaction between culture and body” (Yu 2004: 663).

### 3.2. *Conceptual metaphor*

The interaction between common bodily experiences and diverse cultural experiences decides the extent to which conceptual metaphors can be universal, widespread, or culture-specific. Meanwhile, as Gibbs (1999) indicates, the same basic embodied experiences, in which many conceptual metaphors are grounded, may be defined differently by different cultural beliefs and values. The conceptual metaphors emerged in our data are shown in Table 2. We give some examples below:

(11) (Chinese) EYES AS JUDGMENT

*bu2shun4yan3* 不順眼 ‘not-sequence-eyes = dislike someone or something’

*bie2ju4hui4yan3* 別具慧眼 ‘other-have-wise-eyes = have special opinion or insight’

*gua1mu4xian1kan4* 刮目相看 ‘scrape-eye PRT-see = regard somebody with special esteem’

*ming2yan3ren2* 明眼人 ‘bright-eyes-person = a person with a discerning eye; a person of good sense’

*kan4zou3yan3* 看走眼 ‘look-walk-eyes = to misjudge’

(12) (Chinese) EYES AS LOVE

*tao2hua1yan3* 桃花眼 ‘peach-flower-eyes = (eyes) to be good at sending emotion; a charming eye’

*dui4yan3* 對眼 ‘yes-eyes = have the same opinions’

*pulmei2meng2yan3* 鋪眉蒙眼 ‘spread-eyebrow-cover-eyes = to make eyes at somebody’

*yan3zhong1ren2* 眼中人 ‘eye-inside-person = someone like’

*yan3zhong1ding1* 眼中釘 ‘eye-inside-nail = someone dislike’

*yan3hong2* 眼紅 ‘eye-red = covetous’

(13) (Chinese) HANDS AS CONTROL

*jie1shou3* 接手 ‘catch-hand = take up matters left unfinished by predecessor; assistant’

*cuo4shou3bu4ji2* 措手不及 ‘handle-hand-can't-reach = too late to do anything about it’

*sa1shou3* 撒手 ‘cast-hand = let go the hand, also wash hands of matter’

*song1shou3* 鬆手 ‘loose-hand = to let go, to ease off on hold’

*ai4shou3* 礙手 ‘obstruct-hand = (affair) difficult to handle’

(14) (Chinese) HANDS AS POWER

*shou3wu2cun4tie3* 手無寸鐵 ‘hand-without-inch-iron = a man unarmed, not a scrap of metal’

*zha1shou3* 扎手 ‘prick-hand = “prick the hand” (of affair) difficult to handle’

*Lu4si3shei2shou3* 鹿死誰手 ‘deer-die-who-hand = at whose hand will the deer die; who will win the prize’

(15) (Russian) EYES ARE OPINION

*v glazakh kogo-to v glazakh kogo-to* ‘in the eyes of somebody = in somebody's opinion’

*vysoko stoyat v glazakh druzei* ВЫСОКО СТОЯТЬ В ГЛАЗАХ ДРУЗЕЙ ‘to stand high in the friends' eyes = to stand high in the friends' opinion’

*nizko past v glazakh druzei* низко пасть в глазах друзей ‘to fall low in the friends' eyes = to stand low in the friends' opinion’

(16) (Russian) EYES ARE ATTENTION

*brosatsa v glaza* бросаться в глаза ‘to be striking for the eyes = to strike/catch one's eye, to arrest one's attention’

*bit v glaza* бить в глаза ‘to be striking for the eyes = to strike/catch one's eye, to arrest one's attention’

*vertetsa pered glazami* вертеться перед глазами ‘to turn around in front of somebody's eye = to arrest somebody's attention’

*pyalit glaza* нялить глаза ‘to open one's eyes wide = to stare’

(17) (Russian) HAND AS ACTION

*po rukam bit po rukam* бить ‘to untie somebody's hands = to give somebody the freedom of action’

*derzhat ruku chyu-nibud* держать руку чью-нибудь ‘to keep somebody's hand = to support somebody’

*vilyu davit rukam* волю давать рукам ‘will (freedom) to give to the hands = to use hands, to fight’

*goloi rukoi ne tron* голый рукой не тронь ‘with a bare hand don't touch = do carefully, cautiously’

(18) (Russian) HAND IS POWER

*imet kogo-nibud, chto-nibud v svoikh rukakh* иметь кого-нибудь, что-нибудь в своих руках ‘to have somebody, something in one's hands = to have power, control on somebody, something’

*derzhat kogo-nibud, chto-nibud v svoikh rukakh* держать кого-нибудь, что-нибудь в своих руках ‘to keep somebody, something in one's hands = to have power, control on somebody, something’

*korotki ruki u kogo-to* коротки руки у кого-то ‘short hands somebody has = somebody has no power’

(19) (English) EYES AS ATTENTION

cast an/your eye over something ‘to look briefly at something’

run your eye over ‘to look quickly at the whole of something’

turn a blind eye 'to ignore something that you know is wrong'  
easy on the eye/ear 'pleasant to look at/listen to'  
eye-catching 'particularly attractive or noticeable'  
out of/from the corner of your eye 'If you see something out of/from the corner of your eye, you see it but not clearly because it happens to the side of you'

(20) (English) HANDS AS POWER

free hand 'the right or authority to do anything you consider necessary'  
bite the hand that feeds you 'to act badly towards the person who is helping or has helped you'  
go cap in hand to somebody 'to ask someone in a polite and sincere way for something, especially money or forgiveness'  
The hand that rocks the cradle (rules the world) 'said to emphasize that women have a strong influence on events through their children'

(21) (English) HANDS AS TRANSFER

hand something in 'to give something to someone in a position of authority'  
hand something out 'to give something to each person in a group or place'  
hand/give in your notice 'to tell your employer that you intend to leave your job after a particular period of time'  
give/hand something to somebody on a plate 'to allow someone to get or win something very easily'

A comparison between Chinese and English data reveals two differences. First, the conceptual metaphor "CONTROL IS HOLDING IN THE PALM OF THE HAND" is not richly manifested in English, although it is in Chinese. Second, the conceptual metaphor "THE FINGER IS THE DOER" is well manifested in English, but it is not realized in Chinese (Yu 2000: 159).

The conceptual metaphor THE HAND SHOWS DIRECTION is well manifested in English and Russian, but it is not realized in Chinese. Nevertheless, Chinese, Russian and English also share the conceptual metonymy PERCEPTUAL ORGAN STANDS FOR PERCEPTION, THE HAND IS THE DOER, as well as THE HAND IS THE CONTROLLER as in the following examples.

(22) PERCEPTUAL ORGAN STANDS FOR PERCEPTION

**Chinese:** *zhou2yan3* 著眼 ‘put to-eye = have something in mind’; *zheng1yi4zhi1yan3, bi4yi4zhi1yan3* 睜一隻眼 閉一隻眼 ‘open one eye close one eye = Turn a blind eye to something’; *bie2ju4hui4yan3* 別具慧眼 ‘other-have-wise-eyes = have special opinion or insight’; *gua1mu4 xian1kan4* 刮目相看 ‘scrape-eye PRT-see = regard somebody with special esteem’; *ming2yan3ren2* 明眼人 ‘bright-eyes-person = a person with a discerning eye; a person of good sense’

**Russian:** *skazat pravdu v glaza skazat pravdu v glaza* ‘to say the truth in the eyes = to say the truth to somebody’; *nazvat negodyayem v glaza nazvat negodyayem v glaza* ‘to call a villain in the eyes = to call a person a villain’; *v glaza ne vidat v glaza ne vidat* ‘in eyes not to see = never to see, not to see at all’

**English:** *see eye to eye; not look somebody in the eye; meet somebody’s eye*

(23) THE HAND IS THE DOER

**Chinese:** *zhuo2shou3* 著手 ‘mark-hand = to begin (to write, build, etc.)’; *ba4shou3* 罷手 ‘stop-hand = stop’; *xiu4shou3pang2guan1* 袖手旁觀 ‘sleeve-hand = look on with folded arms, hands in sleeves--not willing to help’; *yan3gao1shou3di1* 眼高手低 ‘eyes-high-hand-low = high in aim but low-rate in execution, have high ambition but no real ability; fastidious and demanding but inept’

**Russian:** *delo v opytnykh rukakh delo v opytnykh rukakh* ‘the business is in the experienced hands = business is done by experienced workers; *rabota izvestnoi ruki rabota izvestnoi ruki* ‘the work is of a famous hand = the work is of famous master’; *malo svobodnykh ruk malo svobodnykh ruk* ‘few spare hands = few spare workers’

**English:** *hired hand; handyman; working hands*

(24) THE HAND IS THE CONTROLLER

**Chinese:** *jie1shou3* 接手 ‘catch-hand = take up matters left unfinished by predecessor; assistant’; *cuo4shou3bu4ji2* 措手不及 ‘handle-hand-can’t-reach = too late to do anything about it’; *ding3shou3* 頂手 ‘top-hand = take over’; *song1shou3* 鬆手 ‘loose-hand = to let go, to ease off on hold’

**Russian:** *byt pod chyei-nibud rukoi byt pod chyei-nibud rukoi* ‘to be under somebody's hand = to be under somebody’s control’; *tverdaya ruka tverdaya ruka* ‘hard hand = strong control’; *byt v rukakh u kogo-nibud byt v rukakh u kogo-nibud*

*в руках у кого-нибудь* ‘to be in the hands of somebody = to be under somebody’s control’

**English:** *firm hand; iron hand; to fall into somebody's hands; to suffer at somebody's hands; to get out of hand*

Table 2. Conceptual metaphors involving *eyes & hands* in three languages

	EYES	HANDS
Chinese	JUDGMENT, ATTENTION, LOVE, PRESENCE	ABILITY, ACTION, CONTROL, POWER
Russian	PERSONALITY, VISION, ATTENTION, OPINION, SUPERVISION	ACTION, POSSESSOR, POWER, SKILL, PERSONALITY
English	ATTENTION	ABILITY, CONTROL, POWER, DIRECTION, TRANSFER

The above examples (11)-(12) indicate that the central conceptual metaphor the EYES JUDGE AND SHOW AFFECTION is well manifested in Chinese *yan* 眼.

It is worth mentioning that the alternative of *yan* is *mu* 目. It takes this part of conceptual metaphor in Chinese vehicle *eyes*: EYES (MU) PROVE PRESENCE. In other words, *mu* is a vehicle that gives neutral connotation—the existence and being, unlike the affection and evaluation that the other vehicle *yan* is responsible for. *Mu* was the sole vehicle for Chinese *eyes* in old Chinese; its main semantic responsibility had been taken by *yan* after the reanalysis of semantic structure. Not only many expressions that were used to be expressed with *mu* can be now expressed with *yan*, such as *mu4qian2* 目前 ‘eye-before = present’ and *yan3qian2* 眼前 ‘eye-front = present’, *yan3zhong1ci4* 眼中刺 ‘eyes-center-thorn = hate someone very much’ and *mu4zhong1ci4* 目中刺 ‘eyes-center-thorn = hate someone very much’. Most of the semantic development of Chinese *eyes* is given by *yan*. *Mu* now assists *yan* to reach

the semantic completion of Chinese *eyes*.

Furthermore, the EYES JUDGE AND SHOW AFFECTION in Chinese realized the THE PHYSIOLOGICAL EFFECTS OF AN EMOTION STAND FOR THE EMOTION as Lakoff (1987) brings out. That is to say, BODY AS EMOTION is manifested in Chinese *eyes*.

As for Chinese *hands*, HANDS DO AND GIVE POWER is the central conceptual metaphor. Action shows ability, can possess and control, thus showing power, both positive (e.g., *shou3xia4liu2qing2* 手下留情 ‘to show mercy; to be lenient; to pull one's punches; to hold one's hand(s)’) and negative (sexual harassment, e.g., *mao2shou3mao2jiao3* 毛手毛腳 ‘hair-hand-hair-foot = to take liberties with a woman by the actions of one's hands’). Action and power are achieved by the motion of hands. In other words, BODY IS FUNCTION is well manifested in Chinese vehicle *hands*.

On the other hand, ability, control, or power say human behavior which takes 43.16% of our collected Chinese data of *hands* and expresses the central conceptual metaphor HANDS DO AND GIVE POWER. Further, the vehicle *hands* can be used metonymically to present people (21.58% of the data). For example, *sha1shou3* 殺手 ‘kill-hand = a killer’, *zhu4shou3* 助手 ‘help-hand = an assistant’, *lao3shou3* 老手 ‘old-hand = a person with rich experience’.

In Russian, the conceptual metonymy EYES AS PERSONALITY is very productive. As in the following examples: *srazat prevdu v glaza skazat' pravdu v glaza* ‘to say the truth in the eyes = to say the truth to somebody’, *nazvat negodyayem v glaza nazvat' negodyayem v glaza* ‘to call a villain in the eyes = to call a villain in the

eyes' and *v glaza ne vidat v glaza ne vidat* 'in eyes not to see = never to see, not to see at all'. On the other hand, it is often backed by conceptual metaphor EYES AS EMOTION, thus, emotions, expressed by a person, are expressed through his eyes, e.g. *trevozhnye glaza тревожные глаза* 'anxious eyes'. In the conceptual metaphor EYES STAND FOR VISION in Russian VISION IS MOVEMENT, such as running, walking, sticking, eating, and measuring. For example, *probegat glazami пробежать глазами* 'to run one's eyes over something to skim something, to scan something', *provizhat hlazami провожать глазами* 'to follow somebody with one's eyes' and *vprivatsya glazami впиваться глазами* 'to stick by the eyes to stare hard at somebody'.

It should be mentioned that in Russian conceptualization of vision not only eyes fulfill different movements to see something, but the objects have to make some movements to attract the eyes attention, they strike, cut, throw themselves on. Thus, EYES ARE ATTENTION, as in *brosatsa v glaza бросаться в глаза* 'to be striking for the eyes = to strike/catch one's eye, to arrest one's attention'. And vice versa, if the person is attentive, he opens and moves his eyes, trying to peer at something or somebody, as in *otkryt glaza na chto-to открыть глаза на что-то* 'to open eyes on something = to pay attention to something'. In the conceptual metaphor EYES ARE OPINION in Russian *eyes* form an opinion about something or somebody, as in *v glazakh kogo-to в глазах кого-то* 'in the eyes of somebody = in somebody's opinion'. Conceptual metaphors UP IS GOOD and LOW IS BAD are also revealed in EYES ARE OPINION, as in *vysoko stojat v glazakh druzei высоко стоять в глазах друзей* 'to stand high in the friends' eyes = to stand high in the friends' opinion'.

EYES AS SUPERVISION is also productive in Russian, where *eye* is equivalent to supervision and control, as in (25).

(25) (Russian) EYES AS SUPERVISION

*tut svoi glaz nuzhen тут свой глаз нужен* ‘here the own eye is necessary = here the personal supervision is necessary’

*nuzhen glaz da glaz нужен глаз да глаз* necessary ‘eye and eye here necessary = serious supervision is necessary’

*u semi nyaneck ditya bez glazu u семи нянек дитя без глазу* ‘seven nurses leave the child without care = too many cooks spoil the broth’.

As for *hand* in Russian, the central conceptual metaphor is HAND AS ACTION, which comprises various actions. The paramount importance of this metaphor is connected with the role of hand in the process of labor. Different types of actions can be fulfilled by means of hands, as in (17). It is important whether hands are clean or dirty in the process of action. *Imet chistye ruki иметь чистые руки* ‘to have clean hands’ means to be honest, irreproachable, vice versa, dirty hands are characteristic of dishonorable, disreputable action, as in *marat ruki марать руки* ‘to make hands dirty = to interfere with an unpleasant, scandalous affair’, *na ruki nechist на руку нечист* ‘on the hands is not clean = dishonest’. The proverb about accomplices in an improper action *ruka ruku moyet рука руку моет* ‘a hand washes a hand’ means that swindlers cover each other. HAND AS A POSSESSOR, resulting from the main function of hands to take, grasp and manipulate objects. The above metaphor is closely connected with HAND IS POWER as is presented in (18), as to have something in hands, to possess means to have power on something or somebody, as in *imet kogo-nibud, chto-nibud v svoikh rukakh иметь кого-нибудь, что-нибудь в своих руках* ‘to have somebody, something in one's hands = to have power, control on somebody, something’. The metonymy HAND AS PERSONALITY in Russian is represented by the fixed expressions in (26).

(26) (Russian) HANDS AS PERSONALITY

*rabota izvestnoi ruki работа известной руки* ‘the work is of a famous hand = the work is of a famous person’

*uznat chto-to iz pervykh, vtorykh ruk* *узнать что-то из первых, из вторых рук* ‘to know smth from the first, second hands = to know from the first person, second person’  
*delo ruk kogo-nibud* *дело рук кого-нибудь* ‘the work is of hands of somebody = somebody is to be blamed for this affair’.

It has a variant HAND AS A PROTECTOR, as in *imet silnyuyu ruku* *иметь сильную руку* ‘to have a strong hand = to have a strong protector’. HAND AS DIRECTION is revealed only by three fixed expressions, but their frequency of occurrence in everyday speech is very high.

Thus, the analysis of Russian conceptual metaphors and metonymies mainly follow the model BODY AS FUNCTION. Still, there are some metaphorical set expressions both with vehicle *eyes* and *body* that can be conceptualized as BODY AS EMOTION. But Russian is very productive in creating metonymies with *eyes* and *hands* preceded by an attribute, denoting emotion, as in *krotkiye, nezhnye glazki* *кроткие, нежные глазки* ‘calm tender eyes’, *mstitelnaya ruka* *мстительная рука* ‘revengeful hand’.

In English, EYES GIVE ATTENTION is the sole conceptual metaphor shown by the data we have collected so far. In this case, an abstract concept, attention, is partly structured by a conceptual metaphor BODY IS FUNCTION. The conceptual metaphor has the human body as its source domain. This result disagrees with that in Yu (2004: 663) where Yu found that Chinese and English share the conceptual metaphors SEEING IS TOUCHING AND THINKING, KNOWING, or UNDERSTANDING IS SEEING.<sup>1</sup>

The reason for the diversity is presumably due to that our data are fixed expressions while Yu takes literary expressions as well, such as his example (5)

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<sup>1</sup> These conceptual metaphors can not be clearly seen from English eye and hand fixed expressions. In Chinese, the first part (judge) of the central conceptual metaphor EYES JUDGE AND SHOW AFFECTION can be interpreted as understanding too.

(*Liang ren-de mu-guang peng-dao yiqi* 兩人的目光碰到了一起 two persons' eye-light bump together 'The two persons' eyes met = Their eye lights bumped each other', *Ta-de yan-guang ruili, shenme shiqing dou man-bu-guo ta* 她的眼光銳利, 什麼事情都瞞不過她 'her eye-light sharp-pointed whatever things all unable-hide-from her = You can hide nothing from her sharp eyes'). Yu (2004: 666) and many of his examples are used only in Mainland China, such as his example (8) (*zhao1yan3* 招眼 'beckon-eye = eye-catching', *chu4yan3* 觸眼 'touch-eye = eye-catching; striking; conspicuous', *da3yan3* 打眼 'beat-eye = catch the eye; attract attention') (Yu 2004: 668). As for *hands*, the central conceptual metaphor is HANDS SHOW POWER AND GIVE DIRECTION. Having power, thus shows ability and control. Again, the function of hands is realized and BODY IS FUNCTION is also manifested.

To compare *eyes* and *hands* in Chinese, the functions of both body parts are transferred to language. We therefore come to the conclusion that BODY IS FUNCTION.

Table 3. Central conceptual metaphors involving *eyes & hands* in three languages

	EYES	HANDS
Chinese	EYES JUDGE AND SHOW AFFECTION	HANDS DO AND GIVE POWER
Russian	EYES MAKE MOVEMENTS TO SEE, GIVE AND GET ATTENTION, EXPRESS OPINION AND SUPERVISE	HANDS ACT, POSSESS AND HAVE POWER, PROTECT
English	EYES GIVE ATTENTION	HANDS SHOWS POWER AND GIVE DIRECTION

#### 4. Conclusion

*Eyes* and *hands* are integral parts of languages, revealing a new dimension of the mind and presenting thought in action. Although the human body is a potentially universal source domain for expressions structuring abstract concepts, cultural groups set up different conceptions in their languages.

Kövecses (2000), and Huang (2002) propose that metonymic processes play a much bigger role in the understandings of emotion in Chinese than in English. Our data agree with this proposal. In Russian, both metaphor and metonymy are very productive in creating body-part expressions. Moreover, in metonymies EYES and HANDS FOR A PERSON metonymies are very often backed by adjectives, denoting emotions. On the other hand, many examples, such as (1), (2) and (4), describe the bodily acts or gestures expressive of certain emotions, just like Huang (2002) points out that the core of an emotion is not simply a psychological state or process, but a readiness to act in a certain way.

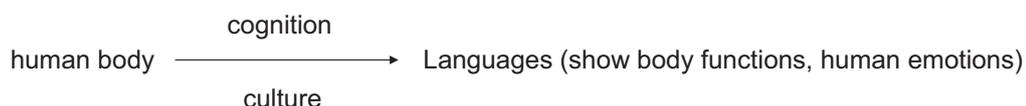
Furthermore, the EYES JUDGE AND SHOW AFFECTION in Chinese realized THE PHYSIOLOGICAL EFFECTS OF AN EMOTION STAND FOR THE EMOTION as Lakoff (1987) brings out; BODY AS EMOTION is manifested in Chinese *eyes*. In Russian, EYES MAKE MOVEMENTS TO SEE, GIVE AND GET ATTENTION, EXPRESS OPINION AND SUPERVISE are central conceptual metaphors for *eyes*; HANDS ACT, POSSESS AND HAVE POWER, PROTECT are central conceptual metaphors for *hands*. Thus, BODY AS FUNCTION is mainly realized in our Russian data. Nevertheless, BODY AS EMOTION is displayed in a wide range of Russian fixed expressions and trite metonymies with adjectives, denoting emotions. In English, EYES GIVE ATTENTION and HANDS SHOW POWER AND GIVE DIRECTION are the central conceptual metaphors emerged

from our English data; BODY IS FUNCTION is operating here.

Therefore, we can draw to the conclusion that BODY AS FUNCTION is equally displayed in all three analysed languages, but BODY AS EMOTION as a particular conceptual model is characteristic only of Chinese. In Russian, BODY AS EMOTION is subcategorized in BODY AS FUNCTION, representing different movements, reflecting physiological effects of emotions, thus reflecting the model THE PHYSIOLOGICAL EFFECTS OF AN EMOTION STAND FOR THE EMOTION.

Yu (2003: 27) points out that “culturally constructed and shared concept ... manifested in conventional metaphorical expressions in the form of proverbs, idioms, and compounds”—they are fixed expressions. In sum, we would like to make the following hypothesis for a cognitive model under a cross-cultural perspective based on the above observation between Chinese, Russian and English.

**Figure 1**  
**Dynamic cognitive model of body-part expressions in languages**



Human body is projected onto languages by means of utilizing body part terms in various fixed expressions through human inherent cognition which yet featured by assorted cultures to abstract body functions, describe human behavior and express human emotions. These differences consist in the choice of a part (eye or hand) over the whole (body) as a result of cultural preferences with different expressions. However, all generated from the central conceptual metaphor: BODY IS FUNCTION.

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# ***Overtalented and Talented beyond* measure: Bound and free morphemes as scalarity operators in English and French**

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## **Abstract**

The present paper accounts for the semantic differences between two types of scalar modification - by prefixes and by prepositions. Our analysis is based on a case study of the pairs *beyond/au-delà de* and *over-/sur* which denote similar meanings when modifying scalar predicates. Whereas all these items function as predicate intensifiers, the type of intensification differs in the case of prefixes and prepositions. We oppose the pairs *beyond* and *over-* in English as well as *au-delà de* and *sur-* in French, in order to observe their connotational value. It appears that some predicates modified by the prefixes in question can acquire a negative connotation which is constrained by contextual elements and the types of predicate and scale.

**Keywords:** bound morphemes, free morphemes, prefixes, prepositions, connotation, scalarity, intensifiers, degree, discourse.

## **0. Introduction: scalar prefixes and prepositions**

According to Whittaker (2002:1, 21-28), scalarity, a linguistic phenomenon which goes back to Plato, consists in breaking down a phenomenon into degrees. The notion of scalarity is closely related to that of comparison, for it implies a standard of comparison with respect to which objects are ordered following the degree of possession of a given property (Sapir 1944). One of the most common expressions of scalarity is intensification: for example, *very strong* is ordered higher than *strong enough* and *strong* on a scale of strength<sup>1</sup>. Contrary to what one may think, intensification implies scaling a property both up (amplification) or down (downtoning) (Bolinger 1972:17).

Adler and Asnes (2004, 2007a, 2007b, to appear) have dealt with scalarity conveyed by prepositions such as *au-delà de* (*beyond*) and *jusqu'à* (*up to*). It is now time to expand the research on scalar modification so as to include the possibility to express a more or less similar meaning by both the free morpheme *beyond* and the bound morpheme *over-* (as in: *qualified beyond expectations* vs. *overqualified*). It appears indeed that both in English and French there exist prepositions and prefixes which are capable of conveying scalarity meanings<sup>2</sup>:

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<sup>1</sup> Scalarity can be quantitative if it relates to a scale of numbers or qualitative if it relates to a scale of properties. Rivara (1990) refers to a qualitative scalarity as an "evaluative quantification" implying a subjective scale.

<sup>2</sup> This study is carried out within the theoretical framework of the semantics of scalarity which has benefited from an extensive research during the last years (Ducrot 1996, Kennedy et McNally 1999, Piñón 2000, Kennedy 2001, Whittaker 2002).

- Prepositions: *up to/jusqu'à, beyond, past/au-delà de, above/au-dessus de, below/au-dessous de*

- Prefixes: *over-, out-/sur-, under-, sub-/sous-, mini-, maxi-, super-, hyper-, hypo-, ultra-, extra-, arch-/archi-, trans-, ultra-, mega-/méga.*

This paper explores the analogies and differences of scalarity conveyed by prepositions and prefixes. Our analysis focuses on the particular case of *beyond* and *over-* and their French counterparts *au-delà de* and *sur-*:

- (1) a. Talented **beyond** (all) measure  
b. Doué **au-delà de** toute mesure
- (2) a. **Overtalented**  
b. **Surdoué**

How to motivate the choice of these particular items? More precisely, why not to compare the usages of *over* both as a preposition and a prefix? On the other hand, why not to oppose the preposition *beyond* to the prefix *trans-* which seems, at a first glance, more closely related to *beyond* than *over*?

A single answer may be given to both questions, if we keep in mind the scope of the present study. Since we are dealing here exclusively with scalarity operators and not with spatio-temporal meanings, the preposition *over* as well as the prefix *trans-* are immediately ruled out: they denote spatial meanings. Only the prefix *over-*, but not the preposition, conveys the scalar meaning. Secondly, the prefix *trans-* (as in: *transatlantic, transsibirean*), meaning "beyond", covers only the spatio-temporal values of *beyond*.

The first part of this study accounts for the semantic differences emerging from the two types of scalar modification - by prefixes and by prepositions -, already observed in examples (1) and (2). The second part deals with the types of scales along which the modification is being made. The third part examines the restrictions imposed by *beyond/au-delà de* and *over-/sur-* on the types of predicates. Finally, in the fourth section, we oppose the pairs *beyond* and *over-* (3a) in English as well as *au-delà de* and *sur-* (3b) in French, in order to observe their discursive value, for it appears that what may be considered as quasi-synonymous morphemes do not convey the same message:

- (3) a. *Qualified beyond expectations /overqualified*  
b. *Qualifié au-delà de ce qu'on pouvait attendre / surqualifié*

## 1. Semantics of *beyond/ au-delà de* and *over-/ sur-*

### 1.1 Semantics of the prepositions *beyond/ au-delà de*

According to the *Merriam Webster* dictionary, for English, and the *Trésor de la Langue Française*, for French, *beyond* and *au-delà de* have three main usages: spatial, temporal and scalar. The common denominator for all of these values would be the notion of distancing with respect to a stated reference point or, in other words, a surpassing of a limit. This limit varies according to the type of value:

Spatial :

- (4) a. *To live **beyond** the ocean*  
b. *Habiter **au-delà de** l'océan*

Temporal :

- (5) a. *To work **beyond** 8 hours a day*  
b. *Travailler **au-delà de** 8 heures par jour*

As for PPs headed by the scalar operator *beyond* and its French counterpart *au-delà de*, there is a surpassing of a contextually defined standard value of a process, a state or a property (cf. Adler and Asnes 2007a, 2007b), as seen in examples (6)-(8):

- (6) a. *Paul is happy **beyond** expectations*  
b. *Paul est heureux **au-delà de** ce qu'on pouvait attendre*  
(7) a. *To love **beyond** words / (all) reason*  
b. *Aimer **au-delà de** toute expression*  
(8) a. *Brave **beyond** measure / belief*  
b. *Courageux **au-delà de** toute mesure*

*Beyond* and *au-delà de* function as operators establishing a relation between a property, a state or an event and a degree on a scale, such that the degree in question is superior to a reference degree (given by *beyond/au-delà de XP*) of that property, state or process.

For instance, the proposition in (6) is true if, and only if, there is a property of being happy, assigned to Paul, whose reference degree is represented by *expectations*, and if the position of Paul on the scale of happiness is superior to 'what could be expected'.

To sum up, *beyond* and *au-delà de* share the same denotational value. The next section will reveal if that is still the case for the prefixes *over-* and *sur-*.

## 1.2 Semantics of the prefixes *over-/sur-*

The prefixes *over-* and *sur-* can both function as scalar operators when prefixed to verbs, adjectives, participles and deverbal or deadjectival nouns.

- (9) a. *To overprotect/ surprotéger*  
c. *Overfull/ surcomplet*  
b. *Overprotected/ surprotégé*  
d. *Overprotection/ surprotection*

This section compares prepositional and prefixational usages of *over(-)* and *sur(-)*. Both prefixes evolved from a basically spatial preposition into a polyfunctional prefix. This paper focuses exclusively on the scalar value of these prefixes. The values of the corresponding prepositions will be provided only for the sake of comparison.

### 1.2.1 Over

#### 1.2.1.1 The preposition *over*.

The preposition *over* has the following usages:

##### 1. Spatial usage:

a. **spatial concrete**: indicates a motion or a situation in a position which is higher than another (*flew over the lake*), position or movement downwards (*lay a blanket over the child*), "through" (*over the house*), "on the other side" (*over the river*)

b. **spatial abstract**: possession of authority, power, superior hierarchical position : *respect those over him*, medium of communication – *over the radio*

##### 2. Temporal: meaning "through", "during" (*over the last 20 years*)

4. **Theme** : denoting an object of concern (*trouble over money*)
3. **Quantificational** : functioning as a modifier of quantifier (*cost over 5 \$*)

#### 1.2.1.2 *The prefix over-*.

The prefix *over-* can add various meanings to the stem. Among others:

1. **Spatial** (concrete and abstract)
  - 1.1. Meaning: “upper”, “outer”, “over”, “above” – *overalls* (suit), *overcoat* (n), *overcast* (n, adj, v -cover, darken)
  - 1.2. Meaning: “Above”, “beyond”, “across” - *overcast*, *overhang*, *overhead* (both physical position and expenses), *overland*, *overlap*, *overlook*<sup>3</sup>, *overpass*, *overseas*, *overview*
  - 1.3. Hierarchical meaning: “superior in rank or importance” - shows that someone or something has power or authority over another: *overrule*, *overpower*, *override*, *overthrow* (this meaning is also shared by the preposition *over*)
  - 1.4. Meaning “to an inverted or reverse position” – *overcome*, *overhaul* (to examine thoroughly, to revise), *overturn*, *overwhelm*
2. **Temporal-scalar usage** (meaning “too long”)
 

*Oversleep*, *overstay*, *overlive*, *overtime*.
3. **Scalar**: meaning “too much, additional” - shows that an action is done to too great an extent, excessively:
 

*overcharge*, *overeat*, *overestimate*, *overrate*, *overwork*, *overconfident*, *overcrowded*, *overdo*, *overdrawn*, *overflow*, *overjoyed*, *overload*, *overpopulated*, *overpower*, *overpriced*, *overrated*, *overreact*, *oversleep*, *overstep*, *overuse*, *overweight*, *overwork*

It seems that the value of the prefix *over-* depends on the nature of the modified predicate:

1. before non-scalar predicates, the prefix *over-* tends to have spatial meanings
2. before scalar predicates, the prefix *over-* acquires a scalar meaning: *overeat* is a higher degree of eating on the scale: *eat a little* – *eat enough*- *eat more*- *eat much* – *overeat* ("eat beyond what is considered to be necessary")

In section 3 we will examine more in detail the types of predicates compatible with the scalar prefix *over-*.

Contrary to the preposition, the prefix *over-* has a scalar meaning. As a scalar operator, *over-* is an intensifier. However, according to Bolinger (1972), when *over-* attaches to a degree verb, it does more than merely intensify; it conveys the meaning of excess ("too much") (cf. as well Quirk et alii (1972)), as in *overconfident*, *overconscientious*, *overdressed*, *oversimplify*, *overeat*, *overdo*.

Intensifiers share the property of a heightening effect on some unit of the sentence. Roughly, three semantic subclasses can be distinguished: emphasers, amplifiers, downtoners (Quirk et alii 1972). According to this typology, *over-* seems to be an amplifier: it scales upwards from an assumed norm. Let's notice that the Merriam Webster dictionary quotes only the scalar value of *over-* which seems to be the predominant one.

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<sup>3</sup> *Overlook* = to skip something. *Overlap*, *overcast* = to lap over, to cast over = to cover something completely. This paper is not about the spatial meanings of *over-*, but it would be worthwhile in the future to explore the different modes of spatial relations between the prefix and the radical.

The scalar prefix *over-* is synonymous to other prefixes such as *hyper*, which means “over, excessive, more than normal”; *ultra-*; *super-* (*hyperactive*, *ultrareligious*, *supernatural*).

One of the most salient properties of *over-* as a scalar prefix is that it may alter the discursive value of the predicate. Thus, with certain predicates, it may suggest negativity (i.e. convey a negative effect). Let's note that what is altered is the prefixed stem, and not the stem in itself:

(10) *Protect* – a positive activity, *overprotect* – a negative activity  
*Overprotect* may become a disturbing behavior provoking antagonism on the part of the protected person. The same goes for *sweet-oversweet*, *generous-overgenerous*, *optimistic* – *overoptimistic*. When these stems are related to *over-*, they may reflect a negative attitude.

The effect of the resulting negative connotation may be related to the fact that the prefix *over-* denotes a surpassing of a certain norm to which the predicate is being compared, and this deviation from the norm is considered to be negative (sometimes, even “not normal”). We will come back to this issue in section 4 *infra*.

Let's notice that the excess denoted by *over-* can be quantitative or qualitative:

- (11) a. *Overcharge* – to charge more than needed (quantity) (to charge **how much**?)  
b. *Overreact* – to react more strongly than needed (quality) (to react **how**?)

Another surprising property of the prefix *over-* is that it seems to have a syntactic function, more precisely, that of a modifier, unlike other prefixes which are normally not being assigned a syntactic behavior, cf. (12):

- (12) a. *Overachieve* – achieve more  
b. *Overstimulation* – excessive stimulation  
c. *Overfat* – fat to an excessive degree

In these examples *over-* is attached to a verb (12a), a noun (12b) and an adjective (12c). The abovementioned paraphrases reveal that *over-* functions as a modifier:

- a) before verbs it functions as an adverbial: “too much” or “more than expected, needed”  
b) before nouns it functions as an adjective: “excessive”  
c) before adjectives it functions as an adverb of degree (intensifier): “to an excessive degree”.

This function of modifier explains the analogy between the prefix *over-* and the adverbial PPs headed by *beyond*:

- (13) a. *To overachieve*  
b. *To achieve beyond expectations*

*Over-* in (13a) functions similarly to *beyond expectations* (13b): both modify the predicate *achieve*.

To sum up, *over-* in its scalar usage represents a surpassing of some standard reference point, just like *beyond XP* implies a contextually defined standard. It is impossible to talk about, for example, overdoing something without implying that one knows what is considered to be the norm.

## 1.2.2 *Sur-*

### 1.2.2.1 *The preposition sur.*

According to the *TLF* dictionary, the French preposition *sur* is extremely polysemic. Therefore, we will only provide here its most prototypical meanings:

#### 1. Spatial

- a. antonym of *under (sous)*: *sur la table*
  - b. a target place : *marcher sur Rome, se précipiter sur quelqu'un*
  - 2. Temporal or temporal-causal** : *sur le matin, sur demande*
  - 3. Abstract meanings** – reference point (measure, quantity – *sur dix mètres, avoir avantage sur quelqu'un*)
- 1.2.2.2 *The prefix sur-*.

According to the same dictionary (*TLF*), the prefix *sur-* has the following meanings:

**1. Spatial meaning**

a. **Superiority**

(14) *surtitre, surmaillot, survoler; surplomber, surrénal*

b. **Hierarchy**

(15) *surarbitre, surexpert, surclasser, surpasser, surhumain, surnaturel*

**2. Temporal - Posteriority**

(16) *survivre, surlendemain*

**3. Iteration, repetition**

(17) *surimposer, surimprimer, sursemer, surdorer, surinfection*

**4. Scalar value**

a. **Excess**

(18) *surabondance, surcapacité, surpuissance, surpesanteur, survitesse, suralimenter, surchauffer, surexploiter, surestimer, surévaluer, surpayer, surtaxer, surdoué, surexcité, surpeuplé, surdéveloppé, surendetté, surnourri, surproduction, suradministration, surconsommation, suremploi, surirritation, surprotection*

**b. Hyperbolic (exaggeration) in the spoken, familiar language:**

(19) *Le bus était surcomplet*

*Sur-* is associated to an adjective that already has an absolute value. Here, the prefix has a function of an intensifier and it may alternate with *super* or *hyper*.

In hyperbolic usages, *sur-* does not alter the connotational value of the predicate, it is just an intensifier.

The examples above show that *sur-* denotes an excess or an extreme degree (ex: "*surpopulation*", "*surutilisé*", "*surproduction*"). Contrary to other prefixes which function as intensifiers, *sur-* seems to be the only one which may add a negative connotation to the modified item. While *protéger* seems to be a positive mode of behavior, *surprotéger* is not recommended by psychologists.

Nonetheless, it is still possible to find cases where the primary value of the stem is not altered. Let us compare *surdoué* and *surqualifié*. As opposed to *surqualifié* which means "excessively qualified" and may be used negatively, *surdoué* means "extremely gifted" and preserves the positive value of the stem. Why is it so? In order to answer this question, we have to look for the differences in the semantic properties of the stem. It appears that while *doué* is an individual-level predicate denoting a permanent property, *qualifié* is a stage-level predicate denoting a temporary property. These properties are preserved after the addition of the prefix *sur-*. Moreover, *surdoué* is an intransitive adjective standing for itself and, as such, does not require any point of reference. On the other hand, *qualifié* and *surqualifié* are transitive and do not stand for themselves in the sense that one is always qualified for something. Therefore, one can be overqualified for one position, but not enough qualified for another.

As we have shown before, *sur-* can also have a hyperbolic usage in which it alternates with *super/hyper*. However, when *sur-* is not hyperbolic, it may not be considered as a synonym of *super* and *hyper*. Let's compare (20a) and (20b):

(20) a. *Superqualifié, hyperqualifié*

b. *Surqualifié*

While *superqualifié* and *hyperqualifié* have a positive connotation and stand for a colloquial form of exaggeration, *surqualifié* may be used negatively. In the case of *sur-* there is a standard which is imposed by a certain institution and a surpassing of that standard will create a disadvantageous situation for a certain institution with given requirements. On the contrary, *superqualifié* and *hyperqualifié* express subjective judgments, not involving any kind of institutionalized norm.

As for *hyperdoué / superdoué* vs. *surdoué*, all of these seem to denote the same values and there is no reversal of connotational value. The three adjectives are used to portray a person whose intellectual capacities are superior to the average. They all intensify the degree of the predicate and imply a standard of comparison<sup>4</sup>. However, in some cases they seem to be in complementary distribution: for instance *hypercorrection* is a term used in grammar while *surcorrection* belongs to the field of ophthalmology.

### 1.2.3 Comparison *over-* vs. *sur-*

The comparison of the scalar modification by the prefix *over-* in English with its French counterpart *sur-* reveals that *over-*, as a scalar prefix, is much more productive than *sur-*. *Sur-* seems to merge with the stem to become a lexical entry. *Over-*, on the other hand, can be added more freely to different stems.

In modern French, *hyper-* and *super-* are the ones sharing the same productivity as *over-* in English. Thus, while *overhappy* is perfectly acceptable in English, *surheureux* is non grammatical in French. The colloquial forms *superheureux* or *hyperheureux* are, on the contrary, acceptable.

## 2. Types of scale

One major difference between the scalar modification made by free (prepositions) and bound (prefixes) morphemes is related to the type of the scale along which the predicate is intensified. More precisely, in the case of prepositions, the modified predicate is evaluated along an explicitly stated scale. This scale can be either constrained or not by the lexical properties of the predicate (cf. Adler and Asnes 2007a, 2007b). Quantitative and qualitative scales (see examples (21), (22)), are thus constrained by the predicate type, i.e. the quantitative predicate is measured along a quantitative scale, while the qualitative predicate is measured along an intensity scale.

### **Quantitative scale (100lbs, 50kg):**

(21) a. *To lose weight beyond 100 lbs*

b. *Maigrir au-delà de 50 kg*

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<sup>4</sup> This paper is not about prefixes such as *hyper-* or *super-*. However, it is interesting to observe the outcome of combining *hyper-* with a non scalar stem, such as in *hypercorrection*: since, in principle, it is impossible to intensify a non scalar predicate, *hypercorrection* actually means *incorrectness*, i.e. a negation of the predicate.

**Qualitative scale (love-adoration: hyperonym /hyponym relation):**

- (22) a. *To love beyond adoration*  
b. *Aimer au-delà de l'adoration*

On the contrary, the epistemic scale is compatible with any type of predicate.

**Epistemic (external) scale (words, reason, expression):**

- (23) a. *To love beyond words / (all) reason*  
b. *Aimer au-delà de toute expression*

As opposed to prepositions, the scalar modification by prefixes relies solely on the lexical properties of the modified predicate, and there is no other explicitly stated scale (cf. (2), where the modification exploits the inherent scale of the predicate *talented*).

Another example would be *anxious* and *overanxious*, where *over-* intensifies the lexical property of being anxious and denotes that the “acceptable” degree of anxiety has been surpassed. This is a value judgment: the level of anxiety is measured with respect to an 'acceptability' norm.

Precisely because of the absence of the explicitly stated scale, the prefixational usages are less productive: thus, it is impossible to find a prefixational equivalent for every prepositional usage:

- (24) a. *To love beyond adoration - \*overlove*  
b. *Aimer au- delà de l'adoration - \*suraimer*

### 3. Types of predicates

#### 3.1 Predicates compatible with *beyond / au-delà de*

As for the predicates modified by *au-delà de/beyond XP*, there is no restriction on the syntactic category: the modified term can be an adjective, a noun or a verb provided that it is scalar. Semantically speaking, the modified predicates can belong to the following categories:

▪ **Open/closed-scale predicates<sup>5</sup>**

The open-scale predicates are compatible with proportional modifiers such as *completely/complètement, partially/partiellement, half/à moitié*. Thus, *to fill/remplir* is a closed-scale predicate, the maximal degree of which is lexically inherent. On the contrary, in the case of the open-scale, (*to love/aimer, happy/heureux*), no maximal degree is associated with the predicate. (*\*completely/ complètement, partially/partiellement, half / à moitié*).

▪ **Open-scale:**

- (25) a. *Heureux au-delà de toute expression*  
b. *Happy beyond all expression*

▪ **Closed-scale:**

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<sup>5</sup> The dichotomy open/closed-scale exists alongside other classifications. One could establish an analogy between the notions of open/closed-scale, belonging to the domain of scalarity, and those of telicity/atelicity, respectively, belonging to the domain of aspect. Thus, *to fill* is a closed-scale, telic predicate.

- (26) a. *Remplir la salle au-delà de sa capacité maximale*  
 b. *To fill the room beyond its maximal capacity*
- **Stage-level and individual-level predicates (cf. A. Kratzer 1995).**
    - **Individual level :**
- (27) a. *Beau au-delà de toute expression*  
 b. *Beautiful beyond all expression*
- **Stage-level**
- (28) a. *Heureux au-delà de toute expression*  
 b. *Happy beyond all expression*
- **Psychological predicates**
- (29) a. *Aimer au-delà de toute expression*  
 b. *To love beyond all expression*
- **Activity predicates Vendler (1967)**
- (30) a. *Communiquer au-delà des mots*  
 b. *To communicate beyond words*
- **Accomplishment predicates Vendler (1967)**
- (31) a. *Remplir la salle au-delà de sa capacité maximale*  
 b. *To fill the room beyond its maximal capacity*
- **Achievement predicates Vendler (1967)**
- (32) a. *Surprendre au-delà de l'imaginable*  
 b. *To surprise beyond one's wildest dreams*

### 3.2 Predicates compatible with *over-/sur-*

The previous paragraphs show that the scalar PPs headed by the prepositions *beyond* and *au-delà de* denote a high degree and do not impose any restriction on the syntactic category of the modified predicate as long as it is scalar.

As for the prefixes *over-* and *sur-*, in cases in where they are attached to non scalar predicates, they do not convey intensity:

(33) *Overprint/surimprimer*

In (33), both prefixes have an iterational meaning ("printing over something that is already printed")

(34) *Surinfection* – "secondary infection consequent to the primary one".<sup>6</sup>

When *over-* and *sur-* are attached to scalar predicates, similarly to the prepositions, they are compatible with adjectives, nouns and verbs.

Semantically speaking, the modified predicates can belong to the same categories as the predicates modified by the prepositions:

- **Open/closed-scale predicates**
    - **Open-scale:**
- (35) a. *Surcontent, surdoué*  
 b. *Overhappy overviolent, overgifted*

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<sup>6</sup> Other cases which have to be taken into consideration:

-*Surmonter/overcome* – non-compositional meaning of prefix and stem (and therefore not in the scope of this paper).

-incompatibilities due to the type of the stem: *Danser* - *\*surdanser*; *Dance* – *\*overdance*; *\*Sur/sous-tuer* (atomic predicates).

- **Closed-scale:**
  - (36) a. *Surremplir la salle, surcharger le camion*
  - b. *Overfill the room, overload the truck*
- **Stage-level and individual-level predicates (cf. A. Kratzer 1995).**
  - **Individual level :**
    - (37) a. *Surdoué, suractif*
    - b. *Overthin; overgifted; oversweet*
  - **Stage-level**
    - (38) a. *Surfatigue, surqualifié, surexcité, surirrité, suroccupé*
    - b. *Overtiredness, overhappy, overqualified, overoccupied, overirritated*
- **Psychological predicates**
  - (39) a. *Surexciter, surirriter*
  - b. *Overexcited, overirritate*
- **Activity predicates (Vendler (1967))**
  - (40) a. *Surfumer*
  - b. *Oversmoke*
- **Accomplishment predicates (Vendler (1967))**
  - (41) a. *Surremplir, surperformer*
  - b. *Overfill, overperform*
- **Achievement predicates Vendler (1967)**
  - (42) *Oversucceed, overachieve*

We have already evoked the potential change of the connotational value of the predicate modified by the prefixes *over-/ sur-*. It is now the appropriate moment to ask whether this change is correlated with the stem type. In other words, is the predicate type responsible for the negative connotation?

If one compares predicates such as *overqualified* and *overgifted*, one may think that the dichotomy stage/individual-level might be responsible for the negative effect. Thus, *overqualified* which is a stage-level predicate may be used negatively, to disqualify someone, whereas *overgifted* which is an individual-level predicate preserves its positive value. However, if we compare *overgifted* to another individual-level predicate such as *overnice*, one sees that *overnice* changes its fundamental connotational value as opposed to *overgifted*: *gifted* is considered to be a positive, recommendable, property and that seems to be the case for the prefixed stem as well. *Nice* seems to be a positive quality but *overnice* may become a problematic property.

On the other hand, if we now compare two stage-level predicates, such as *overhappy* and *overqualified*, we see again that *overhappy* remains positive while *overqualified* may acquire a negative connotation.

Is there still a way to explain these changes of connotational value? We suggest that this additional value is context-sensitive, i.e. the same item can be either 'positive' or 'negative' in different contexts: In (43) the possible change of connotation is connected to the cause of being overexcited:

- (43) *Overexcited:*
  - a. *Your son was not able to sleep since he was overexcited* (the utterer expresses a negative attitude)
  - b. *Your son is overexcited about going to America.* (the utterer expresses a positive attitude)

(44) *Overqualified*:

- a. *You cannot be hired for this job since you are overqualified* (negative)
- b. *Don't waste your time in this job. You are overqualified and can find a much better job that suits your qualifications* (positive)

In other cases, the change of connotational value may depend on whether one is being qualified by himself or by others:

(45) a. *I am overhappy*

- b. *What happened to your son? He seems a little overhappy (implying that he is not behaving as usual and even maybe awkward: is he on drugs?)*

In addition, the intensified property can be, what one may call, internally or externally oriented:

(46) *Nice to everybody vs. \*happy to everybody*

The property is internally oriented or reflexive if it qualifies the person and has no effect on the environment (e.g. *happy* concerns exclusively the owner of the property). The property is externally oriented or transitive if in addition to qualifying a person, it has an effect on the environment. The transitive properties, such as *nice*, tend to alter their connotational value. In the case of reflexive properties, the reading depends on the context (i.e. the cause) in which it is used: *happy*.

Thus we see the influence of discourse on the possible change of connotation. The notion of "excess" expressed by *over* or the subtle transition of "more than" into "excess" is also to be put on the account of discourse. Moreover, certain qualifications are already institutionalized/ standardized and thus considered as concepts (*overprotective* - psychology, *overqualified* - the job market). In such cases the connotational value of the term is fixed.

There still remains the question of antonymy: why is it that French *surdévelopper*, *surexciter*, *surcomplet*, *surabondant* exist but not *\*sous-développer*, *\*sous-exciter*, *\*sous-complet*, *\*sous-abondant*? Why is it, on the other hand, that English *overdevelop*, *overexcite*, *overshy*, *overnice* exist but not *\*underdevelop*, *\*underexcite*, *\*undershy*, *\*undernice*? Is it connected to the type of the predicate as in, for instance, *develop*, which is a telic predicate and, as such, imposes a final boundary? It would be therefore awkward to add *under* which will prevent the completion of the process (i.e. by contradicting the inherent aspectual properties of the predicate). That would explain, by the same token, why the participle of such verbs is nonetheless possible (*sous-développé*, *underdeveloped*): the participle expresses the resulting state at which it is possible to judge if the process has indeed reached its term or not. On the other hand, *sur/sous-estimer* and *over/underestimate* pose no problem since they are atelic (Vendlerian activities) and, as such, don't have an inherent term. At each point of the activity of *estimating* the process is true<sup>7</sup>. The prefix in such a case is not being contradictory with the aspectual properties of the predicate. In fact, in the case of *underdeveloped*, *under* means "not completely", and in the present case, *under* means "not enough".

With adjectives, such as *shy*, *nice*, the impossibility of *under* is definitely connected to a different source, which will be explored in a further study.

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<sup>7</sup> See Kenny (1963).

#### 4. Modification by bound and free morphemes: the question of connotation

We are tempted to use the following set of examples ((47)- (48)) in order to show that when the modification is made by free morphemes, as in the case of the epistemic scale, the inferences being made possible are different from that in which modification is made by bound morphemes: in the former case, the connotational value of the stem is being preserved and of course intensified by the modifier, in the latter, there is a change of connotational value due to the possible negative judgment or incompatibility to a certain standard being fixed.

(47) *Qualified beyond expectations /Overqualified*

(48) *Qualifié au-delà de ce qu'on pouvait attendre / surqualifié*

In the job market, if a person is overqualified, most probably s/he will not be accepted to the position he applied to. On the contrary, if s/he is qualified beyond expectations, this means that s/he has made an extraordinary impression on her/his employers and will surely get the desired position. At a first glance, it appears then that *over-* triggers a negative inference related to the notion of excess whereas *beyond* simply denotes a high degree. Both excess and high degree are evaluative meanings and, as such, establish a comparison with respect to a certain norm on a reference scale which is surpassed. Nevertheless, these two meanings differ by their pragmatic orientation: as opposed to the high degree meaning, excess implies a negative surpassing of a limit (cf. Amiot 2004).

Unfortunately, the situation is much more complex. As far as prepositions are concerned, this connotational value varies according to the type of scale. When a predicate is modified along an epistemic scale, its connotational value depends on whether the judgment is negative or positive. Compare:

(49) *Qualified beyond what is needed/ beyond expectations*

Since *beyond expectations* expresses a positive judgment, *qualified* is a positive property. On the contrary, *beyond what is needed* is grasped as negative judgment, thus the overall is negative.

In the case of the qualitative scale, the modification by *beyond* goes along with the fundamental connotational value of the predicate:

(50) a. *To love beyond adoration* (intensifying in a positive sense)

b. *To terrify beyond horror* (intensifying in a negative sense)

Finally, as for the quantitative scale, there is no qualitative judgment and the quantities expressed may entail positive or negative judgments according to extra-linguistic knowledge.

As far as prefixes are concerned, *overqualified* seems at the first glance a problematic property, as previously shown, especially when it serves as the cause for which one is not being accepted to a certain job. Yet, all in all, it is better to be overqualified than under-qualified.

Still, there is another aspect to take into consideration (cf. (51)-(52)):

(51) a. *Surestimer*

b. *Estimer au-delà de sa valeur*

c. *Estimer au-delà de toute expression*

(52) a. *Overestimate*

b. *Estimate beyond its real value*

c. *Estimate beyond expression*

These examples demonstrate that the prepositional modification may also make use of the internal scale. The same result may thus be achieved by both the prefixational and the prepositional modification: (a) and (b), but not (c), exploit the inherent scale of the predicate.

## 5. Conclusion

Scalarity is about denoting a property which can be possessed to a certain degree (Rivara 1990). It has been shown in the present paper the extent to which free and bound morphemes modify scalar predicates, i.e. intensify their natural degree. The issue of negative connotation emerged in the process of comparing the scalar modification by prefixes and prepositions. According to Sapir (1944) the kinsaesthetic aspect of scalarity implies an ordering of elements from the smallest to the biggest: the upwards movement is generally associated to a favorable effect while the downwards movement is associated to an unfavorable effect. The present study shows several cases in which although the movement is towards the upper limit, the inference is yet unfavorable. Thus connotational value does not depend on the orientation of the scale (upward or downward movement). Rather it is constrained by contextual/discursive elements and the types of predicate and scale. As for the modification itself, the bound and free morphemes examined in the present paper both function as intensifiers. Bound morphemes usually do not have a syntactic function in the sentence, they are part of the lexicon. Our study shows however that they may be analyzed as modifiers as well, the same as prepositional phrases. Yet, there exists a major difference between bound and free morphemes: the former are much less productive than the latter. Furthermore, productivity is also language dependent: *over-* is much more productive than *sur-*.

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*Merriam Webster*

*Trésor de la langue française informatisé - TLF*

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# The semantics of the verb of giving in Thai and Vietnamese : A contrastive study<sup>\*</sup>

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## Abstract

In this study I investigate the meanings of the verb of giving in Thai and Vietnamese, namely, *hây* and *cho* and discuss the semantic relations among the meanings of *hây* and *cho*. It is found that *hây* in Thai has the following meanings: (1) the basic meaning of an action of possession transfer, (2) the dative-marking, (3) the benefactive-marking, (4) the malefactive-marking, (5) the causative-marking, and (6) purposive-marking. On the other hand, the meanings of *cho* in Vietnamese are as follows: (1) the basic meaning, (2) to put something in a container, (3) to give an opinion, (4) the dative-marking, (5) the benefactive-marking, (6) the malefactive-marking, (7) the causative-marking, and (8) purposive-marking. The semantic relations among the meanings are accounted for by means of metonymic and metaphoric processes.

**Keywords:** the verb of giving, metonymy, metaphor, Thai, Vietnamese

## 1. Introduction

The verb of giving has been extensively investigated across languages as evidenced by a large amount of research works such as Huang and Ahrens (1999), Bisang (1996), Iwasaki (1997), Newman (1993, 1996), Rangkupan (1997), Song (1997), Thepkanjana and Uehara (2008), Viberg (2002), Xu (1994), and Yap and Iwasaki (1998). The verb of giving in Thai and Vietnamese, namely, *hây* and *cho* respectively, will be examined contrastively in this study. Thai and Vietnamese have many properties in common; both are isolating and serializing languages with the SVO word order. Previous studies show that the verb of giving across languages has similar patterns of semantic extension. Therefore, it is worth investigating the range of similarities and differences in semantic properties exhibited by the verb of giving in two

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typologically similar languages in the same linguistic area. In this paper, I investigate the meanings of *hây* and *cho* and discuss the semantic relations among the meanings of *hây* and *cho*.

I first begin with a brief description of the typological characteristics of Thai and Vietnamese and the basic meanings of *hây* and *cho*. Then, I examine the similar and different extended meanings of these two words and the processes of semantic extensions. The next section presents the semantic network of *hây* and *cho*. Finally, a conclusion of the paper is presented.

## 2. Background

Thai is a language in the Tai branch of the Tai-Kadai family. Vietnamese is a language in the Viet-Muong branch of the Mon-Khmer sub-family, which is a part of the Austro-Asiatic family. Typologically, Thai and Vietnamese are isolating, tonal, topic prominent, serializing and verb-rich languages with SVO word order.

The basic meaning of the verb of giving in Thai and Vietnamese depicts the volitional transfer the possession or the control of a thing from an animate giver to an animate recipient. According to Newman (1996), the act of giving has a relatively rich structure as it typically involves three easily distinguishable entities: the GIVER, the RECIPIENT, and the THING being transferred. However, the typical act of giving something to someone is additionally complex in so far as three very distinct entities are involved and interact in particular ways. This act deals with the volitional transfer of possession or control of a thing, the physical interactions between the three entities, the movement of the thing to a new point, the recipient as the goal of the act, the and/or benefits resulting from the act etc.

The verbs *hây* and *cho* in the basic meaning must appear in the following syntactic pattern.

### Thai

(1) [Agent *hây* Theme (kàæ) Recipient]

(2) *Dææŋ hây ɲən kàæ Dam*  
Dang give money to Dam  
'Dang gave Dam some money'

(3) *Dææŋ hây ɲən sǒmchaay*  
Somsak give money Somchaay  
'Dang gave Dam some money'

### Vietnamese

(4) [Agent *cho* Recipient Theme]

(5) *Tôi cho nó hai cuốn sách*  
I give he two classifier book  
'I gave him two books.'

The verbs *hây* and *cho* exhibit the difference in word order in the syntactic pattern as seen in (1) and (4). The verb *hây* must be followed by the theme and the recipient preceded by the optional preposition *kàæ* respectively. Whereas the verb *cho* must be followed by the recipient and the theme respectively. According to

Haspelmath (2005), the constructions in which the verbs *hây* and *cho* appear with their basic meaning are called the indirect-object construction and the double-object construction which are the types of “ditransitive construction”. The verb *hây* is in both the indirect-object construction as in (2) and the double-object construction as in (3), whereas *cho* is in the double-object construction as in (5). Although exhibiting the double-object construction, the word order in which these two verbs appear is different.

### 3. The extended meanings of *hây* and *cho*

This section is divided into two parts: the extended meanings found in both *hây* and *cho*, and the extended meanings found in Vietnamese only. I will also discuss the process by means of which each meaning is derived.

#### 3.1 The extended meanings found in both *hây* and *cho*

In this part, I will investigate the extended meanings as found in *hây* and *cho*, namely, dative-marking, benefactive-marking, malefactive-marking, causative-marking, and purposive-marking.

##### 3.1.1 Dative-marking

The words *hây* and *cho* function as the dative marker indicating the recipient of a given thing. The words *hây* and *cho* appear with the transitive verbs which involve volitional manual manipulation of something such as the verbs corresponding to ‘send’, ‘return’, ‘hand in’, ‘present’, ‘sell’, ‘throw’, ‘grab’ etc. as illustrated below.

##### Thai

(6) *Dææŋ yǎn ɲən hây Dam*  
 Dang hand in money give Dam  
 ‘Dang handed some money to Dam.’

##### Vietnamese

(7) *Hoa gửi thư cho Lan*  
 Hoa send letter give Lan  
 ‘Hoa sent a letter to Lan.’

The words *hây* and *cho* exhibit the divergence in the extent of the co-occurring verbs in the dative-marking meaning. Both verbs can appear with different groups of verbs. According to Thepkanjana and Uehara (2008), *hây* can co-occur with the verbs denoting volitional physical motions which are carried out by different body parts on the human face such as *yím* ‘smile’, *yák khǐw* ‘raise one’s eyebrows’, and *lìw taa* ‘wink, look with one eye closed’ as illustrated in (8). These verbs can be either transitive or intransitive verbs.

(8) *sǒmsàk yím hây sǒmchaay*  
 Somsak smile give Somchaay  
 ‘Somsak smiled at Somchaay.’

The word *cho* can co-occur with the communicative verbs such verb as *gọi điện thoại* ‘to telephone’, *đánh điện* ‘to telegram’, and *nhắn* ‘to leave (a message)’ as illustrates in (9).

(9) *Tôi gọi điện thoại cho bố mẹ*  
 I telephone give father mother  
 ‘I called my parents.’

It is noted that the sentence (9) is ambiguous as it can be interpreted as the benefactive meaning. However, the native speakers of Vietnamese usually use *cho* with the communicative verbs to convey the dative-marking meaning. To express the benefactive meaning with this group of verbs, it tends to employ the word *giúp* or *hộ* ‘help’ or *thay mặt* ‘on behalf of someone’ with the word *cho*.

The dative-marking function extends from the basic meaning by means of metonymy which is currently playing a crucial role in cognitive linguistics. According to Kövecses (2002), metonymy is a cognitive process in which one conceptual entity, the vehicle, provides mental access to another conceptual entity, the target, within the same idealized cognitive model. Metonymy is therefore an important cognitive process consisting of the transfer of meaning based on associations between contiguous ideas in the same cognitive domain. It can give rise to a new primary meaning of a word which used to be a covert element in the original meaning of the word. For the case of the dative-marking, the recipient which is a covert element in the basic meaning is highlighted by the metonymic process as a new primary meaning of *hãy* and *cho*. There is evidence supported this extension, that is, the crosslinguistic grammaticalization path of GIVE postulated by Heine and Kuteva (2002).

### 3.1.2 Benefactive-marking

The act of giving typically brings about a benefit or a good effect to the recipient which is prototypical of the action of giving. The benefactive meaning results by means of metonymy from promoting the beneficiary role of the recipient, which is a covert element of the semantic structure of GIVE.. The examples illustrated as below.

#### Thai

(10) *Dææŋ tham aahǎan hây Dam*  
 Dang make food give Dam  
 ‘Dang cooked (food) for Dam.’

#### Vietnamese

(11) *Liên xây nhà cho Lan*  
 Lien build house give Lan  
 ‘Lien built a house for Lan.’

Typically, the beneficiary is an animate entity especially a human being. This fact includes the word *hãy* in Thai but it is an exceptional case to *cho* in Vietnamese. The beneficiary in Vietnamese can extend to cover inanimate entities, which is considered a peripheral case as shown in (12) and (13).

(12) *Bố mua lốp mới cho chiếc xe cũ*  
 father buy tyre new give classifier car old  
 ‘Father bought a new tyre for the old car.’

- (13) *Anh ấy để dành tiền cho tương lai*  
 He save money give future  
 ‘He saved money for the future.’

The sentences (12) and (13) show that the noun phrases *xe cũ* ‘old car’ and *tương lai* ‘future’ are figuratively viewed as the entities benefiting from the actions of buying a new tyre and saving money, respectively.

There are two more peripheral cases of the benefactive *cho*. The first case is that *cho* appears in sentences with stative verbs as the syntactic pattern described in (14) and exemplified in (15).

- (14) [NP1 stative verb (NP2) *cho* NP3]

- (15) *Vì tính có ích cho nhiều người*  
 Computer have benefit give plural people  
 ‘Computers are useful for a large number of people.’

The latter peripheral case is that *cho* appears in isolated noun phrases, or in other words, non-sentences as described in (16) and shown in (17)

- (16) [NP1 *cho* NP2]

- (17) *Tiếng Việt cho người nước ngoài*  
 language Vietnam give people country outside  
 ‘Vietnamese for foreigners.’

These peripheral cases of the benefactive *cho* are argued to have the semantic role as the target rather than the benefactive. Since the target and benefactive roles share some semantic properties. I therefore count them in the same category with a remark about their prototypical and peripheral statuses as the benefactive entity.

### 3.1.3 Malefactive-marking

The act of giving brings about not only a benefit or a good effect as in the case of the benefactive but also a bad effect to the recipient. The case for a bad effect is called the malefactive. The malefactive *hãy* and *cho* typically co-occur with the group of verbs expressing harmful actions such as the verbs corresponding to ‘punch’, ‘slap’, ‘kick’, ‘scold’, ‘hit’, ‘bite’ as shown in (18) and (19).

#### Thai

- (18) *raway khǎw cǎ? dǎa hǎy*  
 be careful he will scold give  
 ‘Be careful. He might scold you.’

#### Vietnamese

- (19) *Đừng chọc con chó. Nó cắn cho đấy*  
 do not bully classifier dog it bite give particle  
 ‘Do not bully the dog. It might bite you (and have a bad effect on you.)’

As in the case of the benefactive-marking, the malefactive-marking is derived by means of metonymy from the benefactive meaning. The person who receives a bad effect from an action carried out by an agent, which is a covert element or contiguous to a good effect of an action of giving, is promoted as a new primary meaning of the word *hãy* and *cho*.

### 3.1.4 Causative-marking

The word *hây* and *cho* can function as a causative verb marking an indirect causation in the analytic causative construction. In indirect causation, the causer lets, or does not prevent, the causer from accomplishing the caused event; the causer does not bring about the caused event directly (Suthatip and Kingkarn, to appear). Sentences (20) and (21) exemplify the causative-marking of *hây* and *cho*.

#### Thai

- (20) *Dææŋ hây Dam yîn khîn*  
Dang give Dam stand go up  
'Dang let Dam stand up.' or  
'Dang had Dam stand up.'

#### Vietnamese

- (21) *Chị cho tôi mượn cái kéo*  
you (f) give I borrow classifier scissors  
'You(f) let me borrow the scissors.'

It is noted that the causative-marking in Thai and Vietnamese typically conveys a permissive interpretation rather than a coercive interpretation. However, it is likely to convey the coercive meaning, which depends on a conversational context and a real-world knowledge of the speakers.

The causative verb *cho* in Vietnamese constitutes an interesting case from a typological perspective because it can co-occur with the verbs *biết* 'to know', *thấy* 'to see' and *đến* or *tới* 'to arrive' in the causative construction. Whereas the similar concepts are expressed by single verbs in Thai as discussed below.

The first combination which is the causative *cho* and the verb *biết* 'to know' in the causative construction literally expresses the indirect causative meaning of letting somebody know something as exemplified in (22). This meaning is realized as single verbs in Thai such as *bòk* 'to tell' and *cææŋ* 'to inform'. It is found that the causee is optional in the causative construction of *cho biết* 'let know'.

- (22) *Tôi cho anh Nam biết ngày mai tôi cưới vợ*  
I give brother Nam know tomorrow I get married  
'I told Brother Nam (let Brother Nam know) that I will get married tomorrow.'

The second combination which is the causative *cho* and the verb *thấy* 'to see' in the causative construction literally expresses the meaning of letting someone see something as in (23). This meaning is realized by single verbs in Thai such as *sədææŋ* 'to show'. It is common that the causee is not present in the causative construction of *cho thấy* 'let see'.

- (23) *Điều này cho thấy tiếng Anh rất quan trọng*  
thing this give see language English much important  
'This thing shows (lets see) that English is very important.'

The last combination which is the causative *cho* and the verb *đến* or *tới* 'to arrive' literally means to let (time) proceed until a certain point in time. The causing event is to let time proceed and the caused event is that time has reached a certain point. This causative meaning is equivalent to the preposition *conkrathǎŋ* 'until' in Thai.

The noun phrases co-occurring with the causative *cho đến* must correspond to time only. Sentence (24) illustrates this causative construction.

- (24) *Khu nhà chúng tôi sống hết sức êm đềm,*  
 surrounding area house we live extremely peaceful  
*hầu như chưa xảy ra sự cố gì cho tới hôm nay*  
 almost not yet happen problem what give arrive day this  
 ‘The surrounding area of the house where we live is very peaceful.  
 There has never been any problems up until now.’

Suthatip and Kingkarn (To appear) suggest the reason for the lack of the causee in the causative verb *cho* and another verb indicating the caused event as described above is that the causative constructions are now on the way to become lexicalized phrases expressing single concepts of telling, showing and until.

The causative-marking of *hây* and *cho* are derived by means of a metaphoric process from the basic meaning. The metaphoric process is a cognitive process involving the understanding an entity in an abstract domain in terms of an entity in a concrete domain. The transfer of possession or control of an entity from the giver to the recipient, which is the basic sense of the act of giving, metaphorically extends to the transfer of control of an action from the causer to the causee. The situation in which the causer lets the causee perform an action is equivalent to the transfer of control of an action from the causer to the causee, which is in turn metaphorically viewed as the transfer of possession or control of an entity.

### 3.1.5 Purposive-marking

The words *hây* and *cho* can function as the connector, appearing between two verbs, indicating a purpose in carrying out an action. The meaning that *hây* and *cho* conveys here is a purposive-marking meaning. Newman (1996) treats the purposive construction as a biclausal construction in which, the action of the first clause is done in order that the action or event of the second clause may take place. However, the second event does not necessarily take place because it merely represents the purpose of the agent in the first clause in performing the action. The purposive-marking sentences are exemplified in (25) and (26).

#### Thai

- (25) Dææŋ bòk hây Dam tham kaanbân  
 Dang tell give Dam make homework  
 ‘Dang told Dam to do homework.’

#### Vietnamese

- (26) *Em sẽ hát cho anh nghe*  
 I will sing give you listen  
 ‘I will sing for you to listen.’

The minor differences exhibited in the purposive-marking are concerned with the types of verbs in the first clause. From the data, It is found that *hây* in Thai can co-occur with a wide range of verb types as opposed to *cho* in Vietnamese. Therefore, it can be said that *hây* exhibits the productivity in the purposive meaning whereas with *cho*, the occurrence is more restricted.

Both *hây* and *cho* can co-occur with the communicative verbs such as the verbs corresponding to ‘persuade’, ‘ask for’, ‘command’, ‘request’, ‘tell’ in the first clause in the jussive constructions which is identified by Rangkupan (1997) but in Vietnamese, it is preferable for the use of this kind of verbs without *cho*. The sentence (27) illustrates the jussive constructions with *hây* and (28) exemplifies the jussive one with *cho*, which is optional.

- (27) *Dææŋ bðk hây Dam maa*  
 Dang tell give Dam come  
 ‘Dang told Dam to come.’
- (28) *Chị ấy bảo (cho) anh ấy mở cửa*  
 she tell (give) he open door  
 ‘She told him to open the door.’

*Hây* can be preceded by the verbs expressing desire such as *yàak* ‘want’, *tŋkkaan* ‘want’, and *pràatthanăa* ‘desire’. The construction in which *hây* appears with the verbs of desire is called the complementation constructions by Rangkupan (1997). The sentence (27) illustrates the complementation constructions with *hây*.

- (27) *sŏmsàk yàak hây sŏmchaay maa hăa*  
 Somsak want give Somchaay come see  
 ‘Somsak wanted Somchaay to come.’

The purposive-marking meaning of the words *hây* and *cho* are derived from the causative-marking meaning by means of metonymy. Support for this extension is found crosslinguistically in evidences by Yap and Iwasaki (1998) and Thepkanjana and Uehara (2008). The volition of the causer in doing something to the causee so that the causee will perform another event, which is contiguous to the causative-marking meaning is promoted to be a primary meaning.

### 3.2 *The extended meaning as found in Vietnamese only*

In this part, I will investigate the extended meanings which are found in Vietnamese but are missing in Thai. The extended meanings are lexical meanings, namely, to supply or to put something in a container and to give an opinion.

#### 3.2.1 *To supply or to put something in a container*

*Cho* can function as a verb conveying the act of supply or put something into a container as exemplified below.

- (28) *Mẹ cho than vào lò*  
 mother give charcoal enter stove  
 ‘Mother put the charcoal in the stove.’

The verb *cho* is followed by two noun phrases indicating the entity in motion and the container respectively. It is noted that the verb *cho* must co-occur with the word ‘*vào*’ in case of the occurrence of the container. If not, there must be no container.

The metonymic process plays a role in promoting a covert meaning from the basic meaning to a new primary meaning. The new primary meaning focuses on the motion of the theme. The notion of recipient in a giving action extends to that of the container in a moving action. The recipient and the container notions share a semantic property in that both function as the goal of the giving and the moving actions.

### 3.2.2 To give an opinion

*Cho* can function as a verb meaning to give an opinion which occurs in combination with *rằng* or *là* which functions as a complementizer and is followed by a clause. It is importantly noted that the subject of the verb *cho* must be human and there is no a direct object following it as illustrated in (29).

(29) *Tôi cho rằng quyển sách này sẽ bán rất chạy*  
 I give COMP classifier book this will sell much run  
 ‘I suppose that this book will sell very well.’

According to Suthatip and Kingkarn (to appear), the meaning of giving an opinion is derived metaphorically from the basic action of giving. The transfer of possession or control of an entity is metaphorically mapped to the action of transferring an opinion from the speaker to the listener. The thing given is mapped to the opinion or message that the speaker wants to convey to the hearer.

## 4. The semantic network

This section presents a semantic network of the verb of giving in Thai and Vietnamese. The multiple meanings of the verb of giving can be exhibited in terms of a schema. The schema exhibits the relationship between the meanings: which meaning is a basic meaning and which meanings are closely related?

The semantic networks of the verb of giving in Thai and Vietnamese are different (see figure 1 and 2) in terms of the number of meanings as *hãy* consists of six meanings which are identified as a grammatical meaning, whereas *cho* consists of eight meanings which are both grammatical and lexical meanings. But if we consider the meaning extension, it is seen that the schemas exhibit the same extension. There are two extended meanings from the basic meaning which are the dative meaning and the causative meaning. The benefactive meaning is closely related to the dative meaning because of the derivation from the dative meaning. This claim for the extended benefactive is different from the claim by Heine and Kuteva (2002) in which the benefactive extends from the basic meaning. I propose that the dative is more basic than the benefactive because the dative includes both the recipient and the beneficiary readings and it incorporates with the verbs of manual manipulation only. While the benefactive can be interpreted as the benefactive only and it incorporates with any verb types. The malefactive meaning is derived from the benefactive meaning and this is the reason why these two meanings are closely related. The purposive meaning extends from the causative meaning. If the first verb functioning as a main verb in the purposive sentence is deleted, the sentence will have the same structure as the causative and

constitute the causative reading. This can tell us why the causative and the purposive are closely related.

It is importantly noted that these two schemas don't imply any chronological extension of *hây* and *cho* due to this work is synchronically studied. They present the relationship between meanings only.

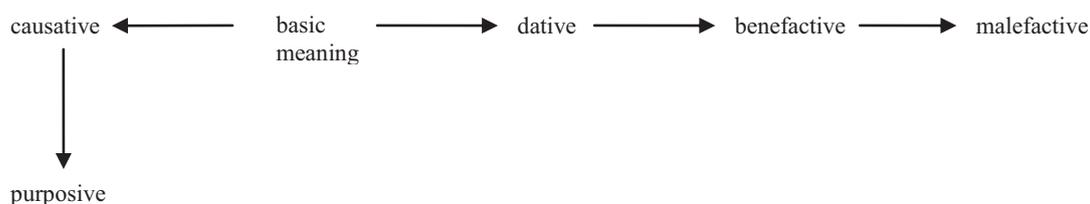


Figure 1: the semantic network of *hây*

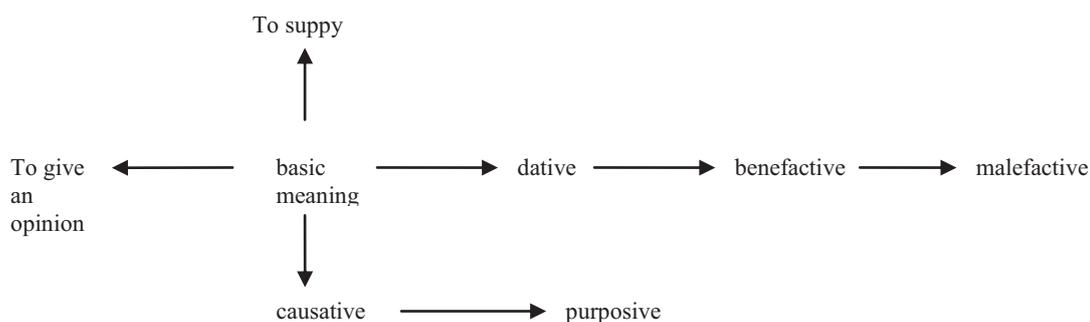


Figure 2: the semantic network of *cho*

## 5. Conclusion

In this paper, I have examined the extended meanings of the verb of giving in Thai and Vietnamese, namely, *hây* and *cho*. The extended meanings found in both Thai and Vietnamese are as follows: (1) the basic meaning of an action of possession transfer, (2) the dative-marking, (3) the benefactive-marking, (4) the malefactive-marking, (5) the causative-marking, and (6) purposive-marking. On the other hand, the extended meanings found exclusively in Vietnamese are as follows: (1) to put something in a container, and (2) to give an opinion. It seems that *hây* and *cho* exhibit more similarities than differences in meanings. Regarding the differences between these two words, it is found that *cho* has more lexical extended meanings than *hây*. In other words, almost all extended meanings of *hây* are grammatical rather than lexical. From a crosslinguistic point of view, the Vietnamese verb of giving is unique in that many lexical meanings are derived from the basic meaning, a feature which is not found in most languages. These two words in Thai and Vietnamese also exhibit minor differences within certain functional categories. These minor differences are concerned

with the scope of meaning of each functional category and the type of word that co-occurs with the verb of giving in each functional category. The semantic extensions of *hây* and *cho* are accounted for by means of metonymic and metaphoric processes. However, it is found that metonymic processes play a more crucial role in deriving extended meanings of the verb of giving in both languages. The findings show that Vietnamese exhibits more variations and employs the verb of giving in more dynamic and flexible way than Thai.

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# When Two Kinds of Mandarin Collective Modifiers Meet Two Kinds of Control

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## Abstract

This passage mainly discusses the relationship between the collective reading and two Mandarin collective modifiers: *yiqi* and *gongtong*. Conclusively, we maintain that *gongtong* is the strict part-structure modifier inducing the essential collective reading while the collective reading *yiqi* induces is a dynamic reading derived from the temporal-spatio proximity. With inquiring *yiqi* and *gongtong*, the definition of the collective reading and the ways which it is derived from and concepts about groups will be peered in a brand new way.

**Keywords:** group, the collective reading, the temporal-spatio proximity, integrated wholes, part-whole structure.

## 1. Motivation and literature review

### 1.1 Data

When it comes to the Mandarin collective modifiers<sup>1</sup>, two dominating ones: *yiqi* and *gongtong*, considered to be counterparts of English *together*, are viewed as lexical items displaying the collectivizing force as shown in (1) and (2).

(1) *Zhangsan han Lisi zhuchi huiyi* (mix reading)

Zhangsa and Lisi hold meeting

“Zhangsa and Lisi held the meeting”

(2) *Zhangsan han Lisi yiqi/gongtong zhuchi huiyi* (only collective reading left)

Zhangsa and Lisi together/jointly hold meeting

“Zhangsa and Lisi together/jointly held the meeting.”

However, examples (3)-(6) serve as strong evidences supporting that *yiqi* and *gongtong* are distinct from each other.

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- (3) Jean<sub>1</sub> wondered **【whether PRO<sub>1+</sub> to apply together for the grant】** (PC)
- (4) Jean<sub>1</sub> invited Mary<sub>2</sub> **【 PRO<sub>1+2</sub> to go to Taipei together】** (EC)
- (5) Zhangsan<sub>1</sub> tiyi Lisi<sub>2</sub> **【PRO<sub>2+</sub> yiqi/\*gongtong zhuchi huiyi】** (PC)  
 Zhangsan propose Lisi together/\*jointly hold meeting.  
 “Zhangsan proposed Lisi to hold the meeting together.”
- (6) Zhangsan<sub>1</sub> tiyi Lisi<sub>2</sub> han Wangwu<sub>3</sub> **【PRO<sub>2+3</sub> yiqi/gongtong zhuchi huiyi】** (EC)  
 Zhangsan propose Lisi with Wangwu together/jointly hold meeting.  
 “Zhangsan proposed Lisi and Wangwu to held the meeting together.”

Clearly, examples (3)-(6) illustrate that English *together* and Mandarin *yiqi* allow two kinds of constructions: Partial Control (PC) and Exhaustive Control (EC), while *gongtong* only allows EC (Landau (1999, 2003), Chuang 2008). Thus, here rises a question: why *yiqi* allows PC and EC both while *gongtong* only allows EC? This question ignites our curiosity about *yiqi* and *gongtong* and we believe that, with digging this question, we can appreciate concepts related to groups and the collective reading with a brand new perspective.

#### *Literature review*

To uncover the distinctions between *yiqi* and *gongtong*, Kuo (2006a,b,c and 2007), following Moltamn’s integrity theory (1997, 2004), argues that *yiqi* and *gongtong* are both part-structure modifiers requiring their arguments to have the property integrated-whole (INT-WH). He further proposes that *yiqi* is the most neutral one, presenting four readings of the adverbial *together*: the group-action, the coordinated-action, the spatio and the temporal proximity reading (Lasersohn 1990, Moltamn 2004), but *gongtong* only expresses the coordinated-action reading. The following sentences represent diverse readings of *yiqi* and the cooperative reading of *gongtong*.

- (7) Zhangsan han Lisi yiqi zai shudian gongzuo. (the coordinated-action reading)  
 Zhangsan and Lisi together in bookstore work.  
 Zhangsan and Lisi work together in a bookstore.
- (8) Zhangsan han Lisi yiqi tai zhejia gangqin shanglou. (the collective-action reading)  
 Zhangsan and Lisi together lift this piano upstairs  
 Zhangsan and Lisi lifted this piano upstairs together.
- (9) Zhangsan han Lisi yiqi chifan han shuijue. (the spatial-temporal proximity reading)  
 Zhangsan and Lisi together dine and sleep  
 Zhangsan and Lisi together dine and sleep.

Although Kuo achieves in preliminary observation, his theory has two defects. Firstly, as shown in (10), *gongtong* indeed exhibits a group-denoting use, a use that cannot be obtained in Kuo's theory.

(10) *ouzhou-gongtong-ti*  
‘European Community’

Secondly, as illustrated in (11) and (12), Kuo cannot provide answers to a cardinal question: why *gongtong* has the adnominal use, but *yiqi* does not.

(11) *ouzhou-gongtong-ti* ‘European Community’  
(12) \**ouzhou-yiqi-ti* ‘European Community’

Thus, to get rid of the defects which Kuo's theory has encountered, in the following, based on Moltmann's theory and some of Kuo's finding, we will provide our analysis on *yiqi* and *gongtong*.

## **2. The Mandarin modifier *yiqi* and the temporal and spatial proximity**

### *2.1 The interaction between the collective reading and the temporal-spatial proximity*

Unlike Kuo's analysis of *yiqi*, we suggest that *yiqi* is a modifier focusing on the temporal or spatial proximity use in essence. Put further, the coordinated-action reading or the collective-action reading induced by *yiqi* is nothing but an extension of the temporal or spatial proximity of action or activities by participants. Our analysis is grounded by the phenomenon that most cases of the collective or group reading get company with the temporal or spatial proximity of actions and activities, which are usually physically required to realize the collective reading. However, we have to bear in mind that the temporal-spatial proximity is neither a sufficient condition, nor a necessary one for the collective reading.

In addition to the association of the collective reading and the temporal-spatial proximity, the ideas of Lasnik (1990) and Kemmer (1993) about the collective reading also reinforce our stance. To explain why the collective reading and the temporal and spatial proximity uses are conveyed by the same lexical item *together*, Lasnik provides a possible answer to this question as shown below:

Perhaps this [the ambiguity of *together*] is simply because the most salient sorts of event play out in a particular area, at a particular time. Perhaps it is also due

partly to the fact that many types of collective action require their participants to be spatially near each other and to act at the same time.

(Lasersohn 1990: 204)

The above paragraph suggests that group action or coordinated action is closely and physically related to temporal or spatial proximity. Therefore, this implies that the collective reading, to some extent, is based on the temporal and spatial proximity of actions or activities of participants.

In addition, the mixture reading and the configuration reading of the adnominal *together* provided by Moltmann (2004) is another sort of evidence supporting our analysis of *yiqi*. Consider (13)-(16) shown below:

- (13) The vinegar and the wine together tasted terrible.
- (14) The pictures together look nice.
- (15) John and Mary together are a nice sight.
- (16) John and Mary together form an interesting couple.

The NP arguments modified by *together*, like the mixture of the vinegar and the wine in (13), and the spatial configuration consisted of the individual pictures in (14), or the perfect couple by John and Mary in (15) and (16), they all become integrated wholes or groups by the spatial or social approximation. In other words, the integrity of (13)-(16) is formed by the spatial or social closeness between entities or individuals. Examples (13)-(16) imply that the integrity modified by *together* can be formed via the spatial and social closeness of entities.

## 2.2 Another piece of evidence: the postverbal *yiqi*

In Lasersohn (1990) and Moltmann (1997, 2004), the postverbal *together* is said to only express the spatial proximity use. For example, *together* in the sentence *John and Mary sat together* only has the spatial proximity use and no other use is available. Such phenomenon is also observed in Mandarin *yiqi*. Consider examples (17)-(19).

- (17) *Zhangsan han Lisi yiqi beiguan.*  
Zhangsan and Lisi together jailed  
“Zhangsan and Lisi together are jailed.”
- (18) *Zhangsan han Lisi beiguan yiqi.*  
Zhangsan and Lisi jailed together  
“Zhangsan and Lisi are jailed together.”

- (19) *Qing bang wo ba hongcha han lucha bao yiqi.*  
 Please help we BA black tea and green tea package together  
 “Please package my black tea and green tea together.”

In Mandarin, the postverbal *yiqi* is widely and frequently used to indicate the spatial proximity. For example, (17) points out that Zhangsan and Lisi are jailed at the same time, but **not** necessarily in the same room. In (18), however, it is necessary for *Zhangsan* and *Lisi* to be jailed in the same room.

However, such postverbal *yiqi* can express an iconic kind of group reading extended from the spatial proximity. Consider examples (17) and (18).

- (20) *Zhangsan han Xiaomei shi yiqi DE<sub>mod</sub>.*  
 Zhangsan and Xiaomei be together DE<sub>mod</sub>  
 “Zhangsan and Xiaomei are together.”
- (21) *Chaersi wangzi han Kamila zai yiqi de xiaoxi zhenjing le quan Yingguo.*  
 Chaersi Prince and Kamila at together DE<sub>mod</sub> news shock ASP entire English  
 “The news that Prince Charles and Camille are together shocked UK.”

Intuitively, (20) does not mean that *Zhangsan* and *Xiaomei* are in the same place, but indicates that *Zhangsan* and *Xiaomei* are a couple. Such explanation also applies on (21). Example (21) states that the company ship of Charles and Camille shocks UK. Apparently, *Zhangsan* and *Xiaomei* in (20), and, Prince Charles and Camille in (21), form groups with a much closed relationship. The postverbal *yiqi* in (20) and (21) is used to point out iconic groups which consist of individuals with (social) closed relationship. According to examples (17)-(21), the postverbal *yiqi* expresses the spatial proximity use and the iconic group use. Therefore, the postverbal *yiqi* introduces the spatial proximity and social iconic groups extended from the abstract spatial approximation and closeness. Based on the postverbal *yiqi*, the assumption that *yiqi* only concerns the temporal or spatial proximity in essence is confirmed.

### 2.3 distinctions between *yiqi* and *gongtong*

Besides the postverbal *yiqi*, the contrast between the modifier *yiqi* and the adnominal *gongtong* is the most persuasive evidence supporting our analysis. Consider examples (22) and (23).

- (22) *Ouzhou-gongtong-ti*  
 Europe together community

- “European Community”  
 (23) \**Ouzhou-yiqi-ti*  
 Europe together community  
 “European Community”

Example (22) is the term that denotes the well-known financial group, European Community. When *gongtong* is replaced by *yiqi*, the term shown in (23) is excluded. Such ungrammaticality results from the inability of *yiqi* to be an adnominal modifier. More pieces of evidence of the inability of *yiqi* to be adnominal are given in (24) and (25).

- (24) *gongtong de mengxiang*  
 together DE<sub>mod</sub> dream  
 “a sharing dream”  
 (25) \**yiqi de mengxiang*  
 together DE<sub>mod</sub> dream  
 “a together dream”

The grammatical (24) and the ungrammatical (25) are noun phrases which contain an adnominal modifier, a modification marker *de*, and a head noun. The excluded example (24) indicates that the modifier *yiqi* cannot be adnominal. Here arises a question: why can *gongtong* be used adnominally, but *yiqi* cannot? If *yiqi* is indeed a collective reading marker, it should be able to introduce atomic group elements as well as the adnominal *gongtong*. However, obviously, the ungrammatical examples (23) and (25) point out that *yiqi* cannot be adnominal and cannot introduce atomic group elements like the adnominal *gongtong*.

Therefore, we propose that *gongtong* is a strict part-structure modifier, concerns the group or collective reading without regarding the temporal or spatial proximity of actions or activities, but *yiqi* cannot introduce group elements like that. The ungrammaticality of (23) and (25) indicates that a group element induced by *yiqi* has to consider possibilities of the temporal or spatial proximity. When such possibility is impossible or hard to come by, *yiqi* would fail in introducing groups. Example (26) is another piece of evidence positively verifies our analysis.

- (26) *Zhangsan han Lisi yiqi zai shudian gongzuo.*  
 Zhangsan and Lisi together in a bookstore work  
 “Zhangsan and Lisi work together in a bookstore.”

The most dominating and natural reading of (26) is the collective reading, indicating that *Zhangsan* and *Lisi* form an integrated-whole or a group by being employees of a bookstore. However, note that a bookstore in (26) is existentially closed and refers to a specific bookstore. What really suffices the collective reading in (26) is the spatial proximity of Zhangsan's and Lisi's working events. When a bookstore is not existentially closed and denotes two different bookstores varying with agents, i.e. Zhangsan and Lisi, the collective reading would fail, which induces the distributive reading later. Therefore, (26) manifests a fact that the collective reading induced by *yiqi* can not but respect the temporal or spatial proximity of actions or activities, even though such temporal and spatial proximity are not relevant in situations.

To sum up, the discussion so far has stated that the modifier *yiqi* is a part-structure modifier, which essentially focuses on the temporal or spatial proximity uses. Consequently, the collective-action or coordinated-action use induced by *yiqi* is merely an extension from the temporal or spatial proximity of activities or actions.

Based on the formulae of Moltmann (1997, 2004) and Kuo (2007), the following is my formula of *yiqi*.

- (a) For any world  $w$  and time  $t$ , and an intensional relation  $R$  which expresses time or space where events and states occur or hold:

$$[[YIQI]^{w,t}(R)=\{ \langle d,e \rangle | \langle d,e \rangle \in R^{w,t} \& \langle d,f_e \rangle \text{ InT-WH} \} YweQwe^{w,t} \}$$

### 3. The Mandarin modifier *gongtong* and the strict collective reading

#### 3.1 Is it possible for the adverb *gongtong* to exhibit the collective reading?

Kuo (2007) argues that the agent-oriented modifier *gongtong* requires its focused element to be plural and *gongtong* cannot co-occur with inherent distributive predicates and with predicates expressing an action. As a result, the modifier *gongtong* cannot express the temporal and spatial proximity uses and the collective-action use, but just marks the coordinated-action use. His analysis is grounded by examples (27) and (28).

(27) *Laoban han yuangong yiqi chuangye.*

Boss and employees together start an enterprise

“The boss and the employees start an enterprise together.”

(28) *Laoban han yuangong gongtong chuangye.*

Boss and employees together start an enterprise  
“The boss and the employees together start an enterprise.”

Example (27) is vague between the temporal proximity use and the collectivizing use, while in (28), the boss and the employee just started their enterprise cooperatively. Kuo’s argumentation is also well-motivated by the unacceptable collocation between inherent distributive predicates and *gongtong*. Consider (29)-(32).

(29) *Zhangsan han Lisi yiqi shuijue.*

Zhangsan and Lisi together sleep  
Zhangsan and Lisi sleep together.

(30) \**Zhangsan han Lisi gongtong shuijue.*

Zhangsan and Lisi together sleep  
Zhangsan and Lisi sleep together.

(31) *Zhangsan han Lisi yiqi qili.*

Zhangsan and Lisi together stand up  
Zhangsan and Lisi stand up together.

(32) \**Zhangsan han Lisi gongtong qili.*

Zhangsan and Lisi together stand up  
Zhangsan and Lisi stand up together.

Examples (30) and (32) are excluded because *sleep* and *stand up* are inherent distributive predicates which cannot be participated in by any others and cannot co-occur with *gongtong*.

However, it is questionable that the modifier *gongtong* cannot exhibit the collective-action use. Consider examples (33) and (34) as shown in the following:

(33) *Apple han Microsoft yiqi xuanbu wei Eee PC kaifa Windows zuoyexitong.*

Apple and Microsoft together declare for Eee PC develop Windows system  
Apple and Microsoft together declared to develop Windows system for Eee PC.

(34) *Apple han Microsoft gongtong xuanbu wei Eee PC kaifa Windows zuoyexitong.*

Apple and Microsoft together declare for Eee PC develop Windows system  
Apple and Microsoft together declared to develop Windows system for Eee PC.

In our world knowledge, Apple and Microsoft are always competitors. In (33), intuitively, Apple and Microsoft are competitors in developing Windows system for Eee PC. We cannot get any collective-action use or coordinated-action use in (33)

because *yiqi* in (33) induces the temporal proximity reading, not a collective one, which matches our world knowledge. Contrary to (33), (34) illustrates that Apple and Microsoft, as a group, will develop Windows system for Eee PC. Under such condition, only one system for Eee PC would be produced by Apple and Microsoft. Thus, (34) indeed expresses the collective-action use and further indicates that *gongtong* can accompany the collective reading. Examples (33) and (34) indicate that *yiqi* cannot break our world knowledge to further induce the collective-action use or the coordinated-action use, but *gongtong* can.

### 3.2 *The incompatibility between inherent distributive predicates and gongtong*

Furthermore, as observed by Kuo (2007), the adverb *gongtong* cannot co-occur with inherent distributive predicates. We argue that such incompatibility accounts for Lasersohn's notion of the collective reading. Lasersohn (1990) argues that, often in a collective reading, we do not require that individuals of a group directly involve in the action, but we indeed require that such individuals of a group do share the collective responsibility of that action. For example, in this sentence *the soldiers killed their rivals*, the individual soldiers are indeed co-responsible for the killing even though there may be some soldiers which do not perform any actual killing. In sum, what suffices the collective reading is the collective responsibility shared by members of a group, not the temporal-spatio proximity of action and activities.

Note that inherent distributive predicates denote actions or activities of atomic individuals, not of sum of individuals or a group. Hence, the collective responsibility is unavailable and impossible for inherent distributive predicates. For example, the inherent distributive predicate, *sleep*, is an action performed by an individual and only that individual can take responsibility of the sleeping. Therefore, the collective reading *gongtong* induces conflicts the semantic content of inherent distributive predicates because no collective responsibility is available in inherent distributive predicates. Such confliction between *gongtong* and inherent distributive predicates strengthens our analysis that the adverb *gongtong* indeed introduces the collective-action or coordinated-action use.

Besides, defining *gongtong* as an agent-oriented part-structure modifier cannot explain the grammaticality of (35). Consider (35) shown below:

- (35) *Zhangsan han Lisi gongtong bei panchu jiaoxing.*  
Zhangsan and Lisi together PASS sentence hang  
Zhangsan and Lisi together are sentenced to be hung.

Example (35) reports that *Zhangsan* and *Lisi* are patients or themes, not agents, which are sentenced to be hung for their crimes. Following Kuo's analysis, (35) should be excluded because the plural subjects are not agents, but themes or patients. However, the grammaticality of (35) suggests that *gongtong* is not the agent-oriented modifier.

To sum up, *gongtong* is not limited to an agent-oriented part-structure modifier and, just like *yiqi*, it can introduce the collective-action reading certainly.

### 3.3 Groups on NP

Also, group-denoting and entity-denoting compounds with *gongtong* positively verify our analysis. Such kinds of compounds usually consist of nouns and the adnominal *gongtong*. Consider examples (36) and (37).

(36) *ouzhou-gongtong-ti*

European Community

European Community

(37) *gongtong-zhanghu*

joint account

joint account

Examples (36) and (37) are compounds denoting a group and an atomic element, respectively. In (36), *ouzhou-gongtong-ti* is the term of the well-known financial organization, European Community; in (37), a joint account is interpreted literally as *an* account shared by more than one user. With (36) and (37), it is relevant that the adnominal *gongtong* is used to mark atomic groups and entities. Thus, undoubtedly, the modifier *gongtong* can induce the collective-action use.

Based on examples (33)-(37), we suggest that *gongtong* functions as a strict part-structure modifier, establishing the integrity via property-overlapping and responsibility-sharing. More evidence supporting our analysis is presented below:

(38) *Zhangsan han Lisi de gongtong xingqu shi kanchezhan.*

Zhangsan and Lisi DE<sub>poss</sub> common hobby is watch auto-show

Zhangsan's and Lisi's common hobby is watching auto-show.

(39) *Zhangsan han Lisi de gongtong mubiao shi goujin yitai paoche.*

Zhangsan and Lisi DE<sub>poss</sub> common goal is buy a sports car

Zhangsan's and Lisi's common goal is to buy a sports car.

In (38) and (39), *Zhangsan* and *Lisi* are perceived as a group or an integrated-whole by their common hobby and common goal: watching auto-show and buying a sports car. In fact, the lexical items, *hobby* and *goal*, express two sets of properties of individuals, respectively. Take *hobby* for example. One is said to have hobbies when doing something joyfully delights him. We can say that Zhangsan likes gardening, riding and watching auto-show, and gardening, riding and watching auto-show are Zhangsan's hobbies. What Zhangsan likes are informative to properties of Zhangsan. Therefore, the lexical item *hobby* would denote a set of properties of an individual. Thus, as shown in (38) and (39), the adnominal *gongtong* quantifies over NPs, *hobby* and *goal*, which are two sets of properties of individuals.

The argumentation that *gongtong* quantifies over properties of plural individuals or entities is further reinforced by inherent properties of individuals or entities. Consider examples (53) below:

(40) *sida mingmo de gongtong tese shi meili ji youfu hao shencai.*

Four famous models DE<sub>poss</sub> common features is beauty and having a good shape  
The common features of these four famous models are pretty and having a good shape.

In (40), the adnominal *gongtong* modifies the head noun *tese* 'features', which denotes sets of properties of individuals or entities. More specifically, when we say someone possesses some good features, such as kindness, friendly, or being wise, which are properties almost permanent, not temporary in his life, we just talk about the individual-level features. Therefore, the modifier *gongtong* indeed quantifies over properties of individuals because *gongtong* can modify the head noun *tese*.

Again, take the example (53) into consideration. In (53), the plural subjects, *four famous models* form an integrated whole or a group by their overlapping properties: *beauty* and *having a good shape*. These overlapping properties are inherently individual because they are individual-level predicates which are true throughout the existence of individuals. Therefore, we can conclude that *gongtong* can establish the integrity via property-overlapping and responsibility-sharing. The following are the formula of the part-structure modifier *gongtong*.

(a) For any world  $w$  and time  $t$ , and intensional relation  $R$  which concerns properties of individuals or entities.

$$[[\text{GONGTONG}]]^{w,t}(R) = \{ \langle d, e \rangle \mid \langle d, e \rangle \in R^{w,t} \ \& \ \langle d, f_e, \text{INT-WH} \rangle \text{GONGTONG}^{w,t} \}$$

### 3.4 Answers to the impossibility for *yiqi* to be adnominal and control problems

Return to the question that *yiqi* cannot be used adnominally. Based on our analysis, stating that *yiqi* mainly and essentially establishes the integrity via the time and space dimensions, the integrity induction will be crumpled when groups or integrated wholes are not formed through the temporal or spatio proximity. Thus, the adnominal use of *yiqi*, which is unrelated to time and space of action or activities, is hard to come by.

Back to the control problems we have encountered in the beginning of this passage: English *together* and Mandarin *yiqi* allow both PC and EC while Mandarin *gongtong* only allows EC. We propose that such distinction results from different positions where *yiqi*'s and *gongtong*'s arguments stay in. Generally speaking, phrases that indicate time and space often merge into or move to nodes in high positions, such as IP, CP, or even across the boundary of sentences. That is, the information of time and space can be retrieved in discourse. On the contrary, NPs that denote entities often originally dwell in VP or vP. Therefore, it is effortless for *yiqi*, the quantifier which mainly establishes the integrity via the time and space dimensions, to meet its plural arguments in discourse or across phases. However, *gongtong*, which induces the integrity via property-overlapping in essence, mainly relies on its plural arguments unrelated to time and space and can not help but narrow down its domain. Thus, positions of *yiqi*'s and *gongtong*'s arguments guide their allowance to EC and PC.

#### **4. Conclusion**

To sum up, we have surveyed the Mandarin part-structure modifier: *yiqi* and *gongtong* in terms of the integrity theory. Each of them, just like English *together*, exhibits the collectivizing force and needs its plural arguments to form an integrated whole or a group in compatible dimensions. In addition to this common collectivizing force, *yiqi* and *gongtong* each has its unique lexical meaning and functions in introducing specific kinds of integrated wholes or groups. More specifically, we argue that *yiqi* introduces the integrity via the temporal or spatial proximity in essence and induces a kind of the collective reading extended from the temporal and spatial proximity. The last one, the strict part-structure modifier *gongtong*, would only introduce groups and integrated wholes via property-overlapping or responsibility-sharing.

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# TOWARDS AN INVENTORY OF SEMANTIC CLASSES FOR ABSTRACT NOUNS<sup>1</sup>

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## **Abstract**

We present a hierarchized list of Spanish semantic labels that could be used as genus in the analytic definitions of the FACTS described in the *Nuevo diccionario histórico de la lengua española*. We discuss the main linguistic notions underlying this hierarchy, as the actantial formulae and the typed semantic actants. The semantic labels of the first level of semantic intension are cited and commented. We mention some future work, namely the hierarchy of ENTITIES and the list of semantic fields.

## **1. Introduction**

This paper discusses the on-going construction of a hierarchized list of Spanish lexical units and nominal syntagms that would be used as genus in the analytic definitions of the abstract nouns (from now on, HECHOS: FACTS) described in the *Nuevo diccionario histórico de la lengua española* (NDHLE). We will call this list the Spanish Hierarchy of Semantic Labels of Facts (SHSL\_F).

The NDHLE (New Historical Dictionary of the Spanish Language) is a project of the *Fundación Instituto de Investigación Rafael Lapesa* (*Real Academia Española*) that will apply recent linguistic methodologies to a diachronic large coverage description of Spanish (Pascual & García, 2007).

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Our work is based on the theoretical and applied research performed in the frame of the *Lexique Active du Français* (LAF) (Mel'čuk & Polguère, 2007) and on the lexicological component of the Meaning-Text Theory (Mel'čuk & al. 1984-1999).

Let us precise that we will offer English equivalents for most of our examples. However, these English translations are only meant as a convenience for the reader. The linguistic description presented here is valid only for the Spanish lexical units, the English ones may not present at all the same semantic behaviour.

## 2. The Semantic Labels in Definitions

The semantic labels in the SHSL\_F are Spanish lexical units (lexems or phrasems) or Spanish nominal syntagms. These labels have to match the core semantic component of the dictionary headwords in which definition they are used.

The sketch of a formal definition for a FACT must contain at least:

- the semantic label of the SHSL\_F corresponding to the genus of the *definiendum*.  
As a typographical convention, we will use small capital letters for the semantic labels.
- the actantial formula of the FACT (see below).

Plus, eventually:

- the deep syntactic structures controlled by the headword for his different actants.
- a semantic field label.

Let's take two examples:

LADRIDO  
GRITO DE ANIMAL  
LADRIDO del perro X [*de* N, A<sub>pos</sub>]

LADRIDO (*bark*) is the headwork (headwords will be written in capital letters), GRITO DE ANIMAL (ANIMAL'S SHOUT) is the semantic label and *LADRIDO del perro X* is the actantial formula, where we can distinguish the argumental slot (variable X) and a

semantic restriction over the variable: *perro* (*dog*). Besides, we include the two deep syntactic structures [*de N y A<sub>pos</sub>*] (*el ladrido del pastor alemán, su ladrido; the bark of the German shepherd, his bark*). The semantic field label associated to this headword would be *animales* (*animals*).

#### DISPARO

LANZAMIENTO DE UN PROYECTIL O SONIDO QUE LO ACOMPAÑA

DISPARO del individuo X [*de N, A<sub>pos</sub>*] en dirección a Y [*a N, contra N, sobre N*] hecho con el arma de fuego Z [*de N*]

The semantic label of DISPARO is a complex one (it contains a disjunction) since both meanings (*lanzamiento/launching*) and (*sonido/sound*) admit the semantic criterion of compatible co-occurrence: *Sonó un disparo. Un disparo mató a Juan. Sonó un disparo que segó la vida de Juan. (A shot was heard. A shot killed Juan. A shot was heard that killed Juan)*. It is one and the same lexical unit with a meaning disjunction. Let's emphasize that the semantic label of ENTITY, ARMA DE FUEGO (FIREARM), applied over the Z variable, includes the meaning *projectile*, that does not appear directly in the actantial formula of DISPARO. The semantic field is *armas* (*weapons*).

Note that the headword DISPARO is a polysemous one or, to put it differently, there are several lexical units DISPARO. Consequently, DISPARO would have other definitions. For example, the normal interpretation of *El disparo del delantero holandés rozó el larguero (The shot of the Dutch forward grazed the crossbar)* does fortunately not include a firearm.

Observe that, since the actantial formula comprises the headword and his semantic actants, only semantic predicates will have an actantial formula (however, see 5). It is important to bear in mind that the *definiendum* of a lexical unit corresponding to a FACT is not only the form of the lexical unit in question, but the set formed by this form and its semantic actants with the typed variables and the relationships between actants coded by the means of prepositions and support verbs.

### 3. The Hierarchy of Semantic Labels

The set of semantic labels that conforms the SHSL\_F is hierarchically organized. The root is the label with the greater semantic extension: FACT. It is important to note that the current SHSL\_F is a relatively flat structure. It tends to develop horizontally rather than vertically. Actually, the maximum depth is seven (e.g. 2.9.3.1.1.1.1. ENUNCIADO O GESTO EXPRESIVO). We believe that this situation reflects the organization of the general lexicon, which would tend to favour quasi-synonymy relationships over hyponymy relationships, at least from a certain level of semantic intension. Of course, this can be different in axiomatically organized terminologies.

Sometimes, then, a branch of the hierarchy will attain considerable depth without splitting, e.g.:

- 2.9.3. MOVIMIENTO EFECTUADO (PERFORMED MOVEMENT)
  - 2.9.3.1. MOVIMIENTO DEL CUERPO (BODY'S MOVEMENT)
    - 2.9.3.1.1. GESTO (GESTURE)
      - 2.9.3.1.1.1. GESTO EXPRESIVO (EXPRESSIVE GESTURE)
        - 2.9.3.1.1.1.1. ENUNCIADO O GESTO EXPRESIVO  
(EXPRESSIVE STATEMENT OR GESTURE)

Even if the SHSL\_F may be (and probably still is) incomplete, this particular situation does not imply a lack of the hierarchy in this specific point. The SHSL\_F is not a taxonomy. Nothing forces us to respect the suitability conditions of a taxonomy. Moreover, it is important to resist the temptation to add fictitious nodes that would improve the symmetry of the hierarchy but will correspond neither to the genus nor reflect the lexical cooccurrence of any Spanish lexical unit.

The SHSL\_F has not only hyperonymical links, because it includes verbal, adjectival and adverbial labels too. Even if most labels are nominal (the grammatical category of designation), it is necessary to include labels of the other categories as well, in order to obtain a closed set of semantic labels for any FACT headword. Indeed, the genus of a definition must have the same grammatical category as its headword, since it has to respect the mutual substitutability principle of the definition well-formedness.

In this moment, we have a list of 352 semantic labels. As a simple presentation means, we have adopted the form of a numbered schema. However, the SHSL\_F is not formally a tree, because some labels have more than a superordinate taxon. For example, GRITO (SHOUT) as a SONIDO EXPRESIVO (EXPRESSIVE SOUND) is simultaneously under 2.2. ACTO DE COMUNICACIÓN (COMMUNICATION ACT) (which is a type of ACCIÓN, ACTION) and under 13.4. FENÓMENO FÍSICO (PHYSICAL PHENOMENON) (a subordinate of FENÓMENO, PHENOMENON). In the same way, CRIMEN DE SANGRE (BLOOD CRIME) is simultaneously under 2.10.1.1. DELITO (CRIME) and under 2.16.1. ACCIÓN DE MATAR (ACTION OF KILLING). Nevertheless, only thirty-one labels appear twice and only two appear three times. Redundancy is therefore limited.

The root label HECHO (FACT) has seventeen immediately subordinate labels: ACCIÓN (ACTION), ACONTECIMIENTO (EVENT), ACTITUD (ATTITUDE), ACTIVIDAD (ACTIVITY), CANTIDAD (QUANTITY), CARACTERÍSTICA (CHARACTERISTICS), COMPORTAMIENTO (BEHAVIOR), CONJUNTO DE HECHOS (SET OF FACTS), COSTUMBRE (HABIT), ESTADO (STATE), FENÓMENO (PHENOMENON), GRADO (DEGREE), PARÁMETRO (PARAMETER), PERÍODO (PERIOD), PROCESO (PROCESS), RELACIÓN FACTUAL (FACTUAL RELATIONSHIP) and SITUACIÓN (SITUATION).

It would be extremely interesting to have the formal definitions of these important sixteen Spanish lexical units (N.B.: CONJUNTO DE HECHOS is a syntagm). However this entails considerable difficulties, among them, the use of semantic primitives, cf. Wierzbicka (1996). Therefore, we will just give some elements of these definitions.

On the one hand, ACTOS, ACCIONES, ACTIVIDADES, COMPORTAMIENTOS and ACTITUDES are volitional FACTS. On the other hand, PROCESOS, ACONTECIMIENTOS, ESTADOS and CARACTERÍSTICAS are non-volitional FACTS. Except in some cases of non standard diathesis, the first semantic actant of a volitional FACT is always an agent. An agent includes the meanings *querer* (to want) y *causar* (to cause). A volitional FACT would be then any FACT whose first semantic actant *quiere causar* (wants to cause) something.

Furthermore, ACTOS and ACONTECIMIENTOS are punctual FACTS, since they do not have any internal temporal structure. On the contrary, ACCIONES, ACTIVIDADES,

COMPORTAMIENTOS, ACTITUDES, ESTADOS, PROCESOS and CARACTERÍSTICAS are non punctual.

We will not propose any diagnostic contexts or (tests) for the characterization of the labels directly subordinated to FACT. Some of these contexts are well know, others are only partially (or even not at all) useful. Classical references are Vendler (1967), Dowty (1979), Padučeva (1991)... From an operational point of view, we hope that an example for each class may suffice at the moment:

ACCIÓN:	<i>Juan ASESINÓ al Presidente.</i> <i>John ASSASSINATED the President.</i>
ACONTECIMIENTO:	<i>Juan ha sufrido un INFARTO.</i> <i>John has had a HEART ATTACK.</i>
ACTITUD:	<i>Juan hace gala de una ALTANERÍA increíble.</i> <i>John shows an unbelievable ARROGANCE.</i>
ACTIVIDAD:	<i>Juan ASESORA a una gran empresa.</i> <i>John ADVISE a big company.</i>
CANTIDAD:	<i>Juan tiene un MONTÓN de problemas.</i> <i>John has a LOAD of problems.</i>
CARACTERÍSTICA:	<i>Juan es FEO.</i> <i>John is UGLY.</i>
COMPORTAMIENTO:	<i>Juan es de una DESIDIA extrema.</i> <i>John shows an extreme INDOLENCE.</i>
CONJUNTO DE HECHOS:	<i>La VIDA de Juan es novelesca.</i> <i>John's LIFE is novelistic.</i>
COSTUMBRE:	<i>Juan FUMA.</i> <i>John SMOKES.</i>
ESTADO:	<i>Juan siente CANSANCIO.</i> <i>John feels TIREDNESS.</i>
FENÓMENO:	<i>Se oye un RUIDO insoportable.</i> <i>There is an unbearable NOISE.</i>
GRADO:	<i>Juan rinde al MÁXIMO de su capacidad.</i> <i>John performs to the MAXIMUM of his ability.</i>
PARÁMETRO:	<i>Juan ha llegado a una EDAD avanzada.</i> <i>John has reached an advanced AGE.</i>
PERÍODO:	<i>Juan ha disfrutado de dos SEMANAS de vacaciones.</i> <i>John has taken a two-WEEK holiday.</i>
PROCESO:	<i>La cerveza evita la OXIDACIÓN prematura de las células.</i> <i>Bier helps avoiding premature OXIDATION of the cells.</i>
RELACIÓN FACTUAL:	<i>Fumar PROVOCA cáncer.</i> <i>Smoking CAUSES cancer.</i>
SITUACIÓN:	<i>La institución atraviesa una grave CRISIS financiera.</i> <i>The institution is going through a serious financial CRISIS.</i>

#### 4. Actantial Formulae and Typed Semantic Variables

We are going to consider some cases of actantial formulae and typed semantic variables by way of examples. Let's take the label:

CONJUNTO DE SONIDOS EXPRESIVOS (SET OF EXPRESSIVE SOUNDS)

One example of predicate that can be described by this label is APLAUSO (APPLAUSE). Its actantial formula would be:

APLAUSO del individuo X al individuo Y por la acción Z (de Y)  
APPLAUSE of the individual X to the individual Y due to the (Y's) action Z

Other headwords that take the same label as genus are:

ACLAMACIÓN de los individuos X del individuo o acción Y  
ACCLAMATION of the individuals X to the individual or action Y

SILBIDOS (**pl**) del conjunto de individuos X al individuo o acción Y  
CATCALLS of the set of individuals X to the individual or action Y

As we can see, the actantial slots are represented by the variables X, Y, Z... They are typed with the semantic labels INDIVIDUO (INDIVIDUAL), CONJUNTO DE INDIVIDUOS (SET OF INDIVIDUALS) (which are ENTITIES) and ACCIÓN (ACTION). Sometimes, the typed variable presents a disjunction (INDIVIDUO o ACCIÓN). However, the SHSL\_F allows us to avoid artificial disjunctions. For instance, a high number of the Spanish nouns of statements APROBACIÓN (APPROVAL), DECLARACIÓN (DECLARATION), RECONOCIMIENTO (ACKNOWLEDGEMENT) admit as first semantic actant a human or a corporation, institution, etc. In order to represent this selection we do not need a disjunction between INDIVIDUO and ENTIDAD SOCIAL (SOCIAL ENTITY), because we are able to include both meanings under the label PERSONA (PERSON) (cf. *persona física, persona jurídica*...). It is to underline that the use of this label is not a mere technical means for compacting information, but it reflects accurately the selection restrictions of a Spanish noun. The noun *persona* is neither superordinate to INDIVIDUO nor to ENTIDAD SOCIAL, because it cannot be used as genus for any of this lexical units. The opposite, however, is true because some lexical units having the form *persona* have INDIVIDUO or ENTIDAD SOCIAL as genus. We use then a common subordinate label in

order to represent, in a natural way, the argumental selection of certain statement predicates.

Sometimes, the typing of the variable has to be so restrictive that we use not a semantic label, but a lexical unit with a much more restricted semantic extension (as we did with *perro* in the first example):

EMPASTE hecho por el individuo X sobre el diente Y del individuo Z  
FILLING performed by the individual X over the tooth Y of the individual Z

The Y variable is typed by *diente* (*tooth*) (note that *diente* has a bigger semantic extension than *muela* (*molar*) (cf. *diente molar*, *back tooth*).

In some cases, we have split semantic variables, as Z in:

FUNCIÓN SOCIAL O INDIVIDUO QUE EJERCE TAL FUNCIÓN  
El individuo X es MINISTRO responsable de Y en el gobierno de Z<sup>1</sup> de la entidad política Z<sup>2</sup>  
SOCIAL FUNCTION OR INDIVIDUAL THAT EXERCICES THIS FUNCTION  
The individual X is the MINISTER responsible for Y in the Z<sup>1</sup>'s government of the political entity Z<sup>2</sup>

This notation reflects that the variable can be saturated either with the designation of the government or with the designation of the head of the government (*el Ministro de Defensa del gobierno español*, *el Ministro de Defensa de Zapatero...*) but not both simultaneously (*\*el ministro de Defensa de Zapatero del gobierno español*) except if we add another predicate: *el ministro de Defensa del gobierno español ENCABEZADO por Zapatero*.

Besides the disjunctions in the typing of variables, which gives to the actantial formula the expression power of a regular grammar, the symbol <...> is used when we need to give the actantial formula the expressive power of a context-free grammar. At the moment, however, we have made a very limited use of this possibility:

EN CIERTA SITUACIÓN (IN A CERTAIN SITUATION)  
El hecho <el individuo> X tiene lugar <se encuentra> EN PRESENCIA DEL individuo Y  
The fact <the individual> X takes place <is> IN THE PRESENCE OF the individual Y

is equivalent to:

El hecho X tiene lugar EN PRESENCIA DEL individuo Y.  
The fact X takes place IN THE PRESENCE OF the individual Y.

El individuo X se encuentra EN PRESENCIA DEL individuo Y.  
The individual X is IN THE PRESENCE of the individual Y.

but block the sequences *\*El hecho X se encuentra en...* (*\*The fact is in...*) y *\*El individuo tiene lugar...* (*\*The individual takes place...*)

Most of the semantic labels are nominal, but we have at our disposal labels for other deep grammatical categories as well (verb, adjective, adverb and clausative). For the notion of deep grammatical category, see Mel'čuk (2006):

SENTIR UN DESEO SEXUAL (TO FEEL A SEXUAL DESIRE)  
El individuo X DESEA al individuo Y [= N **oblig**]  
The individual X DESIRES the individual Y [= N **oblig**]  
QUE ES UN CRIMEN DE SANGRE (THAT IS A BLOOD CRIME)  
Hecho X HOMICIDA  
Fact X HOMICIDAL

However, these labels are still not systematized. We still need to homogenize other important points, like the use of prepositions and some support verbs in the actantial formulae. In the same way, we must solve some ambiguities, for instance a same form, *hacer* (*do*), appears as predicate, as causative and as support verb, which is not optimal:

ACTO DE COMUNICACIÓN (ACT OF COMMUNICATION)  
ADVERTENCIA de la persona X a la persona Y de no hacer Z mediante el enunciado o la acción W  
WARNING of the person X to the person Y of not to do Z by the means of the statement or the action W  
ACCIÓN DE HACER DISMINUIR ALGO (ACTION OF CAUSE SOMETHING TO DECREASE)  
DESCUENTO por la persona X de la suma de dinero Y a la persona Z sobre W  
DISCOUNT from the person X of the sum of money Y to the person Z over W  
ACCIÓN BENÉFICA (BENEFICIAL ACTION)  
FAVOR de Z hecho por la persona X a la persona Y  
FAVOR of Z that the person X does to the person Y

## 5. Conclusion

The research described in this paper is still in progress. As well as the improving of the present FACTS hierarchy, we consider urgent the accomplishment of two complementary tasks.

On the one hand, we need a hierarchy of ENTITIES. Not only because entity labels have to be used in the actantial formulae of FACTS, but also because a big number of entities are not semantic objects. Indeed, most ENTITIES present argument slots inherited from prototypical predicates that apply over these ENTITIES. We have then quasi-predicates.

For example, TREN (TRAIN) has the semantic actants *materia X (material X)*, *del lugar Y (place Y) al lugar Z (place Z)* (e.g. *el tren de municiones; el tren de Barcelona a París; the ammunition train; the train from Barcelona to Paris*), which he takes from TRANSPORTAR (TRANSPORT). In the same way, ABOGADO (LAWYER) has the actantial formula:

Individuo X, que es el ABOGADO de la persona Y para Z  
Individual X, who is the LAWYER of the person Y for Z

which is inherited from REPRESENTAR (REPRESENT, in the juridical sense).

On the other hand, besides the genus and the actantial formula, it would be very interesting to systematically add the semantic field information, since, on the one hand, it can be very helpful for the future formulation of the complete lexicographical definitions and, on the other hand, it introduces another kind of partition in the lexicon, which can prove useful for several applications, among them the creation of specialized sublexicons.

We call semantic field a set of lexical units whose definitions share an important semantic component. For instance, the lexical units ANCLA (ANCHOR), BARCO (BOAT) y ESLORA (LENGTH) do not share at all the genus, but will have, in an explicit or an implicit way, the semantic component *navegación (navigation)* in their definitions.

Unlike the semantic labels hierarchy, the semantic fields list has to be elaborated in a rather intuitive way and will be a completely flat structure. A good example of one of

these lists, profusely used for large coverage lexicographic descriptions, is Mathieu-Colas & Buvet (1999). Another very interesting proposition is the list of semantic fields of the own LAF (Mel'čuk & Polguère, 2007: 493-513).

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# Modelling ‘the perfect’, a category between tense and aspect

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## Abstract

I demonstrate that a consistent interpretation of Reichenbach’s (1947) primitives and their configurations enables the construction of an intuitive and elegant semantic space for all logically possible tense meanings, independent of their mode of expression. I argue that the property which defines the perfect in absolute tense systems is the dissociation of the temporal location of the situation from the reference point from which it is viewed (i.e.  $R \neq E$ ). The analytical problems posed hitherto by the English Perfect are due to the fact that it neutralises the distinction between  $E < R$  and  $R < E$ . Although the semantic dimension of the perfect emerges from the system of temporal meanings, alternatively the perfect could be viewed as a category expressing meanings between canonical tense and canonical aspect, overlapping both.

**Keywords:** perfect tense, tense semantics, tense and aspect, grammatical features

## 1. The perfect and Reichenbach’s tense theory

### 1.1. Aims of the paper

This paper has two aims.<sup>1</sup> The first aim is to promote a new solution to the so-called ‘present perfect puzzle’ formulated by Klein (1992: 525):

In *Chris has left York*, it is clear that the event in question, Chris’s leaving York, has occurred in the past, for example yesterday at ten. Why is it impossible, then to make this event time more explicit by such an adverbial, as in *\*Yesterday at ten, Chris has left York?*

I demonstrate that the puzzle ceases to exist if the perfect is analysed as a semantic category which involves *any* dissociation of the temporal location of the situation from the reference point from which we choose to view the situation. I provide a simple model that is capable of representing this dissociation. In the proposed model, based on Reichenbach’s (1947) primitives E, S, and R, the perfect is represented as a dissociation of R and E ( $R \neq E$ ). The original idea promoted here is that, in tense systems with the primary deictic centre at the time of speech S, the dissociation of R and E may be grammaticalised as one category (a Perfect tense) regardless of the order of the two primitives along the time axis, thus neutralising the meaning distinction between  $E < R$  and  $R < E$ .

The second aim of the paper is to show the relationship between the perfect and the semantic tense distinctions that have been identified as logical possibilities for language. In the model proposed here, all logically possible tense meanings are captured with Reichenbach’s primitives. I demonstrate that resolving a hitherto

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<sup>1</sup> I gratefully acknowledge a British Academy Overseas Conference Grant which enabled me to present this paper at the 18th International Congress of Linguists in Seoul, Korea, 21-26 July 2008, and benefit from the comments of participants in the session on Tense, Aspect and Modality.

unnoticed inconsistency in Reichenbach's original interpretation of his system (see section 3.1) leads to a surprisingly clean and theoretically convincing system of tense meanings, that is, values of the tense feature. In the proposed system, the perfect can be regarded as a non-canonical tense, or alternatively it could be viewed as a semantic category between canonical tense and canonical aspect, overlapping both.

### *1.2. Reichenbach's 'relative tense theory'*

Reichenbach's (1947) framework is still used by many linguists, mostly descriptivists and some semanticists, to model grammaticalised tense values. It has been criticised over the years (recently for example by Vet 2007), and various influential attempts have been offered to improve it (e.g. Hornstein 1990).

Acknowledging the inadequacy of the traditional interpretation of Reichenbach's representations of tenses, I argue that Reichenbach's own interpretation of his system, repeated by most other researchers, was inconsistent (see section 3). Resolving the original errors of interpretation, however, reveals an elegant system, avoids the complications of other proposals, and provides a solution to the 'present perfect puzzle'. I argue, therefore, that Reichenbach's primitives *are* adequate to model tense meanings in natural language and provide a suitable foundation for a formal framework to model tense.

### *1.3. The perfect: preliminary observations*

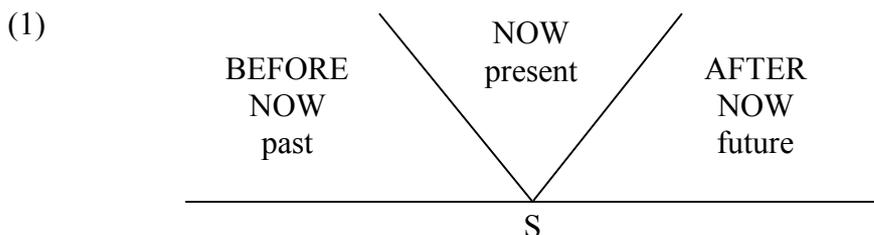
Although the perfect is often traditionally listed as an aspect, it cannot be viewed as a canonical aspect since it tells us nothing directly about the internal temporal organisation of the situation (Comrie 1976). If we take tense to be the grammaticalisation of location in time (Comrie 1985: vii), the perfect can be viewed as a tense. Specifically, we can first construct the semantic space of logical possibilities of expressing basic (non-perfect) tense meanings, that is all meanings where  $R = E$ , and then add the dimension of the perfect, that is all meanings where  $R \neq E$ , as a systematic extension of the basic tense meanings (see section 2.3).

Because it is possible to isolate the whole 'dimension' of the perfect within tense, and because its meaning is not purely deictic but captures a certain way of viewing a situation already located in time, the perfect could alternatively be viewed as a separate category, between tense and aspect. In other words, it could be argued that while the definition of tense has to include deixis, the distinction between  $R = E$  and  $R \neq E$  is independent of deixis. However, even in relative tense systems such as the one found in Yup'ik (Mithun 1999), which grammaticalise only the relation between R and E and always assume the deictic centre at R, the interpretation of tensed sentences is possible only when the deictic centre R is hooked either at the point of speech S (which can be regarded as the 'default' interpretation) or away from it (for example in narratives), depending on the context. Thus, relative tense systems arguably indicate that the perfect may be more appropriately analysed as a dimension within tense rather than as a separate category.

## 2. Modelling tense meanings

### 2.1. Time and tense

Following Comrie (1985: 2-3) and many other authors, I assume that time can be represented as a straight line, with the past represented conventionally to the left and the future to the right. The present moment is represented by a point on that line, labelled S (mnemonic for ‘speech time’):



Several things are intentionally left unspecified in diagram (1). One is whether the time line is bounded at either the left or the right (including whether it bends to form a circle; this might correspond to a different culture-specific conceptualisation of time, found on a limited scale in all cultures). Also unspecified is the representation of the flow of time, that is, whether S (or Ego) moves along a stationary time line, or time flows past a stationary reference point S (or Ego). These are important philosophical questions, but they don't seem to play a role in the analysis of tense as a grammatical category, even though they are metaphors that are important sources of time expressions across languages.

One of the extra-linguistic presuppositions for an utterance is constituted by the speaker's consciousness of the relation of the speech situation S to the reported situation/event (E) along the time axis. For temporal distinctions, the speech situation S projected onto the time axis serves at the basic orientation point. The distinction between absolute and relative tenses, however, results from the possibility of locating the deictic centre of the utterance either at the moment of speech (yielding absolute tenses, e.g. most tenses in English), or at any moment on the time line (yielding relative tenses, e.g. tenses in Yup'ik, Mithun 1999). An absolute tense system, with the primary deictic centre at S, can therefore be understood as a special case of a relative tense system.<sup>2</sup>

For temporal as opposed to aspectual distinctions the reported situation E (mnemonic for ‘event’) can be an event, state, process, or action, regardless of the internal temporal contour such as duration or iterativity, and is represented on the time line as a ‘point’. Similarly, S and R (see next section) also represent temporal locations relative to the other ‘points’ on the time line, while being neutral as to whether they are points or intervals of time longer than a point. As is conventional, the hyphen represents the relation ‘coincides/overlaps with’ (and therefore the order of the two

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<sup>2</sup> Note that, although tenses in Yup'ik are all relative, very commonly the deictic centre of the utterance does fall at the moment of speech, which results in an ‘absolute’ interpretation. Furthermore, non-finite verb forms (which do not realise any absolute tense value) in languages such as English can be seen as realising relative tense (see e.g. Comrie 1985: 56-62).

coinciding points is irrelevant). Diagram (2) illustrates a naive view of a sample set of absolute tenses:

(2) past		E	S	
present			S-E	
future			S	E
past of the past	E <sub>2</sub>	(E <sub>1</sub> )	S	

On this view, a past situation E can be represented as occurring in the time before and not including the present moment (time ‘before’ S); a present situation E, whether continuing or repetitive, can be represented as occurring at the present moment (even though it may be encompassing a shorter or longer stretch of time) as long as it overlaps with the time which temporally or psychologically includes S; and a future situation E (a prediction, imposition or an instance of pre-planning) can be represented as occurring in the time after the present moment (time ‘after’ S).<sup>3</sup> Furthermore, it is possible that a single proposition (expressed in a simple clause) implies the occurrence of a second situation which is usually derivable from the context – as in, for example, the past of the past (or the pluperfect), which is a temporal relation that has been grammaticalised in many languages including English where it is expressed by one of the uses of the Past Perfect.

## 2.2. The R point

It is now widely accepted that the relative positions of just two points on the time line – the speech time S, and the event time E – are not sufficient to account for all the different tense meanings found in language. Therefore, since Reichenbach, most tense theories have used a third point in time, labelled R (mnemonic for ‘reference point’) to capture all possible tense distinctions. R indicates a psychological or imaginary temporal location which the speaker chooses to be the temporal reference point for the clause; it may, but does not have to, coincide with the basic orientation point S. The R point does not have to be expressed overtly through any lexical item in the clause, but may remain implied. It alters, in a systematic way, the viewing of the temporal location of a situation whose actual location represented by E remains constant with regard to S.

Diagram (3) represents the set of *absolute tenses* given earlier in (2), this time including the R point which is relevant to all tenses. Therefore, a non-naive representation of the absolute past, present, future, and past of the past all involve R coinciding with E:

(3) past		E-R	S	
present			S-E-R	
future			S	E-R
past of the past	E <sub>2</sub> -R <sub>2</sub>	(E <sub>1</sub> -R <sub>1</sub> )	S	

<sup>3</sup> It is assumed here that future time reference can, in principle, be subsumed under tense (see e.g. Comrie 1985: 43-48), even though some languages may not have a future tense or tenses and express future time reference with a modal category such as the irrealis.

Note that within the past of the past, the temporal relation of the reported event, labelled here as  $E_2$ , is absolute with regard to the deictic centre  $S$ , but relative with regard to the reference point which locates the occurrence of the implied event  $E_1$  (see also Comrie 1985: 65-68). Relative tenses in general are those which disregard the speech time  $S$ , but instead have a different temporal point as their deictic centre. The following is a sample set of *relative tenses*, illustrating different possible locations of  $E$  with respect to  $R$ , omitting the speech time  $S$ :

(4)	anterior	$E$	<b>R</b>	
	simultaneous		<b>R-E</b>	
	posterior		<b>R</b>	$E$
	anterior of anterior	$E_2$	$(E_1)$	<b>R</b>

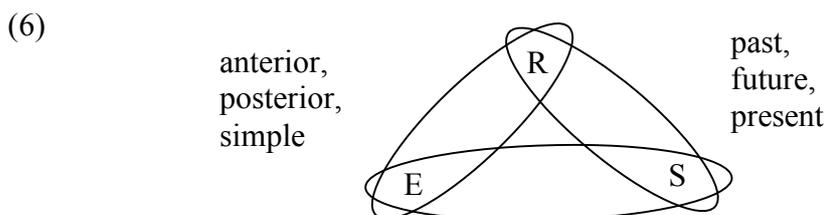
The tense meaning labelled here as ‘simultaneous’ is also referred to as ‘simple’, which is the label used originally by Reichenbach (1947).

Observe that the set of relative tenses in (4) parallels the set which illustrated the naive representation of absolute tenses in (2). However, I have now argued that the meanings of the absolute past, present, future, and past of the past have to include a reference point  $R$  which coincides with  $E$ , as in (3). In this way, all absolute tenses are correctly represented as a special case of relative tense: they are all a type of simultaneous/simple tense, that is, a tense where  $R = E$ .

Thus, in a post-Reichenbachian view of tense, it is not the position of  $E$  relative to  $S$  (the ‘naive view’), but the position of  $R$  relative to  $S$  which makes the speaker view the situation as ‘past’, ‘present’, or ‘future’. Furthermore, these temporal interpretations are expected to obtain regardless of the position of the reported event  $E$ . As was already shown in (4), the position of  $R$  with respect to  $E$  yields three possible tense meanings that have been labelled as ‘posterior’, ‘simple/simultaneous’, and ‘anterior’:

(5)	<b>R</b>	$S$		
		<b>R-S</b>		past
		$S$	<b>R</b>	present
				future
	<b>R</b>	$E$		posterior
		<b>R-E</b>		simple
		$E$	<b>R</b>	anterior

Understanding the meanings coded by the second set of relations is crucial for the interpretation of the perfect (section 2.4): ‘posterior’ can be understood as looking at  $E$  from an earlier point, or looking forward; ‘simple’ is best understood as ‘simultaneous’; and ‘anterior’ can be understood as looking at  $E$  from a later point, or looking backward. Diagram (6), which distills Reichenbach’s insights, is a visualisation of the relationships between all three primitives proposed by Reichenbach:



Note that the relation of  $E$  to  $S$  does not have a corresponding set of labels.

### 2.3. Tense meanings with one deictic centre (S)

Equipped with the three Reichenbachian primitives, we can map out the logical possibilities for tense meanings. I begin by illustrating the range of possibilities of coding the relation ‘E before S’ as different tenses. If the truth value of the proposition matched against the state of the world at the primary point of reference S yields the representation ‘E before S’, then the possible tense meanings incorporating the above relationship, that is, all possible ways of viewing the above situation, are:

(7)	<b>R</b>	E	S	posterior past
		<b>E-R</b>	S	simple past
		E	<b>R</b> S	anterior past
		E	<b>S-R</b>	anterior present
		E	S <b>R</b>	anterior future

All possible tense meanings that involve only one deictic centre (S) include three simple tense meanings (where R = E), five anterior tense meanings (where E < R), and five posterior tense meanings (where R < E). The three simple tense meanings, where R = E, are represented and illustrated from English in (8). The text in square brackets indicates the context for the temporal interpretation of the clause in question:

(8)	<b>R-E</b>	S	simple past
			<i>I saw him (yesterday)</i>
			<i>she was crying (for an hour)</i>
		<b>S-R-E</b>	simple present
			<i>the kettle is boiling</i>
			<i>I live here</i>
		S <b>R-E</b>	simple future
			<i>he will finish it (tomorrow)</i>
			<i>she will still be doing it (tomorrow)</i>
			<i>[I can see that] I am playing tennis</i>
			<i>(tomorrow at 5)</i>

It is important to reiterate that in this system tense meanings are conceived of as independent of aspectual meanings, even though there are interesting interactions between tenses and aspects. Hence, the English examples given in (8) illustrate expressions of temporal locations of events regardless of the internal temporal contours of the events and of any additional modal meanings conveyed. Also, as is now obvious, the names of tense meanings (‘simple past’, simple present’, etc.) do not necessarily correspond to particular grammatical tenses in a language (e.g. the English tenses labelled as Simple Past, or Simple Present). Thus, we can distinguish sentences such as *I saw him*, which is expressed with the Simple Past tense and has simple past temporal semantics, and *if I were you*, which is also expressed with the Simple Past tense but is typically understood as having simple present temporal semantics (and an additional modal meaning; see for example Patard 2008 on the modal uses of the English Simple Past).

To complete the account of the system of all possible tense meanings with one deictic centre (S), (9) lists representations of five anterior tense meanings, where E < R:



English (1947: 297; see also the Appendix), and most neo-Reichenbachian tense systems either propagate this exclusion or attempt to assign to it a future interpretation (e.g. Vet 2007: 9ff for French).

However, if the relation  $R < E$  ('posterior') is understood as looking at the event E from an earlier reference point R, and if the event E still holds at the point of speech (S-E), then the representation (R S-E) is precisely the one which captures the English 'universal perfect' or the 'perfect of extended now'. It is normally accepted that 'now' can be extended to express universal or timeless situations, as in diagram (1), and E can extend with it indefinitely, as in *spiders have eight legs*. By analogy, E can hold over a stretch of time which extends from an earlier reference point R (e.g. 'ten years ago') to the present (S), including 'now' (S-E), as in *I have lived here for ten years*.<sup>4</sup> Note, however, that the reference point R does not need to be expressed overtly through any particular lexical item, either in the perfect tenses or any other tense meanings. Hence, *I have always loved him* is still interpreted as (R S-E), with an 'understood' reference point R which provides the temporal bracket from which to view the situation. Placing the reference point before S-E, rather than together with S-E, means that the situation does not hold universally, but it has been holding for an overtly unexpressed period of time, e.g. *I have always loved him [since we first met / since he was born / etc.]*.

The examples in (13) and (14) are an illustration from English of all anterior and posterior tense meanings identified earlier in (9) and (10), respectively:

(13)	<b>E</b>	<b>R</b>	<b>S</b>		<i>I had met him before</i>
					<i>he will have finished it last week</i>
	<b>E</b>		<b>S-R</b>		<i>I have met him</i>
					<i>he will have finished it by now</i>
	<b>E</b>		<b>S</b>	<b>R</b>	<i>he will have finished it by tomorrow, [in fact, he has finished it already]</i>
					<i>[if it rains tomorrow,] we will have worked in vain yesterday (Comrie 1985: 73)</i>
			<b>S-E</b>	<b>R</b>	<i>he will have finished it by tomorrow, [he is finishing it now]</i>
			<b>S</b>	<b>E</b>	<b>R</b>
					<i>[he hasn't finished it yet, but] he will have finished it by tomorrow</i>
(14)	<b>R</b>	<b>E</b>	<b>S</b>		<i>I had known him for ten years</i>
	<b>R</b>		<b>S-E</b>		<i>I have known him for ten years</i>
	<b>R</b>		<b>S</b>	<b>E</b>	<i>next year we will have known each other for ten years</i>
			<b>S-R</b>	<b>E</b>	<i>[it's 1990, so] in the year 2000 we will have known each other for ten years</i>
			<b>S</b>	<b>R</b>	<b>E</b>
					<i>[if she gets married next year,] in the year 2000 she will have been married for ten years</i>

<sup>4</sup> Since E overlaps with 'now' (S) in this tense meaning, it is unsurprising that the universal perfect is most common with stative verbs when non-progressive; however, when progressive/iterative, it is found with dynamic and other non-stative verbs (e.g. punctual).

### 3. Tense meanings versus forms that realise them

#### 3.1. Reichenbach's (mis)interpretation of his system

I am now in a position to point out three critical errors in Reichenbach's original and others' later interpretations of his system.

First, both Reichenbach and many re-interpreters of his system assumed erroneously that any one logical tense meaning, defined as a particular configuration of the points {S, E, R}, must correspond to a particular grammaticalised tense in a language (see the Appendix for Reichenbach's original system of tenses and his suggestion of their corresponding English counterparts). However, languages typically combine two or more tense meanings into clusters which we recognise as grammaticalised tenses, and thus grammaticalise fewer temporal distinctions that are logically possible (note that, despite looking for one-to-one correspondences, Reichenbach did allow the Simple Future tense in English to have two different interpretations). Also, apart from the purely temporal meaning, grammaticalised tenses often include aspectual and modal meanings or other meanings expressing actionality distinctions, and can be employed for various pragmatic functions (e.g. polite questions, etc.). This is a key point, disregard of which leads to confusion of meaning and form and is bound to lead to an unsatisfactory account of tense regardless of which primitives, whether Reichenbachian or other, are used to model temporal meaning.

The second point treats an issue related to the cumulation of different meanings within individual grammatical tenses. Namely, Reichenbach's model is designed for tense, that is, to capture distinctions between different configurations of the 'points' (the primitives of the system) along the time line. Despite this, Reichenbach himself tried to force his system to express some aspectual or actionality distinctions that he encountered in English (specifically, durativity and iterativity). Both in Reichenbach's and in many neo-Reichenbachian systems, aspectual distinctions are added as various symbols (bars, boxes, zigzags, eyes, etc.) to representations expressing simple relative positioning of the three points on the time line. However, since it is assumed in such accounts that these aspectual distinctions belong to the system of tense oppositions, rather than being orthogonal to it, it is impossible to capture all distinctions consistently when they are scrutinised across such a tense/aspect system, and it is virtually meaningless to attempt comparisons of such concepts between languages, especially languages which are not closely related.

Reichenbach's attempt to include durativity in his model of tenses provides an instructive example (1947: 290). The English Simple Past sentence *I saw John* is represented as (R-E S). In order to represent *I was seeing John*, Reichenbach adds a short horizontal bar above the R-E in the Simple Past representation, to indicate that the event 'covers a certain stretch of time' ( $\overline{\text{R-E}}$  S). By analogy, while the Present Perfect sentence *I have seen John* is represented as (E S-R), in order to represent *I have known him for ten years* (the 'second usage' of the English Present Perfect) Reichenbach adds a long horizontal bar above the Present Perfect representation, stretching from before E until and including the moment of speech ( $\overline{\text{E S-R}}$ ). This is intended to indicate 'extended tense' of durativity, with the duration of the event reaching up to S. It is not clear, however, how continuing with this procedure would

allow Reichenbach to represent *I have been seeing John* or *I have been living here for a while*, and so on.

Although Reichenbach's key insight, for which he is acclaimed, was to interpret the relationship (E S-R) as expressing one type of the Present Perfect in English (the experiential/resultative perfect, as in *I have seen John*), it is clear that his account of the other type of the English Present Perfect (the universal perfect, as in *I have lived here for ten years*) is unsatisfactory, as it mixes up temporal and aspectual properties and thereby creates irresolvable problems for his tense system. Unfortunately, both Reichenbach and many others have tried to interpret the universal perfect as a variant of the experiential perfect. Having assigned the English Present Perfect tense to the (E S-R) representation, they failed to notice that there was already an appropriate model of the universal perfect in Reichenbach's system waiting to be used (R S-E). This shows that even Reichenbach himself did not apply his interpretation of the primitives and their configurations consistently throughout his system. In particular, he failed to interpret correctly the set of posterior tenses (R < E) and thought that four of them (out of five) could not be expressed through any particular grammatical tense in English. Unfortunately, this inconsistency has so far been repeated by all re-interpreters of his system.

Reichenbach's misinterpretation of the posterior relation (R < E) led him to suggest that one of the five posterior tenses, (S-R E), corresponded to the English Simple Future (note, however, that in Reichenbach's interpretation the English Simple Future also had an alternative representation, (S R-E), which indeed represents the simple future tense meaning). Furthermore, he incorrectly suggested that the representation (R E S), one of the three posterior past meanings, corresponded to *would* in *I did not expect that he would win the race*, *was going to* in *I did not expect that he was going to win the race*, and *was to* in *the king lavished his favour on the man who was to kill him* (1947: 297-298). This is because he failed to differentiate between absolute tense meanings in simple or main clauses, and relative tense meanings in subordinate clauses, as in the bi-clausal examples that he provided.

In the account offered here, the representation (R E S) is a temporal model of a simple clause expressing the 'universal perfect' (R < E) shifted into the past, before and not overlapping with the moment of speech, as in *I had known him for ten years* – see (14). On the other hand, the examples given by Reichenbach are bi-clausal and have to be represented with two pairs of points {E, R}. The pair of points {E<sub>1</sub>, R<sub>1</sub>}, representing the main clause, has its deictic centre at the point of speech S, while the pair {E<sub>2</sub>, R<sub>2</sub>}, representing the subordinate clause, has its deictic centre at R<sub>1</sub>:

(15) {*I did not expect*}<sub>E<sub>1</sub></sub> {*that he would win the race*}<sub>E<sub>2</sub></sub>      R<sub>1</sub>-E<sub>1</sub>    R<sub>2</sub>-E<sub>2</sub>    S

In the examples given by Reichenbach, there is no need to invoke the semantic category of the perfect which involves a stretch of time in either direction from event E<sub>2</sub>, hence the representation of the relative tense in these examples (R<sub>1</sub> R<sub>2</sub>-E<sub>2</sub>) is analogous to the representation of a simple future tense meaning (S R-E), except that it is shifted into the past by virtue of locating its deictic centre at R<sub>1</sub> which is before S. Another possible tense combination in which *would* expresses a relative tense meaning, which escaped Reichenbach's attention, is illustrated in (16):

(16) {*I did not expect*}<sub>E<sub>1</sub></sub> {*that he would be living here now*}<sub>E<sub>2</sub></sub>      R<sub>1</sub>-E<sub>1</sub>      S-R<sub>2</sub>-E<sub>2</sub>

Many more tense combinations are logically possible and expressible, involving both simple and perfect meanings. In section 3.3 I briefly mention them again, distinguishing between relative tenses in tense combinations and relative tenses which can function independently in main clauses by implying an event  $E_2$ .

### 3.2. *Tenses as grammaticalisations of tense distinctions*

I now return to the issue of tense meaning versus tense form. Despite the wide range of logical possibilities (which do not have an obvious limit if degrees of remoteness are additionally considered), not all of the possible tense meanings are found grammaticalised as tenses in any particular language. It is very common to find neutralisations of various temporal distinctions in one grammatical tense in a language. Furthermore, tense meanings are often grammaticalised in combination with other (aspectual, modal) distinctions. This is why grammaticalised tense-aspect-mood categories found in particular languages frequently do not correspond, despite often being labelled similarly.

English, for example, grammaticalises the whole semantic category of the perfect ( $R \neq E$ ) as a distinct tense, the Perfect. However, it neutralises the distinction between  $E < R$  and  $R < E$ . Hence, one Present Perfect tense is used in English for both meanings: *I have seen John* and *I have lived here for ten years*. Similarly, one Past Perfect tense is also used for both: *I had seen John before* and *I had lived there for ten years*. Furthermore, the Past Perfect in English also includes the ‘simple past + simple past’ tense meaning (see section 3.3). One Future Perfect tense neutralises numerous different temporal distinctions, as was exemplified in (13) and (14).

In the remaining part of this section, I give three more examples of grammaticalisation choices involving perfect meanings ( $R \neq E$ ), as found in three different languages other than English: Brazilian Portuguese, Polish, and Yup’ik.

A Northeastern variety of Brazilian Portuguese has a highly restrictive Present Perfect tense which grammaticalises exclusively the ‘universal perfect’ ( $R = S-E$ ) meaning (Laca, Cabredo-Hofherr & de Carvalho 2007), as in *Pedro tem dormido na varanda o inverno inteiro* ‘Pedro has been sleeping on the balcony all winter’. Therefore, apart from obeying other restrictions regarding the internal structure of the reported event, the Present Perfect tense cannot be used to express typical experiential/resultative meanings. For example, it cannot be used with ‘already’ or ‘still not’: *Ela (\*ja) tem escrito artigos* ‘She (\*already) has written articles’, *\*Ela ainda não tem chegado* ‘She still not has arrived’; it cannot express resultative or recent anteriority readings: *\*Acho que João tem matado o segurança* ‘I think that João has killed the guard’; and it cannot express certain future perfect meanings: *\*Quando a Ana regressar de Groningen, tu tens acabado a tese* ‘When Ana returns from Groningen, you [will] have finished your thesis’.

Polish does not have a distinct Perfect tense,<sup>5</sup> but grammaticalises the split within the Perfect ( $E < R$  versus  $R < E$ ) by using simple Past versus simple Present tense, respectively. For example: *Spotkałem ją tylko raz* ‘I [have] met her only once’, *Już to czytałem* ‘Already I [have] read this’, versus *Znam go od dziesięciu lat* ‘I know him

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<sup>5</sup> Although there appears to be evidence that a new Polish Perfect, with the auxiliary *mieć* ‘have’, is emerging from the resultative (Björn Hansen, personal communication).

since ten years’, *Pisze tę książkę odkąd się poznali* ‘S/he writes this book since they met’ (see Kibort 1997 for more examples).

Finally, Central Alaskan Yup’ik has a relative tense system (Mithun 1999) and grammaticalises only the relation between R and E. Hence, it has distinct grammatical tenses to express the different relative positions of R and E:

- |                               |  |
|-------------------------------|--|
| (17) simultaneous:            | <i>nalkutaqa</i> ‘I am/was finding it’             |
| anterior:                     | <i>nalkutellruaqa</i> ‘I found/had found it’       |
| immediate/imminent posterior: | <i>nalkkutqataraga</i> ‘I am/was about to find it’ |
| distant posterior:            | <i>nalkuciiqaqa</i> ‘I will/would find it’         |

Furthermore, the deictic centre of the utterance is always assumed to be at R. Unlike languages with absolute tense systems, Yup’ik uses the relations  $E < R$  and  $R < E$  for ‘displaced experience’ rather than to indicate a stretch of time bounded by R and E. Hence, Yup’ik ( $E < R$ ) and ( $R < E$ ) temporal representations may correspond to ( $E-R < S$ ) and ( $S < E-R$ ), respectively, in absolute systems. Therefore, a stretch of time indicating ‘current relevance’ or ‘extended now’, such as the one expressed by perfect meanings in absolute tense systems, is expressed in Yup’ik by allowing the R-E point itself to be interpreted as extended forwards or backwards, as required (Mithun 1999: 31-33), like the ‘now’ in diagram (1).

### 3.3. Secondary tenses and tense combinations

Most tense meanings discussed so far locate an event E with respect to the primary deictic centre S. These may be called *primary* tense meanings. However, further (relative) tense meanings may locate an event  $E_2$  with respect to the deictic centre  $R_1$  which is the reference point for an implied event  $E_1$  (whose deictic centre is, in turn, S; see also (3) above). These may be called *secondary* tense meanings. Examples of such tense meanings grammaticalised as tenses are the following uses of the English Past Perfect (see also Squartini 1999 who argues for distinguishing this tense meaning as a grammaticalised tense in Germanic and Romance) and Future in the Past, illustrated in (18) and (19), respectively:

- |   |                                       |             |   |
|---|---------------------------------------|-------------|---|
| (18) [ <i>By then,</i> ] <i>they had moved in</i>                     | $R_2-E_2$                             | $(R_1-E_1)$ | S |
|   | simple past + simple past (‘earlier’) |             |   |
| (19) [ <i>John left for the front;</i> ] <i>he would never return</i> | $(R_1-E_1)$                           | $R_2-E_2$   | S |
| (Comrie 1985: 75)   | simple past + simple future (‘later’) |             |   |

In both representations above,  $E_1$  is an implied event, perhaps mentioned earlier in the discourse, and  $E_2$  is the dependent event which is expressed overtly.

Many more combinations of  $\{E_1, R_1, S\}$  and  $\{E_2, R_2, S\}$  are logically possible, where the deictic centre of  $E_2$  is  $R_1$ . However, if both events have to be expressed, the combination may not be grammaticalised as a separate tense.

## 4. Conclusions

When interpreted consistently throughout the system, Reichenbach’s primitives  $\{S, E, R\}$  are adequate to model all logically possible *tense meanings* in language. The range of logical possibilities for expressing the location of an event in time can be

argued to constitute the range of possible values of the grammatical feature ‘tense’. As with other grammatical features such as gender or number, out of the large range of possibilities languages grammaticalise different sets of values by neutralising some of the possible meaning distinctions. I have given examples of the different grammaticalisation choices by comparing briefly the category of the perfect in English, Brazilian Portuguese, Polish, and Central Alaskan Yup’ik. Therefore, as opposed to tense meanings, *forms of tenses* in languages result from grammaticalisation choices over possible tense values which may involve neutralisations of different temporal distinctions, often in combination with additional distinctions: aspectual, modal, and other.

As the approach outlined in this paper prioritises meaning (content) over mode of expression (form), it is compatible with realisational models of morphosyntax and capable of providing formal semantic input to such models. In an inferential-realisation approach to morphology (e.g. Stump 2001, 2002, 2006) feature values are identified by establishing a ‘form-paradigm’ correlating inflected stems with morphosyntactic or morphosemantic properties. The cells in a language’s form-paradigm are the basis for deducing the morphological realisation of the cells in that language’s content-paradigm. It is assumed that every lexeme in a language has an associated ‘content-paradigm’: a set of cells each of which consists of the pairing of the lexeme with a maximal consistent set of morphosyntactic or morphosemantic properties (for example, the values of the feature tense). The cells in a lexeme’s content-paradigm correspond to the different types of nodes into which forms of that lexeme may be inserted in syntactic structure. An inferential-realisation approach is particularly suitable for the study of tense which is frequently realised through periphrasis, portmanteau inflection (that is, cumulative exponence; for example, combination of tense exponence with aspect and mood), and extended exponence. On this view, periphrastic realisation of a tense value corresponds to one cell of a content-paradigm, which is advantageous both theoretically and practically in computational applications.

Feature values which have a morphological realisation are conceived of as units of linguistic description which are abstract enough to capture regularities across different components of grammar (morphology and syntax; morphology and semantics; morphology, syntax, and semantics) regardless of their mode of expression in a particular language or for a particular class of linguistic elements in a language. This means that, although they are proposed because they are initially recognised through morphology, the basis for their classification is content, not form. A content-based inventory of morphologically realised tense values, based on the meaning distinctions identified with Reichenbachian primitives, would be capable of enabling a systematic comparison of the temporal categories already found in different languages, as well as predicting which temporal categories may yet be found. The space of logical possibilities described by such an inventory could, therefore, be considered a ‘suitable framework in which different tense (...) systems can be compared’ (Dahl 2000: 3), a framework which we are currently still lacking.

As for the semantic category of the perfect in absolute tense systems, I have argued that it can be identified as a tense meaning which has the property  $R \neq E$ . If, as in English, grammaticalisation neutralises the distinction between  $E < R$  and  $R < E$ , it is possible to have one grammatical category of the Perfect that includes both the experiential/resultative perfect and the universal perfect. Finally, as for the starred

example from the ‘present perfect puzzle’ quotation in section 1.1 (*\*yesterday at ten, Chris has left York*), it can be understood straightforwardly as semantically incoherent, because it implies two reference points R located at different positions with respect to S: one is  $R < S$  (*yesterday at ten*), and the other is  $S-R$  (*Chris has left York*). Hence, the clausal modifier *yesterday at ten* involves a temporal concept which is semantically incompatible with the interpretation of the clause *Chris has left York* expressed in the Present Perfect, much like it would be incompatible with a clause in the Future Simple (*I will go*), even though it is not normally posited that *\*/#yesterday I will go* is a puzzle. Once the distinctive semantics of both the experiential/resultative perfect (E – S-R) and the universal perfect (R – S-E) in the system of tense meanings are properly recognised, it is possible to predict straightforwardly which temporal concepts will be (in)compatible with these tense meanings.

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## Appendix

Reichenbach's system of tenses (1947: 297):

Structure					New Name	Traditional Name
E	R	S			anterior past	Past Perfect
	E-R	S			simple past	Simple Past
R	E	S		}	posterior past	-----
R		S-E				
R		S	E			
	E	S-R			anterior present	Present Perfect
		S-R-E			simple present	Simple Present
		S-R	E		posterior present	Simple Future
		S	E	R	}	Future Perfect
		S-E	R			
E		S	R			
		S	R-E		simple future	Simple Future
		S	R	E	posterior future	-----

# Tense in Taiwan Sign Language

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## Abstract

This paper discusses tense structure and temporal relations of Taiwan Sign Language (TSL), with the goal to find out how signers locate events in time and how events anchor the time in the discourse. Following Kuno (1975), Chafe (1984), Friedman (1975), and Sutton-Spence and Woll (1999), this study claims that temporal locating adverbs in TSL will evoke temporal frames for following events to anchor the time until a new temporal reference is made, and signers will conceptualize the temporal frames into the signing space. Segmented Discourse Representation Theory (SDRT) is employed to account for temporal relations between clauses.

**Keywords:** tense, sign languages, SDRT

## 1. Introduction

The expression of time is one of distinguished features of human languages. As to temporal system in languages, tense and aspect are two primary grammatical categories. Comrie (1976:1-3) defines tense as the ways to relate the time of the event referred to some other time, usually the moment of speaking, and aspect as different ways of viewing the internal temporal constituency of a situation. Put it into another way, tense allows speakers to locate events in time, while aspects reflect the speakers' different foci on internal constituency of an event. Following sentences (1a) and (1b) show the contrast in tense (i.e., past tense vs. non-past tense). However, sentences (2a) and (2b) exemplify a difference in aspects (i.e., non-progressive vs. progressive), even though both of them belong to the same tense (i.e., past tense). In this study, we will emphasize tense system of Taiwan Sign Language (hereafter TSL).

- (1) a. John walked to school.  
b. John walks to school.
  
- (2) a. Jean read the book.  
b. Jean was reading the book.

Tense is generally defined in terms of two perspectives. Strictly speaking, tense is defined as a grammaticalized expression to relate events to time and consistently reflects on inflectional morphemes (Comrie 1985; Binnick 1991; Smith 1997; Bhat1999; Mani et al. 2005). Broadly speaking, tense is defined as the strategies to locate events in time, and every human language has the concept of tense but may vary in expressions. This study adopts the broad definition of tense and agrees that all human languages have ways to locate events in time, and sign languages are without exception.

Studies on sign languages in the past 40 years have shown that human languages can be represented in two modalities: one is visual-gestural modality of sign languages and the other is oral-aural modality of spoken languages (Stokoe 1960, Stokoe et al. 1965, Kilma and Bellugi 1979, Lillo-Martin 1999, 2002; Meier 2002). TSL is widely used by deaf and hearing-impaired citizens of Taiwan. As noted by Smith (1989), TSL originates from two dialects of Japanese Sign Language, which leads to TSL having two mutually intelligible dialects: TSL of Taipei and TSL of Tainan. The grammatical structures of these two dialects are basically the same, whereas they mainly differ in lexicon (i.e., DRAGON, PINE APPLE, etc.) (Chang, Su and Tai 2005). In Taiwan, there is another signing system - Sign Chinese, so called *Wen Fa Shou Yu* 'grammatical sign language', which is created and manipulated for the instructional purpose in education system (Smith 1989). However, the grammatical system of Sign Chinese is based on the Chinese, whereas TSL has its own lexicon and grammar.

This study mainly explores three issues. First, the expression of tense in TSL will be investigated. Second, the functions of temporal adverbs in TSL discourse will be explored, including how signers structure the signing space to anchor the time, and how the temporal frames are established, allocated, and rearranged in signing space to create a coherent discourse. Third, Segmented Discourse Representation Theory (hereafter SDRT) is used to account for how rhetorical relations affect temporal relations.

The rest of this paper is divided into the following sections. Section 2 introduces the tense expression of TSL; Section 3 elucidates the tense structure within TSL discourse; in Section 4, temporal relations between clauses are illustrated, and Section 5 offers the concluding remarks.

## **2. Tense expression in TSL**

Hockett (1960) proposes a list of thirteen designed features of languages which

distinguish human languages from animal communication systems. One of design features is "displacement" which refers to human languages allow user to construct information about the past, present and future, and about the real world as well as imaginary world (Sutton-Spence and Woll 1999). That means sign languages are also able to express events in different time. Examples (3)-(5) examine whether the verb GO in TSL change its form along with different tense or not. (i.e., present time of (3), past time of (4) and future time of (5)). As shown in (3)-(5), the verb GO is articulated with moving the right hand in fist with extended index and middle fingers toward the left hand in flat with extended and together fingers which stands for classifier of SCHOOL.<sup>1</sup> The verb GO consistently remains the same form, even though it is involved in different time, as in Figure (1d), (2d), and (3d). In brief, TSL does not morphologically mark tense on verbs.

(3) HE<sub>i</sub> NOW SCHOOL<sub>j</sub> HE<sub>CL-i</sub>+SCHOOL<sub>CL-j</sub>+ GO

'He is going to school now.'



a. HE<sub>i</sub>

b. NOW

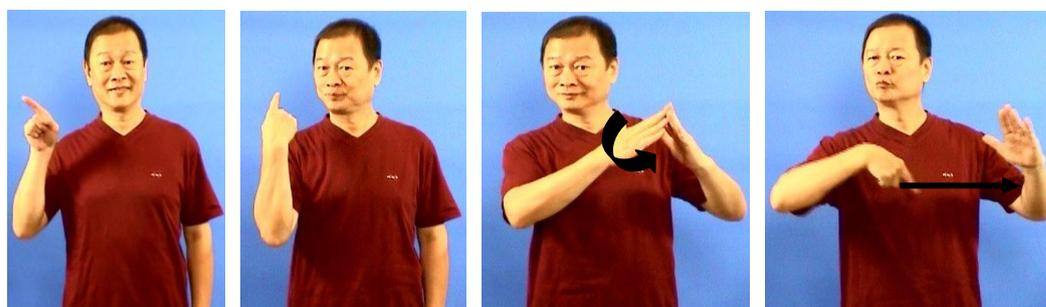
c. SCHOOL<sub>j</sub>

d. HE<sub>CL-i</sub>+SCHOOL<sub>CL-j</sub>+GO

Figure (1)

(4) HE<sub>i</sub> YESTERDAY SCHOOL<sub>j</sub> HE<sub>CL-i</sub>+SCHOOL<sub>CL-j</sub>+ GO

'He went to school yesterday.'



a. HE<sub>i</sub>

b. YESTERDAY

c. SCHOOL<sub>j</sub>

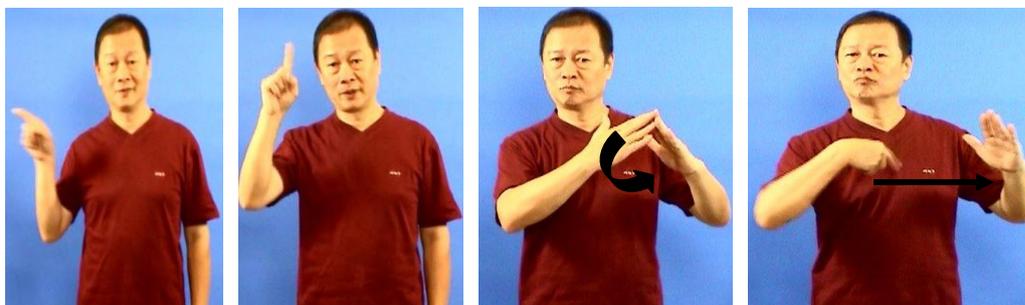
d. HE<sub>CL-i</sub>+SCHOOL<sub>CL-j</sub>+GO

<sup>1</sup> Please check Chang, Su and Tai (2005) for more discussions about classifier predicates in TSL.

Figure (2)

(5)  $HE_i$  TOMORROW SCHOOL<sub>j</sub>  $HE_{CL-i}+SCHOOL_{CL-j}+GO$

'He will go to school tomorrow.'



a.  $HE_i$

b. TOMORROW c. SCHOOL<sub>j</sub>

d.  $HE_{CL-i}+SCHOOL_{CL-j}+GO$

Figure (3)

Most of previous literatures agree that sign languages do not mark tense on verbs (Friedman 1975; Cogen 1977; Emmorey 2002 for American Sign Language; Bernnan 1983; Kyle and Woll 1985; Sutton-Spence and Woll 1999 for British Sign Language; Engberg-Pedresen 1993, 1999 for Danish Sign Language; Pereiro and Soneira 2004 for Spanish Sign Language; Meir and Sandler 2008 for Israeli Sign Language). However, there are few scholars hold different viewpoints about tense expression in sign languages. In the light of proving that sign languages are on a par with spoken languages, the earlier studies of sign languages aim at finding out parallel patterns with spoken languages. Jacobowitz and Stokoe (1988:36) claim that ASL reflects tense on verbs. The future tense in ASL is represented by an extension of the wrist, elbow, shoulder, or neck, and past tense is shown by a flexion of the same joints. Following Jacobowitz and Stokoe's study, Sutton-Spence and Woll (1999:117) also point out that certain sentences in British Sign Language (hereafter BSL) involve the inflection morpheme of tense. They mention that in BSL a forward movement of the head and shoulders may be used to show the future tense; conversely, a backward movement of head and shoulders indicates the past tense. Further, they also find out certain verbs in BSL have independent forms when they are in past tense (i.e., WIN, SEE and GO in BSL).

Engberg-Pedersen (1993:82-83) regards that Jacobowitz and Stokoe's study of tense in terms of extension and flexion of muscles and joints of articulators need more specific description in physical terms of possible articulators, modification of signs and a investigation of possible combination of muscle, but those are beyond the discussion

in linguistics. Likewise, Sutton-Spence and Woll (1999) agree that those non-manual features (i.e., backward or forward movement) cannot be regarded as consistent tense system, since these non-manual features may cover whole phrases or sentences rather than being limited on individual verbs. Further, those verbs with distinctive past tense forms are rare in BSL, so it is better to analyze them as independent lexical items.

As discussed above, some studies dedicate to prove that sign languages are parallel to spoken languages, while some studies accept the viewpoint that some distinctive features of sign languages are due to modality effects (Friedman 1975; Sutton-Spence and Woll 1999) or being Creole-like languages (Meier 2002; Tai 2005, 2006). Do sign languages involve tense inflection is a controversial issue in sign language studies. As mentioned by Friedman (1975:942-943), the reason for sign languages do not mark tense on verbs to maintain the awareness the present time is contributed to the physical aspect of visual language's constraints. Sutton-Spence and Woll (1999) also suggest that since the movement of verbs in sign languages has already been used to convey the grammatical relation or spatial relations between arguments, the verbs can not be marked no more for tense inflection. In addition, as noted by Aronoff, Meir, and Sandler (2005) and Tai (2006), sign languages share many commonalities with young Creole languages, and one of those similarities is no tense marking but a rich aspectual system. Accordingly, without marking tense on verbs in TSL maybe result from modality constraints or being a Creole-like language.

In fact, sign languages mainly resort to individual lexical items (i.e., temporal adverbs) to express the time reference. Like other sign languages, TSL relies on the temporal adverbs to indicate the time of clauses (i.e., NOW in (3), YESTERDAY in (4), and TOMORROW in (5).) However, it is worth clarifying that not all temporal adverbs are able to locate events in time. As mentioned by Smith (1997), temporal adverbs can be categorized as four types which signify different functions respectively, such as locating adverbs (i.e., now, last week), durative adverbs (i.e., for an hour), completive adverbs (i.e., in an hour), and frequency adverbs (i.e., never, sometimes, often). Smith suggests that only the locating adverbs can serve as locating events in time.

To sum up, TSL does not mark tense on verbs; instead, it resorts to temporal adverbs to locate events in time.

### **3. Tense structure in TSL**

Section 2 has indicated that TSL mainly relies on temporal locating adverbs to

express tense. However, not every clause in discourse has to cooccur with a temporal locating adverb. This section is going to investigate how the clauses anchor the time reference in the discourse. Before elucidating the tense structure, the concept and conventions of signing space will be introduced.

### 3.1 Signing space

The signing space is the space surrounding the signer and where the signs are articulated. Specifically, signing space is a three-dimensional space situating in front of the signer which extends vertically from above the signer's head to waist and horizontally from signer's body to an arm's length in front of and to the side of the signer, as demonstrated in Figure (4). While signing, signers employ the signing space to locate the arguments and to materialize their semantic relationships, and results in a coherent discourse.

#### (6) Signing space



Figure (4)

Engberg-Pedersen (1993:71-79) has summarized four conventions (i.e., semantic affinity, canonical location, and comparison as well as iconicity) related to structuring signing space in terms of semantic and pragmatic perspectives, and suggests that the choice of loci in signing space is not arbitrary. The first convention is semantic affinity which refers to referents with semantic affinity to each other are assigned to the same locus unless they need to be further distinguished for discourse reasons. The second is canonical location which indicates that referents tend to be assigned to loci where they are found typically, or a locus where a referent is conventionally associated with. Thirdly, the convention of comparison is related to how signers choose the left sideward locus for one referent and the right sideward locus for another referent when he/she wants to compare or contrast these two referents. Lastly, the convention of iconicity

states that the spatial relation between referents in signing space is a spatial layout of representations of referents as they really are, which is also known as the use of topographic space. However, Engberg-Pedersen reminds that these conventions are the tendencies, but do not serve as obligatory rules while structuring the signing space.

Engberg-Pedersen's (1993) conventions are formulated to predict the choice of loci for referents, but we regard that some of conventions can be extended applied to the expression of time. The convention of semantic affinity states that there is a tendency which referents with shared semantic properties will be assigned to the same locus. Analogically, the referents or events share the same temporal meaning tend to being articulated to the same locus in the signing space. Furthermore, while discussing the interaction between different tense, the convention of comparison will be employed to help structure the signing space. In the following subsection, how temporal frames are conceptualized into the signing space and how the signing space is organized to represent the tense structure will be discussed.

### *3.2 Tense structure*

Section 2 concluded that TSL mainly relies on temporal locating adverbs to express tense. This section will further discuss the functions of temporal locating adverbs in the discourse. In spoken languages discourse, temporal locating adverbs function as scene-setting (Kuno 1975), frame-setters (Chafe 1984), or discourse segment (Virtanen 1992), and they evoke conceptual temporal frames that serve as the time reference for following events, and block following events making time reference to the preceding event or temporal adverb.

Like spoken languages, Friedman (1975) proposes that in sign language discourse, temporal locating adverb will evoke a temporal frame which serves as a temporal reference for following events to anchor the time until new time reference is made. As suggested by Sutton-Spence and Woll (1999), topic-comment structure is commonly found in BSL, and they regard that temporal adverb acts like a topic which sets up a temporal frame and everything that follows is set in this frame. Likewise, temporal locating adverbs in TSL are able to evoke temporal frames for following events to anchor the time, as exemplified in (7).

This discourse describes the situation happening in the airport, and contains nine events, as shown in (7). This discourse only involves one temporal locating adverb (i.e., PAST in event 1), and all the following events are not marked by temporal adverbs. Even though there is no another temporal adverb, the entire following events can be

interpreted as past tense. Since the temporal adverb PAST occurring in the discourse initial position denotes a temporal frame of past tense, the entire following events are bound in this frame and are interpreted as past tense.

- (7) Event1: **PAST** HAVE ONE DAY I INDEX DEAF-MUTUAL-CLUB GO  
 Event2: INDEX<sup>→R</sup> TOUR^LEADER I GO AIRPLANE^LOCATION.  
 Event3: DEAF LINE UP.  
 Event4: DEAF<sub>CL</sub>+ENTER<sup>R→L</sup>  
 Event5: INDEX<sup>→R</sup> TOUR^LEADER INDEX^MALE SELF SIGN-  
 LANGUAGE DON'T-UNDERSTAND  
 Event6: INVITE HELP TRANSLATE PEOPLE<sub>CL</sub>+COME  
 Event7: TOUR^LEADER COME+++ COME +++ MICROPHONE  
<sub>CL</sub>+TALK  
 Event8: TOUR TELL GUIDE YOU CAREFUL  
 Event9: INDEX AIRPLANE CAREFUL LOCATION WHAT TELL  
 CAREFUL

In the past I took a trip with the deaf association. The tour guide and I went to the airport. The deaf people lined up and entered the airport. Since that male tour guide himself doesn't know sign language, he invited a translator to help him. The tour guide talked with microphone and said 'come here.' He required those deaf should be careful and instructed the locations and things which should pay attention to in the airplane.

As exemplified above, the temporal locating adverb will evoke a temporal frame for following events to anchor the time; in other words, it means that all those following events share the same semantic properties – time. Following the conventions of structuring the signing space, we regard that the events share the same time reference may be assigned to particular locus to associate with the temporal meaning. Due to visual-gestural modality, we further propose that signers will conceptualize the temporal frame into the signing space. These conceptualized temporal frames serve as "conceptual setting" (van Hoek 1992), and all the following events signed in the signing space will obtain the temporal meaning. For instance, as in (7), after PAST is signed, the entire signing space is conceptualized as corresponding to the temporal frame "past", and all the following events articulated in the signing space will associate with the temporal meaning "past".

Moreover, in some discourses, they may involve more than one temporal locating adverb, and the shift of temporal frame will occur. In such discourses, a temporal frame will be evoked by the early occurring temporal adverb, and then it will be shifted to another temporal frame when new temporal adverb is addressed, as TSL discourse shown in (8).

The discourse in (8) is a narrative discourse, and we identify the amount of events by the occurrence of verbs. This discourse involves seven events, and there are two temporal locating adverbs was employed in this discourse (i.e., YESTERDAY in the event 1, and TODAY in the event 2). This narrative discourse opens with a temporal locating adverb YESTERDAY, and the following events describe the situation that happened in yesterday until another temporal adverb TODAY-MORNING is made. In brief, the event 1 and the event 2 are within the coverage of the temporal frame "yesterday", and the event 3-7 are included in the temporal frame of "today morning"

- (8) Event 1: ZHU^QUANTIFIER^LEAF GIRL<sub>i</sub> **YESTERDAY** HOME GIRL<sub>CL-</sub>  
<sub>i</sub>+HOME<sub>CL-j</sub>+ GO (i moves away from j).  
 Event 2: SHE LIKE WHAT SING^GUITAR^BAND RECENTLY  
 PUBLISH SING^DISK BUY FINISH  
 Event 3: **TODAY-MORNING** RETURN HOME  
 Event 4: TAKE SING^DISK  
 Event 5: TEAR  
 Event 6: PUT  
 Event 7: STEREO<sub>CL</sub>+PLAY

'Yesterday Julie went out and bought the latest CD by her favorite band. She came home this morning, popped the CD out of its case and put it on the stereo.'<sup>2</sup>

In brief, in (8) the signing space is conceptualized as temporal frame "yesterday", when YESTERDAY is signed in the event 1, and later on the signing space is shifted and conceptualized as the temporal frame "today morning", when the new temporal adverb TODAY MORNING occurs in the event 3.

Moreover, certain discourse may involve comparison or interaction between referents and events in different times. The following discourse in (9) excerpted from a coherent discourse exemplifies how signers structure the signing space to express tense.

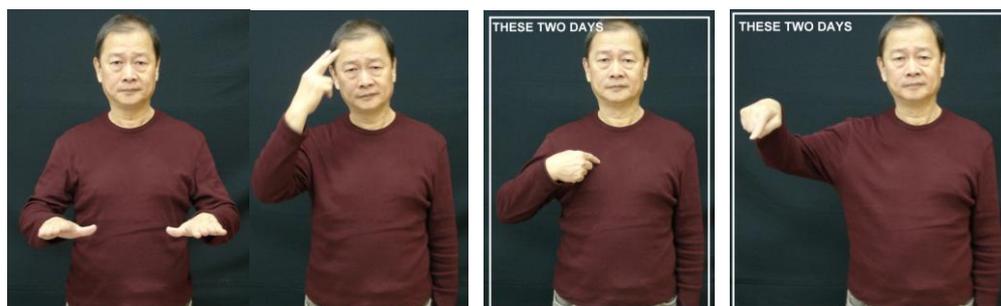
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<sup>2</sup> This English discourse is adopted from Dickey (2001:152). The signer was required to paraphrase the same concept in TSL.

This discourse opens with a temporal locating adverb THESE-TWO-DAYS which evokes a major temporal frame for all the following events, as indicated by white square in Figure (5b). This temporal frame corresponds to the entire signing space, and the events (i.e., 'go to the supermarket' and 'buy things') which are expressed in the signing space obtain the temporal meaning 'these two days', as given in (9).

(9) THESE-TWO-DAYS I GO SUPERMARKET THING BUY

'These two days, I went to the supermarket to buy things.'



a. THESE TWO DAYS

b. I

c. GO



d. SUPERMARKET

e. THING

f. BUY

Figure (5)

In the second sentence, the author comments about the price of the fruits, one is the apple bought yesterday and the other is the banana bought today, as in (10). In this sentence, another temporal locating adverb YESTERDAY is addressed and evokes a sub-temporal frame which is embedded in the major temporal frame 'these two days', as shown in Figure (6c).<sup>3</sup> Further, another temporal locating adverb TODAY is mentioned, and also evokes a sub-temporal frame in the signing space. Since the signing space currently involves two independent temporal frames, the structure of signing space should be rearranged. The temporal frame 'today' is allocated in the left of signing space

<sup>3</sup> Wu (2002) suggests that in discourse some temporal adverbials will evoke sub-temporal frame which offer more specific information for the main temporal frame.

to distinguish from another temporal frame 'yesterday' which is conceptualized as in the right of the signing space, as demonstrated in Figure (6f). Hence, the following signs BANANA and BUY are signed toward the left of signing space to associate with the temporal meaning 'today' rather than being signed in the neutral space as usual, as shown in Figure (6g) and (6h). The following sign COMPARE is signed in both fist with extended index finger, and each of them stands for the fruits bought from different days, as in Figure (6i). The sign BETTER is signed with a leftward movement to indicate that yesterday's apple is better than today's banana, as shown in Figure (6j). Finally, the sign EXPENSIVE is signed at the left of the signing space to associate with the meaning of 'banana' and 'today', as in Figure (6k).

(10) I FIND YESTERDAY APPLE BUY TODAY BANANA BUY  
 COMPARE BETTER EXPENSIVE

'I found that the apple bought yesterday is cheaper than the banana bought today.'



a. I

b. FIND

c. YESTERDAY d. APPLE



e. BUY

f. TODAY

g. BANANA

h. BUY



i. COMPARE      j. BETTER      k. EXPENSIVE

Figure (6)

In the third sentence, the author continually compares the fruits bought from different time. It is worth to note that the identical temporal locating adverbs (i.e., YESTERDAY, and TODAY) are unnecessarily signed again, since the signing space has been already structured as 'yesterday' in the right and 'today' in the left. Thus, the signs are represented with different orientation and direction toward the left or right to associate the specific temporal meaning. The sign PINEAPPLE is signed at the right of signing space to indicate that it was bought yesterday, as in Figure (7a). The sign GRAPES is assigned at the left to associate with the temporal meaning 'today', as shown in Figure (7b). As for the following sign COMPARE, each extended index finger represents the fruits bought from different days, as in Figure (7c). The sign BETTER moves from the right to the left, which means that the yesterday's pineapple is better than today's grapes, as shown in Figure (9d). Lastly, the orientation of the sign EXPENSIVE is signed toward the left to indicate that today's grapes are expensive, as given in Figure (9e).

(11) PINEAPPLE GRAPES COMPARE BETTER CHEAP

'The pineapple bought yesterday is cheaper than the grapes bought today.'



a. PINEAPPLE      b. GRAPES      c. COMPARE      d. BETTER



e. EXPENSIVE

Figure (7)

Finally, after comparing the fruits bought from yesterday and today, the signer further states his opinion about the yesterday's female clerk. To maintain the cohesion of this discourse, the structure of signing space will be kept. The signer uses INDEX, which moves toward the right, to assign the locus for the following argument 'female clerk', as in Figure (8b). Then the sign MONEY^FEMALE 'female clerk' is signed with body leaning left-backward which lets the orientation of body and face more directly face toward the left to associate with temporal meaning 'yesterday', as in Figure (8c). Finally, the adjective PRETTY is also signed toward the right of signing space, as in Figure (8d).

(12) FURTHER INDEX MONEY^FEMALE PRETTY

'Further, yesterday's female clerk is pretty.'



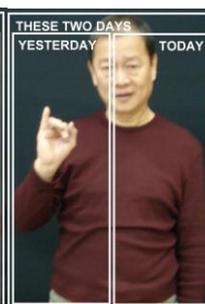
a. FURTHER



b. INDEX



c. MONEY^FEMALE



#### d. PRETTY

#### Figure (8)

To sum up, this section discusses the function of temporal locating adverbs in TSL discourse. We regard that temporal locating adverbs will evoke temporal frames serving as time reference for following events. Due to different modalities, we further propose that signers will conceptualize the temporal frame into the signing space. Once a temporal locating adverb is addressed, the signing space will be conceptualized as corresponding with this temporal frame, and all the following events signed in the signing space obtain the temporal meaning. As for interaction of two or more different time, signer will structure the signing space (i.e., to establish, allocate, and rearrange of temporal frames) to maintain temporal cohesion of discourse. After introducing temporal frames, section 4 will discuss about the interaction between rhetorical relations and temporal relations.

### 4. Temporal relations

#### 4.1 Segmented Discourse Representation Theory

Section 3 mentioned that TSL resorts to temporal locating adverbs to evoke temporal frames which are conceptualized into the signing space. This section further emphasizes in the temporal relations between clauses within a temporal frame. The argumentation proposed in section 3 may confront with some contradictory examples in discourse, and can not predict the tense structure precisely, as show in (13).

- (13) Event 1: TEACHER<sub>i</sub> TODAY UP^CLASS COME NOT-HAVE  
Event 2: HE YESTERDAY GO NIGHT-MARKET  
Event 3: WAY CAR+TEACHER<sub>CL-i</sub>+STRIKE  
Event 4: WOUND VERY  
Event 5: POLICE COME  
Event 6: TEACHER<sub>CL-i</sub>+CAR<sub>CL-i</sub> + PUT  
Event 7: AMBULANCE AMBULANCES<sub>CL-i</sub>+GO HOSPITAL  
Event 8: WE CLASS WORRY

'The teacher did not come to class today. He had a car accident on his way to the

night market yesterday. He was seriously wounded. He was taken to the hospital by the police officer. All our classmates are worried about him.'

In (13), the temporal locating adverb "TODAY" offers temporal reference for the event 1, and "YESTERDAY" evokes another temporal frame for following events to anchor the time. However, the interpretation of the event 8 does not fall within the temporal frame "YESTERDAY"; instead, it takes "TODAY" as its temporal reference. This example shows that our conclusion in section 3 needs to be adjusted or specified. Example (13) shows that the order of events does not obligatorily follow temporal sequence. Put it in another way, after evoking a temporal frame, the following events may not take this frame as temporal reference. To account the temporal relations within temporal frames, we adopt Segmented Discourse Representation Theory (SDRT) as the theoretical framework and take rhetorical relations into consideration.

SDRT is used to model discourse, and resorts to rhetorical relations to interpret discourse (Asher & Lascarides 2003). Rhetorical relation is also named as the discourse relations, (i.e., Narration, Contrast, Evaluation and so forth), which describe the rhetorical roles of utterances play in their discourse context (ibid. 3-4). Further, SDRT is developed to illustrate how rhetorical relations to capture the generalizations, such as temporal structure, individual anaphora, abstract entity anaphora, VP ellipsis, etc. In this paper, rhetorical relations will be adopted to illustrate the temporal relations. How do rhetorical relations correlate with temporal relations? As demonstrated in (14) and (15).

(14) Max fell. John helped him up.

(15) Max fell. John pushed him.

(Asher & Lascarides 2003:6)

In (14) and (15), these two examples have intuitively different temporal relations. In (14), the first event "Max fell" occurred before the second event "John helped him up"; in other words, the order of these two events obey temporal sequence. In (15), the first event "Max fell" happened after the literal preceding event "John pushed him"; that is, the second event signifies the cause of the literal first event. As far as rhetorical relations are concerned, sentence (14) belongs to narration, and sentence (15) is explanation. In brief, different rhetorical relations may involve different temporal relations which may result in events may not take closely preceding temporal adverb as temporal reference, as exemplified in (13).

SDRT is a kind of logical structure which is developed to formalize and represent

the rhetorical relations in the discourse. This theoretical framework contains two primary concepts. The first is the logic of informational content that refers to semantic structure is used to interpret discourse. The second is about the logic of information packaging which involves three concepts, i.e. the glue logic, discourse update, and discourse revision. In other words, the first concept refers to translate the clauses into semantic structure or so called glue language, and the second concept means that to establish the relations between clauses and package them together to interact with other events. To implement SDRT, we have to follow three steps: (1) to translate the clauses into the formula of glue language; (2) discourse update will attach the new information of a new clause to the current SDRS, and determines what kind of rhetorical relations link them together; (3) Maximize Discourse Coherence will be used to determine the best attachment site for the new coming information. To sum up, SDRT is a theory to model the discourse, and proposes several rhetorical relations to investigate the semantic interaction between clauses.

#### *4.2 Temporal relations in TSL*

This section selected one discourse to demonstrate how rhetorical relations affect temporal relation, as given in example (13). In (13), we find out that the event 8 does not take closely preceding temporal adverb "YESTERDAY" as temporal reference; instead, it takes "TODAY". Here, SDRT is employed to demonstrate the rhetorical relations between clauses of this discourse, and to figure out the reason, as given in (16) and (17).

In (16), the clauses are translated into semantic structures; further, the rhetorical relations between clauses are identified and packaged.<sup>4</sup> As indicated in (16), the event 3 and the event 4 have causality relations, and the events 5, 6, and 7 have narrative relations. Hence, the event 3-4 and the event 5-7 are packaged independently, and these two packaged units have narrative relations with each other. Furthermore, the information unit (event 3-7) offers the background information of the event 2; hence, they are packaged as an information unit (event 2-7) to have explaining relation with the event 1. Finally, the information unit (event 1-7) has causality relation with the event 8. The structure of rhetorical relation is demonstrated in (17). By indentifying the rhetorical relations of the clauses, we know that the temporal interpretation of the event 8 does not directly correlated to "YESTERDAY"; rather, the event 8 interact with the information unit (event1-7) and take "TODAY" as reference time.

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<sup>4</sup> The symbol " $\pi$ " stands for event. The rhetorical relations are indicated by the terms in boldface.

(16)

$\pi_1$ : teacher'(x)  $\wedge$  school'(y)  $\wedge$  not\_go'(x, y)  $\subset$  today'

**Explanation ( $\pi_1$ ,  $\pi_{234567}$ )**

$\pi_2$ : teacher'(z)  $\wedge$  night\_market (j)  $\wedge$  go'(z, j)  $\wedge$  j = ?  $\wedge$  j = x  $\subset$  yesterday'

**Background ( $\pi_2$ ,  $\pi_{34567}$ )**

$\pi_3$ : teacher'(k)  $\wedge$  car'(l)  $\wedge$  strike (k, l)  $\wedge$  k = ?  $\wedge$  j = x

**Result ( $\pi_3$ ,  $\pi_4$ )**

$\pi_4$ : teacher'(m)  $\wedge$  seriously\_wound  $\wedge$  m = ?  $\wedge$  m = x

**Narrative ( $\pi_{34}$ ,  $\pi_{567}$ )**

$\pi_5$ : police'(n)  $\wedge$  come'(n)

**Narrative ( $\pi_5$ ,  $\pi_{67}$ )**

$\pi_6$ : police'(o)  $\wedge$  teacher'(p)  $\wedge$  car'(r)  $\wedge$  put'(o, p, r)  $\wedge$  o = ?  $\wedge$  o = n  $\wedge$  p = ?  $\wedge$  p = x  $\wedge$  r = ?  
 $\wedge$  r = s

**Narrative ( $\pi_6$ ,  $\pi_7$ )**

$\pi_7$ : ambulance'(s)  $\wedge$  hospital' (t)  $\wedge$  go' (s, t)

**Result ( $\pi_{1234567}$ ,  $\pi_8$ )**

$\pi_8$ : we' (u)  $\wedge$  worry' (v)

(17) The structure of rhetorical relations

$\pi_0$	$\pi_{1234567}, \pi_8 \quad u \ v$																																									
$\pi_0$ :	<table border="1"> <tr> <td><math>\pi_{1234567}</math>:</td> <td><math>\pi_1, \pi_{234567} \quad x \ y</math></td> </tr> <tr> <td><math>\pi_1</math>:</td> <td><math>teacher'(x) \wedge school'(y) \wedge not\_go'(e1, x, y) &lt; \mathbf{today}'</math></td> </tr> <tr> <td><math>\pi_{234567}</math>:</td> <td> <table border="1"> <tr> <td><math>\pi_2, \pi_{34567} \quad z \ j</math></td> </tr> <tr> <td><math>\pi_2</math>:</td> <td><math>teacher'(z) \wedge night\_market(j) \wedge go'(e2, z, j) \wedge j = ? \wedge j = x &lt; \mathbf{yesterday}'</math></td> </tr> <tr> <td><math>\pi_{34567}</math>:</td> <td> <table border="1"> <tr> <td><math>\pi_{3\pi_4}, \pi_{567}</math></td> </tr> <tr> <td><math>\pi_{3\pi_4}</math>:</td> <td> <table border="1"> <tr> <td><math>\pi_3, \pi_4 \quad k \ l \ m</math></td> </tr> <tr> <td><math>\pi_3</math>:</td> <td><math>teacher'(k) \wedge car'(l) \wedge strike(e3, k, l) \wedge k = ? \wedge j = x</math></td> </tr> <tr> <td><math>\pi_4</math>:</td> <td><math>teacher'(m) \wedge seriously\_wound(e4, m) \wedge m = ? 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## 5. Concluding remarks

Like many other sign languages, TSL does not morphologically mark tense on verbs; instead, it mainly relies on temporal locating adverbs to express tense. Like spoken language, temporal locating adverbs will evoke temporal frames for following events to anchor the time until another new time reference is made. Unlike spoken language, TSL is significantly characterized by conceptualizing the temporal frame into the signing space. By structuring the signing space, signers are able to adjust direction or orientation of signs to associate with the locus where the temporal frame has been established instead of signing temporal adverbs repeatedly. Further, we demonstrate that the interaction between rhetorical relations, temporal relations and temporal relations, and prove that the rhetorical relations will affect time anchoring. The contribution of this study is to demonstrate the tense expression and the tense structure of visual-gestural languages, and points out some distinguished differences between oral-audio and visual-gestural languages. We hope those findings could assist the study of time in linguistics.

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# Reported Speech in Russian and Italian: Verbs of Speech and Particles

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## Abstract

The present paper describes a well-known phenomenon: languages without a special grammatical category to transmit reported speech often do so by lexical means. The analysis focuses on the Russian particles *mol* and *deskat'*—formed from the Old Russian verbs of speech—and their Italian equivalents. Using the semantico-contextual approach, the description offered here helps to formulate the semantics of the two particles and to find their contextual equivalent in Italian: the verb *dire* (to say).

**Key-words:** semantic analysis, Russian particles, verbs of speech, Italian language.

## Introduction

In different languages there are various means of transmitting the words of others without assuming responsibility for what is said (Guentcheva 1996). Some languages have special grammatical categories for this; others use lexical means. This article focuses on Italian and Russian, neither of which has a special mood for this purpose. Grammars (in particular, Salvi & Vanelli 2004) point out that in Italian the conditional mood can be used with a reportative function. This is called the “journalistic” use, and it is widespread in the language of the mass media (see the first example below) and also appears in some expressions showing the disengagement of the speaker—i.e., *secondo lui* (in his opinion, according to someone [examples 2-4]).

- (1) Caduto l'aereo in Nuova Arizona. Il pilota sarebbe sopravvissuto.  
*A plane went down in New Arizona. The pilot [conditional mood, past tense] survived.*
- (2) E' stato trovato stamani in una zona impervia nei pressi del santuario delle Grazie, tra Zoagli e Chiavari, il corpo di Vincenzo Tagliasco, il docente di bioingegneria dell'università di Genova scomparso da venerdì. Secondo i primi rilievi dei carabinieri, il professore sarebbe morto per un colpo di arma da fuoco.  
*This morning in a solitary zone not far from the sanctuary delle Grazie, between Zoagli and Chiavari, the body of Vincenzo Tagliasco was found. The bioengineering professor of the University of Genoa has been missing since Friday. According to the first analysis of the carabinieri, the professor died [conditional mood, past tense] of a gunshot wound.*
- (3) Secondo una corrente teologica Maria si sarebbe addormentata.  
*According to one theological school Maria fell [conditional mood, past tense] asleep.*

- (4) Secondo il New York Times, sarebbe ormai guerra aperta tra USA ed Europa.  
*According to The New York Times, there is [conditional mood, past tense] an open war between the USA and Europe.*

In Russian there are two particles—*mol* and *deskat'*—that serve what could be defined as a reportative function. Dictionaries identify *mol* and *deskat'* as the textual markers of another speaker's words.

If the conditional mood in Italian and the Russian particles *mol* and *deskat'* have both the same (reportative) function, one can suppose that to translate the Russian particles one could use the conditional and vice versa. But in reality *mol* and *deskat'* never correspond to the Italian conditional.

The aim of the present article will be to discover the real role of *mol* and *deskat'* and the real equivalents of these two particles in Italian.

The methodology of this analysis is the semantico-contextual approach to the description of discourse markers elaborated by French and Russian linguists and based on Antoine Culioli's theory of enunciation (Culioli 1990).

Within the framework of this approach the particles considered as part of a larger group of discourse markers are described, like all linguistic units, across several regular formal properties that help to formulate their semantics. Among these regular properties there are the features of the scope, the position of the discourse marker, and the prosodic characteristics (Paillard 1999). In the present article we will analyze the features of the scope based upon which we can draw distinctions between two particles.

This approach is especially helpful for a contrastive analysis because it gives the same criteria for a description. The present analysis will offer a comparison of contexts of use of Russian particles *mol* and *deskat'*, and the contrastive description of Russian particles and their semantico-contextual counterpart(s) in Italian.

For this reason, the article is divided in two parts: the first part is dedicated to the analysis of the Russian particles *mol* and *deskat'*; in the second part, the Italian examples are analyzed.

## **1. Russian particles: *mol* and *deskat'***

### *1.1 Dictionary definitions*

Dictionaries usually define *mol* and *deskat'* as completely synonymous particles whose role is to transmit the discourse of another in the text or to mark words in the text as those of another speaker (Slovar' russkogo jazyka v 4 tomax, Bol'shoj slovar' russkogo jazyka).

But in spite of this similarity, a closer look reveals that the two particles are not interchangeable in all contexts. In general, it is easier to replace *deskat'* with *mol* than *vice versa*. (One reason for this could be the form itself of *mol*: it has properties of a clitic and is easier to connect with other words. However, we will see below that the other reason is the semantics of *mol*.) The use of *mol* is more widespread than that of *deskat'*, which is often considered by native speakers to be antiquated and inadequate for use in the modern language. An analysis of written journalistic language found a

more frequent use of *mol* than *deskat'*. At the same time in the corpus that we used (Russian Corpora in Tübingen) a large amount of occurrences of *deskat'* was found.<sup>1</sup> In examples (5) and (6) below, the particle *deskat'* is used, but it can not be replaced by *mol*.

- (5) “My predložili,-pišut oni,-real'no perevesti masterskuju na polnyj xozrassčet (poka on u nas bumažnyj, no podderžki tak i ne polučili. Vydvigaetsja somnitel'nyj argument : **deskat'** my k etomu ešče ne gotovy”.

*We proposed,-they write,-to put the enterprise on a self-supporting basis. But we didn't get any support. A doubtful argument is adduced: **deskat'**, we are not ready for it.*

- (6) Vosem'desjat pjat' funtov. Tanja odelila dva samyx zamygannyx pjatifuntovika, vložila obratno, usmexnulas'—**deskat'**, čto vy, nikakogo maroderstva ne imelo mesta.

*Eighty-five pounds. Tanja peeled off the two most bedraggled bills, put them back in the wallet, and grinned: **deskat'**, what are you talking about? There wasn't any looting.*

The difference between the two particles can be explained by their semantics, which can be formulated based upon formal features, and especially on the description of the scope, i.e., the part of the enunciation that changes its discourse status under the influence of a discourse marker or a particle.

For the present description it will be useful to distinguish between two positions: that of the first speaker (who describes the situation—we will call him the narrator)<sup>2</sup>—and that of the second speaker (who constructs the enunciation in a described situation—we will call him the speaker). The narrator can also be speaker if he transmits his own words that were said in the described situation.

## 1.2 Analysis of the scope

The scope of both particles has the form of a proposition P that can be an independent phrase or a part of a complex phrase (subordinated or juxtaposed). In both cases P as a scope of the particle (*mol* or *deskat'*) has the status of words that don't belong to the speaker: these are words of the other. In examples (7) and (8) the scope of both particles has the form of an independent phrase.

- (7) ... a novaja žena, Marta, samoljubivaja ženščina, Galočku znat' ne želaet i ee, Evdokiju Nilovnu videt' ne xočet , nikogda sjuda ne priedet , pis'ma ne prišlet i Nikolaju Demjanoviču priezžat' zapreščaet. Den'gi, **mol**, posylaj, a bol'se ničego.

*... and the new wife, Marta, a proud woman, doesn't want to know anything about Galočka, and doesn't want to see her, Evdokija Nilovna. She'll never come here or send a letter, and she forbids Nikolaj Demjanovič to come. Send, **mol**, the money, and nothing else.*

- (8) Teper' Mana svobodna ot splava. I ožila malost' rečenka. Xariusy objavilis'. No skol'ko ja iz-za togo vragov našil! Ot raboty, **deskat'**, odnosel'čan uvel. Rabota xorošim rukam zavsegda syščetsja. I čto za rabota, esli vsem vo vred ?!  
*Now the river Mana breaks free from the float and livens up a bit. The umbers turned back. But how many enemies I've made! You've caused, **deskat'**, the men from your village to lose their jobs. Those with good hands will always find work. And what is the sense of a job that's done at everyone else's expense?*

In example (7), *mol* P is inserted in a narrative that reports the account of Evdokija Nilovna: it is not a first person account from Evdokija Nilovna's perspective (cf. the use of the pronoun *ee*—her—to refer to Evdokija Nilovna); rather, P reproduces the words of the new wife (the speaker) transmitted by the narrator (Evdokija Nilovna). In example (8), *deskat'* introduces the words of the enemies of the narrator. The enemies constitute the speaker, and P is an argument against the actions of the narrator.

If P is part of a complex phrase, it has the form of a subordinate phrase (examples 13 and 14) or of a juxtaposed phrase (examples 9-12). Formally it can be considered indirect speech. In this case the particle and its scope can be preceded not only by verbs of speech (*verba dicendi*) (9) or by nouns describing the act of the communication or the process of thinking (*razgovory, ideja, mysl', argument*—conversation, idea, thought, argument, etc.) (12), but also by verbs of emotion or verbs describing gesture (10) and action (11).

- (9) Večerom volk i medved' prišli k izbuške lisy i sxoronilis'. /.../ Vdrug vidjat bežit zajats. Pozvali oni ego i govorjat : Ty, zajats, na nogu skor, sbegaj k lise, skaži, **mol**, medved' i volk uže prišli.  
*In the evening the wolf and the bear came to the fox's house and hid themselves. Suddenly, they saw a hare running past. They summoned him and said: You, hare, run as fast as you can to the fox and tell him, **mol**, the bear and the wolf have already arrived.*
- (10) - Vidiš' li, ja očen' staryj,-skazal Enen, ševelja vekoj. (Devočka kivnula: **mol**, vižu.)  
*You see, I am very old,—said Ehnen moving an eyelid. The girl nodded her head: **mol**, I see.*
- (11) A supruga ego, očen' počtennaja dama, prosto daže prirevnovala pirata k Korovjevu i daže ložečkoj postučala ... i čto ž eto, **deskat'**, nas zaderživajut ... Pora i moroženoe podavat'!  
*And his wife, a very respectable lady, was even jealous of Koroviev on account of the pirate and even banged a teaspoon... so what's the big idea, **deskat'**, what's holding us up? It's high time they served us our ice cream!*
- (12) “My predložili,-pišut oni,-real'no perevesti masterskuju na polnyj xozrasčet (poka on u nas bumažnyj), no podderžki tak i ne polučili. Vydvigaetsja somnitel'nyj argument: **deskat'** my k etomu ešče ne gotovy”.

*We proposed, –they write, –transferring the enterprise to a self-supporting basis. But we didn't get any support. A questionable argument is adduced: **deskat'**, we are not ready for it.*

In spite of the formal status of the indirect speech, the syntax (word order, syntactical constructions) and the vocabulary of the scope P are typical of the spoken language. From this point of view P can be characterized as direct speech.

- (13) *Vjalo pjaljus' na nego, on prinimaet moju len' za šok i krajne emotsional'no, sotrjasaja moi pleči, načinaet objasnjat', čto on, **deskat'**, ne možet vylovit' menja vtoroj den'.*

*I stare at him inertly, he takes my inertia for shock and very emotionally, shaking my shoulders, starts to explain to me, that he, **deskat'**, has been unable to fish me out for two days.*

- (14) *V svoe vremja bylo nemalo razgovorov po povodu togo, čto vot, **mol**, u amerikantsev est' "čelnoki", a u Sovetskogo Sojuza net. Značit, delalsja vyvod, amerikantsy vperedi v kosmičeskoj gonke.*

*Once there were many conversations to the effect that, **mol**, the Americans have space shuttles and the Soviet Union does not. In other words, it was inferred that the Americans are leading in the space race.*

In example (13), a spoken, emotionally colored verb (*vylovit'*–to fish out) is used; in (14), the whole construction (*vot u amerikantsev*–now in the case of the Americans; verbatim: there are the Americans) is typical of the spoken language: the demonstrative pronoun *vot* (there are) situates the phrase in the coordinate system of “hic et nunc,” in spite of the past tense of the principal phrase.

In particular, the deictic elements used in the scope P represent a distinct point of view. In example (10), the verb *vižu* (I see) has the form of the first person singular that corresponds to the subject of the phrase (*devočka*–a girl). The same thing can be observed in examples (11) and (12): the person presented in the scope–first person plural *nas* (us) in (11), and *my* (we) in (12)–indicates the subject of the phrase introduced before by a pronoun of the third person.

### *1.3 Semantic properties of mol and deskat'*

Based on the properties of the use of the deictic elements, we can formulate the differences between *mol* and *deskat'*.

*Mol* introduces the words of the speaker (or of the presumed speaker). In (9), the narrator (the bear and the wolf) are addressing the hare, and the phrase introduced by *mol* corresponds to the words that will be said by the hare. In (10), the narrator who describes the whole situation interprets the gesture of the girl nodding her head; *vižu* (I see) is the girl's reply. In the two examples below, we can see the same phenomenon: in (15), *on* (he) becomes *ja* (I) in the proposition introduced by *mol*; in (16), *firmy SŠA* (US firms) correspond to *my* (we).

- (15) I vot teper' v pis'me, po forme-objasnitel'noj zapiske na imja pervogo sekretarja obkoma, on sglazhival ugly: voobšče, **mol**, etu istoriju s Safronovym ja ploxo znaju.

*And now, in his letter, styled as an accusatory letter addressed to the first secretary of the regional committee, he was trying to tone things down: actually, **mol**, I don't know much about what's happened with Safronov.*

- (16) Firmy SŠA pytalis' v oblasti biotexnologii nekij čut' li ne diktat ustanovit': **mol**, my pervye vse otkryli /.../

*The US biotech firms were trying to pretty much take over: **mol**, we were the first to discover everything.*

The scope of *deskat'* does not always correspond to the words pronounced by the speaker. This is evident if we examine the use of pronouns more closely. In (12), a questionable argument is adduced by somebody else (the speaker is referred to in the passive voice), but in the proposition itself introduced by *deskat'*, the first person plural is used which corresponds to the person of the narrator (*my predložili*—we proposed): otherwise, *vy* (second person plural) would be used here. In (13), we find the same principle: *on* (he—third person masculine singular) indicates the speaker (*on* in the previous context: he starts to explain to me), while *menja* (me—first person singular) indicates the narrator. In (17), we can see the same phenomenon: the pronoun *mne* (to me—first person singular) in the scope of *deskat'* indicates the narrator who tells the story:

- (17) ...polučiv neprivyčnyj otpor, vosplamenilsja, oral, est', **deskat'**, v Permskoj oblasti kolhoz-millioner, tam by izbu mne dali besplatno...

*... after he had received an unexpected rebuff, he started to howl, there is, **deskat'**, in the region of Perm', a kolkhoz-millionaire, there they would give me a house for free...*

A hypothesis concerning the semantics of both particles was proposed by Denis Paillard (Paillard in press) and is based on these properties of the use of deictic elements, pronouns in particular. *Mol* shows that P is an almost exact reproduction of what was said by the speaker (Sx—in the terminology of Paillard). *Deskat'* shows that P is an interpretation-translation proposed by the narrator of what was said by the speaker. In this case, there is no guarantee that what is said coincides with the original message: P corresponds to the narrator's perspective.

This description could explain the stylistic differences between both particles. *Mol* is used in journalistic discourse; it often accompanies a quotation and is used with set expressions often introduced as a quotation. *Deskat'* marks a stronger link with the context: its scope is incorporated in the context (constructed by the narrator) and is presented as an argument within the development of the context. In (18), the scope of *deskat'* corresponds to the eventual words of the parents (the speaker) introduced by the narrator to clarify what has been said before: ... *told me, that they had spent a lot during holiday and that there would be little left for a birthday party for me.*

- (18) V kontse avgusta my vozvraščalis' s juga, i roditeli každyj raz čestno predupreždali, čto potratilis' na otdyxe i na prazdnovanie deneg počti ne ostalos'. **Deskat'**, osobyx raznosolov, Dima, ne budet.

*At the end of August we would usually return from the sea, and my parents would tell me that they had spent a lot during the holiday and that there would be little left for a birthday party for me. Deskat', there won't be any delicacies, Dima.*

These semantic differences can be explained by the semantics of the verbs that are the origin of both particles. *Mol* derives from the verb *molvit'* (to pronounce), and *deskat'* is the combination of two verbs: *deet'* (*дѣемь*)—the old equivalent of the modern *govorit'*—(to say) + *skazati* (*сказати*) (to say, to talk) (Vasmer, 1950-58).

These three verbs are the verbs of speech in the semantics of which the three components of the communication are included: the participants of the communication (speaker // hearer) that are trying to transmit their own representation of the world using the words.<sup>3</sup>

*Govorit'* (in Old Russian *deet'*) and *molvit'* describe the situation from the point of view of the speaker. The verb *molvit'* designs the speaking activity: a speaker uses words to present his own representation of the world. *Govorit'* describes the process of the addressed speech: the speaker exteriorizes his own representation of the world and transmits it to the hearer.

The semantics of *skazat'* is concentrated on the opposite side of this communication schema: on the hearer's possible interpretation based on the words pronounced by the speaker. *Skažu tebe neprijatnuju novost'* (I'll tell you the unpleasant news)—the news is called unpleasant from the point of view of the hearer (i.e., the news is unpleasant for the hearer). Another example: the expression *Skaži pravdu* (Tell me the truth) is often used during an interrogation where the speaker (who will become the hearer) is the person who knows the truth and is waiting for the confession. Otherwise the verb *govorit'* is used (*Govori pravdu*. —You have to say the truth).<sup>4</sup>

The semantics of both Russian particles reproduces the schema of the communication but involves different parts of it (speaker vs hearer), depending upon the semantics of the particular verb that forms the particle. A case in point is the above example illustrating an essential difference between *skazat'* and *govorit'*.

## 2. Italian equivalents

To create the collection of Italian examples used in this analysis, first of all the Russian words and constructions that generally precede the Russian particles were distinguished. All the constructions can be classified in different semantic groups: verbs of speech (e.g., *skazat'*, *rasskazyvat'*—to say, to talk, to narrate) and nouns describing communication in general (e.g., *razgovor*, *reč'*, *rasskaz*—conversation, discourse, account); words and expressions describing the emotional state of the speaker (e.g., *ulybat'sja*, *smejat'sja*—to smile, to laugh) or describing gestures and mimics (e.g., *pokazyvat'*, *kivat'*—to indicate, to nod). The common feature of all these groups is the presence of two participants (at least) in the situation that is described.

After that the Italian equivalents of Russian constructions were determined. In the created collection of examples<sup>5</sup> the phrases following the words and constructions that had been identified was then analyzed. Two main properties were discovered: the use of punctuation marks (dashes, inverted commas), and the use of the verb *dire* (to say).

- (1) Paola non risponde ; poi nota il mio stupore e sorride – Certo che no! Che domande!  
*Paola didn't respond, then she noticed my surprise and smiled–Of course not! What a question!*
- (2) Davvero? Tutti appassionati archeologi?! – Leila ride - Non lo so. Di sicuro, sono tipi un po' strani.  
*Really? All of them have a passion for archeology?!–Leila laughed–I don't know. But surely, they are strange people.*

In examples (1) and (2), the words introduced after the dash correspond to the interpretation, given by the narrator, of the smile (1) or of the laugh (2) of the other participant in the communication. In the context, nothing tells us that these are the speaker's real words.

In (3), the verb *telefonare* (to call), presupposes that somebody is speaking and indicates that these actual words, introduced by the expression *per dire* ([in order] to say), were pronounced. This case could correspond to the use of the particle *mol*. It is interesting to notice that with Italian verbs of speech the use of the verb *dire* is almost obligatory (Govorukho, 2006).

- (3) Operatori finanziari hanno telefonato alla Banca d'Italia per dire: “Avevate ragione voi e torto la Bundesbank.”  
*Finacial operators called the Bank of Italy to say: “You were right and the Bundesbank was wrong.”*

In examples (4) and (5), the expression *come per dire* (as if to say) marks the sentence that follows as a possible interpretation of the action (4) and of the gesture (5) of the other participant in the communication.

- (4) Ti fanno sentire un perdente e poi ti umiliano appena possono, quasi **come per dire**: dovete vivere la vostra adolescenza in modo brutale come noi.  
*They make you feel like a loser and then they humiliate as soon as they can, as if to say: you have to live your adolescence in a brutal way, as we did.*
- (5) Per proteggerti.–Indicando Eric con un cenno della testa, **come per dire**: per proteggerti da lui.  
*To protect you.–He indicated Eric with a nod, as if to say: to protect you from him.*

In (6) and (7), a correspondence between a gesture (a nod) and the words is created by the narrator: in other words, the gesture is interpreted by the narrator.

- (6) C'è una sosta in uno spiazzo con baracca ristorante. Il vecchio fa cenno **per dire** che posso scendere tranquillo.  
*There is a rest stop with a small restaurant. The old man made a sign to say that I didn't need to worry and I could go down.*
- (7) Fa un cenno al tipo atticciano **per dire** va bene.  
*He nodded to the stocky guy as if to say it's OK.*

The results of this analysis were checked against literary translations into Italian. Passages were chosen in which *mol* or *deskat'* appeared in the original Russian text. In the majority of cases the verb *dire* is used in the translation.

- (8) Berlioz totčas soobrazil, čto sleduet delat'. Otkinuvšis' na spinku skamji, on za spinoju professora zamigal Bezdnomnomu ne protivoreč', **mol**, emu, no rasterjavšijsja poet etix signalov ne ponjal.

*Berlioz understood immediately what was the best thing to do. Leaning back on the bench, behind the back of the professor he began winking at Bezdomyj: don't contradict him, mol, but the poet was confused and didn't understand him.*

Berlioz capì subito quello che conveniva fare. Addossandosi allo schienale della panchina, ammiccò a Bezdomyj dietro le spalle del professore, **come a dire**: non contraddirlo; ma il poeta, smarrito, non capì quei segnali.

Italian translation: *come a dire* (as if to say).

- (9) Publika volnovalas', no idti na stsenu poka nikto ne rešalsja. No nakonets kakaja-to brjunetka vyšla iz desjatogo rjada partera i, ulybajas' tak, čto ej, **mol**, rešitel'no vse ravno i v obščem naplevat', prošla i po bokovomu trapu podnjalas' na stsenu.

*The public was excited, but nobody dared to go out onto the stage. But finally a dark-haired woman emerged from the tenth row of the stalls and smiled: mol, it was really all the same to her and, in fact, she couldn't care less. Then she took the side stairs onto the stage.*

Il pubblico era emozionato, ma nessuno ancora si decideva a salire sul palcoscenico. Finalmente una brunetta uscì dalla decima fila di platea e, sorridendo, **quasi a dire** che a lei non importava niente e se ne fregava, avanzò e salì sul proscenio per la scaletta laterale.

Italian translation: *quasi a dire* (as if to say).

- (10) A supruga ego, očen' počtennaja dama, prosto daže prirevnovala pirata k Korovjevu i daže ložečkoj postučala ... i čto ž eto, **deskat'**, nas zaderživajut ... Pora i moroženoje podavat'!

*And his wife, a very respectable lady, was even jealous of Koroviev on account of the pirate and banged a teaspoon...so what's the big idea, deskat', what's holding us up...? It's high time they served us our ice cream!*

La sua consorte, una signora rispettabilissima, divenne addirittura gelosa delle premure che il pirata dimostrava per Koroviev, e picchiettò perfino col cucchiaino, **come a dire**: perché ci fanno aspettare?... Sarebbe ora di servire il gelato.

Italian translation: *come a dire* (as if to say).

In (8), the particle *mol* introduces the interpretation of the speaker's gesture (a wink); in (9), the emotional verb to smile is followed by the particle *mol* and its scope; in (10), an action (banging a teaspoon) is interpreted by a speech act. The Italian translation of all of these examples includes the verb *dire* (say).

## Conclusion

The Italian verb of speech *dire* can be considered the equivalent of the Russian particles of reported speech. It is possible to speak about a universal process of grammaticalization: the verbs of speech become marks of reported speech. The formal approach proposed here points to the particular (almost grammaticalized) use of the verb *dire* after words and expressions in which semantics presupposes the inclusion of two participants within the communicative situation.

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<sup>1</sup> Since the present analysis describes the modern state of the language we used two parts of the Russian Corpora in Tübingen: the Contemporary Corpora which includes literary and press contents and the Corpus based on 20th century literature.

<sup>2</sup> Often there is also the real narrator—the voice of the author, as in (7), for example. But for this description of particles, his position is not important.

<sup>3</sup> The basis of this description is the vision of communication proposed by Culioli (Culioli 2002), in which, in contrast to pragmatic theories, the speaker does not have the decisive position in the communication. In the construction of the enunciation three elements collaborate: words - world - speaker. There is no direct link between an object of the world and the words. That is why there are different ways to say the same thing and the same word can be interpreted in different ways. The world is accessible through the words, but they transmit only the representation of the world that belongs to the speaker. The following schema represents the process of the communication: So (R') – words – S1 (R). So corresponds to the speaker and his representation (R') of the world which he tries to transmit by the words. S1 – the hearer – interprets the words and gets a representation (R) of the world which does not always correspond to the representation of the speaker.

<sup>4</sup> For a more detailed analysis, see Elizaveta Khachatryan (2006).

<sup>5</sup> For this purpose we used the Italian corpus (Coris/Codis) created at the University of Bologna which includes the texts of different genres of 20<sup>th</sup> century literature.

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**Literary translations of Russian texts**

Akunin, Boris. *Le inchieste dell'ispettore Fandorin*. Translation of Mirko Gallenzi.

Bulgakov, Mikhail. *Il cuore di cane*. Translation of. Viveka Melander.

Bulgakov, Mikhail. *Il Maestro e Margherita*. Translation of Vera Dridso.

# On the Difference in Existential Meaning of Two Aspectual Markers in Modern Korean: the Relation between *-ko iss-*, *-e iss-* and the Existence verb *iss-*.

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## Abstract

It has traditionally been assumed that Korean durative marker *-ko iss-* represents progressives in suffixing to durative verbs.<sup>1</sup> In addition to the aspectual meaning, however, *-ko iss-* also has the existential meaning. For example, the sequence '*nol-ko iss-*' (*nol-* 'to play') expresses action in progress in the aspectual type and the existence of the subject-in-the-act-of-playing in the existential type. These two types behave differently: the existential type has properties quite similar to the existential sentence of existence verb *iss-* i.e., the type of locative NPs, unmarked word orders, etc., while the aspectual type does not.

This existential *-ko iss-*, however, differs from the existential *-e iss-*, which is also an 'aspectual' marker, or from the existential verb *iss-* in the restrictions.

**Keyword:** durative marker *-ko iss-* and *-e iss-*, existential type, aspectual type, existential verb *iss-*

## 1. Introduction

Modern Korean has two durative markers, *-ko iss-* and *-e iss-*. The two forms consist of the nonfinite connective *-ko* and *-e*, plus the verb of existence *iss-*. It has generally been assumed that they represent various aspectual meaning depending on the aspectual properties of the verbs they are attached to: *-ko iss-* is attached to activity and accomplishment verbs and represents progressive meaning as in (1), and *-e iss-* is attached to achievement verbs and represents a resultant state as in (2).

(1) a. *yengi-ka talli-ko iss-ta.*

Yengi-Nom run-KO ISS-Decl

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<sup>1</sup> Durative verbs such as *talli-* 'to run' or *cis-* 'to build'. And in fact it represents resultant states when it suffixes to state-maintenance verbs as *ip-* 'to wear'.

“Yengi (A person`s name) is running. ”

b. yengi-ka pap-ul mek-**ko iss-ta**.  
Yengi-Nom meal-Acc eat-KO ISS-Decl  
“Yengi is having a meal. ”

(2) a. kenmwul-i pwusecy-**e iss-ta**.  
construction-Nom collapse-E ISS-Decl  
“A/ The building in a collapsed state”  
b. kkochoyeng-i kkaycy-**e iss-ta**.  
Vase-Nom broke-E ISS-Decl  
“A/ The vase is broken”

In previous studies it has been said that the meaning of *-ko iss-* and *-e iss-*, i.e., progressive and resultant state, is fully determined by the inherent aspectual values of the verbs or verb phrases to which they are attached.

I show in this paper that it is the meaning of *iss-* that decides the interpretation of these forms. In the other words, regardless of the aspectual values of the VPs it is attached, *-ko iss-* is ambiguous between two kinds of sentence types, the aspectual type and the existential type, whereas for *-e iss-* only the existential type is possible.

For aspectual *-ko iss-*, its meaning is dependent on the inherent aspectual values of the verbs or verb phrases to which they are attached to, and they function as auxiliary verbs, representing progressive or resultant state. Existential *-ko iss-*, I argue represents the existence of subjects regardless of the aspectual properties of the preceding VPs and *iss-* in existential *-ko iss-* is functions as a main verb of the sentence. By contrast, the interpretation of *-e iss-* is existential regardless of the preceding verbs because *iss-* in *-e iss-* is always interpreted as the main verb for existential construction, and not as the aspectual auxiliary verb.

In the aspectual type (3a), *nol-* ‘to play’ is the main verb and *-ko iss-* functions as an aspectual auxiliary. In contrast, in the existential type (3b) *iss-* is the main verb and *-ko* modifies *iss-*, representing a kind of manner of existence. For *-e iss-*, as noted above, aspectual type (4a) is not permitted, so only the existential interpretation (4b) is possible.

(3) a. [ai-ka nol-][**ko iss-ta**.] ( the aspectual type)  
child-Nom play-KO ISS-Decl

“A/ The child is playing”

b. ai-ka [nol-ko] iss-ta. ( the existential type)

child-Nom play-KO ISS-Decl

“There is a child playing”

(4) a. \*[elum-i nok-][e iss-ta.] ( the existential type)

ice-Nom melt-E ISS-Decl

b. elum-i [nok-e] iss-ta.

ice-Nom melt-E ISS-Decl

“There is ice melted”

This paper is organized as follows. Section 2 offers a brief overview of the Korean *-ko iss-*, *-e iss-* and their grammatical meaning. In section 3, I will give evidence that supports the ‘Existential’ meaning of the Korean durative form *-ko iss-*, *-e iss-* and proposes a hypothesis as to how the ‘Existential’ meaning has arisen from durative and is currently on its way to full grammaticalization. Section 4 concludes the paper.

## 2. Previous Analyses

Here I review two studies that dealt with the meaning of <iss-> of <-ko iss-> and <-e iss->.

Lee (1998) deals with the syntactic and semantic functions of these two durative forms. She analyzes the functions of <-ko iss-> and <-e iss-> from their co-occurrence with *NP-ey* phrases. She observes that *-ko* and *iss-* used with transitive verbs of change-of-state, e.g. *ip-ta* ‘to wear’ and *sin-ta* ‘to wear’ can be separated by a locative phrase *NP-ey* (e.g. *VP-ko NP-ey iss-ta*), and claims that both V and *iss-* are functioning as main verbs, concatenated by a connective *-ko*, representing perfect meaning. <-ko iss-> with activity verbs cannot be separated by *NP-ey* phrase as (*chwum-ul*) *chwu-ta* ‘dance’ and (*pap-ul*) *mek-ta* ‘to eat meals’ (e.g. *pap-ul mek-ko NP-ey iss-ta*), and here *iss-*’s are the part of subsidiary verbs to represent progressive meaning.

Next she discusses <-e iss-> sentences. <-e iss->, which suffixes only to intransitive verbs of change -of-state, represents perfect meaning regardless of the separability.

Lee assumes like in previous studies, that the meanings of <-ko iss-> and <-e

iss-> are determined depending on the aspectual meaning of the verbs: when the main verb represents change of state, <-ko iss-> and <-e iss-> have a perfect interpretation, and when the main verb doesn't represent some change of state, <-ko iss-> has a progressive interpretation.

- V [+change] - ko iss-ta ----- separable with NP- ey ----- perfect meaning
- V [+change] - e iss-ta ----- ???-----perfective meaning
- V [-change] - ko iss-ta -----inseparable with NP-ey ---- progressive meaning
- V [-change] - e iss-ta -----ungrammatical

In this paper, I will show below that it is the meaning of <iss-> in <-ko iss-> and <-e iss-> and the two types of constructions it goes into that determines the interpretation of these forms, I argue that <-ko iss-> construction has two types, one is the existential type whose main verb is <iss->, and the other is the aspectual type, where <iss-> functions as an auxiliary verb, there are always two types of <-ko iss-> constructions regardless of the meaning of verbs. I show that activity verbs such as *talli-* 'to run' or (*pap-ul*) *mek-* 'to eat (meal)' can have two types of <-ko iss-> constructions contra Lee (ibid).

Ahn and Fukushima (2001) analyze <-ko iss-> and <-e iss-> constructions in terms of grammaticalization. They argue that for *-te iru* and *-te aru* at the end of Middle Japanese and <-ko iss->, <-e iss-> in Modern Korean, the meanings of the existential verb *iru, aru / iss-ta* affect them relatively strong and less grammatical comparing with *-te iru* in Modern Japanese. They argue for the existential <-ko iss-> and <-e iss-> in Korean, showing the following set evidences; (1) <-e iss-> always needs a *NP-ey* locative phrase as a semi-obligatory argument, (2) <-ko iss-> co-occurs with a *NP-ey* locative even when there is an *NP-eyse* locative, (3) verbs which do not take *NP-ey* locative arguments such as *po-* 'to see' or *masi-* 'to drink' can take them as arguments in the <-ko iss-> constructions.

Ahn and Fukushima (ibid.) don't discriminate between two types of <-ko iss-> constructions, which I will show in Section 3. Moreover, they don't give the detailed explanation about the interpretations of <-ko iss-> and <-e iss-> themselves, so it is not certain from Ahn and Fukushima (2001) about the relation with the meaning of progressive <-ko iss-> and resultant state <-e iss-> which earlier literatures mentioned, or about the differences between the interpretations with *NP-ey* and *NP-eyse* locatives.

### 3. Proposal: Two *-ko iss-* and one *-e iss-*

### 3.1 *-e iss-* expressing existence of entity

In this section, we will examine the properties of these two constructions, and show that the *-ko iss-* construction has two interpretations, aspectual type and existential type, whereas *-e iss-* has only one interpretation, the existential type.

Firstly, for *-e iss-* to be used the object referred to by the subject noun must exist in the context.

- (8) a. *cungke-ka epseci-ko iss-ta.*  
evidence-Nom disappear-KO ISS-Decl  
“The evidence is disappearing.”  
b. \**cungke-ka epseci-e iss-ta.*

( Kim 2006 : 24-25)

(8a) can be used, because *cungke* exists in the location of utterance, whereas (8b) cannot because the resultant state of *epseci-e iss* represents the absence of the subject in the location. *E iss-*, thus, cannot be used to express the absence of the subject as shown by the unacceptability of (8b). The fact *-e iss-* cannot express non-existence can also be seen in the following example.

- (9) ?? *nayngcangko-ey tulai-aisu-ka nok-a iss-ta.*  
refrigerator-Loc **dry\_ice** -Nom melt-E ISS-Decl  
“(Lit.) There is dry ice melted in the refrigerator”

- (10) *nayngcangko-eyse tulai-aisu-ka nok-ass-ta. (PAST)*  
refrigerator-Loc **dry\_ice** -Nom melt-PAST-Decl  
“(Lit.) Dry ice has melted in the refrigerator”

Dry ice disappears after evaporating (as its name suggests), so we cannot use *-e iss-*. The past form *-ess-* must be used in such a case. The constraint can be accounted for, as argued for in Kim (2006), if we assume that *iss-ta* denotes existence in *-e iss-*.

I will show that the *-ko iss-* construction expresses either the existential as well as the progressive (aspectual) meaning, as opposed to *-e iss-*. Korean has the two locative markers, that is *-ey* and *-eyse*. *-ey* expresses the location of an object and *-eyse* the location of an event as can be seen in (11) (cf. Sin 2002, Nam 1993, among others).

- (11) a. *chayksang-wi-[ey/\*eyse]*    *chayk-i*            **iss-ta.**  
           desk-on-Loc                    book-Nom            be-Decl  
           “There’s a book on the desk.”
- b. *hoyuysil-[eyse/\*ey]*            *hoyuy-ka*            **iss-ta.**  
           meeting\_room-Loc            meeting-Nom        be-Decl  
           “‘We have a meeting at the meeting room.’”

In (11a), *chayksang-wi-ey* ‘on the desk’ denotes the place of the subject *chayk* ‘book’, and in (11b), *hoyuysil-eyse* ‘at the conference room’ denotes the location where the subject event *hoyuy* ‘meeting’.

The fact that *-ko iss-* can co-occur both with *-ey* and *-eyse* shows that *iss-* in *-ko iss-* can refer to both the location of an event and that of an object. In (12), for example, *iss-ta* can express the existence of the event of a child playing or that of a child in the park.

- (12) a. *nolithe-an-[eyse/ ey]*    *elin ai-ka*    *honacase*            **nol-ko iss-ess-ta.**  
           playground-in-eyse/-ey child-Nom    alone            play-KO ISS-Past-Decl  
           “A/ The child was playing in the playground.”

In contrast, since *iss-ta* in *-e iss-ta* denotes existence of the subject NP and not that of an event *-eyse* is unacceptable, as shown in (13).

- b. *nayngcangko-[\*eyse/ ey]*    *aisukhulim-ka*    *nok-a iss-ta.*  
           refrigerator-eyse/ ey        ice\_cream-Nom    melt-E    ISS-Decl  
           “‘There’s a melted ice cream in the refrigerator.’”

Thirdly, as noted in Kim (2007) noted that interpretation of existence is related to word order in sentences with *-ko iss-*. Kuno (1973) assumes that LSV is the basic word order of existential sentences in Japanese. His assumption also applies to Korean, a fact that indicates that *-ko iss-ta* can be a locative sentence with *iss-ta* as an existential main verb.

- (13) a. (?) *nolithe-ey*            *ai-ka*            **nol-ko iss-ta.**  
           playground -ey            child-Nom        play-KO ISS-Decl  
           “‘There’s a child in playing at the playground.’”
- b. ?? *ai-ka*            *nolithe-ey*        **nol-ko iss-ta.**  
           child-Nom            playground -ey    play-KO ISS-Decl



“The nervous girl danced on the stage.”

c. hakkyo-kwunay siktang-an-[eyse /\*ey] yengi-ka honcase cemsim-ul  
 school-campus dining\_room- eyse/ey -Nom alone lunch-Acc  
 mek-  $\phi$  -ess-ta.  
 eat-  $\phi$  -Past-Decl

“At the dining hall Yengi had lunch alone.”

-eyse-, in contrast can be used regardless of whether -ko iss- is attached to the verb or not.

(16) a. kyosil-an-ey swuhak-sensayngnim-i

classroom-in-ey mathematic-taecher-Nom

chilphan-ey yensup-mwuncey-lul phwul-ko iss-ess-ta.

blackboard-ey exercise -Acc solve-KO ISS-Past-Decl

“**At the classroom** the mathematics teacher was solving an exercise

**on the blackboard.**”

b. kyosil-an-ey haksayng-tul-i kongchayk-ey philki-ha-ko iss-ess-ta.

classroom-in-ey student-PI-Nom notebook-ey write-KO ISS-Past-Decl

“**In the classroom** the students were writing **on their notebooks.**”

(17) a. \*kyosil-an-ey swuhak-sensayngnim-i chilphan-ey

classroom-in-ey mathematic-taecher-Nom blackboard-ey

yensup-mwuncey-lul phwul-  $\phi$  -ess-ta.

exercise -Acc solve-  $\phi$  -Past-Decl

b. \*kyosil-an-ey haksayng-tul-i kongchayk-ey philki-lul ha-  $\phi$  -ess-ta.

classroom-in-ey student-PI-Nom notebook-ey write-KO ISS-Past-Decl

The fact indicates that NP-ey is licensed by iss- of -ko iss- and not by preceding verbs.

### 3. 3 Proposal: Existential type of -ko iss- and Existential verb iss-

In sentences with -ko iss-, the aspectual progressive interpretation is preferred to the existential interpretation. In fact, some restrictions are imposed only on the existential type of the -ko iss- construction. In this subsection, I will examine some restrictions on the existential type, and why such restrictions exist by showing its



- b. namwu-**eyse** swi-eyo.  
 tree rest-Decl “She’s taking a rest at the tree.”
- c. ?\*namwu-**ey** **iss**-eyo.  
 tree -ey be-Decl “She’s at the tree.”
- d. namwu-**aph-ey** iss-eyo.  
 -front-ey be-Decl “She’s in front of the tree.”

- (22) a. Question: yengi cikum eti-**ey** **iss**-ni? “Where is Yengi now?”
- b. hyenkwanmwun-**eyse** kitaly-eyo.  
 front\_door -eyse waite-Decl “She’s waiting at the front door.”
- c. ??hyenkwanmwun-**ey** iss-eyo.  
 front\_door-ey be-Decl “She’s at the front door.”
- d. hyenkwanmwun-**aph-ey** iss-eyo.  
 front\_door-front-ey be-Decl “She’s in front of the front door.”

The existential meaning of the *-ko iss-* construction appears ‘weaker’ in that it does not have the full-fledged distribution of existential *iss-* used independently.

- (23) a. kyosil-**ey** yengi-ka iss-eyo.  
 classroom-ey -Nom be-Decl  
 “Yengi is in the classroom.”
- b. ?kyosil-**ey** yengi-ka kongpwu-lul ha-**ko** **iss**-eyo.  
 study -Acc do-KO ISS-Decl
- c. kyosil **aph-cali-ey** yengi-ka kongpwu-lul ha-**ko** **iss**-eyo.  
 front-seat-ey -Nom study -Acc do-KO ISS-Decl

In (23a), a simple existential sentence is completely acceptable without location-specifying words such as *mith* or *aph*, (23b), an existential type of *-ko iss-*, sound a little odd, and must be reinforced by some location-specifying word.

Although *-ko iss-* sentences with *-ey* are not full-fledged existential sentences, they can be made more acceptable by adding more information about the subject and the location, i.e. emphasizing the existence of the subjects and the locations. Consider first, the example (24).

- (24) ?nolithe-ey ai-ka nol-**ko** **iss**-ta.

playground-ey child-nom play-KO ISS-Decl

“There’s a child in playing at the playground.”

In (25) and (26), modifiers are used to specify the location or the subject, respectively. In each case, the acceptability of the sentences improves.

(25) a. haksayng-tul-lo pwumpi-nun hakkyo-siktang-ey  
student-Pl-Inst crowd-Con school-dining room-ey

yengi-ka pap-ul mek-**ko iss-ta.**  
-Nom meal-Acc eat-KO ISS-Decl

“**At the dining room crowded with students,** yengi is having a meal.”

b. etwuketwukhayci-n hakkyo-yeph nolithe-ey

dark-Con school-next playground-ey

ai-ka nol-**ko iss-ta.**  
child-Nom play-KOISS-Decl

“**At the dark playground by the school** a child is playing.”

(26) a. hakkyo-siktang-ey sihem-ul machi-n yengi-ka  
school-dining room-ey test-Acc finish-Con -Nom

pap-ul mek-**ko iss-ta.**  
meal-Acc eat-KO ISS-Decl

“At the dining room, **Yengi, who has finished**

**his examination,** is having a meal.”

b. nolithe-ey ppalka-n moca-lul ssu-n

playground-ey red-Con hat-Acc wear-Con

ai-ka nol-**ko iss-ta.**  
child-Nom play-KOISS-Decl

“There’s **a playing child wearing a red hat.**”

In the case of (27), however, where the verbs are modified by adverbial phrases, the acceptability is not improved unlike (25)(26), but remains a little odd as (24). See (27).

(27) a. ?hakkyo-siktang-ey yengi-ka massiss-key pap-ul mek-**ko iss-ta.**  
school-dining room-ey -Nom relish meal-Acc eat-KO ISS-Decl

“At the dining room yengi is having a meal **with a relish.**”



#### 4. Conclusion

In this paper, I have discussed the difference in the existential meaning of two durative markers in modern Korean, *-ko iss-* and *-e iss-* as they relate to the verb of existence *iss-*. *-ko iss-* can be employed for the aspect type and the existential type, while *-e iss-* can be allowed only as an existential type.

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# Perfect Versus Past in Korean

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## Abstract

This paper investigates two Korean suffixes—the simple form *-ess* and the double form *-essess*. Both have past time reference and are compatible with past-time adverbials. It is argued that only *-essess* is a true past tense, whereas *-ess* is a perfect, and that the meaning of discontinuity previously claimed to be associated with *-essess* should be treated as an implicature. It is also suggested that the cross-linguistic difference in the (in)compatibility of the perfect with past-time adverbials should be accounted for in relation to the meaning of the present tense (i.e. (im)perfectivity) in the language. Finally the proposed analysis provides an explanation for the analyses in which the English perfect is ambiguous between a universal and an existential reading.

**Keywords:** tense, aspect, perfect, current relevance, epistemic modality

## 1. Introduction

In this paper I investigate two Korean suffixes—the simple form *-ess* and the double form *-essess*. Both forms have past time reference and are compatible with past time adverbials, as shown in (1).

- (1) a. *Mary-ka cinan cwu-ey Seoul-ey o-ass-ta.*  
Mary-NOM last week-LOC Seoul-to come-PFCT-DEC  
'Mary came to Seoul last week.'
- b. *Mary-ka cinan cwu-ey Seoul-ey o-assess-ta.*  
Mary-NOM last week-LOC Seoul-to come-PAST-DEC  
'Mary came to Seoul last week.'

Both sentences in (1) describe past events, which are modified by the past time adverb *cinan cwu* 'last week'. The issue of this paper is whether or not the two Korean forms are the same past tense, and if they are not, what distinguishes the two. I argue that

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\* I would like to thank the 18<sup>th</sup> CIL Tense, Aspect, and Modality Session audience for their comments. All shortcomings are my own.

only *-essess* is a true past tense, and that the meaning of discontinuity previously claimed to be associated with it should be treated as a pragmatic implicature of past (cf. Iatridou 2000). Thus, I argue that the difference between the simple form *-ess* and the double form *-essess* mirrors the difference between the perfect and the past manifested in most European languages.

## 2. Previous analyses

The simple form *-ess* has been analyzed as a perfective (Na 1971; Nam 1978, 1996), a (present) perfect (Choi 1983), an anterior (H.-S. Lee 1991; Han 1996), a past (C.-M. Lee 1985), or ambiguous between a perfect and a past (Suh 1996; Song 2003), whereas *-essess* has been analyzed as a pluperfect (H.-B. Choi 1983; Gim 1985; H.-M. Sohn 1994; E.-H. Lee 2007), an aspect of discontinuity (Nam 1978, 1996), or a past tense with the meaning of discontinuity (Kim 1975; C.-M. Lee 1987).<sup>1</sup> In this paper I only focus on *-ess* as past tense approaches and *-essess* as pluperfect approaches.<sup>2</sup>

### 2.1. *Is -ess a past tense?*

C.-M. Lee (1987:438-9) defines the simple form *-ess* as a past tense, which has not only the truth-conditional meaning of some event occurring in the past but also the pragmatically implicated meaning of the result state of the event continuing until the speech time. However, I show that the event referred to by *-ess* is not necessarily in the past and that rather *-ess* exhibits typical characteristics of present perfects in languages like English. First, as C.-M. Lee (1987) argues, the simple form and the double form can refer to past situations with the different status of result state. Compare the following set of data:

- (2) a. *Mary-ka*            *Seoul-ey*            *o-ass-ta.*  
       Mary-NOM        Seoul-to            come-PFCT-DEC  
       ‘Mary came to Seoul last week.’ [Mary is in Seoul]
- b. *Mary-ka*            *Seoul-ey*            *o-assess-ta.*  
       Mary-NOM        Seoul-to            come-PAST-DEC  
       ‘Mary came to Seoul last week.’ [Mary left Seoul]

<sup>1</sup> In fact, Kim (1975) defines *-essess* as a past tense with an ‘experiential-contrastive’ aspect. However, it seems to me that his notion of experiential-contrastive aspect meaning is almost the same as the notion of discontinuity claimed by other Korean linguists.

<sup>2</sup> For the discussion of the other approaches, see Chung (2005).

Although both sentences in (2) have past time reference, they express different situations: (2a) with *-ess* implies that there was a past event of Mary's coming to Seoul and its result state (i.e. Mary still staying in Seoul) holds at the present moment, whereas (2b) implies that the result state no longer holds (cf. Nam 1996:475).

Second, *-ess* is compatible with present-time adverbials such as *now*, although *-essess* is not, as shown in (3).

- (3) a. *cikum Mary-ka Seoul-ey o-ass-ta.*  
 Now Mary-NOM Seoul-to come-PFCT-DEC  
 'Mary has come to Seoul now.'
- b. *\*cikum Mary-ka Seoul-ey o-assess-ta.*  
 Now Mary-NOM Seoul-to come-PAST-DEC  
 '\*Mary came to Seoul now.'

This contrast also holds for the present perfect and the past tense in languages like English. Although present perfect is compatible with *now*, the past tense is not, as shown in the English present perfect and simple past sentences in (4) and the corresponding Italian sentences in (5) (Giorgi and Pianesi 1997:88).

- (4) a. Now I have eaten enough.  
 b. \*Now I ate enough.
- (5) a. Adesso ho mangiato abbastanza.  
 b. \*Adesso mangiai abbastanza.

Third, it has been noted that cross-linguistically past is not used for future or with future, although perfect (or perfective) can (Bybee et al. 1994:95; Giorgi and Pianesi 1997:89). That is, past only refers to situations in the past. Consider the Korean data in (6): *-ess* can co-occur with a future time-adverbial, while *-essess* cannot.

- (6) a. *ne nayil(-i-myen) cwuk-ess-ta.*  
 You tomorrow(-be-if) die-PFCT-DEC  
 'You are dead tomorrow.'
- b. *\*ne nayil(-i-myen) cwuk-essess-ta.*<sup>3</sup>  
 You tomorrow(-be-if) die-PAST-DEC  
 'You are dead tomorrow.'
- (7) *wuli-ka kuki tochakha-yss/\*??-yssess-ul-ttay-nun*  
 we-NOM there arrive-PFCT/ PAST-ATT-time-TOP  
*mary-ka ttena-ko eps-keyss-ta.*  
 Mary-nom leave-conj not.be-MOOD-DEC  
 'When we have arrived there, Mary will have left there.'

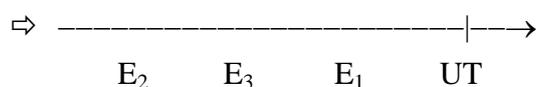
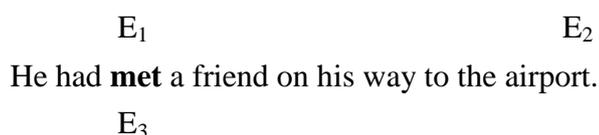
<sup>3</sup> Sentence (6a) is commonly used when the speaker wants to scare or tease the hearer.

In (7), the event of the embedded clause is in the future, and *-ess* is fine but *-essess* is not. So we see that *-ess* does not behave like a past tense but rather like a perfect. In what follows, I will argue that *-ess* is a perfect form with notions like current relevance.

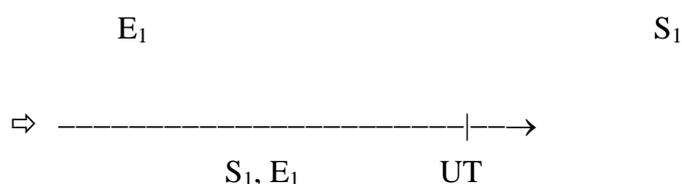
## 2.2. Is *-essess* a pluperfect?

In this section, after examining the double form *-essess* as pluperfect (or a past perfect) approaches, particularly E.-H. Lee's (2007) analysis, I will show problems with the approach and that the past tense approaches account for data with *-essess* better. It has been noted that the English pluperfect has two different readings—a temporal pluperfect (or preterit) reading and an aspectual pluperfect reading, as illustrated in (8a) and (8b) respectively:

- (8) a. John **arrived** at the airport at nine. He had **left** home two hours earlier.



- b. John **arrived** at the airport at nine. Mary had **already arrived** there.



The past perfects in (8a) simply locate the events earlier than the past-tensed event that provides the reference time and thus trigger a flashback effect; the past perfect in (8b) indicates that the result state of Mary's arriving at the airport, i.e., Mary's being at the airport, obtains at the time of John's arrival. The evidence for the ambiguity theory is that the past perfect of the preterit use can be substituted by a past tense (see (9a)), whereas that of the aspectual use cannot (see (9b)) (Ogihara 1996: 15).

- (9) a. John arrived at the airport at nine. He left home two hours earlier. He met a friend on his way to the airport.  
 b. John arrived at the airport at nine. #Mary already arrived there.

Based on this distinction, E.-H. Lee (2007:9) argues that *-essess* is a special kind of pluperfect that refers to an event preceding the given reference time but lacks an

aspectual interpretation (i.e. requires the absence of resultant state at the reference time), as illustrated in the following Korean examples corresponding to (9):

- (10)a. *John-i konghang-ey ahop-si-ey tochakha-yss-ta.*  
 John-NOM airport-LOC nine-o'clock-LOC arrive-PFCT-DEC  
 'John arrived at the airport at nine.'  
*ku-nun twu-sikan-cen-ey cip-ul nao-assess-ta.*  
 He-TOP two-hour-before-LOC house-ACC come.out-PAST-DEC  
 'He had left home two hours earlier.'  
*kuliko konghang-ey o-nun kil-ey chinkwu-lul mana-ssest-ta.*  
 and airport-to come-ATT way-LOC friend-ACC meet-PAST-DEC  
 'And he had met a friend on his way to the airport.'
- b. *John-i konghang-ey ahop-si-ey tochakha-yss-ta.*  
 John-NOM airport-LOC nine-time-LOC arrive-PFCT-DEC  
*Mary-nun pelsse \*/??tochakha-yssess-ta. /tochakha-y iss ess-ta/*  
 Mary-TOP already arrive-PAST-DEC /arrive-RESUL-PFCT-DEC  
 'John arrived at the airport at nine. Mary had already arrived there.'

In (10a), the *-ess* clause describes a past event and the *-essess* clause introduces an event that precedes the *-ess* event, triggering a flashback effect. In contrast, in (10b), we see that for the aspectual pluperfect reading, *-essess* is not acceptable although the resultative form *-e iss* is.

However, there are some problems with this pluperfect approach. First, as E.-H. Lee (2007) notes, *-essess* does not have an aspectual reading of the past perfect (see (10b)). If *-essess* is a true pluperfect, we need to explain why, unlike pluperfect forms in other languages, it only has the temporal (preterit) reading. Moreover, we also need to explain why *-essess* chooses the temporal reading instead of the aspectual reading, since the latter seems to be more intrinsic to the pluperfect than the former.

The second problem is, connected to the first problem, that pluperfects in languages like English and Italian allows two distinct time references, but *-essess* does not, as shown in (11)

- (11) a. Yesterday, Mary had left already/the day before.  
 b. *\*ecey(-nun) Mary-ka pelsse /ku cen-nal ttena-ssest-ta*  
 yesterday(-TOP) Mary-NOM already/that before-day leave-PAST-DEC  
 'Yesterday Mary had left already/the day before.'

While (11a) indicates that the pluperfect event of Mary's leaving is prior to (i.e. distinct from) the reference time, which is not the utterance time, (11b) indicates that *-essess*

does not allow a reference time that is distinct from the event time.<sup>4</sup>

Third, *-essess* is not even allowed in the typical pluperfect situations for the temporal reading, as in (12):

- (12) a. Mary made it to Boston on Thursday, and John had left on Wednesday  
/the day before.  
b. ??*Mary-nun Boston-ey mokyoil-ey ttuna-ss -ko*  
Mary- TOP Boston-to Thursday-LOC leave-PFCT-CONJ  
*John-un swuyoil-ey /ku cen-nal ttena-ssess-ta.*  
John- TOP Wednesday-LOC /that before-day leave-PAST-DEC  
'Mary made left for Boston on Thursday, and John had left on Wednesday  
/the day before.'

The pluperfect sentence in (12a) indicates that the event of John's leaving simply occurred on Wednesday, i.e. prior to Mary's leaving, not focusing on the result state of John's leaving. Still the corresponding Korean sentence with *-essess* in (12b) does not sound natural.

So far I have shown problems with the pluperfect approaches of *-essess*. In what follows I will show that the flashback effect associated with *-essess* can be accounted for by past tense approaches. The arguments come from some restrictions on the order between *-ess* and *-essess* in the time line, which parallel to those on the order between the perfect and the past in European languages. First, the past-tense marked event precedes the perfect-marked event in actual time in languages like English and Italian, but the perfect-marked event cannot be anterior to the past tense event, as shown in the following (Giorgi and Pianesi 1997:89).

- (13)a. Gianni emigro negli Stati Uniti, ma poi e tornato.  
'Gianni emigrated(PAST) to the States, but he has come(PFCT) back.'  
b. \*Gianni e emigrato negli Stati Uniti, ma poi torno.  
'\*Gianni has emigrated(PFCT) to the States, but then he came(PST) back.'

This difference also holds for *-ess* and *-essess*: the event referred to by *-ess* cannot be anterior to the event referred to by *-essess*, as in (14).

- (14) a. *mary-ka mikwuk-ey imin-ul ka-ssess-ta.*  
Mary-NOM USA-to emigration-ACC go-PAST-DC  
*kulentey tasi tolao-ass-ta.*  
but again return-PFCT-DC

<sup>4</sup> Actually E.-H. Lee uses this fact as an argument for her claim that *-essess* only has a preterit reading while the English pluperfect is ambiguous between an aspectual and a temporal reading. However, even if *-essess* only has a temporal reading, there is no reason why it cannot have a reference time distinct from the event time because it should denote a certain time (namely, the event time) prior to the reference time, as a pluperfect does. That is, *-essess*, as a pluperfect, should provide two distinct time intervals other than utterance time. If it only allows event time, then it should be, not a pluperfect, simply a past tense in which the event time is simultaneous with the reference time in the Reichenbach's (1949) scheme.

‘Mary emigrated to the USA. But she has come/came back.’

- b. \**mary-ka mikwuk-ey imin-ul ka-ss-ta.*  
 Mary-NOM USA-to emigration-ACC go-PFCT-DC  
*kulentey tasi tolao-assess-ta.*  
 but again return-PAST-DC

‘\*Mary has emigrated to the USA. But she came back.’

Second, when the linear order in which two clauses appear contradicts the actual temporal order of the events reported on, the English present perfect is often used in follow-ups of old news that is in the past tense, as illustrated in (15) (Inoue 1979:586):

- (15) All but one of the pieces in the epidemiological jigsaw puzzle **HAVE BEEN ASSEMBLED**, leaving little doubt in the investigator’s mind that the cook **spread** staphylococcal bacteria as he handled Danish canned ham. The meat **was eaten** in omelets served to 344 passengers as the 747 Jumbo jet approached Copenhagen for a refueling stop....

In (15), the clause containing the present perfect appears linearly before the clauses containing the simple past. In the real temporal order, the perfect event is more recent than the simple past event. The two Korean suffixes are also utilized to provide the same effect: in the text, the *-ess*-marked event can appear before the *-essess*-marked event but the former is posterior to the latter in the actual time line (see (10a)). Thus, the ordering between the simple form and the double form is summarized as follow:

- (16)a. When the actual temporal order of events is the same as the order of the text:

<u>Prior Event</u>	...	<u>Recent Event</u>
<i>-essess</i>	...	<i>-ess</i>
* <i>-ess</i>	...	<i>-essess</i>

- b. When the actual temporal order is contrary to the order of the text:

<u>Recent Event</u>	...	<u>Prior Event</u>
* <i>-essess</i>	...	<i>-ess</i>
<i>-ess</i>	...	<i>-essess</i>

However, the simple temporal ordering such as precedence or recency is not enough to account for the relationship between *-ess* and *-essess*. The two suffixes require a stronger meaning relationship as well as temporal ordering. Consider the following data:

- (17) *pwukhan-kwa mikwuk-un sip-il ceneba-eyse pwukhan*  
 North.Korea-and America-TOP ten-day Genoa-at North.Korea (NK)  
*hayk-mwunce-lul nonuyha-n-ta-ko hyenci oykyokwan-tul-i*  
 nuclear-issue-ACC discuss-PRES.IMPFCOMP local diplomat-PL-NOM

*PALKHI-ESS-ta. ... pwuk-mi sam-tankey kowuykup hoytam-un*  
 reveal-PFCT-DC. ... NK-America three-stage high.level talk-TOP  
*kim il-seng cwukek-uy samang-ulo cwungtantoy-ssest-ta.*  
 Kim il-sung resident-GEN death-with discontinue-PAST-DC.  
 (N.-S. Lee 1998:176)

‘The diplomats on the scene **ANNOUNCED** (or **HAVE ANNOUNCED**) that North Korea and the USA are to discuss the issue of the North Korean nuclear weapons in Genoa.... The three-stage high-official-level talks **had been** (or **were**) **discontinued** due to the death of the leader of the North Korea Kim, Il-sung.’<sup>5</sup>

In (17), the recent *-ess*-marked event (i.e. the local diplomats’ announcing the resumption of the US-North Korea summit talks) is on focus and the *-essess*-marked event (the discontinuance of the talks due of the former North Korea leader’s death) is the background information of the *-ess* event.<sup>6</sup> In other words, the *-ess*-marked event indicates foreground information whereas the *-essess*-marked event indicates the circumstances of what happened before, i.e. background information. This relationship also applies to data (10a) and (14).

I claim that in order to have *-ess* and *-essess*, the two events in questions must have a strong meaning relationship such as foreground-background relation or causal relation. This explains why data like (10b) and (12) are not natural: they are unacceptable not because *-essess* has no aspectual reading of the pluperfect reading but because of lack of this foreground-background relation between the sets of events. For example, (10b) and (12) are simply listing separate events (i.e. John’s arriving at the airport and Mary’s arriving at the airport in (10b), and Mary’s leaving for Boston on Thursday and John’s leaving on Wednesday/the day before in (12)). In contrast, in (10a), all the events are about the same person, John, and *-essess*-marked sentences provides the circumstance of what happened on his way to the airport. This means that in order to

<sup>5</sup> The translation is my own.

<sup>6</sup> E.-H. Lee (2007) provides many data with *-essess* in relation to *-ess*. All of them express that the *-essess* marked event is the background information of the *-ess* event. One of them is given in (i):

(i) *yengswuk-uy elkwul-ey cheumelo huymihan wusum-i penci-ess-ta.*  
 Yengswuk-GEN face-LOC first.time faint smile-NOM spread-PFCT-DEC

‘For the first time, a faint smile spread over Yengswuk’s face.’

*‘cal ha-yss-e. enni tekpwun-ey.’*

Well do-PECT-dec sister thanks-to

‘Thanks to you, sister. It went well’ [Yengswuk said]

*Tahee-nun apeci ceysa-ka iss-ki ithul ceney yengswuk-ul manna*  
 Tahee-TOP father memorial-NOM be-NOMI two.days before Yengswuk-ACC meeting

*ceysa-lul neknekhi chiluko-to namul ton-ul cwu-essess-ta.*

memorial-ACC sufficiently carry.out-even remain money-ACC give-PAST-DEC

‘Tahee had met Yengswuk two days before their father’s memorial service and had given her enough money to carry it out.’

have *-ess* and *-essess*, the two events must have a strong meaning relationship such as foreground-background relation as well as the temporal ordering. Thus I argue that *-essess* has a flashback effect, as E.-H. Lee (2007) notes, not because it is a pluperfect but because it is used to provide the background information for the more recent *-ess* event.

Before turning to my analysis of the two suffixes, I will examine the meaning of discontinuity previously claimed to be associated with *-essess*. According to Nam (1978, 1996), *-essess* is an aspect marker of discontinuity in that it indicates that the past event or the resulting state of the event no longer continues at the utterance time. C.-M. Lee (1985) defines *-essess* as a past tense with the truth-conditional meaning that the event or the result state of the event was discontinuous at some time between the event and the speech time. Thus (18) is not acceptable with adverbials like *cikum-kkaci* ‘until-now’ because *-essess* expresses that my loving my wife is discontinuous and no longer true.

- (18) ??*na-nun na-y anay-lul o-nyen-cen-pwuhe cikum-kkaci*  
 I- TOP I- GEN wife- ACC five-year-before-from now-until  
*kyeysokhayse salangha-yssess-ta.*  
 continuously love-PAST-DEC  
 ‘??I loved my wife continuously from five years ago until now.’

However, this meaning of discontinuity does not seem to be truth-conditional, namely, an entailment. Consider the following data:

- (19) *na-nun na-y anay-lul cengmal salangha-yssess-ko*  
 I- TOP I- GEN wife-ACC really love-PAST-CONJ  
*cikum-to salangha-n-ta.*  
 now-too love-PRES-DEC  
 ‘I really loved my wife and still do, too.’

If the meaning of discontinuity is an entailment, (19) should be a contradiction and unacceptable, but it is not. This means that the meaning of discontinuity associated with *-essess* is not an entailment but a pragmatic implicature because it is cancelable. Furthermore, this meaning of discontinuity as an implicature is automatically accounted for if *-essess* is a past tense.<sup>7</sup> This suggests that the reason that (18) is odd is not due to the continuity of the state, but due to the fact that past tense is not compatible with time adverbials like *now* (see (3))

### 3. Deictic versus non-deictic

I have shown that the simple form *-ess* as a past tense approaches and the double

<sup>7</sup> For the English past tense and its implicature, see Iatridou (2000).

form *-essess* as a pluperfect approaches are problematic. I have also shown that a simple temporal relation is not sufficient to account for the difference between *-ess* and *-essess*. In this section, I further investigate the two suffixes and show that the difference between the two can be accounted for by the difference between the deictic and the non-deictic.

As briefly discussed in section 2.1, while the reference time of *-essess* always in the past, *-ess* is not necessarily so, and it can be in the future or bound by modal operators, as illustrated in (20).

- (20)a. *John-un chocolate-lul mek-ess-ta.*  
 John-TOP chocolate-ACC eat-PFCT-DEC  
 ‘John has eaten chocolate’  
 Or ‘**If it is John, then he would/must have eaten chocolate.**’
- b. *John-un chocolate-lul mek-essess-ta.*  
 John-TOP chocolate-ACC eat-PAST-DEC  
 ‘John ate chocolate’ Or ‘**John used to eat chocolate.**’

The sentences in (20) are ambiguous between a particular event and a non-particular event reading. Especially with the non-particular event reading, (20b) with *-essess* refers to a certain past time period during which multiple events of John’s eating chocolate took place regardless of its regularity, indicating the existence of actual events. In contrast, propositions like *John likes sweets* are sufficient to utter (20a) with *-ess*, which expresses a general property of John’s, i.e., in any appropriate situation, John would/must have engaged in an event of eating chocolate prior to the reference time. In other words, (20a) is a generic sentence, whereas (20b) is a pure habitual sentence that requires actual events in the past.

Thus, *-ess* can induce a modal context, whereas *-essess* does not but requires a salient past time to refer to. This is also the case with the past and the present perfect in languages like Italian and German: the past only refers to a contextually salient past time but perfect can refer to a future situation or occur with modals (Giorgi and Pianesi 1997:89; Kratzer 1998). This difference becomes clear when they are negated, as shown in (21): (21a) simply means that there was no prior event at the utterance time, whereas (21b) means that at some past time there was no event of John’s chocolate eating, and thus the past time reference is not negated.

- (21)a. *John-un chocolate-lul an-mek-ess-ta.*  
 John- TOP chocolate-ACC not-eat-PFCT-DEC  
 ‘John has not eaten chocolate’
- b. *John-un chocolate-lul an-mek-essess-ta.*  
 John-top chocolate-acc not-eat-PAST-DEC

‘John used to not eat chocolate’

However, unlike the English present perfect, *-ess* can co-occur with past-time adverbials. Because of this compatibility with past-time adverbials, *-ess* has been analyzed as a past or as ambiguous between a perfect and a past. However, note that although *-ess* co-occurs with a past adverbial, it still saliently conveys the notion of a result state or current relevance, as illustrated in the following:

- (22) a. *han sikan-cen-ey pwul-i kke-ci-ess-ta.*  
 one hour-before-at light- NOM turn.off-PASSIVE-PFCT-DEC  
 ‘The light turned off an hour ago.’ [The light is off now.]  
 b. *han sikan-cen-ey pwul-i kke-ci-essess-ta.*  
 one hour-before-at light- NOM turn.off-PASSIVE-PAST-DEC  
 ‘The light turned off an hour ago.’ [The light is on now.]

Sentence (22a) indicates that the result state of an event of turning off the light has lasted for an hour and still holds at the speech time. This means that the past-time adverb not only refers to the time of the event but also sets the onset time of the result state. In contrast, (22b) with *-essess* only indicates that the event took place an hour ago but does not say anything about its result state except for the implication that the light is probably on now. Thus, I claim that (in)compatibility with past-time adverbials should not be the sole criterion for determining the perfect, even though it can be a criterion in some languages, and that the compatibility of *-ess* with past-time adverbials results from the imperfectivity of the Korean present tense, which will be discussed in the following section.

Following Inoue (1979) and Portner (2003), I argue that such notions as result state or current relevance should be understood in relation with topic in the discourse. Consider the conversation in (23)-(24):

- (23) A: *nay-ka stove-lul an-kku-n kes kath-a.*  
 I-NOM stove-ACC not-turn.off-ATT thing seem-DEC  
 ‘It seems that I did not turn/ have not turned off the stove.’ [The stove is on.]

- (24) B: *wuli-ka nao-l ttay mary-ka kk-ess-e/ ??kk-essess-e.*  
 we-NOM come.out-IR.ATT time mary-NOM turn.off-PFCT-DEC/??-PAST-DEC  
 ‘Mary turned it off when we went out.’ [The stove is off]

- (24') B: *wuli-ka nao-l ttay-nun mary-ka kk-essess-e /??kk-ess-e.*  
 we-NOM come.out-IR.ATT time-top mary-NOM turn.off-PAST-DEC/??-PFCT-DEC  
 ‘When we went out, Mary turned it off.’  
 (*nwu-ka tasi sutobu-lul khye-ess-nunci molu-ciman.*)  
 ‘I don’t know if somebody has turned it on again though.’

The current discourse topic of the conversation is the present state of the stove that the speaker thinks is still on. Sentence (23) with *-ess* is a possible answer to the topic,

whereas (23) with *-essess* is not. When the topic has shifted to the past time referred to by the *-nun*-marked adverbial, as in (24'), *-ess* is odd while *-essess* is fine because in (24') the speaker only gives information about that past time.

In addition, I argue that this result state implication is purely epistemic because in the actual world, the stove could be on if somebody else had turned it on later, i.e. only the speaker thinks that it is off, based on what (s)he knows about the actual world. Hence, the result state does not have to exist in the actual world, although the time interval in which the result state holds is actual. In this respect, I adopt Portner's (2003) modal theory of the perfect, in which the present perfect has a built-in epistemic necessity modal operator as its presupposition. This operates on the conversational background of the context plus the perfect proposition to yield its consequent state (CS), which is used to cover such notions as result state and current relevance. Thus *-ess* sentences like (24) yield the following inference scheme:

(25) Conversational Background = {p<sub>1</sub>, p<sub>2</sub>, p<sub>3</sub>,...}

Mary-ka stove-lul kke-ss-ta (24): Perfect Proposition

□ *The stove is off*: CS

To conclude, *-ess* is not a past but a perfect, which maps an event to a time interval through out which the CS of the event necessarily holds, whereas *-essess* is a simple past tense, as defined in (26).

(26)a. [[ *-ess* ]] =  $\lambda P. \lambda t. \exists e [P(e) \wedge \square \exists e' [CS(e', e) \wedge \tau(e') = t]]$ ,

where *e'* is a partial or complete answer to the discourse topic at the speech time.

b. [[ *-essess* ]]<sup>g,c</sup> is only defined if *c* provides an interval  $t < t_c$ ,  
if defined, [[ *-essess* ]]<sup>g,c</sup> = *t*. (cf. Kratzer 1998)  
*t<sub>c</sub>*: the speech time

In (26a), 'CS(*e'*, *e*)' means that *e'* is the consequent state of *e*; ' $\tau(e') = t$ ' means that the time of the event *e'* equals (or fully overlaps) the reference time (R). The CS of an event starts the moment the event ends, and it follows that the event is anterior to its CS, hence, to the R. Importantly, the CS is an answer to the discourse topic at the speech time and does not necessarily exist in the actual world.

#### 4. Perfect and past time adverbials

The question that remains to be answered is why the English perfect does not allow past-time adverbials but the Korean *-ess* does. I argue that (in)compatibility of the perfect with past-time adverbials should be understood in relation to the (im)perfectivity

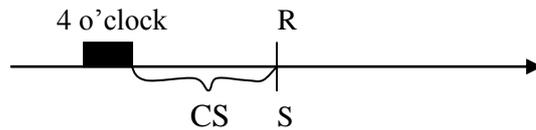
of the present tense in the language. In other words, the compatibility of *-ess* with past-time adverbials results from the imperfectivity of the Korean present tense, while the incompatibility of the English perfect with past-time adverbials results from the perfectivity of the English present tense.

Giorgi and Pianesi (1997) distinguish two different Present tenses—Simple Present (S-Present) and Imperfective Present (I-Present). The English present is an S-Present (R is instantaneous with the speech time S ( $S = R$ )), whereas the Italian present is an I-Present (R involves a long stretch of time that includes S ( $S \subseteq R$ )). Consequently, the two languages differ with respect to the co-occurrence of present tense with adverbials like *since*, as shown in (27a–b). The English present tense (S-Present) cannot co-occur with *since* (27a), whereas the Italian present (I-Present) can co-occur with the corresponding adverb (27b). Like the Italian present, the Korean present can co-occur with the corresponding adverb, indicating that the present tense is an I-Present (27c).

- (27) a. \*I love Mary since yesterday. — English  
 b. *Amo Mary da ieri.* — Italian  
 c. *na-nun ecey-pwute Mary-lul cohaha-n-ta.* — Korean  
 I- TOP yesterday-from Mary-ACC like-PRES-DEC

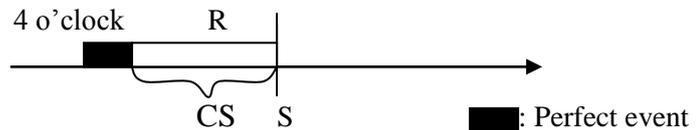
Now compare the English present perfect sentence in (28a) with the Korean counterpart in (29a).

- (28) a. \*John has left at 4:00:



- b.  $*\exists e [\text{leave}(\text{John}, e) \wedge 4 \text{ o'clock}(e) \wedge \square \exists e' [CS(e', e) \wedge \alpha(e') = t \wedge t = t_c]]$   
 $= \exists e [\text{leave}(\text{John}, e) \wedge 4 \text{ o'clock}(e) \wedge \square \exists e' [CS(e', e) \wedge \alpha(e') = t_c]]$

- (29) a. *John-i neysi-ey ttena-ss-ta:*



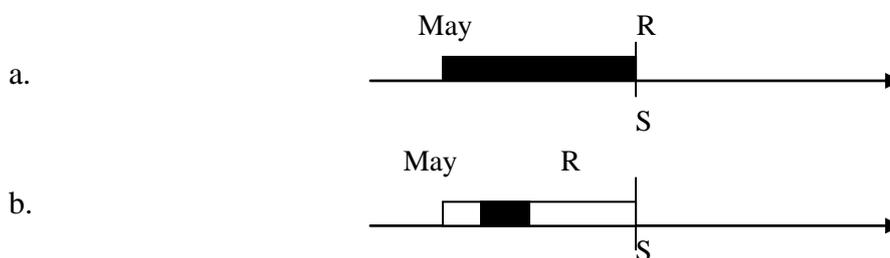
- b.  $\exists e [\text{leave}(\text{John}, e) \wedge 4 \text{ o'clock}(e) \wedge \square \exists e' [CS(e', e) \wedge \alpha(e') = t \wedge t \supseteq t_c]]$   
 $= \exists e [\text{leave}(\text{John}, e) \wedge 4 \text{ o'clock}(e) \wedge \square \exists e' [CS(e', e) \wedge \alpha(e') \supseteq t_c]]$

My definition in (26a) indicates that the time span of CS is exactly equivalent to the

time span of R, since the time when a perfect event ends is the time when its CS begins and R is the time when the CS exists. In (28a), the CS begins significantly before R, since R is instantaneous with S. This yields a time gap between the CS and R, which conflicts with the definition of the perfect. Formally, as illustrated in (28b), (28a) is contradictory because the time adverb indicates that the CS should begin at 4 o'clock and extend up to S, and at the same time the CS should be instantaneous with S. In contrast, in (29) with *-ess*, the CS and R completely overlap, which satisfies the denotation of the perfect.

In order to avoid the conflict, as in (28a), the English present perfect needs two strategies—either to make the perfect event continue up until S, whenever possible (see (30a)), or to modify R to extend from some past time up to S with temporal adverbials (see (30b)).

(30) John has been sick since May:



This explains why the English present perfect has been argued to be ambiguous between a universal (or continuative) reading and an existential reading (cf. Iatridou et al. 2003). In contrast, the Korean *-ess* only has an existential reading. This is also the case for the Italian present perfect (Giorgi and Pianesi 1997).

## 5. Conclusion

The proposed analysis suggests that the languages like Korean that do not have distinct forms for past opposed to perfect, as European languages do, still finds a way to make a distinction, i.e. by doubling the simple morpheme. It also suggests that the notion of current relevance is closely related to inferences associated with the asserted perfect event, and that perfect, as a presupposition, has a grammatical device for bringing in these inferences, while past can have the inferences as simple pragmatic implicatures. Although there are innumerable possible relevant propositions that could be inferred from the perfect event, only one is intended by the speaker. Thus, unlike McCoard (1978), I argue that finding a currently relevant proposition by using a perfect form cannot be arbitrary because the speaker makes use of the common ground and the logical inference process that other people share with the speaker. Under this analysis, the perfect across languages can be claimed to have the same property: a prior event yields a consequent state in the reference time immediately after its culmination. However, independent factors, such as the imperfectivity of the present tense can lead to a difference in behavior.

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# On Tense-Aspect-Mood in Polar Interrogatives

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## Abstract

The paper reports the preliminary results of a typological study of the marking of tense, aspect and mood (TAM) categories in polar interrogatives. The results are based on a pilot sample of 105 languages. Special attention is paid to how the marking of TAM categories in polar interrogatives differs from their marking in declaratives. The following types are found: the marking of polar interrogation is part of the mood system, interrogation is expressed by the absence of declarative marking, interrogation is expressed by an auxiliary construction, interrogatives require a non-finite form of the verb, TAM distinctions made in declaratives are lost in polar interrogatives. Finally, the results are compared with earlier results on the marking of TAM categories in negatives.

**Keywords:** polar interrogation, tense-aspect-mood, negation, typology, markedness, sampling.

## 1. Introduction

This paper is a typological study of the marking of tense, aspect and mood (TAM) categories in polar interrogatives. I will restrict my attention to polar interrogation in main clauses with verbal predicates and focus on interrogatives that are as neutral as possible in terms of focus or bias towards positive vs. negative reply. These conditions are satisfied by, e.g., the English polar interrogative sentence in (1a) but not by focused questions such as (1b,c), by tag questions such as in (1d), or by indirect questions such as the one in (1e).

### (1) English (constructed examples)

- a. *is King Arthur barking on the balcony ?*
- b. *is King Arthur barking on the **balcony** ?*
- c. *is it King Arthur that is barking on the balcony ?*
- d. *King Arthur is barking on the balcony, isn't he ?*

e. *I wonder whether King Arthur is barking on the balcony*

Typological studies of polar interrogatives (Moravcsik 1971; Ultan 1978; Sadock & Zwicky 1985; Siemund 2001; Dryer 2005a; König & Siemund 2007) have found the following types of marking polar interrogation: intonation, interrogative particles, interrogative verb morphology, order of constituents (verb fronting), disjunction (A-not-A), and absence of declarative morphemes. In an earlier study (Miestamo 2004, 2007), I have pointed out that interrogative (auxiliary) verbs should be regarded as a further type. In addition to the types of markers, attention has also been paid to their position (see Dryer 2005b). In my investigation of the marking of TAM categories in polar interrogatives, I will pay special attention to how their marking differs from their marking in declaratives. This question has not been previously addressed on the basis of extensive typological samples (Schmid 1980 examined co-occurrence restrictions in interrogatives, but without using an extensive and systematic sample). In my pilot study (2004, 2007), I have taken a preliminary look at the structural differences between polar interrogatives and declaratives, but with no special focus on TAM categories.

This study is part of a larger project examining structural similarities and differences between polar interrogatives and declaratives (and marked and unmarked categories more generally). In my earlier work (Miestamo 2005), I have examined structural differences between negatives and affirmatives, and proposed the following typological classification. Symmetric negatives differ from the corresponding affirmatives by the mere presence of the negative marker(s) whereas asymmetric negatives show some further structural differences vis-à-vis affirmatives. Symmetry and asymmetry can be observed in constructions and paradigms (what this means will become clearer in Section 3 below) and asymmetric negation can be divided into further subtypes according to the nature of the asymmetry. The different types of the classification can be accounted for by an analogy-based model of explanation where symmetric negation is explained by (language-internal) analogy to the structure of the affirmative and asymmetric negation by (language-external) analogy to functional properties of negation. In addition to negation, these principles of classification and explanation can be applied to other marked categories, e.g., polar interrogation. As I have shown in (Miestamo 2007), symmetric and asymmetric interrogative structures can be distinguished according to whether and how polar interrogatives differ from their unmarked declarative counterparts. In this paper, I will pursue this idea further, paying special attention to the marking of TAM categories.

This is a preliminary survey of the marking of TAM categories in polar interrogatives, and the conclusions will therefore remain preliminary. Furthermore,

focus will be on describing and classifying the data, and issues of explanation and other more theoretical questions will not be addressed in this paper. The structure of the paper is as follows: Section 2 introduces the language sample on which the study is based. Section 3 briefly introduces the distinction between symmetric and asymmetric polar interrogatives. Section 4 constitutes the central part of the study, focusing on the ways in which the marking of TAM categories can be affected in polar interrogatives in different languages. Section 5 compares the findings to what has been observed earlier about the marking of TAM categories in declarative negatives. Section 6 concludes the paper.

## 2. Sample

The sampling procedure follows the sampling principles introduced in Miestamo (2005). A variety sample containing at least one language from each of the 458 genera in Dryer's (2005c) WALS classification forms the basis of the study. The poorer availability of sources for the languages of some areas will introduce an areal-genealogical bias into the sample and therefore quantitative observations will be based on an areally balanced subsample of the overall variety sample. At this stage, only a part of the sample languages has been examined, and the results of this paper are based on this pilot sample of 105 languages (which is still to some extent areally biased). Table 1 lists the sample languages in each macroarea. In Figure 1, the sample languages are plotted on a world map.

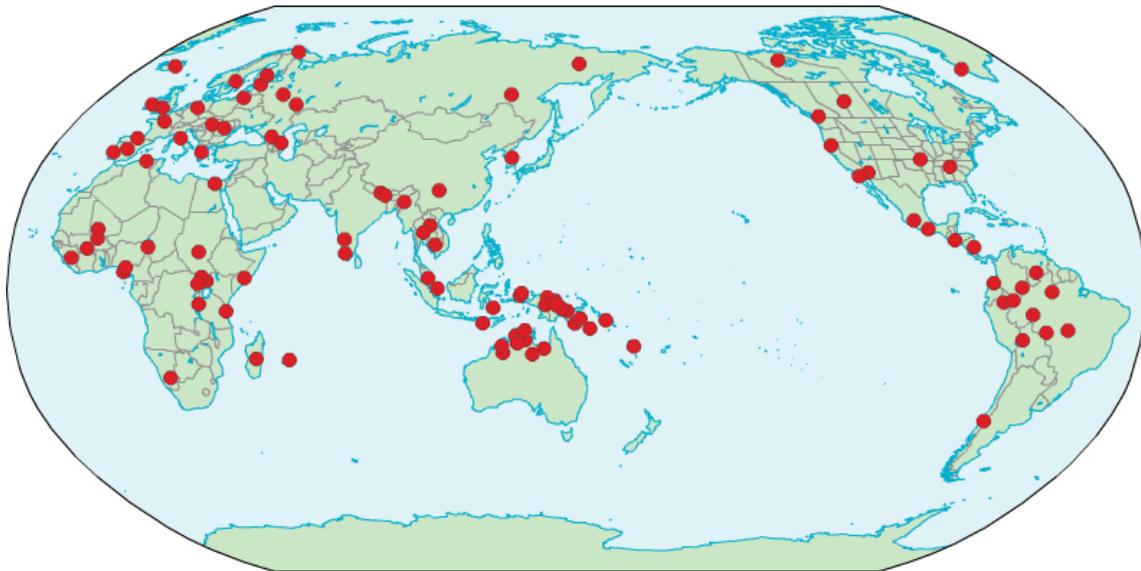
**Table 1.** Sample languages (n = 105)

Africa (17):	Arabic (Egyptian), Degema, Ha, Hdi, Igbo, Jamsay, Kabyle, Khoekhoe, Kisi, Koyra Chiini, Krongo, Lango, Ma'di, Ngiti, Somali, Supyire, Swahili
Eurasia (27):	Basque, Estonian, Evenki, Finnish, French, German, Greek (Modern), Hungarian, Icelandic, Irish, Italian, Kabardian, Kannada, Korean, Lezgian, Lithuanian, Malayalam, Mordvin (Erzya), Portuguese, Rājbanishi, Romanian, Russian, Saami (Skolt), Spanish, Swedish, Welsh, Yukaghir (Kolyma)
SE Asia and Oceania (13):	Hmong Njua, Indonesian, Kambara, Khmer, Kilivila, Lao, Malagasy, Meithei, Newari (Dolakha), Paamese, Semelai, Thai, Tukang Besi
Australia and New Guinea (23):	Alamblak, Arapesh, Daga, Gaagudju, Gooniyandi, Imonda, Inanwatan, Kayardild, Kobon, Lavukaleve, Malakmalak, Mangarrayi, Maung, Maybrat, Nabak, Sentani, Tauya, Una, Ungarinjin, Wambaya, Wardaman, Yelî Dnye, Yimas

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North America (12):	Cree (Plains), Greenlandic (West), Halkomelem, Koasati, Maricopa, Mixtec (Chalcatongo), Osage, Pipil, Purépecha, Slave, Tiipay (Jamul), Wintu
South America (12):	Awa Pit, Hixkaryana, Hupda, Jarawara, Kwazá, Mapudungun, Mosestén, Rama, Sanuma, Trumai, Urarina, Yagua
Creoles (1):	Mauritian Creole

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**Figure 1.** Sample languages (n = 105)

### 3. Symmetric and asymmetric polar interrogatives

We may observe symmetry and asymmetry in constructions and paradigms. In symmetric constructions, the presence of interrogative markers is the only difference as compared to the corresponding declaratives. This is the case, e.g., in Malayalam (2),<sup>1</sup> where the interrogative marker *-oo* appears clause-finally, and in Estonian (3), where the interrogative particle *kas* appear clause-initially.

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<sup>1</sup> The following abbreviations are used in the glosses: 1 first person, 2 second person, 3 third person, ABS absolutive, ACC accusative, AFF affirmative, ALL allative, AOR aorist, ASS assertive, CNTMP contemporative, DAT dative, DECL declarative, DEF definite, ERG ergative, F feminine, FUT future, IMPF imperfective, IND indicative, INF infinitive, LCT locutor, LOC locative, NHYP nonhypothetical, NLCT non-locutor, NMLZ nominalizer, NPST nonpast, OBJ object, OBL oblique, PFV perfective, PL plural, POSS possessive, PRES present, PRT particle, PST past, PTCP participle, Q interrogative, REFL reflexive, SG singular, SOLCT solicitive, SS same subject, SUBJ subject, TOP topic, UNCERT uncertain, VN verbal noun.

(2) Malayalam (Asher and Kumari 1997: 8)

- |                              |                                   |
|------------------------------|-----------------------------------|
| a. <i>ava</i>   <i>varum</i> | b. <i>ava</i>   <i>varum-oo</i> ? |
| she come.FUT                 | she come.FUT-Q                    |
| ‘She will come.’             | ‘Will she come?’                  |

(3) Estonian (Erelt 2003: 108)

- |                                      |
|--------------------------------------|
| a. <i>sa tule-d täna meile</i>       |
| 2SG come-2SG today 2PL.ALL           |
| ‘You will come to visit us today.’   |
| b. <i>kas sa tule-d täna meile ?</i> |
| Q 2SG come-2SG today 2PL.ALL         |
| ‘Will you come to visit us today?’   |

In symmetric paradigms, the members of the paradigms used in declaratives and interrogatives show a one-to-one correspondence, and no grammatical distinctions are lost in the interrogative. This can be illustrated by the English paradigms in (4).

(4) English (constructed examples)

- |            |   |   |
|------------|---|---|
| a. PRESENT |   | b. PAST                                 |
|            | DECL      Q                               | DECL      Q                             |
| 1SG        | <i>I sing      do I sing ?</i>            | <i>I sang      did I sing ?</i>         |
| 2SG        | <i>you sing      do you sing ?</i>        | <i>you sang      did you sing ?</i>     |
| 3SG        | <i>(s)he sings      does (s)he sing ?</i> | <i>(s)he sang      did (s)he sing ?</i> |
| 1PL        | <i>we sing      do we sing ?</i>          | <i>we sang      did we sing ?</i>       |
| 2PL        | <i>you sing      do you sing ?</i>        | <i>you sang      did you sing ?</i>     |
| 3PL        | <i>they sing      do they sing ?</i>      | <i>they sang      did they sing ?</i>   |

Asymmetric interrogative constructions show structural differences as compared to the corresponding declaratives in addition to the presence of interrogative markers. In Halkomelem (5), the structure of the interrogative differs from the declarative in that interrogation is marked with an auxiliary and the lexical verb becomes less finite by losing its person marking to the auxiliary. In the Swedish interrogative construction (6) the asymmetry consists of a change in the position of the finite verb (verb fronting).

(5) Halkomelem (Galloway 1993: 238–239)

- a.  $k^w\acute{c}-l-\acute{x}^w-c\acute{a}l$   $t\acute{\theta}$   $x^w\acute{x}^w\acute{y}\acute{\theta}$   
see-happen.to-3SG.OBJ-1SG.SUBJ DEF fly  
'I see a fly.'
- b.  $l\acute{i}-c\acute{x}^w$   $k^w\acute{c}-l-\acute{x}^w$   $\theta\acute{\theta}$   $S\acute{u}sel$   $l\acute{i}$   $t\acute{\theta}$   $x^y\acute{e}l?$   
Q-2SG.SUBJ see-happen.to-3SG.OBJ DEF.F Susan in DEF path  
'Do you see Susan in the path?'

(6) Swedish (constructed examples)

- a. *King Arthur skäll-er*      b. *skäll-er King Arthur ?*  
King Arthur bark-PRES      bark-PRES King Arthur  
'King Arthur is barking.'      'Is King Arthur barking?'

Asymmetric paradigms do not show a one-to-one correspondence between the members of the paradigms used in declaratives and interrogatives. In Awa Pit, declaratives can make a distinction between perfective and imperfective aspect (7a,b), but the past interrogative marker *-ma-* replaces these aspect markers (7c) and this distinction is lost in the interrogative paradigm. In fact, the appearance of the past interrogative suffix precludes the occurrence of all other suffixes between the root and the person marker and thus neutralizes the distinctions between the tense and aspect categories appearing in this position. Note that in addition to this paradigmatic asymmetry, the example also shows constructional asymmetry since the interrogative is not formed by simply adding an interrogative marker to a non-interrogative form, but the marking of tense-aspect is also affected.

(7) Awa Pit (Curnow 1997: 199, 221, 323)

- a.  $nu=na$   $juan=ta$   $pyan-t-zi$   
2SG=TOP juan=ACC hit-PST-NLCT  
'You hit Juan.'
- b. *demetrio a-ka=na kal ki-mtu-ata-w*  
demetrio come-when=TOP work work-IMPV-PST-LCT  
'When Demetrio came, I was working.'
- c.  $anshik=na$   $a-ma-s?$   
yesterday=TOP come-Q.PST-LCT  
'Did you come yesterday?'

Asymmetric interrogatives – constructional or paradigmatic – may be further divided into subtypes according to the nature of the asymmetry, but this is not the main focus of the present study, where I will pay attention to how TAM categories behave in interrogatives. In symmetric interrogatives they are, by definition, expressed just like in declaratives. The cases that interest us are found within the asymmetric type. In other words, I will examine those cases of asymmetric interrogation where the asymmetry involves the marking of TAM categories. This will be the topic of the following section.

#### 4. The marking of tense, aspect and mood in polar interrogatives

This section discusses the different ways in which the marking of TAM categories in polar interrogatives has been found to differ from their marking in declaratives. For each type, at least one glossed example is discussed, and after the examples, some other languages are mentioned where TAM marking behaves in a similar manner. For lack of space, I cannot give examples of all the languages mentioned.

In Purépecha (8), polar interrogatives are marked by a polar interrogative marker that is part of the mood system of the language. The interrogative suffix *-(k)i* appears in the position where the declarative suffix *-ti* would appear in declaratives (except in the future where the interrogative marker is zero).<sup>2</sup> The other moods appearing in the same position are subjunctive, imperative and exclamative.

(8) Purépecha (Chamoreau 2000: 113)

- a. *'pedru i'se-š-ti-Ø 'pablu-ni*  
 pedro see-AOR-DECL-3SG pablo-OBJ  
 'Pedro saw Pablo.'
- b. *'pedru i'se-š-ki-Ø 'pablu-ni ?*  
 Pedro see-AOR-Q-3SG Pablo-OBJ  
 'Did Pedro see Pablo?'

---

<sup>2</sup> It is not entirely clear whether a case where the marker of the marked category (e.g., interrogative) simply replaces the marker of the unmarked category (e.g., declarative) and no other changes occur should be analysed as asymmetric at all (cf. the discussion in Miestamo 2007: 304–305). Nevertheless, strictly speaking, we are dealing with a difference in TAM marking between interrogatives and declaratives here, and this is thus clearly relevant to the present discussion.

In West Greenlandic (9), the interrogative mood is a member of the mood paradigm including declarative, interrogative, imperative/optative, contemporative, causative, conditional and participial moods. These mood distinctions are made in the inflectional suffix that also carries the marking of person and number of subject and object. The distinction between declarative and interrogative is not made in all person-number combinations. In (9a,b) we can see that with 2<sup>nd</sup> person singular intransitives the declarative and interrogative moods differ, but (9c,d) show that with transitives involving 3<sup>rd</sup> person singular subject and object the markers are identical. The marking of mood is thus affected in only a subset of the available person-number combinations. In West Greenlandic intonation takes part in the marking of polar interrogation and in the cases where there is no morphological difference between declaratives and interrogatives, only intonation marks the distinction.

(9) West Greenlandic (Fortescue 1984: 4, 160, 192, 215)

- |   |                             |
|---|-----------------------------|
| a. <i>immi-nut naalliut-sip-putit</i>               | b. <i>niri-riir-pit ?</i>   |
| self-ALL suffer-cause-2SG.IND                       | eat-already-2SG.Q           |
| ‘You caused yourself suffering.’                    | ‘Have you already eaten?’   |
| c. <i>savi-ni atur-nagu</i>                         | <i>nanuq tuqup-paa</i>      |
| knife-REFL.POSS use-SS.NEG.CNTMP.3SG.P              | polar.bear kill-3SG>3SG.IND |
| ‘He killed the bear without (using) his his knife.’ |                             |
| d. <i>piita-p takurnartaq tuqup-paa ?</i>           |                             |
| Piitaq-ERG stranger kill-3SG>3SG.Q                  |                             |
| ‘Did Piitaq kill the stranger?’                     |                             |

The marking of polar interrogation is part of the mood system, the polar interrogative marker appearing in the place of a declarative marker, also in Korean, Kwazá, Somali and Tauya, and in some contexts in Maricopa as well. In Una, the interrogative marker also belongs to the paradigm of mood markers, but as declarative mood has no overt marking, the interrogative marker is simply added to the declarative.

In Welsh, polar interrogation is marked by a change in the form of the auxiliary in periphrastic tenses using *bod* ‘be’ as auxiliary. The present tense of this auxiliary, and to some extent also the past, has different forms for (affirmative) declaratives and interrogatives (as well as for negatives, which are irrelevant here). In (10a) the 3<sup>rd</sup> singular present declarative form of the auxiliary appears and in (10b) we find the corresponding interrogative form. It can be noted that, in the sense that we have a change in mood marking here as well, the Welsh construction is not that far from

constructions where interrogation is part of the mood system as in Purépecha – the main difference being that the marker that changes has the status of an auxiliary verb, and is therefore perhaps simply at an earlier stage on the cline of grammaticalization.

(10) Welsh (King 2003: 169)

- a. *mae- 'r*                      *dyn 'na- 'n*    *darllen*    *y*    *daily telegraph*  
 be.PRES.3SG.DECL-DEF man there-PRT read.VN    DEF Daily Telegraph  
 ‘That man is reading / reads the Daily Telegraph.’
- b. *ydy- 'r*                      *dyn 'na- 'n*    *darllen*    *y*    *daily telegraph ?*  
 be.PRES.3SG.Q-DEF man there-PRT read.VN    DEF Daily Telegraph  
 ‘Is that man reading / does that man read the Daily Telegraph?’

In Kabardian (11), polar interrogatives lack the affirmative mood suffix *-s* that occurs in affirmative declaratives (except for the present active tense where the suffix is not used in declaratives either). In most of the TAM categories polar interrogation is thus marked by the absence of the mood suffix. The mood suffix is also absent in negatives and in irrealis contexts.

(11) Kabardian (Colarusso 1992: 122, 126)

- a. *sə-λaaža-aγ-s*                      b. *ha-r*    *γəg<sup>y</sup>a-m*    *ø-y-a-g<sup>y</sup>-a-aγ ?*  
 1SG-work-PST-AFF                      3-ABS school-OBL 3-3-DAT-call-DAT-PST  
 ‘I worked.’                                      ‘Was (s)he attending school?’

In Khoekhoe, too, polar interrogation involves the loss of the declarative marker, but this is not the only segmental indication of polar interrogation since there are other structural differences between interrogatives and declaratives as well (and furthermore, an emphatic interrogative marker may appear in the position of the declarative marker). In Maricopa and Purépecha, the interrogative mood marker is zero in some persons or TAM categories, and in these cases we are also dealing with the loss of a declarative marker.

In addition to the construction exemplified in (7), Awa Pit has another interrogative construction, in which the auxiliary-like element *ki* (or *sa*) appears and the lexical verb is in a participial or infinitival form (12). This construction can distinguish between three tenses: the use of the infinitive conveys a future meaning (12a), the imperfective participle expresses the present (12b) and the perfective participle refers to the past (12c).

(12) Awa Pit (Curnow 1997: 324–325)

- a. *tilawa a-n ki-s ?*  
 tomorrow come-IMP PTCP Q-LCT  
 ‘Are you coming tomorrow?’
- b. *ashaŋpa mil ki-s ?*  
 woman have[IMP PTCP] Q-LCT  
 ‘Do you have a wife?’
- c. *nu=na ricaurte=mal i-t ki-s ?*  
 2SG=TOP Ricaurte=LOC go-PFV PTCP Q-LCT  
 ‘Did you go to Ricaurte?’

In the Halkomelem interrogative auxiliary construction (4), the marking of TAM categories is also affected in that the past and future markers occur on the auxiliary instead of the verb on which they would occur in the corresponding declaratives.

In Meithei (13), polar interrogatives are marked with the suffix *-lə*, which can only appear on nominalized verb forms. In (13d) *-lə* is preceded by the nominalizer *-pə*. Derivational TAM categories such as the perfective occur quite freely with the nominalizer, but inflectional categories such as the nonhypothetical or the assertive do not and TAM distinctions made by the inflectional categories are thus lost in the interrogative. Some derivational TAM suffixes, e.g. the potential and the non-potential, are inherently nominalizing, and the polar interrogative marker can thus be added to these forms.<sup>3</sup>

(13) Meithei (Chelliah 1997: 133, 140, 240)

- a. *təw-i*                      b. *təw-e*                      c. *mə-hák lak-lə-e*  
 do-NHYP                      do-ASS                      3-here come-PFV-ASS  
 ‘(She) does.’                      ‘(Yes, she) has.’                      ‘He came.’
- d. *sém-thok-lə-pə-lə-o ?*  
 correct-out-PFV-NMLZ-Q-SOLCT  
 ‘Did they complete the corrections?’

In Hixkaryana (14) polar interrogation is marked by intonation. The language can make a distinction between nonpast and nonpast uncertain tenses, but in polar

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<sup>3</sup> I am grateful to Shobhana Chelliah for confirming these facts in personal communication.

interrogatives only the latter category may be used (14b).<sup>4</sup> There is thus paradigmatic asymmetry between declaratives and interrogatives in that the certain-uncertain distinction is lost in nonpast interrogatives. Another case where TAM distinctions made in declaratives are lost in interrogatives was seen in Awa Pit (7) above. In Awa Pit, the loss of the distinctions is due to morphological incompatibility of the question marker and the markers of the categories expressing the TAM distinctions that are lost. In Hixkaryana this is not the case, and the loss of the distinction appears to be semantically motivated (a request for information involves lower certainty on the part of the speaker).

(14) Hixkaryana (Derbyshire 1985: 57)

- |                      |   |
|----------------------|---|
| a. <i>nomok-yaha</i> | b. <i>nomok-yano</i> (?)                    |
| 3.come-NPST          | 3.come-NPST.UNCERT                          |
| ‘He is coming.’      | ‘Is he coming?’ / [‘He is perhaps coming.’] |

Loss of at least some TAM distinctions in polar interrogatives through mutual (morphological) incompatibility with the polar interrogative marker has also been found in West Greenlandic, Korean, Purépecha, Jamul Tiipay, Una, and more marginally in Basque and Imonda. The absence of mood marking in Kabardian also leads to the loss of some TAM distinctions. It should be noted that in West Greenlandic, Korean and Purépecha, the categories that are mutually exclusive with the interrogative marker are mood categories that are functionally incompatible with the interrogative to start with, e.g., declarative and imperative, and are thus, strictly speaking, irrelevant in a comparison between interrogatives and declaratives. In the other languages mentioned, as seen in the Awa Pit and Hixkaryana examples, at least some of the categories that are lost in interrogatives could, from a semantic point of view, be expressed in interrogatives. Lack of space precludes a more detailed discussion of these cases.

I have now discussed and exemplified the asymmetries concerning the marking of TAM in interrogatives vs. declaratives, i.e. the different ways in which the marking of TAM categories in polar interrogatives differs from their marking in declaratives in the sample languages. The following types were found: 1) interrogative marking is part of the mood system and replaces declarative mood marking in the same morphosyntactic position (e.g., in Purépecha, West Greenlandic and Welsh), 2) polar interrogation

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<sup>4</sup> No example of a declarative with a nonpast uncertain tense verb, parallel with the examples in (14a), was found in the source. The translation in square brackets in (14b) shows what the meaning of the sentence without question intonation would be according to my reading of the source.

involves the loss of a declarative mood marker without the latter being replaced by an interrogative marker in the same morphosyntactic position (e.g., in Kabardian), 3) polar interrogation is expressed by an auxiliary construction that marks at least some TAM categories in a different way from how they are marked in declaratives (e.g., in Awa Pit), 4) the construction expressing polar interrogation requires the verb to be in a nominalized form which has an effect on the marking of least some TAM categories (e.g., in Meithei), 5) some or all TAM distinctions made in the declarative are lost in polar interrogatives (e.g., in Hixkaryana and Awa Pit). Note that this classification must be regarded as tentative at this pilot stage of the study.

In addition to the comparison between interrogative and declarative structure, we may also note that in a number of languages different interrogative constructions are used in different TAM categories. This is the case, e.g., in Awa Pit, where past tense interrogatives may use the suffixal construction (7) but other tenses must use the auxiliary construction (12), as well as in Halkomelem, Jarawara, and Welsh.

## **5. A comparison with negation**

The ways in which TAM categories behave in polar interrogatives (vs. declaratives) can be compared to earlier observations about their behaviour in declarative negatives (vs. affirmatives) made in (Miestamo 2005; Miestamo & van der Auwera, in press). First of all, we may observe that the loss of TAM distinctions is clearly less common in polar interrogation than in declarative negation; a preliminary count based on the pilot sample shows loss of TAM distinctions in polar interrogatives in 11 languages (including the three strictly speaking irrelevant cases mentioned above), whereas in negation this happens in 21 out of the 105 languages.<sup>5</sup> Furthermore, unlike in declarative negatives, the loss of TAM categories in polar interrogatives is almost always due to morphological incompatibility (occupying the same slot) with the question marker (naturally, semantics is partly responsible for which markers occur in the same slot). The only clear exception is found in Hixkaryana, where morphological incompatibility does not play a role, and the exclusion appears to be semantically motivated. In polar interrogatives, the loss of categories due to occupying the same slot most typically results in the loss of mood distinctions, and other categories are less

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<sup>5</sup> The difference is interesting for the discussion on how the asymmetries observed between marked and unmarked categories can be explained (cf. Haspelmath 2006), see (Miestamo 2007) for discussion.

commonly affected. In negatives, tense, aspect and mood are equally often affected.

Another interesting difference between interrogatives and negatives can be observed in how they relate to irrealis marking. Both polar interrogatives and declarative negatives are prototypically about states of affairs that are either unrealized or whose reality status is not known to the speaker, and thus it could be expected that they behave similarly with respect to irrealis marking. My study shows, however, that irrealis marking is required in declarative negatives much more often than in polar interrogatives. In the 105-language pilot sample, there are 8 languages where declarative negatives require irrealis marking (at least in some TAM categories) but polar interrogatives can freely use realis as well (Alamblak, Arapesh, Halkomelem, Korean, Mangarrayi, Maung, Ungarinjin, and Wambaya), but there is only one language where the opposite is the case (Hixkaryana). In one language both polar interrogatives and declarative negatives must use an irrealis form (the non-declarative marked form in Kabardian), and in all the rest of the sample, realis can be freely used in both negatives and interrogatives. I do not have an explanation to offer for this difference at this point, but the line of explanation proposed by Mithun (1995), where the difference found in Caddo vs. Central Pomo is accounted for by scope differences, might be worth pursuing.

## **6. Conclusion**

In this paper, I have taken a preliminary look at TAM marking in polar interrogatives, paying special attention to how it differs from TAM marking in declaratives. The observations are based on a pilot sample of 105 languages. I first illustrated the distinction between symmetric and asymmetric interrogatives, then discussed the ways in which TAM marking was found to differ between interrogatives and declaratives, and then compared the findings to similar observations made on negatives (vs. affirmatives). In future work, these preliminary results must be re-examined with a much more extensive and representative sample, which will certainly reveal additional interesting phenomena concerning TAM in polar interrogatives and result in modifications of the preliminary typology proposed here. The issue of explaining the cross-linguistic findings can then also be addressed.

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# Multiple analytical perspectives of the Eleme Anterior-Perfective<sup>1</sup>

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## Abstract

There is increasing recognition in typology that linguistic categories are language-specific and not universal, increasing the need for explicitness in language descriptions. In light of this development, I argue in this paper that pre-existing labels and descriptions for a set of subject-marking TAM prefixes in Eleme do not adequately characterise the distribution and use of these forms, which is conditioned by the complex interaction of person and number features, Aktionsart, epistemic modality and information structure. In response to the challenges raised by these data, I argue that when multiple analytical perspectives are required to understand the function of a grammatical form, fine-grained quantitative analyses with description give a complex but useful basis on which to compare languages.

**Keywords:** tense, aspect, modality, categories, discourse.

## 1. Introduction

There is increasing recognition in typology that linguistic categories are language-specific not universal (e.g. Croft 2001, Haspelmath 2007) and that the linguistic categories posited in a description are language-specific descriptive categories (cf. Haspelmath 2008). One way of indicating this viewpoint in descriptions is to use upper case labels such as English Past or Eleme Continuous to distinguish language-specific uses of these terms from some universal notion of ‘past’ or ‘continuous’. Given that, in principle, we are free to label a category with any language-specific term deemed appropriate, there is an onus on the language documenter to increase the transparency of the descriptive content of such terms, and not to assume the existence of pre-established categories (e.g. from the Latin tradition). Along with the augmented need for detail and clarity in language descriptions, the realization that categories are language-specific calls for a new honesty in assessing the scientific credentials of the methodologies typologists use in the pursuit of comparing grammatical categories cross-linguistically. In this paper I explore the consequences of Haspelmath’s (2007) proposal that ‘pre-established categories don’t exist’ in relation a set of verbal prefixes in Eleme (Ogonoid, Niger-Congo) that have proven ‘difficult’ to label transparently using traditional terminology. I demonstrate that if we rely on pre-conceived ideas about the properties pre-existing labels are assumed to have, previous analyses of this set of verbal prefixes based on evidence from elicited utterances - and even spontaneous data taken from discourse - do not correctly characterise their use. To understand their nature it is necessary to collate evidence on their *distribution* from discourse data (i.e. not just using spontaneous examples, but spontaneous examples in context). I argue that multiple analytical perspectives are required to adequately describe any grammatical

form that conflates or challenges pre-established grammatical categories. More specifically, I argue that when multiple analytical perspectives are required to understand the function of a grammatical form, fine-grained quantitative distributional analyses with description give a complex but potentially useful basis on which to compare languages. Access to data of this kind thus raises new challenges for how typologists might compare languages when a language-specific category can only be analysed successfully from multiple perspectives.

The paper begins with a brief introduction to Eleme and an outline of the problem for language description (§2); this is followed by an exploration of the TAM characteristics of the Eleme prefixes in question (§3) and a detailed examination of their subject marking properties with a high frequency verb in traditional narrative discourse (§4). The paper concludes with a summary (§5).

## 2. Background

Eleme is an Ogonoid (Benue-Congo, Niger-Congo) language spoken in Rivers State in south-eastern Nigeria. It is characterised typologically by nominative-accusative alignment, SVO word order and a rich verbal morphology including several productive reduplication strategies. Eleme also makes extensive use of lexical and grammatical tone. Multiple paradigms of participant reference affixes are evident in the language, including one set of subject-indexing prefixes that exhibit a range of semantic properties associated with TAM categories. This set of prefixes, exemplified in Table 1, has previously been described as marking the ‘Definite Past’ (Wolff 1964: 47, Williamson 1973: 10, Obele 1998: 212), with temporal characteristics taken to be primary in the attribution of a category label. For instance, Wolff (1964: 47) states “The Eleme prefix *a-* or *wa-* indicates recent past, but the form is also used in answer to the question ‘do/did you...’, hence perhaps the best gloss for the Eleme construction is ‘do/did...’”. Similarly, Williamson (1973: 10) only briefly describes the use of this form, by mentioning that “This verb form is used in reply to the question ‘Did you...’” Williamson contrasts the use of the Definite Past with the Simple Past (1973: 10), which is called the Aorist by Wolff (1964: 46), and referred to as the Perfective in the present study (§3). Obele (1998: 211-212) uses the same terminology as Williamson (1973) but does not discuss the use of either the Definite Past or the Simple Past in terms of their semantics or usage. Since the use of these forms is not explained any further, the reader must assume the properties of a pre-established category since otherwise constraints on the use of these forms remain opaque.

Table 1. Category X prefixes

	SINGULAR	PLURAL
1 <sup>st</sup>	<i>ma-</i>	<i>wa-</i>
2 <sup>nd</sup>	<i>wa-</i>	<i>wa-</i>
3 <sup>rd</sup>	<i>a-</i>	<i>ba-/a-(...-ri)</i>

In this paper I challenge the appropriateness of the label ‘Definite Past’ in terms of its descriptive adequacy, but also explore the notion of how much information – and

what type of information – is needed to characterise a category that is associated with a number of different meanings. First, I review the decisions made in the nomenclature of this ‘difficult’ category and therefore, for impartiality and clarity, I refer to them as Category X prefixes for the time being.

The Category X prefixes append directly to the verb root and are characterised by the phonological shape (C)a-. The first-person singular (*ma-*) and the third-person singular and plural (*a-* and *ba-*) are each uniquely distinguished in form while a typologically unusual conflation exists of the second-person marker with the first-person plural form *wa-*. The Category X prefixes typically occur alongside a restricted set of the Default Subject prefixes presented in Table 2 and, in the case of the second-person plural and third-person plural subjects, a set of subject suffixes, as in Table 3. The subject suffixes are not part of a discontinuous morpheme but rather have distinct distributional properties (Bond, to appear).

Table 2. Default subject prefixes

	SINGULAR	PLURAL
1 <sup>st</sup>	<i>m̃-/ñ-/ɲ-/ɳ</i>	<i>rɛ̃-/nɛ̃-</i>
2 <sup>nd</sup>	<i>ò-/ɔ̃-</i>	<i>ò-/ɔ̃-</i>
3 <sup>rd</sup>	<i>è-/ê-</i>	<i>è-/ê-</i>

Table 3. Subject suffixes

	SINGULAR	PLURAL
1 <sup>st</sup>		
2 <sup>nd</sup>	<i>-∅</i>	<i>-i</i>
3 <sup>rd</sup>	<i>-∅</i>	<i>-ri</i>

The paradigm in (1) exemplifies the distribution of the Category X prefixes with the verb *ʔà* ‘leave’.<sup>2</sup>

- (1)
- |   |  |
|---|--|
| <p>a. <i>ma-ʔà</i><br/>1SG.X-leave<br/>‘I left.’</p>              | <p>b. <i>nɛ-wa-ʔà</i><br/>1PL-X-leave<br/>‘We left.’</p>           |
| <p>c. <i>ɔ̃-wa-ʔà-∅</i><br/>2-X-leave-SG<br/>‘You (SG) left.’</p> | <p>d. <i>ɔ̃-wa-ʔà-i</i><br/>2-X-leave-2PL<br/>‘You (PL) left.’</p> |
| <p>e. <i>a-ʔà</i><br/>3.X-leave<br/>‘He left.’</p>                | <p>f. <i>ba-ʔà</i><br/>3PL.X-leave<br/>‘They left.’</p>            |

- g. *a-ʔà-ri*  
 3.X-leave-3PL  
 ‘They left.’

While previously described in terms of their temporal characteristics, spontaneous speech data reveal that constructions containing the Category X prefixes have a default reading of past time reference only if the predicate is not stative (2). In particular, if we take a fairly uncontroversial conception of what ‘past’ tense refers to, such as Bybee, Perkins and Pagliuca’s (1994: 316) definition that “the situation occurred before the moment of speech”, the implication of the use of this particular term for a category (rather than ‘non-future’ for example) is that it is not used for present or future situations. However, if the predicate is a stative one, as in (3), there is a present time reading, whereby the situation occurs simultaneously with the moment of speech and not before it (as the label ‘past’ suggests).

- (2)            *ɔwá*    *ɔkɔ́*    *a-sii*            *ɲkél-ɔ̀nʷi-yò*  
 wife    spirit    3.X-catch    small-child-SPF  
 ‘The spirit woman caught the boy.’

- (3)            *ɲɸɸé*            *a-bitá*            *ɔʔɔ̀ni*  
 mosquito    3.X-be.many    here  
 ‘There are many mosquitoes here.’

Conversely, perfective events in the past do not require a Category X affix, as in (4), suggesting that past time reference is simply a default characteristic of the form.

- (4)            *ɲgbaa*    *sii-ra*            *ɲna*            *dʒuá*  
 dog    catch-AGAIN    animals    bring  
 ‘Dog caught animals again (and) returned (with them).’

The type of contrast evident in these examples indicates that without further justification, a tense-based characterisation of the function of these affixes is misleading. In the discussion that follows, I show that the distribution of these prefixes is conditioned by the complex interaction of person and number features, Aktionsart, epistemic modality and information structure, challenging the usefulness of the labels applied to these forms in previous descriptions, but also raising more general concerns about the comparability of language-specific categories cross-linguistically.

### 3. A paradigm-by-paradigm approach

In Bond (2006a) it is argued that the morphologically unmarked default category in Eleme, referred to as the Perfective, is used in opposition to a number of morphologically marked aspectual/modal categories rather than absolute tenses. Perfectives mark a situation as temporally bounded, with the narration of events among

the typical functions of forms identified as perfective cross-linguistically. In narrative discourse, categories identified as ‘perfective’ tend to encode what Hopper (1979) calls foreground, while other categories – particularly those identified as imperfective – are used to encode the background. Foreground concerns “the parts of the narrative which relate events belonging to the skeletal structure of the discourse” (Hopper 1979:213), while background concerns supportive material that does not narrate the main events of the discourse.

In order to illustrate the relationship between foreground/background and aspect in Eleme, consider the personal narrative in (5). In personal narratives (where one of the main protagonists is the speaker), constructions that foreground information are commonly marked for subject using the default subject prefixes but are otherwise morphologically unmarked for aspect or tense.

- (5) a. *ba-dzú tfulá-mi tí-ga-dzí ðtðð nè*  
 3PL.X-come meet-1SG when.1SG-CONT-climb house give  
*ðtðð èbo ʒʔʒ nè ñ-tĩ-i*  
 house top place REL 1SG-stay-PRCL  
 ‘They came and met me when I was climbing the stairs to the place that I lived.’
- b. *wɛ wí-mi wí-mi kɔ́ ñ-titá-i*  
 and call-O1SG call-O1SG COMP 1SG.HORT-come.down-PRCL  
 And called to me, called to me that I should come down.’
- c. *wĩ-kpè ñn<sup>w</sup>ɛ dzú tfulá-ba dzú eke*  
 and.1SG-return back come meet-3PL come under  
 ‘And I came back down and met them.’
- d. *kí-ri-kɔ́ ñ-tĩ ʒʔʒni sé*  
 PROX-3PL-say 1SG-stay here Q  
 ‘Then they said do I live here?’

Foregrounded events in this sequence are first indicated in (5a) with the verbs *dzú* ‘come’ and *tfulá* ‘meet’. Note that the first of the verb stems in this Serial Verb Construction is marked with the Category X prefix *ba-* and not the third-person plural Default Subject affix complex *è-...-ri*. Participant reference marking aside, the subsequent verb forms used for the main sequence of events are morphologically unmarked. They are *wí* ‘call’ in (5b), and *kpè* (*ñn<sup>w</sup>ɛ*) ‘return’, *dzú* ‘come’ and *tfulá* ‘meet’ in (5c). Semantically, the unmarked forms have a default reading of perfective aspect and a secondary implication of past time reference. Finally, *kɔ́* ‘say’ in (5d) is also part of the foreground, but differs from the other foregrounded examples in that it is marked with the Proximative prefix *kí-*. This marker explicitly indicates the immediacy of the event in relation to the preceding one.

These forms used for foregrounding contrast with verb forms used for background information, which are encoded using a variety of other constructions. For instance, in (5a), some background information is indicated by a Continuous verb form. This clause is the only one that chronologically overlaps (i.e. is not sequential) with a foregrounded event in this sequence. It describes a situation necessary for understanding later foregrounded events, namely, why the protagonist was called to (i.e. because he was going up the stairs, in a direction away from the person calling out) and why he had to come down (because he was going upstairs and was therefore above the level of the caller). The relative clause in (5a) also provides background information necessary for understanding why the protagonist is asked if he lives in the house, but it is not part of the main sequence of events. The subsequent events are all sequential.

Despite the fact that all of the narrative (i.e. Perfective) verbs have past time reference in (5), there are a number of reasons why constructions of this type are best described in terms of perfective aspect and not past tense. Firstly, in Eleme, constructions containing a verb stem that is not marked by tense/aspect morphology contrast with constructions that are marked for imperfectivity using a Habitual aspect suffix or a Continuous aspect prefix. They do not contrast with constructions marked with present, future, or non-past tense. Secondly, the verb root has the same form and tone in both imperfective and perfective constructions, indicating that the only difference between an imperfective construction and a perfective construction is the presence of an aspectual affix (for a fuller account of this point see the arguments presented in Bond 2006a).

While constructions with morphologically unmarked verb stems are characterised as Perfective, achieving an adequate characterization of the Category X prefixes is much more complex. From a typological perspective, Category X has some of the characteristics of what Bybee, Perkins and Pagliuca (1994: 78-81) call an ‘old anterior’ - a category which is proposed to occupy some part of the middle ground on a grammaticalization chain between markers of anteriority at one end and markers of perfectivity at the other. While perfectives are used in the narration of events, anteriors (commonly referred to as ‘perfects’) mark a past situation as relevant to a situation at a reference time. Anteriors are used in narratives much more selectively than perfectives. The Eleme Anterior construction contains an Anterior auxiliary *bere* as well as a Category X prefix (6b), revealing a possible connection between the two in terms of meaning.

- |     |    |                       |              |    |                         |               |           |
|-----|----|-----------------------|--------------|----|-------------------------|---------------|-----------|
| (6) | a. | $\dot{\text{ɛ}}n^w i$ | Ø- <i>dò</i> | b. | $\dot{\text{ɛ}}n^w i$   | <i>a-bere</i> | <i>dò</i> |
|     |    | child                 | 3-fall       |    | child                   | 3.X-ANT       | fall      |
|     |    | ‘The child fell.’     |              |    | ‘The child has fallen.’ |               |           |

Old anteriors typically express one or more of the following meanings: resultative, completive, non-anterior past or perfective, ongoing states, commencing states or evidentiality. Of these, the Category X prefixes occur with resultant states, ongoing states, non-anterior perfectives and arguably indicate epistemic modality bearing some similarity to evidentiality in a broad sense, as discussed below.

As well as general states of the type expressed by verbs such as *ɲá* ‘know’ and *gbo* ‘have’ which are always inflected with a Category X prefix in affirmative constructions,



Perfective is coined to represent a category in Eleme that does not fit easily within the bounds of traditional terminology for grammatical categories, partly because the (language-specific) labels ‘Anterior’ and ‘Perfective’ are used more appropriately for other constructions in the language. Taking the stance that categories are language-specific means that we could just as well retain the name Category X for this paradigm of forms, because the use of a label with semantic association is simply a helpful mnemonic.

At what point then is a language-specific category adequately described to be useful to a typologist? Arguably, given the multiplicity of uses of the Anterior-Perfective prefixes, we still don’t have an adequate characterisation of this language-specific category because it has been characterised in a paradigmatic way, on the assumption that its primary use is that of a conflation of TAM categories. In the next section, I argue that fine-grained quantifiable evidence from frequency counts quickly reveals that an alternative less-intuitive analysis for the Eleme Anterior-Perfective is required.

#### **4. Quantitative analysis**

Corpus studies are well known for returning insightful results regarding phenomena that are otherwise undetected or misanalysed. This is particularly the case when the distribution of a form is not directly perceivable without quantitative analyses. Well-known studies of this type include Du Bois’s (1987) study into the discourse basis for ergativity, Fox and Thompson’s (1990) study of relative clauses in information flow and Bickel’s (2003) typological investigation of referential density.

In order to test the paradigm-centric analysis of the contrast between the use of the zero-marked perfective verb stems and the use of the Anterior-Perfective prefixes, a small corpus of Eleme traditional narratives was examined for the distribution and frequency of subject-indexing verbal affixes. The stance taken here is that valid linguistic analyses concerning language use should stand up to being tested by frequency counts in a spontaneous speech corpus and thus corpus analysis is an appropriate tool for checking the suitability of a linguistic description.<sup>3</sup> This paper reports preliminary analyses with a single lexical verb.

The frequency counts that form the basis for the observations in this paper come from a genre-stratified corpus of seven narratives told in a naturalistic setting in which each speaker had an audience of at least three people. The texts were chosen for inclusion in the corpus on the basis of (i) similarity of discourse style, (ii) spontaneity of speech, (iii) detailed level of analysis working directly with language consultants on the translations.

Table 4 details the number of verbs identified in each text in the corpus. For the purpose of the study a verb must be able to be the lexical head of a predicate without additional support material. Thus, while serial verb constructions containing two verbs count as two items in the frequency count, auxiliary verb constructions containing an auxiliary and a lexical verb count as only one verb. This is because auxiliaries in Eleme cannot form a predicate without a lexical verb, but lexical verbs can form a predicate without an auxiliary. Verbs that are morphologically marked for dependency on another verb are likewise not counted in the frequency count since they are always dependent on some other lexical verb acting as the head of the predicate. For a more detailed

exposition of the characteristics of verbs in Eleme, see Bond (2006a: 44-52). Within the corpus, a total of 779 verbs were counted that did not exhibit signs of morphological dependency.<sup>4</sup>

*Table 4.* Verb count within narrative discourse corpus

	TEXT NAME	NO. OF VERBS
1	Dog and his master	172
2	The child and the witch	144
3	Land story	135
4	Tortoise's belly	124
5	The rat baby	104
6	The flower pickers	65
7	Wuwu and the banana	40
	TOTAL	779

A total of 35 different subject-indexing strategies were identified within the corpus. This included five different zero strategies because in some cases, the selection of a particular TAM marker excluded the possibility of subjects with certain person or number features. For instance, a verb with the Continuous prefix *ka-* but no further subject marking morphology (i.e. the last case default marker for this category) excluded the possibility of a first-person singular subject (which would be marked with *ga-*) or a third-person plural subject (which would have the form *ka-ra-*). Across the corpus only three types of subject indexing strategy were found in every text: zero-marking (i.e. bare stems) with third-person singular subjects, Continuous-marked stems (*ka-*) with third-person singular subjects, and Anterior-Perfective marked stems (*a-*) with third-person singular subjects.

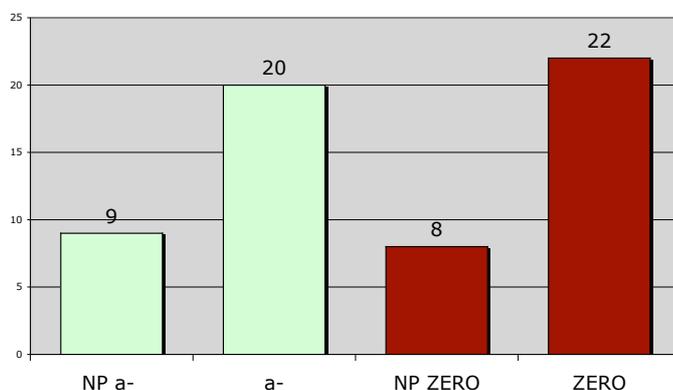
*Table 5.* Ten most frequent lexical verbs across the narrative corpus

VERB	FREQUENCY	NO. OF TEXTS
<i>kɔ</i> 'say'	62	7
<i>tfú</i> 'take'	49	7
<i>sí</i> 'go'	41	6
<i>ná</i> 'do'	37	6
<i>gwá</i> 'reach'	32	7
<i>mɔ</i> 'see'	32	7
<i>ʔà</i> 'leave'	22	7
<i>tfa</i> 'run'	19	5
<i>dʒú</i> 'come'	16	7
<i>ná</i> 'know'	17	4
<i>sii</i> 'catch'	16	4

Of the 779 verbs identified in the corpus, frequency counts were taken of each lexical item in order to identify those verbs for which the most convincing generalisations could be made. The ten most frequent lexical verbs are listed in Table 5. Of these ten verbs, only six were found in all seven texts, with *kɔ* ‘say’ found in all texts at high frequency due to the genre of the corpus. The only subject indexing strategy found with all of the high frequency words was the Anterior-Perfective *a-* and perfective stems with no overt marking, i.e. zero-marking. While high frequency verbs are well known for acquiring special grammatical functions and thus exhibiting specialised behaviour, in a relatively small corpus such as the one under discussion here, they are the only tokens with the high enough frequency to yield meaningful results. Furthermore, in an adequate account of the Anterior-Perfective category, it is not sufficient to consider the use of the prefixes in terms of generality (e.g. it behaves like X with most types of verb) without considering frequency (e.g. it occurs most frequently in X type constructions).

Focusing on the highest frequency verb ‘say’, all uses of the verb in the corpus with a third-person singular logical subject were investigated, resulting in a reduced total of 59 instances (out of 62) in total; of these, 29 instances (49%) were marked with the third-person Anterior-Perfective prefix while the remaining 30 verb stems (51%) were not morphologically marked for person or number. Of the stems marked with the Anterior-Perfective prefix, 9 (15% of all instances) were also preceded directly by an NP subject, while a comparable 8 unmarked stems (14% of all instances) were preceded by an NP subject, as indicated in Figure 1.

Figure 1. Distribution of Anterior-Perfective and zero marking subject strategies with 59 tokens of the verb *kɔ* ‘say’ with third-person singular subjects.



Within the 59 tokens, which have been controlled for speech genre, spontaneity, audience setting, verb type, person and number of subject, the degree of variation within the corpus for this verb is surprising. Given that *kɔ* ‘say’ is used in traditional narrative discourse to report the speech of others with omnipresent authority, the epistemic quality of the verb should not be expected to vary quite so much. Certainly, variation in the degree of epistemic authority the speaker has for each *kɔ* construction does not vary in the translations into English or perceivably in the structure of the story, suggesting this is not the motivation for the alternation. In order to pursue this issue, I investigated

four variables relating to discourse structure and the specific distributional properties of the verb *kɔ* ‘say’, namely:

1. Whether the speech introduced was direct or indirect.
2. Whether the subject referent for the token verb is different from the subject referent of the preceding verb (i.e. there is a *switch* of reference) or whether it is the same (i.e. there is *continuity* of reference).
3. Whether the speech predicate was preceded by another speech predicate or a non-speech predicate.
4. Whether the verb was the first verb in a predicate (V1) or a subsequent verb (V2).

Of these three variables only the final three revealed any correlations with the presence or absence of an NP subject and/or whether the token is a bare stem or marked with the Anterior-Perfective prefix *a-*, as detailed in Tables 6 and 7.

*Table 6. Correlations between three variables of discourse structure (NP subject).*

NP a-	SWITCH	CONTINUITY
SPEECH PREDICATE PRECEDES	2	0
NON-SPEECH PREDICATE PRECEDES	7	0

NP zero	SWITCH	CONTINUITY
SPEECH PREDICATE PRECEDES	3	0
NON-SPEECH PREDICATE PRECEDES	5	0

*Table 7. Correlations between three variables of discourse structure (no NP subject).*

a-	SWITCH		CONTINUITY	
SPEECH PREDICATE PRECEDES	8		0	
NON-SPEECH PREDICATE PRECEDES	2		10	

zero	SWITCH		CONTINUITY	
	V1	V2	V1	V2
SPEECH PREDICATE PRECEDES	3*	0	0	2†
NON-SPEECH PREDICATE PRECEDES	2**	0	10	5†

\* In all cases the answer is a response to a question or recognition of a statement.

\*\* Switch in subject but continuity of discourse topic; the preceding subject referent could not be interpreted as the subject referent of *kɔ* ‘say’ due to animacy constraints.

† Perhaps better analysed as a complementizer.

The figures in Table 6 indicate that when an NP subject precedes *kɔ* ‘say’ this is a consistent signal that there is a switch in the subject referent from the previous clause. The data in Table 7 suggest that when there is no subject NP a more complex situation prevails. If the token verb is marked by the Anterior-Perfective prefix and a speech predicate precedes the clause containing the token, there is always a switch in the reference of the subject. For instance, in the following example, a speech predicate (9a) precedes the token verb in (9b). The use of the Anterior-Perfective prefix in the second speech predicate indicates that the two speech verbs have different subject referents.

- (9) a. *a-kɔ é-ká-sí-ri m̀̀̀ti n-̀̀̀ne ké-ye*  
 3.AP-say 3-HORT-go-NEG lest one-person slaughter-O3SG  
 ‘She said he shouldn’t go lest someone slaughters him.’
- b. *a-kɔ m̀̀̀ ka-sí-ye*  
 3.AP-say COMP CONT-go-LOG  
 ‘He said that he will go.’

In contrast, when a non-speech predicate precedes a speech predicate headed by *kɔ* ‘say’ marked with *a-*, the prediction is that there will be continuity of reference, i.e. both predicate subjects have the same referent, as in (10), where the subject referents of *sii* ‘catch’ and *kɔ* ‘say’ are the same.

- (10) a. *̀̀̀w-̀̀̀k-a-sii-ye kwí*  
 woman-spirit-3.AP-catch-O3SG grabbing.noise  
 ‘The spirit woman grabbed him.’
- b. *a-kɔ b-̀̀̀-̀̀̀er-̀̀̀ni d-̀̀̀súri*  
 3.AP-say COP-2-stay-here eat-water.yam.porridge  
*̀̀̀t-̀̀̀-̀̀̀ra ñdʒe*  
 when-2-leave-AGAIN NEG.LOC  
 ‘She said “Since you stayed here and ate this porridge the time for you to leave will not come”.’

While the data is not exceptionless in this respect, variation of this kind should not be considered unusual since speakers make choices about reference, rather than follow hard and fast rules.

When the verb *kɔ* ‘say’ is a bare stem there is typically continuity of reference for the subject of the token verb from the preceding verb. The examples in (11) and (12) typify this type of construction in the corpus, in which the action of the preceding verb is a ‘preparatory action’ for the speech that follows (or is concurrent with the action of the subject marked verb).

- (11) *éméré́ a-kpa ènu kɔ́ kára b-àné re*  
 chief 3.AP-beat thing say just COP-person REL  
*ke a-má ð̃ñʷí á-bira òmú bira ð̃ñʷí-ye*  
 PR TCL 3.AP-give.birth child 3.HORT-bathe water bathe child-3SG.POSS  
 ‘The chief announced that anybody who gives birth to a child should bathe her baby.’

- (12) *a-tfú òge-ye kɔ́ àkà dzú òñʷé*  
 3.AP-take machet-3SG.POSS say mother come behind  
 ‘He took his machete (and) said mother should follow behind.’

In the two instances detailed in Table 7 where the token in question is preceded by a non-speech predicate, there is a switch in the reference but no overt marking of a pronominal form, the subject referent of the speech predicate is the topic, and the logical subject of the intervening preceding predicates could not be the speaker of the following speech since they are inanimates.

For instance, the examples in (13) come from a story in which a small child goes searching for a fire, which he forgets about when he is fed water yam porridge by a spirit woman. The topic of the discourse is *̀̀nkól-ð̃ñʷí* [̀̀nkól-ð̃ñʷí] ‘the small child’, which is followed by predicates that have *̀̀mp’o* [̀̀mpe, ̀̀mp’o] ‘heart’ and *̀̀nsá* ‘fire’ as their logical subjects. However, the topic is interpreted as the subject referent of the uninflected verb in the relative clause, and not *̀̀nsá* ‘fire’ (i.e. the subject of the preceding clause), indicating that this is a case of topic continuity.

- (13) a. *̀̀nkól-ð̃ñʷí, ̀̀mpe a-?oro*  
 small-child heart 3.AP-white  
 ‘The child, he was happy (lit. The child, his heart was white/pure).’
- b. *̀̀nsá kí-tã ̀̀mp’o, ̀̀nsá re kɔ́ ka-sí ?ó-m-èsaa*  
 fire PROX-desire heart fire REL say CONT-go roast-INS-yam  
*kí-tã ̀̀mp’o*  
 PROX-desire heart  
 ‘The fire was forgotten, the fire that he said he would go (and) roast the yams with was forgotten.’

There are some instances in the corpus where the verb is the second speech verb or verb of communication in a sequence, in which case it may be better analysed as a complementizer. This is the stance taken in (5b), and in similar examples in Bond (2006a, 2006b), since in examples like these, *kɔ́* has a perceptibly low tone and occupies a position consistent with another complementizer *mè*. For instance, in (9b), the lexical verb *kɔ́* is followed by *mè* (a complementizer that is never a verb), while in (14), *biná* ‘ask’ is followed by *kɔ́*. Conceivably, however, these could also be analysed as concurrent activities in a Serial Verb Construction in a similar way to those in (11).

- (14) *a-biná kɔ̀ àwiá be tʃá wɔ?*  
 3.AP-ask say/COMP sibling COP walk how  
 ‘He asked ‘How did your sister walk?’

The factors that underlie the distribution of NPs with and without the Anterior-Perfective prefix is less discernable from the available data about *kɔ̀* ‘say’ than the factors influencing the distribution of the prefixes when no NP subject precedes the token verb. However, there is some evidence to suggest that the use of the Anterior-Perfective prefixes with an NP subject may be conditioned by definiteness/specificity. For instance, in the corpus verbs with indefinite NP subjects marked with *nne* ‘one’ (11 in total) are never accompanied by Anterior-Perfective marking, and neither are those NPs which are morphologically indicated as being a highly specific identifiable referent, marked by the second position enclitic *=yo* (10 in total), suggesting that when NPs are morphologically marked in terms of their definiteness/specificity the Anterior-Perfective prefix is not used. This is an avenue that requires further investigation, across all verbs in the corpus. However, what I do not assume here is that the factors that influence the selection of the Anterior-Perfective prefix *a-* when an NP is present are necessarily identical to those that select *a-* when an NP subject is not present.

While the data provided here are somewhat impressionistic given the factors that interact with the selection of the Anterior-Perfective prefixes, they do indicate that reference tracking is a key feature of the prefixes, which have different distributional behaviour to verbs that are zero marked. Future work in this domain will involve extending the analyses across all the verbs within the corpus, and then across different genres of speech in order to consolidate or refute the observations made here as applicable across a wide spectrum of verbs.

## 5. Conclusions

Even the most earnest attempts to provide an accurate characterisation of a ‘difficult’ language-specific category are dogged by the absence of discourse-based distributional analyses because of the multiplicitous nature of factors affecting the use of forms. Such is the case in providing an adequate analysis of the Eleme Anterior-Perfective prefixes, which until now have been discussed in terms of their temporal characteristics, but not their referential characteristics.

The generalizations I make here hold for predicates containing the verb *kɔ̀*, within traditional narrative discourse. This is because the sample I have used is genre-specific, and the distribution pertains to the use of the third-person singular Anterior-Perfective prefix *a-* with only one lexical verb. Since not all members of a putative paradigm behave in the same way, one should not assume that the same characteristics hold for the first and second-person forms (or indeed the third-person plural forms), for which there is currently little data.

While paradigm-by-paradigm analyses of other verbs suggest that the distinction between the use of *a-* vs. zero-marking may be conditioned by the quality of evidence a speaker has for a proposition, this is not what underlies the use of *a-* vs. zero marking in the data investigated from this small corpus. Confirmative and anterior-like uses of

constructions containing the prefixes are neutralized in narrative discourse, where the story teller is an omni-present authority and thus all speech has the same evidential or ‘status’ properties. The data presented here suggests:

1. The presence or absence of an NP is an important factor in determining the referent of the subject marking prefix *a-*.
2. A token verb may be zero marked for subject and not directly preceded by an NP if the action of the preceding verb is either preparatory for or concurrent with the action of the token verb.
3. If a non-speech predicate precedes a token of *kɔ* marked with *a-* it will typically indicate continuity of reference, but if a non-speech predicate precedes it will trigger a switch in reference.
4. Selection of the Anterior-Perfective prefixes may be linked to definiteness/specificity or the morphological marking of such nominal categories.
5. In narrative discourse, recent past-ness is not an important characteristic of the meaning expressed by constructions containing the Anterior-Perfective prefix *a-*, nor can its presence be attributed to answering the question, ‘What did he do?’ since all perfectives answer this question in the narrative.

I argue that multiple analytical perspectives such as those examined in this paper are required to adequately describe any grammatical form that conflates or challenges pre-established grammatical categories. More specifically, when the function of a grammatical form is unclear, fine-grained quantitative distributional analyses with description give a complex but useful way to pursue analyses. Access to data of this kind raises new challenges for how typologists might compare languages when semantic characterizations are not adequate or not possible, or only relevant in certain discourse contexts. It is only by examining data in a fine-grained way (e.g. at the level of one lexical verb) that we begin to perceive the types of information that would otherwise go unnoticed using a non-quantifiable, non-discourse based model of data analysis.

## Notes

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2. The abbreviations used throughout this paper are: 1 = first-person, 2 = second-person, 3 = third-person, ANT = anterior, AP = anterior-perfective, COMP = complementizer, CONT = continuous, COP = copula, HORT = hortative, INS = instrumental, LOC = locative, LOG = logophor, NEG = negative, O = object, PL = plural, POSS = possessive, PROX = proximative, PRCLT = particle, Q = question particle, REL = relativizer, SG = singular, SPF = specific, X = category x (i.e. anterior-perfectives). Examples are presented in a phonemic orthography consistent with the IPA, with the exception of <r> used for [ɾ] and <y> used for [j].
3. There is of course a distinction between how speakers actually use language and their metalinguistic understanding of it, for instance the forms and structures that speakers use may not correspond directly to the types of grammaticality judgments they make. Each perspective on language use has its place in linguistics but this paper concerns how language is used in context.
4. This included the locative verb *do* ‘be located’ and the copula *be* which exhibit some of the properties of verbs, but have restricted potential in terms of their inflectional characteristics. While included in the total count of 779 verbs (amounting to 32 tokens and 34 tokens respectively), they do not ever occur with the Anterior-Perfective prefixes (or many other types of TAM and person/number marking) and are thus excluded from consideration on these grounds.

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# **Irrealis and conditional structures: a temporal and/or aspectual issue?**

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## **Abstract**

Tense-aspect marking is known to play a central role in the interpretation of counterfactual (CF) conditional structures (CSs); it has thus often been claimed that their irrealis/CF content could be traced back to the past inflections often used to mark protases of CSs. The purpose of the present paper is to account for so far somewhat disregarded facts concerning the distribution and interpretation of tense-aspect inflections within CSs – notably the fact that (past) perfective viewpoint inflections (in the sense of Smith 1991) appear to be cross-linguistically ruled out from antecedent clauses of CSs. A comparison with other types of modal expressions (conditional and future inflections, modal auxiliaries) will provide additional evidence for the novel aspectuo-temporal account of CF CSs proposed here, and for a wider theory of the interaction of modality with tense-aspect.

**Keywords:** conditional structures, counterfactuals, modality, tense, aspect.

## **1. On the link between tense-aspect inflections and irrealis conditionals**

The possible existence of a link between past imperfective markers and conditional structures has received a good deal of attention in the recent (or not so recent) literature. A consensus seems to have emerged across both typological (see e.g. James 1982, Bybee & Fleischmann 1995) and theoretical works (Iatridou 2000, Ippolito 2004, Caudal & Roussarie 2005, Trnavac 2006, inter alia) that past imperfectives play a determining role with respect to the hypothetical/irrealis interpretation of conditional structure (CS) protases. Indeed, many languages use imperfective markers within protases, see e.g. Modern Greek (1) (Iatridou 2000) or Warlpiri (2) (Legate 2003:160).

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\* Many thanks to Chris Reintges for his help with the Coptic data, and to Gerhard Schaden for fruitful discussions on modality in German. Any error or misconception is entirely mine, of course.

- (1) An eperne afto to siropi tha giinotan kala.  
 If take-PST.IMPF this syrup FUT become-PST.IMPF well.  
 ('If he took this syrup, he would get better.')
- (2) Kaji-lpa-npa ya-ntarla-rni kuyuwangu,  
 NFACT.C-PST.IMPF.2SG come-IRR-hither meat-without,  
 kapu-∅ -rna-ngku kulu-jarri- ∅ .  
 FUTC-PERF-1SG-2SGOBJ angry-become-NPST  
 ('If you come back without any meat, I will be angry with you.')

On top of the classical past vs. present CF CS distinction (cf. (3) vs.(4)-(7)), I will further divide past CF CSs between 'one-past' CF CSs as in (4)-(5) (which describe accessible possible worlds / open possibilities w.r.t. speech time and the actual world) vs. 'two-past' CF CSs as in (6)-(7) (which describe foreclosed possibilities / inaccessible possible worlds w.r.t. speech time and the actual world). French data will be widely used here, as French possesses a rich system of (past) tense-aspect inflections, which obligatorily mark CF CSs (PQP abbreviates the French *plus-que-parfait*, i.e. pluperfect; IMP abbreviates the French *imparfait*, i.e. past imperfective; COND the French (present) *conditionnel*).

- (3) Si Yann vient, Mona partira. (present CF)  
 If Yann come-PRES.3SG., Mona leave-FUT.3SG.  
 ('If Yann comes, Mona will leave.')
- (4) Si Yann venait, Mona partirait. ('one-past' CF)  
 If Yann come-IMP.3SG, Mona leave-COND.3SG.  
 ('If Yann came, Mona would leave.')
- (5) Si Yann était malade, Mona viendrait. ('one-past' CF)  
 If Yann be-IMPF.3SG sick, Mona come-COND.3SG.  
 ('If Yann were sick, Mona would come.')
- (6) Si Yann était venu, Mona serait partie. ('two-past' CF)  
 If Yann come-PQP.3SG, Mona have-COND.3SG. leave-PST.PART.  
 ('If Yann had come, Mona would have left.')
- (7) Si Yann avait été malade, Mona serait venue. ('two-past' CF)  
 If Yann be-PQP.3SG. sick, Mona be-COND.3SG come-PST.PART.  
 ('If Yann had been sick, Mona would have come.')

### 1.1. Goal of the present investigations

In contrast to the imperfective/CF typological link, (past) perfective markers can hardly appear within protases of CSs (Caudal & Roussarie 2005, Trnavac 2006), and certainly not with a CF reading.<sup>1</sup> Thus, the French *passé simple* is ruled out unless a CS receives a non-conditional, non CF reading, cf. (8) vs. (9). Accounting for the (4)/(8) contrast (and generally for the role of tense-aspect inflections w.r.t. CSs) will be the main goal of the present investigation.

- (8) \*Si Yann vint, Mona partirait.  
If Yann come-PS.3SG, Mona leave-COND.3SG.
- (9) Si Yann fut pieux en apparence, il fut en fait un vrai mécréant.  
If Yann be-PS.3SG pious apparently, he be-PS.3SG in fact a true heathen.  
(‘Though Yann seemed to be pious, he was in fact a true heathen’).

I will first clarify the contribution of tense-aspect inflections within CS protases in French, before assessing how such an analysis could carry over to other languages, i.e. German and Coptic, as well as to other modal forms cross-linguistically, notably conditional/future inflections and (semi-)auxiliaries. Crucially, instead of a mere ‘evaluation time’, I will argue that epistemic modal forms require a stative evaluation event; this move will prove fruitful to explain certain distributional and interpretative properties of tense-aspect inflections with CSs and other modal expressions.

### 1.2. Classifying existing approaches

Although the amount of available literature on CSs is too vast to contemplate a substantial review here, I will broadly categorise it in two main classes: *temporal* approaches (which take ‘pastness’ to play a major role in the constitution of irrealis meaning) vs. *aspectual* approaches (which regard aspectual meaning, and not just temporal meaning, as a major parameter in irrealis readings).

According to many influential *temporal* approaches to CSs (cf. e.g. Palmer (1986) and Iatridou (2000)), irrealis content is derived from the alleged ‘now excluded’ meaning of past imperfectives, so that a normally temporal operator/function ends up quantifying over (possible) worlds. Ippolito (2003) showed that such an approach could not account for e.g. (10), because past irrealis protases involve two past functions/operators, one of which should conflict with ‘tomorrow’. In addition to this, the ‘now-excluded’ approach must also explain why past imperfectives generally fail to

exhibit a modal reading within an ordinary matrix clause. Thus (11) does not have any hypothetical reading, contrary to what the ‘now-excluded’ approach would predict (it can report a past speech-act at most, and thereby have some volitional meaning).

- (10) If C. had taken his Italian test tomorrow, he would have passed.  
(11) #Jean partait demain.  
Jean leave-IMPF.3SG tomorrow

I will distinguish so-called temporal accounts from aspectual accounts of CSs. The latter fall into two broad classes, best illustrated by Arregui (2007) and Ippolito (2006): though both accounts claim that aspect plays a key role in construing CF meaning, Arregui argues that aspectuo-temporal functions associated with CSs protases take clause-internal scope, while Ippolito believes them to take clause-external scope (= over the protasis). Unfortunately, neither Arregui’s (2007) nor Ippolito’s (2006) account can explain why (8) is out, as will appear in section 1.3.

### *1.3. Existing approaches and the distribution of tense-aspect markers within CSs*

Arregui (2007) is a clause-internal aspectual account in that it assumes the aspectuo-temporal functions contributed by the antecedent clause verb to take clause-internal scope. Thus in (12), Arregui claims that some (allegedly) perfective function is contributed by the simple past inflection *-ed*, and that it bears on the event described by that verb, thereby contributing to the irrealis interpretation of the CS.

- (12) If your plants died next week, I would be very upset. (Arregui 2007)

In short, Arregui’s account involves three main points:

- (i) tense/aspect functions expressed by the protasis bear on its eventuality time; that is, they take clause-internal scope;
- (ii) the English simple past contributes a perfective function within (eventive) CSs, that is, sentences denoting a telic eventuality (I am making this (I believe sensible) assumption, because Arregui (2007) does not discuss in detail how the aspectual interpretation of sentences in the simple past is construed);
- (iii) the perfective function introduces a deictic (Lewis-event) pronoun, triggering the presupposition of some antecedent eventuality referent. In (12), the perfective-introduced pronoun being unable to pick up an appropriate eventuality referent in the current context, some pragmatic device is called in

to salvage the CS's interpretation (cf. Arregui's (2007) 'diagonalization').

Note first that (iii) is somewhat awkward because it leads us to view natural, unmarked sentences like (12) as semantically deviant; indeed, according to Arregui (2007), (12) requires to be salvaged by some pragmatic interpretative principle; a compositional semantic account would be preferable.

Second, Arregui's (2007) analysis (wrongly) predicts that (8) is correct, by salvaging it through the very means used to assign an interpretation to (12) (the French *passé simple* is clearly a perfective viewpoint tense, and contextual parameters are no different than in (12)).

And third, (iii) depends on (ii), which depends on (i); but unfortunately, (i) is problematic. This is obvious in a language like French, where the aspectual interpretation of an antecedent clause depends on the eventuality type described, and not on the inflectional tense-aspect marking of the protasis *per se*. For instance telic antecedent clauses in the *imparfait* yield 'perfective' readings (13), while atelic clauses yield 'imperfective' readings, (14) (I will argue below that the aspectual neutrality of e.g. the French *conditionnel* and *futur* reveals a parallel phenomenon; see section 3.1). This suggests that the antecedent clause's aspectual content cannot bear directly on the antecedent clause's eventuality time (*contra* (i)).

- (13) Si Luc partait ( $e_1$ ), Max viendrait ( $e_2$ ).  
 ('If Luc left-IMP, Max would come') ( $e_1 < e_2$ : 'perfective' protasis)
- (14) Si Luc était ivre ( $e_1$ ), Max viendrait ( $e_2$ ).  
 ('If Luc were-IMP drunk, Max would come'). ( $e_1 \sqsubseteq e_2$ : 'imperfective' protasis)

Let us now turn to Ippolito (2006). Ippolito assumes that irrealis meaning is not derived within CSs from an imperfective aspectual function, but from a 'universal' present perfect (UPP, cf. McCawley 1971) function which binds the evaluation time of the modal function<sup>2</sup> *WOLL* scoping over the propositional content of the protasis clause, cf. (15).  $\varphi / \psi$  stand for the antecedent / consequent propositions;  $\forall_{\sqsubseteq}$  captures the semantics of the 'extended now' (XNow) interval (McCoard 1978); *SIM* notes a similarity function *à la* Kratzer (1991), ranking worlds in terms of their similarity to the actual world; *HIST* notes an (historical) accessibility function between worlds.

- (15) PRES(PERF( $\forall_{\sqsubseteq}$ (WOLL(SIM(HIST( $\varphi$ )))( $\psi$ ))))

Therefore, it is unclear how Ippolito's account could handle (8)-(10), as it was devised

to account for imperfective tenses only. Moreover, turning again to (4)-(5) and (12), it is dubious why we should introduce a *PRES* and a *PERF* function to represent the contribution of a past, non-perfect tense, as Ippolito's account would have us do. Although Ippolito (2006) argues that "[CF] conditionals are marked by imperfective morphology, since in many languages standard occurrences of universal [present] perfect are marked by imperfective morphology", two important facts militates against this view:

- (i) imperfective tenses receive perfect-like readings only in (some) languages lacking a perfect; since perfects are widespread forms, this rules out the UPP as a plausible general component of meaning for imperfectives (and CSs);
- (ii) perfects are generally banned from 'one-past' CF CSs, cf. (16). How is that so, if the UPP is a key semantic component of 'one-past' CF CSs?

- (16) \*Si Yann a quitté son bureau, Mona partirait aussi.  
 If Yann leave-PC.3SG his office, Mona leave-COND.3SG too.  
 (\*'If Yann has left his office, Mona would leave too').

And more generally, it seems to me that if we take seriously the morpho-syntax/semantics interface, we cannot assume on the face of scant (and arguably debatable) evidence such an unlikely analysis as ascribing a perfect meaning to an imperfective marker. Occam's razor tells us that it is safer to assume that imperfective markers contribute imperfective meanings within CF CSs, rather an improbable 'perfect' meaning.

## 2. Towards a new analysis of the role of tense-aspect inflections within CF CSs

### 2.1. *The analysis in short: the role of past imperfective inflections*

I will now present an alternative analysis of CF CSs, hopefully able to account for the (4) vs. (8) contrast. I will here adopt Ippolito's (2006) idea that tense-aspect markers within protases of CSs take higher, clause-external scope. But unlike Ippolito, (i) I claim that past imperfective markers in protases contribute past imperfective functions (not some 'dummy' present perfect function); and (ii), I argue that an evaluation event (rather than a mere interval) is attached to the (conditional) modal contributed by the CS (there is an obvious parallelism with modal auxiliaries and their complement VPs, as

they often bear explicit aspectuo-temporal marking). Moreover, I will argue that for a CS to be well-formed, this event position should be stative, since modals express beliefs, i.e. private states.

If we combine this stative event position of CSs protases with a past imperfective viewpoint, then the state of belief is given as possibly valid at the utterance time, thus explaining the ‘present relevance’ of the speaker’s belief that Yann might come in (4) – this is a consequence of the so-called ‘open-ended readings’ of imperfective viewpoint tenses, illustrated in (17a)) and represented in (17b);  $\tau$  is the usual temporal trace function; modal operator  $\diamond$  marks the fact that the described event may or may not extend up to and include the utterance time event  $u$  ( $\tau(u)$  corresponding to the utterance time interval).

(17) a. Le bébé dormait cinq minutes plus tôt (et il dort encore peut-être).

The baby sleep-IMPF.3G five minutes more early (and he sleep-PRS.3SG still maybe).

(‘Five minutes ago, the baby was asleep (and maybe she still is)’).

b.  $\forall P, e [(PastImpf(P) \wedge P(e)) \rightarrow \diamond \tau(u) \subset (e)]$

For want of space, I will not provide here a detailed implementation of CF CSs (see Caudal, to appear). But if we adopt a Kratzer-style analysis of modality where *COND* is a ‘bare conditional’ modal treated as a generalized quantifier (GQ), while recycling Ippolito’s (2006) *SIM* and *HIST* functions, we can propose (15’a) as a ‘template’ representation for ‘one-past’ CF CSs in French, *PastImpf* being the past imperfective function associated with the *imparfait*; I take aspectuo-temporal functions to existentially bind some event variable. (15’b) gives some indication of a possible implementation for the *COND* modal GQ: it should crucially comprise an epistemic state event position – cf. (15’c). Finally, (15’d) gives a quick semantics for *PastImpf*, where *TopicTime* is the reference time interval, and *imperfective(e)* is an imperfective viewpoint operator, such that *TopicTime* must be included within the temporal trace of  $e$ .

(15’) a.  $PastImpf(COND(SIM(HIST(\varphi)))(\psi))$

b.  $[[COND]]^{c,g,t,w} =_{def} \lambda p \in D_{(st)}. \lambda q \in D_{(st)}. \lambda e. \forall w' [EpistemicState(e, [p(w')=1 \rightarrow q(w')=1])]$

c.  $[[EpistemicState(e, \varphi)]]^{c,g,t,w} =_{def} 1$  iff. Believe(Speaker,  $\varphi$ ) is true at  $\tau(e)$ , and state(e) holds.

d.  $[[PastImpf]]^{c,g,t,w} =_{def} \lambda P. \exists e [P(e) \wedge imperfective(e) \wedge TopicTime < \tau(u)]$

## 2.2. Why past perfective viewpoint inflections are ruled out

*Vice versa*, if we combine the event argument of the modal content of CSs (*COND* in (15')) with a perfective viewpoint as in (3), the analysis predicts that it should be aspectually shifted to some non-stative change-of-state event (perfective viewpoints being known to cause aspectual shifts on atelic predicates in general – or at least, this is arguably the case with the French *passé simple* (PS); cf. de Swart 1998 and Smith 1991)<sup>3</sup>.

I believe that this fact explains why (8) is agrammatical. First, irrealis readings of CSs clearly engage the speaker's belief in the degree of likelihood of a certain conditional, ranging from the possible (with present or 'one-past' protases) to the impossible (with 'two-past' protases). And interestingly, the only possible conditional-like, non-concessive reading of a protasis in the *passé simple* involves a complete lack of belief on the part of the speaker. Thus in (18), Speaker is totally agnostic w.r.t. to the actual likelihood or even impossibility of the protasis (and apodosis); it is simply unknown / unknowable to her. So it seems that even if we allowed the past perfective function to 'shift' the belief event to a non-open ended, transitional event, it would then conflict with the epistemic content inherent to CF CSs, which requires the speaker not to be agnostic about (im)possibilities.

- (18) Si Yann mangea, alors Mona mangea aussi.  
If Yann eat-PS.3SG, then Mona eat-PS.3SG too.  
(‘If Yann had lunch/dinner, then Mona had lunch/dinner too.’)

Note that parallel analysis will be proposed below for the meaning shifts observed with epistemic (semi-)auxiliaries in Romance and Germanic, cf. (32)-(34); but this time, no semantic type-clash arises, as the semantics of these auxiliaries can be shifted to a non-epistemic, 'effected action' reading, somewhat reminiscent of the meaning of *manage to*.

A probable additional cause for the agrammaticality of (8) is that the *passé simple* is aspectuo-temporally inconsistent with the *conditionnel présent* morphology in the consequent clause of (8): it would effectively prevent us from regarding as accessible at speech time worlds which the *conditionnel présent* requires to be accessible. Indeed the 'belief' event would then be given as past and perfective, i.e. as non-overlapping with speech time, thus leaving no room for presently valid beliefs.

Note that introducing a *conditionnel passé* ('past conditional') in the apodosis is

not sufficient to render (8) felicitous, cf. (19). This clearly shows that the aspectual clash between the perfective viewpoint and the epistemic state predicate is sufficient to cause (8) to be agrammatical.

- (19) \*Si Yann vint, on aurait mangé des crêpes.  
 If Yann come-PS.3SG, we eat-PST.COND.3SG PL.INDEF.DET pancakes.  
 ('If Yann came-PS, we would have eaten pancakes.')

In addition to the *passé simple*, a similar analysis can also be applied to the distribution of the *passé composé* with CSs (cf. (20)). This tense is known to have a hybrid aspectuo-temporal semantics; it is a perfect with past perfective features (cf. Caudal & Vettors 2007). But even if we take it to be aspectually underspecified between a past perfective and a perfect, it lacks an imperfective component of meaning; therefore, just like the *passé simple*, it is expected to 'shift' aspectually the belief state underlying the CS into a change-of-state, transitional event, therefore blocking a CF/irrealis reading.

- (20) \*Si Yann est venu, Mona partirait.  
 If Yann come-PC.3SG, Mona leave-COND.3SG.

Now assuming representation (21) for 'two-past' CF CSs, how do we ascertain that the belief event bound by the *plus-que-parfait* (pluperfect) function *PQP* cannot possibly hold at speech time, unlike with 'one-past' CF CSs?

- (21)  $PQP(COND(SIM(HIST(\psi)))(\varphi))$

(22) demonstrates that the *plus-que-parfait* does not exhibit any 'open-ended' reading, even when it has a resultative interpretation, and in spite of the fact that it comprises an *imparfait* marker. This is intuitively logical: the *plus-que-parfait* can only describe a past result state, i.e. one which lacks present relevance, and strictly precedes the utterance time interval  $\tau(u)$ , as shown by the sharp contrast between (23) and (24). Contrary to the *imparfait*, the *plus-que-parfait* can have past relevance, but not present relevance (it can describe events overlapping with some past reference interval, but not with the utterance time interval).

- (22) (Deux jours avant,) Marie avait été malade.  
 (Two days before), Marie be-PQP.3SG sick.  
 → Mary is not sick anymore.
- (23) Marie est encore au lit. \*Deux jours avant elle avait été malade.  
 Marie be-PRS.3SG still in bed. Two days before she be-PQP.3SG sick.
- (24) Marie était encore au lit. Deux jours avant elle avait été malade.  
 Marie be-IMPF.3SG still in bed. Two days before, she be-PQP.3SG sick.

Given that the semantics of the *plus-que-parfait* excludes present relevance (*PQP* lacks the entailment (17b) attached to the *imparfait*), then it naturally follows that in (6), Speaker cannot believe it possible at speech time that upon the (hypothetical) arrival of Yann, a pancake feast would take place. We have now explained the contrast between ‘one-past’ and ‘two-past’ CF CSs.

For want of space, the formal implementation of the *plus-que-parfait* will not be discussed here in detail (see Caudal (to appear) for such a development). Roughly speaking, though, if we assume an account of the *plus-que-parfait* along the lines of Higginbotham’s (2007) treatment of the pluperfect, we can propose the aspectuo-temporal representation (25) for sentences in the *plus-que-parfait*, where *P* is the verbal predicate, *TopicTime* the reference time interval, and *perf* the two-place perfect operator relating an event  $e_1$  to a result state  $e$ ; condition  $\tau(e_2) < \tau(u)$  captures the strictly past relevance of the *plus-que-parfait*.

- (25)  $[[PQP]]^{c.g.t.w} =_{\text{def}} \lambda P. \exists e_1, e_2 [P(e_1) \wedge \text{perf}(e_2, e_1) \wedge \tau(e_1) < \tau(e_2) \wedge \text{imperfective}(e_2) \wedge \tau(e_2) < \tau(u) \wedge \text{TopicTime} < \tau(u)]$

### 3. Other types of modal markers

The present analysis of the interaction between aspectual and modal meaning receives additional support from independently converging facts in at least two domains: (i) the aspectuo-temporal interpretation of ‘modal’ inflections (3.1) and (ii) the combination of modal (semi-)auxiliaries with tense-aspect markers (3.2).

#### 3.1. Modal inflections: on French and Coptic

Let us focus first on the well-known ‘aspectual neutrality’ of future and conditional morphemes (cf. Smith 1991, *inter alia*), such as the French *futur* and *conditionnel*. Indeed the aspectual interpretation of a verb thus inflected solely depends

on its lexical aspectual contribution (in combination with all its modifiers and adjuncts), cf. (26), which is clearly akin to (13)-(14) (i.e., telic verbs favour a ‘perfective’ reading, while atelic verbs favour an ‘imperfective’ reading in the case of both CSs and modal inflections). Yet these tenses respectively incorporate *présent* vs. *imparfait* endings, i.e. imperfective markers; I conclude from this fact that the aspectuo-temporal content of these endings bear on some modal expression conveyed by the *futur* and the *conditionnel*, rather than on the event described by the inflected verb.

- (26) a. Yann sera malade ( $e_1$ ) lorsque tu arriveras ( $e_2$ ).  
 Yann be-FUT.3SG sick when you arrive-FUT.2SG.  
 (‘imperfective’ protasis:  $e_2 \subseteq e_1$ )
- b. Yann mangera ( $e_1$ ) lorsque tu arriveras ( $e_2$ ).  
 Yann eat-FUT.3SG when you arrive-FUT.2SG.  
 (ambiguous protasis:  $e_2 < e_1$  or  $e_2 \subseteq e_1$ )
- c. Yann partira ( $e_1$ ) lorsque tu arriveras ( $e_2$ ).  
 Yann leave-FUT.3SG when you arrive-FUT.2SG.  
 (‘perfective’ protasis:  $e_2 < e_1$ )

Following Caudal & Veters (2007), I will argue that the French *conditionnel* is a (historically) morphologically complex item, construed by (i) forming a new verb stem and combining it with a former infinitive marking (*-r-*), and (ii) adding a final complex affix, which consists of an *imparfait* inflected form of the *avoir* (‘to have’) auxiliary. I will hypothesize that *-r-* has been reanalyzed as a future marker, i.e. as a modal marker (Caudal & Veters 2005). This gives us the following morphology to semantics mapping, clearly reminiscent of the above analysis of CSs:

- (27) Morphology: Verb.stem + modal marker *-r-* + *avoir*-*Imparfait*
- (28) Semantics: Tense(Aspect(Modal(Verbal-Predicate)))

In addition to the above French data, I would like to put forth additional evidence from Coptic Sahidic (Reintges 2004). Coptic verb stems have inherent aspectual marking; the language distinguishes between so-called ‘eventive’ stems (cf. *kôt*, ‘to build’; *ei*, ‘to go’) and so-called ‘stative’ stems (cf. *kêt*, ‘to be well-built’; *nêw*, ‘to have gone/been (somewhere)’). Note that stative stems have a resultative, almost perfect meaning, although an inflectional perfect exists; they are not intrinsically ‘open-ended’.

On top of this inherent aspectual marking, Coptic verbs receive inflectional aspectuo-

temporal marking – cf. the perfect inflection *a* in (29).

- (29) a-f-kôt  
PERF-3M.SG-build.EVT. ('He has built.')

Among these inflections, two are clearly modal, namely the future inflection *na* and the conditional inflection *šan*; and both have a constrained distribution with inherent aspectuo-temporal marking, as they reject stative verb stems (*šan* being restricted to protases of CSs), cf. (30) vs. (31), and (31) vs. (32).

- (30) \*er-šan-p-êi-kêt,  
REL.N-COND-DEF.ART-house-build.EVT,  
e-f-na-šôpe həm-f.  
REL.PRO-3M.SG-FUT-become.EVT in-3M.SG.  
(‘If the house is well-constructed, he will live in it’.)
- (31) e-f-šan-kôt am-p-êi,  
REL.PRO-3M.SG-COND-build.EVT PREP-DEF.ART-house,  
e-f-na-šôpe həm-f.  
REL.PRO-3M.SG-FUT-become.EVT in-3M.SG.  
(‘If he builds the house, he will live in it’.)
- (32) e-f-šan-kôt am-p-êi,  
REL.PRO-3M.SG-COND-build.EVT PREP-DEF.ART.-house,  
\*e-f-na-šoop həm-f.  
REL.PRO-3M.SG-FUT-become.STA in-3M.SG.  
(‘If he builds the house, he will live in it’.)

According to the present theory, modal inflections *na* and *šan* would be ascribed (i) an imperfective viewpoint meaning, and (ii) a (stative) epistemic semantic content. Now the fact that both *na* and *šan* reject stative stems seems to be indicative of some aspectual semantic incompatibility with (i)/(ii): the inherent aspectual content of verb stems must also take ‘higher scope’ than the modal content of inflections, and clash with (i) and/or (ii). Indeed, what could it mean for an imperfectively viewed epistemic state to receive a perfect/resultative meaning in addition?

### 3.2. Modal auxiliaries

The constrained distribution of tense-aspect markers with modal verbs/semi-

auxiliaries offers yet another source of additional parallel evidence for the present account of CF CSs. Thus example (33) suggests that the German modal *können* ('to be able (to)') shifts its meaning to a non-modal, factual interpretation when combined either with the *Perfekt* or the *Präteritum* (if a mere possibility was involved, we could deny it to have been realized through the 'aber...' continuation). This shifted reading demonstrates that the aspectuo-temporal content of verbal inflections outscope the modal content of the auxiliary they mark; note also that epistemic/deontic *müssen* behaves similarly (see Condoravdi 2002 for further evidence and a detailed discussion).

(33) a. Um 6 konnte Jens kommen, \*aber er ist nicht gekommen.

At 6 be-able-PRET.3SG Jens come-INF, but he not come-PRET.3SG.

b. Um 6 hat er kommen können, \*aber er ist nicht gekommen.

At 6 he be.able-PERF.3SG come-INF, but he not come-PERF.3SG.

French modal semi-auxiliary *pouvoir* exhibits similar semantic shifts with the *passé simple*: the epistemic reading is then ruled out, and an 'effected action' reading is triggered, cf. (34) (the effected event then cannot be negated). Note that in addition, another, non-epistemic reading seems to be available in (34); it refers to a non-verifiable, non-gradable possibility— whether Jean came or not does not belong to the speaker's set of beliefs, since the speaker is agnostic as to (i) whether this event actually took place or not (it is impossible to negate or validate this possibility; (34) sounds just as bad if we continue it with 'and Jean came indeed'; the speaker simply has no commitment w.r.t. its veridicality/accessibility), and (ii) whether the event of Jean coming is likely, unlikely or impossible, i.e. whether it should belong to a world deemed similar/dissimilar or accessible/inaccessible to the actual world. In contrast, events described by the propositional content of genuinely epistemic utterances such as (35) can be both negated or validated (this is an important characteristics of epistemic modal expressions), and are situated within worlds of varying accessibility and probability.

(34) Jean put venir à 6h, ??mais il ne vint pas.

Jean be.able-PS.3SG come-INF at 6, but he not come-PS.3sg.

(35) A 6 heures, Jean pouvait venir mais il n'est pas venu/et il est venu.

At 6 o'clock Jean be.able-IMP.3SG come-INF, but he not come-PC.3SG/and he come-PC.3SG.

I believe that all these facts concur in supporting the view that modal expressions

in general (CSs, modal auxiliaries or verbs, modal inflections...) involve some ‘higher’ modal predicate (i.e. a full clause or at least some part of a VP is subordinated to this predicate), over which the aspectuo-temporal content of verbal inflections takes scope – the semantic function of these modal predicates being to relativize an underlying bare conditional modal to an epistemic belief event ascribed to the speaker.

## Conclusion

Like Ippolito (2006) and unlike Arregui (2007), the present analysis has adopted a ‘clause-external’ approach to the role of tense and aspect within CSs. But against Ippolito (2006), past imperfective morphology is not here assumed to contribute a ‘universal present perfect’ meaning – it straightforwardly conveys a past imperfective meaning, with possible present relevance as a side effect of the ‘open-ended’, imperfective aspectual viewpoint it conveys (cf. (15’d), and its corollary, (17b)).

I have argued above that the real credit for CFs readings of CSs should be given to the fact that past imperfective operators/functions take scope over the (stative) belief/evaluation event argument associated with the modal meaning contributed by CF CSs, i.e. with a *conditionnel* consequent clause (this meaning arising from the association of a conditional *si P,Q* structure with a *conditionnel* marking of *Q*; although arguably compositional, this meaning seems to have been conventionalized).<sup>4</sup> The fact that this belief event is stative plays a crucial role in the present account (unlike any other existing account I am aware of), as it explains the impossibility of using perfective viewpoint tenses within antecedent clauses of CF CSs: indeed, perfective viewpoint tenses are aspect-sensitive (de Swart 1998), and ‘shift’ open-ended, stative event descriptions into transitional, bounded ones. My analysis also predicts the ‘lesser likelihood’ effects of (one) past imperfective vs. present marking, as well as the contrast between ‘one-past’ vs. ‘two-past’ CSs (cf. (21)-(25)).

I have suggested that additional support for the present theory can be found in the semantic behaviour of many different types of modal expressions with aspectuo-temporal markers – ranging from modal inflections to modal auxiliaries (the simple, partial implementation proposed here reflects this fact, for in a sense, it treats CSs on a par with modal/attitudinal verbs, as they all possess a stative event argument). And indeed, we have seen that modal expressions in general unproblematically combine with past (or present) imperfective markers, but not with perfective markers, which either rule out or block epistemic readings, cf. (33)-(35); again, such facts are best explained through the hypothesis that tense-aspect content can ‘outscope’ modal content. See also

Condoravdi (2002), who observed that the past morphological component of certain English modals did not affect the reference time of their complement verb. Incidentally, conditional/future inflections too are usually unproblematic in combination with modal expressions in general, including periphrastic modals, cf. (36)-(37). My analysis also predicts this fact, as I argued above that (French) modal inflections are endowed with imperfective viewpoints taking ‘complement verb-external’ scope, and bearing on their modal content.

- (36) Il se peut/pouvait que/pourrait/pourra que ...  
It Pro.Refl. be able-Impf./Cond/Fut.3sg.
- (37) \*Il s'était pu/#se put/#s'est pu que...  
It Pro.Refl. be able-PS./PC.3sg.

I have suggested that a parallelism should be drawn between all these aspect/modality interactions and the role of tense and aspect within the semantics of CSs, as they can all be explained through some sort of ‘out-scoping’ or ‘semantic subordination’ phenomenon causing some aspectuo-temporal function/operator to take higher scope than morpho-syntax seems to indicate.

Although I have mostly used French data to build up the present account, I believe it can be extended to other languages. Thus, one could take the English simple past to convey a past imperfective-like function when it bears on the stative modal predicate underlying CF CSs; since belief event predicates are arguably stative, there is no reason to assume that the English simple past would then convey a perfective meaning (*contra* Arregui 2007). The simple past would then trigger some entailment similar to (17b), and thereby license a ‘possibly valid at speech time’ interpretation of the epistemic belief event in (12).

Finally, this account has left many issues open for future discussion. In particular, for want of space, I have not attempted to define the temporal location and ordering of events described by the main verbs of antecedent vs. consequent clause of CF CSs. It crucially depends on two factors: (i) the present vs. ‘one-past’ vs. ‘two-past’ CF CS distinction (with its correlates on the inflectional marking of the consequent clause) and (ii) lexical aspectual information (e.g., within ‘one-past’ CSs, atelic sentences licence ‘present’ temporal reference, whereas telic ones favour or impose ‘future’ temporal reference), and other non-inflectional sources of aspectual meaning (including context). There is such a daunting amount of literature on the subject (see Schulz (2007) and Laca (2008) for a review of existing works and hypotheses) that it was impossible to consider

tackling this issue within the limits of the present paper. Finally, scope issues w.r.t. modal vs. aspectuo-temporal operators/functions are very complex in the case of modal auxiliaries, at least much more complex than what I have suggested above (see Condoravdi 2002 and Laca 2008 for a discussion). How these phenomena relate to the present account will remain a subject for further research.

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## Notes

<sup>1</sup> Although some languages appear to license perfective markers within CS protases (cf. Trnavac 2006, Boogaart & Trnavac 2006), these markers seem to be derivational rather than inflectional, and/or to possess a more complex semantics and/or pragmatics than *bona fide* perfective inflections (see e.g. the Spanish *simple past*, which can receive conditional readings even in matrix clauses). I will leave aside such problematic data – arguably, derivational aspectual markers have a different semantic scope and play a different function at the semantics/pragmatics interface than tense-aspect inflections.

<sup>2</sup> Technically speaking, *WOLL* is a generalized quantifier over worlds; the antecedent proposition fills its restrictor, and the consequent proposition its nuclear scope (propositions denoting sets of worlds). Ippolito's (2006) treatment of modality is based on the central mechanism proposed in Kratzer (1991). I will also adopt this classical Kratzerian view of modality.

<sup>3</sup> Perfective viewpoint tenses allow us to aspectually 'view' the initial and final boundaries of whatever event they describe; therefore, when even combined with a state, the readings we get are clearly bounded, and not open-ended at all– that is, sentences in the PS always describe perfectly viewed changes-of-states, even when they describe 'durative' states. Thus, 'Jean aime Marie' (Jean love-PS.3sg Marie) can either mean (a) John started loving Marie or (b) John loved Marie (for a certain amount of time). In the (b) case, the described event comprises the initial and final boundaries of the loving state (so we get two changes-of-state, vs. one in the (a) case). Cf. Caudal (2008) for more on this issue.

<sup>4</sup> Evidence supporting this view can be found in the fact that concessive *si P,Q* clauses syntactically differ from 'temporal' indicative uses as well as CF uses of CSs in that they do not licence a reverse syntactic ordering, cf. *\*Il fut malheureux, s'il fut riche* (He be-PS.3SG. unhappy, if he be-PS.3SG. rich) vs. *Nous mangerions des crêpes, si tu venais* (We eat-COND.1PL pancakes, if you come-IMP.2SG). A concessive reading with reverse syntactic ordering requires the *si* clause to appear under the scope of an explicit concessive marker such as *même* ('even'). Since the left vs. right periphery positions are known to have different information structure properties, this contrast suggests that the concessive *si P,Q* can be regarded as an individually conventionalized construction at the syntax/semantics interface, to some extent. How concessive readings should be semantically represented will not be discussed here for want of space, though.

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# Modality, tense and aspect in Japanese conditionals

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## Abstract

This paper examines predictive conditional constructions, paying particular attention to the constructional mechanisms for conveying the speaker's epistemic stance in Japanese conditional constructions, as compared to the corresponding English constructions. This paper shows: (1) Japanese makes a much less clear distinction than English regarding the speaker's epistemic stance; and (2) Japanese employs a variety of grammatical devices for encoding the speaker's epistemic stance, including not only tense/aspect/mood verbal morphology (which is also employed by English constructions) but also a variety of other grammatical devices. English and Japanese appeal to different grammatical devices (in addition to similar devices involving tense/aspect/mood and adverbs) which convey and manifest the speaker's epistemic stance in conditional constructions.

**Keywords:** conditionals, epistemic stance, modality, tense and aspect, Japanese.

## 1. Introduction

### *1.1. Main purpose*

This paper examines conditional constructions in Japanese, paying particular attention to the constructional mechanisms for conveying the speaker's epistemic stance in predictive conditionals, including modal expressions, tense and aspect morphology, and other grammatical devices used in Japanese. My examination of these aspects of Japanese conditional constructions is informed and guided by the analysis of English conditional constructions by Dancygier and Sweetser (2005). It compares the requirements (or preferences) of the linguistic manifestations of the epistemic stance of the speaker as identified in Japanese conditional constructions with those in the English counterparts.

## 1.2. Explanatory concepts and the focus of the present paper

Before focusing on the issue of epistemic stance in conditional constructions, this section briefly lists the major explanatory concepts that my research on conditionals has appealed to in the larger context of studying conditionals (Fujii 1990, 1993, etc.).

Explanatory concepts (issues and descriptive parameters):

- i) specificity (specific or non-specific events)
- ii) relative time
- iii) **the speaker's epistemic stance**
- iv) the domain in which conditionality is expressed (*a la* Sweetser 1990)
- v) **the speaker's valuation** (positive or negative) of the alternative situation in which P holds
- vi) pragmatic functions of conditionals and the speaker's communicative purposes

Among these aspects, the present paper focuses on the speaker's epistemic stance. In dealing with this issue in certain constructions, we will also be concerned with the speaker's valuation, as will be discussed in Sections 4.5 and 4.6.

With regard to (iv) in the above list, among the different types of conditionals in various domains in which conditionality is expressed, this paper focuses on predictive conditionals in the content domain (leaving out epistemic conditionals, speech-act conditionals, metalinguistic conditionals, etc.).

## 2. Predictive conditional constructions in English

### 2.1. Three construction types of predictive conditionals

**Predictive conditionals in English** normally involve three construction types requiring particular patterns of paired verb forms in the P- and Q-clauses.

- (1) a. **If P-present, Q-will-future**
  - b. **If P-past, Q-would**
  - c. **If P-pluperfect, Q-would have**

The speaker selects one of these constructions according to his or her epistemic stance

as well as temporal viewpoint. Combinations of these modal and tense morphologies in P and Q are required, if both P and Q appear, in English predictive conditional constructions.

## 2.2. *The speaker's epistemic stance and construction types*

People do not have the ability to see alternative futures, but we can talk about alternative worlds. In talking about alternative worlds, the speaker takes a certain epistemic stance toward the actuality of P (and certainty of P), and in some cases of Q as well. The speaker's epistemic stance is the speaker's assumption about the actuality of P, or the kind of commitment the speaker has to the proposition expressed (Fillmore 1990).

The epistemic stance that the speaker encodes can be one of the three kinds: neutral, positive, or negative, as explicated by Dancygier and Sweetser (2005). For neutral-stance conditionals, one basic pattern is (1-a) (illustrated in 1'-a), where 'backshifting' — i.e., the use of simple present forms with future reference — occurs in the background clauses for future predictions (Dancygier and Sweetser 2005).

### (1') **neutral stance**

#### **a. If P-present, Q-will-future**

If you ask him, he'll do it.                      Future predictive, hypothetical

### (1') **distanced, negative stance**

#### **b. If P-past, Q-would**

If you asked him, he'd do it.                      Future contrary-to-expectation

#### **c. If P-pluperfect, Q-would have**

If you had asked him, he would have done it.                      Past counterfactual

For distanced stance, (1-b) P-past paired with Q-*would* is used. Here, the speaker's negative epistemic stance is conveyed through the addition of another layer of past-tense morphology with no corresponding layer of temporal distance, which is regarded as 'distancing' by Dancygier and Sweetser (2005). For past-reference distanced stance (or an especially distanced stance), (1-c) P-pluperfect paired with Q-*would have* is used.

Combinations of these modal and tense morphologies in P and Q are required, if both P and Q appear, in English predictive conditional constructions. Fillmore's (1990) account of the selection of verbal forms and their pairings in protases and apodoses of

conditional sentences critically involves a notion of “**concord**”: in particular, Fillmore argued that the choice from among categories of epistemic stance must be identical in the two linked clauses of a conditional sentence. (This, however, is not the case for non-predictive conditionals, such as epistemic conditionals, which are not the concern of this paper.) Dancygier and Sweetser (2005) also explicate this point using the notion of ‘epistemic coherence’. What matters here is the combination of the grammatical codings on the antecedent and consequent. I thus take the same position as Dancygier and Sweetser (2005) and Fillmore (1990) that these combinatory requirements can best be described in terms of bi-clausal constructions.

By virtue of the specific tense/aspect/mood morphology and semantics associated with each construction, P alone (e.g., 2) or Q alone (e.g., 3) — by maintaining the same morphology — can evoke conditional mental spaces in the same manner as the bi-clausal version, by construing the single clause as part of a bi-clausal conditional.

(2) I can just imagine if it was my daughter. (Dancygier and Sweetser 2005)

(3) You are so lucky. My advisor wouldn't have been so patient. (Fujii 1996)

### **3. Potential ambiguity regarding the speaker's epistemic stance in Japanese predictive conditional constructions**

In **Japanese predictive conditionals**, by contrast, the uses of modality, tense and aspect are more variable, and not as fixed as in English conditionals. Of the several conditional clause-linking morphemes, all appearing at the end of the antecedent clause, most linkers construct either a tense-less non-finite clause or a clause that requires a fixed verb form and that has no tense discrimination. The inflectional verb ending -*(r)eba*, for example, does not contain its own tense within the P clause; its tense is governed by the main clause. The linking particle *to* requires the non-past (base) form of a verb and cannot take the past form. *-tara*, on the other hand, always comes in the past form of a verb, and cannot take a non-past form. *Nara* is an exception in that it can be preceded by either a past or non-past form of a verb in the antecedent. Thus whatever form the antecedent clause takes, the verbal morphology is not uniquely associated with a particular type of conditional construction. Furthermore, the use of epistemic modal auxiliaries (e.g., *daroo* ‘will’, ‘would’) is possible but not strictly required in the consequent clauses.

In what follows, Section 3 discusses potential ambiguity regarding the speaker's

epistemic stance in Japanese conditional constructions. Section 4 will then lay out grammatical devices for encoding the speaker's epistemic stance in Japanese.

### 3.1. *Neutral vs. positive epistemic stance*

#### 3.1.1. *Neutral vs. positive epistemic stance: Conditionals and temporals*

English regularly distinguishes between an irrealis antecedent and a realis antecedent by the choice of IF vs WHEN. For example, compare sentences (4) and (5):

- (4) If I come to Japan, I will call you.                      neutral stance  
(5) When I come to Japan, I will call you.                    positive stance

The use of the IF construction in (4) reveals that the speaker does not commit himself to the truth of the antecedent (neutral stance), whereas in (5) the use of WHEN reveals that the antecedent is taken for granted by the speaker (positive stance). As noted by Dancygier and Sweetser (2005), the 'backshifting' phenomenon occurs in the antecedent background clause in both constructions. But English uses a different clause-linker (that is, *when* vs. *if*) to reflect the difference in the speaker's epistemic stance: a WHEN temporal clause for a positive epistemic stance, and an IF conditional for a neutral stance.

In the Japanese equivalent (here, using *tara*), this epistemic distinction is not necessarily signaled by linguistic form, yielding potential ambiguity between the two interpretations manifested in (4) and (5).

- (6) *Nihon e ittara denwa simasu.*  
Japan to go-COND(if/when) (will) call (you)  
If/When (I) go to Japan, (I will) call (you).  
a) Conditional interpretation: (4) If I come to Japan, I will call you.  
b) Temporal interpretation: (5) When I come to Japan, I will call you.

TARA and TO clause-linking constructions, in general, can be used with a neutral stance in hypothetical conditionals, and can also serve as markers of temporal clauses with a positive stance, though there are certain other important semantic and pragmatic conditions on each construction. We note not only that the same clause-linking morphemes can be used for either neutral or positive stance, but also that both epistemic meanings can be expressed without making obligatory distinctions in the

tense/aspect/mood verbal morphology. As I will discuss in the next section, there ARE certain ways to encode this epistemic distinction in Japanese, but it is safe to say that the TARA and TO clause-linking constructions themselves do not specify the value of the speaker's epistemic stance and thus can accommodate either a neutral or positive epistemic stance.

### 3.1.2. Neutral vs. positive epistemic stance: Concessive conditionals and temporals

English regularly distinguishes between positive stance and negative stance, not only in the ordinary conditionals that we've just looked at, but also in concessive conditionals,, as illustrated in (7).

(7) Around here, even when spring comes, the snow does not start melting.

Exactly the same point as made in the previous section can, thus, be made with respect to concessive conditionals using the TEMO clause-linking construction.

(8) *Asu ame-ga huttemo ensoku ni ikimasu.*  
tomorrow rain-NOM fall(CcCd/EVEN IF) excursion DAT go-POL  
Even if it rains tomorrow, we will go on a picnic. (CcCd: concessive conditional)

(7') Around here, even when spring comes, the snow does not start melting.  
*Kono tihoo-de-wa haru-ni nattemo yuki-wa tokenai.*  
this area IN TOP spring-DAT become snow-TOP melt-NEG  
# Even if spring comes ...

In (8), the speaker's epistemic stance is most likely neutral. The speaker in (7'), on the other than, most likely takes a positive stance toward the antecedent event 'spring comes'. Here again, as will be discussed, there *are* certain ways to encode this epistemic distinction, but it is safe to conclude that the TEMO clause-linking construction itself does not specify the value of the speaker's epistemic stance and thus can accommodate either a neutral or positive epistemic stance.

### 3.2. Negative vs. positive stance: Past-reference

The second contrast to be considered is between negative and positive stance. This boundary is perhaps considered extremely clear-cut epistemologically, especially

for past specific events/states. At least in English, this distinction can never be obscured in linguistic manifestation; they are clearly manifested both with different clause connectives (if vs. when) and with different tense/aspect/mood verbal morphology on both the antecedent and consequent. Even this distinction, however, can sometimes be blurred in Japanese.

The TEMO can also be used in cases where the antecedent event is assumed to be true in the past. This creates ambiguity between past counterfactual concessives and past factual concessives. (9) can mean either “Although he had an operation, he did not recover,” (conveying the speaker’s positive stance), or when spoken with the right intonation or followed by some pragmatic particle such as *yo*: “Even if he had had an operation, he would not have recovered,” (conveying the speaker’s negative stance).

(9) *Syuzuyutu o sitemo naoranakatta.*  
 operation ACC do-CcCd(even though) recover-NEG-PAST  
 ‘Although he had an operation, he did not recover.’

-- or when spoken with the right intonation or followed by some pragmatic particle such as *yo*: ‘Even if he had had an operation, he would not have recovered.’

Similar potential ambiguities can also be observed in ordinary conditionals between past counterfactuals (negative) and past temporals (positive), though again there is always a way to disambiguate them in language use.

### 3.3. *Neutral vs. negative stance*

The preceding sections thus far have shown the potential ambiguity regarding the speaker’s epistemic stance in Japanese predictive conditional constructions, first, with respect to neutral versus positive stance and, second, with respect to positive versus negative stance.

As for the third distinction, the boundary between neutral (potential) and negative (unreal) stance has been noted as less clear-cut than the boundary between positive (real) and either neutral or negative (Harris 1986). This subtle contrast between a neutral and a negative stance is also less clearly manifested in Japanese than in English. This tendency seems to be widely accepted (or taken for granted) to the extent that many linguists working in Japanese linguistics even believe that this third distinction —between neutral and negative stance — can never be expressed in Japanese. However, I will show in Section 4 that there *is* a way to convey this subtle difference in Japanese as well.

#### 4. Grammatical devices for encoding the speaker's epistemic stance in predictive conditional constructions in Japanese

As mentioned earlier, in Japanese predictive conditionals the uses of modality, tense and aspect are more variable, and not as fixed as in English conditionals. How then can the various types of the speaker's epistemic stance be conveyed in Japanese conditionals? I will first show that, like in English but to a lesser extent, past tense and aspectual morphology can be used in Japanese for expressing distanced epistemic stances. Secondly, I will show that Japanese conditionals make use of a variety of other grammatical devices for expressing distanced epistemic stances.

##### 4.1. Tense, aspect

The first point, the use of tense and aspect, is illustrated in (10):

- (10) *zyuunen mae ni kono kusuri ga hakken-sarete-ireba,*  
10-year before in this medicine NOM discover-PAS-ASP-COND  
*musuko wa ima mo ikite-ita daroo*  
son TOP now too alive-ASP-PAST MOD

If this medicine had been discovered 10 year before, my son would still be alive now.

P	te-i-reba,	Q	-ta (daroo)
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The consequent clause shows the use of past tense for epistemic distancing. The son referred to in (10) is not alive in reality, but the utterance predicts in the distanced hypothetical space that he would be alive. The use of past tense in the consequent clause in (10) is not for past tense reference (its reference is present) but for distanced negative epistemic stance. The antecedent of (10) also shows that the perfective aspectual marker *te-iru* fits in past hypothetical conditionals, ensuring the effect of epistemic distancing. The perfective aspectual morphology *te-iru* is used here for encoding the speaker's negative stance toward the P event (i.e., this medicine was not discovered 10 years ago). This addition of the perfective aspectual marker for epistemic distancing is in a way analogous to two phenomena in English. First, in English there is the addition of another layer of past-tense morphology to the antecedent for epistemic distancing in future predictives (i.e., in the If P-past, Q-*would* construction). Second, it may also be analogous to the use of pluperfect for epistemic distancing toward a past reference (i.e., in the If P-pluperfect, Q-*would have* construction). But in this Japanese construction, because the linker (*r)eba* is used, tense morphology cannot be used for this epistemic encoding, as mentioned earlier, so the perfective aspectual marker is used in its place.

#### 4.2. Epistemic modal expressions on the consequent

(10) also shows the use of the epistemic modal auxiliary “daroo” on the consequent. It is typical to have this auxiliary “daroo” for predictive conditionals, but it is not required. As shown in (10-B) and (10-C), (10) can be easily interpreted in the same meaning without the auxiliary “daroo”, when it is spoken with the right intonation or followed by some pragmatic particle such as *yo*.

(10-B) *zyuunen mae ni kono kusuri ga hakken-sarete-ireba,*  
10-year before in this medicine NOM discover-PAS-ASP-COND  
*musuko wa ima mo ikite-ita*  
son TOP now too alive-ASP-PAST

If this medicine had been discovered 10 years ago, my son would still be alive now.

P te-I-reba,	Q -ta
--------------	-------

 (When spoken with the right intonation)

(10-C) *zyuunen mae ni kono kusuri ga hakken-sarete-ireba,*  
10-year before in this medicine NOM discover-PAS-ASP-COND  
*musuko wa ima mo ikite-ita yo*  
son TOP now too alive-ASP-PAST PART

If this medicine had been discovered 10 years ago, my son would still be alive now.

P te-I-reba,	Q -ta	yo
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 (When spoken with the right intonation)

Thus far we have seen the uses of tense and aspect morphology and the use of a modal auxiliary; these two devices are highly analogous to the devices regularly used in English. Japanese conditionals, however, make use of yet other grammatical devices for expressing distanced epistemic stances. The two major devices are (i) adverbs (Section 4.3.) and (ii) sentence-final connectives (4.4).

#### 4.3. Adverbs

The most straightforward device for encoding epistemic distancing is adverbs. There are certain adverbs dedicated to epistemic distancing — typically, *mosi* for ordinary conditionals (10-D), and *tatoe* for concessive conditionals (11).

(10-D) *mosi zyuunen mae ni kono kusuri ga hakken-sarete-ireba,*  
hypothetically 10-year before in this medicine NOM discover-PAS-ASP-COND  
*musuko wa ima mo ikite-ita daroo kedo*  
son TOP now too alive-ASP-PAST MOD though (concessive.linker)

If this medicine had been discovered 10 years ago, my son would still be alive now.

- (11) *tatoe*                    *syuzyutu o*                    *sitemo*                    *naoranakatta*                    *yo*.  
 hypothetically operation ACC do-CcCd(even though)recover-NEG-PAST PAST  
 b y any chance  
 Even if he had had an operation, he would not have recovered.

#### 4.4. Clause-linkers: consequent-clause-final connectives

(12) illustrates the fact that the addition of a concessive linker at the end of the consequent clause contributes to epistemic distancing and ensures that the speaker takes a negative stance toward the situation expressed in the antecedent and the consequent. Notice in (12), which contains neither the modal expression *daroo* ‘would’ or the adverb *mosi*, that the addition of *noni* ‘though’ to the Q clause clarifies the speaker’s negative stance toward the proposition. That is, the speaker takes it for granted that the son is not alive now in reality. This counterfactuality is clear even without the modal expression *daroo* ‘would’.

- (12) *zyuunen mae ni kono kusuri ga hakken-sarete-ireba,*  
 10-year before in this medicine NOM discover-PAS-ASP-COND  
  
*musuko wa ima mo ikite-ita noni*  
 son TOP now tooalive-ASP-PAST though (concessive.linker)

If this medicine had been discovered 10 years ago, my son would still be alive now.  
 Construal of (12): If this medicine had been discovered 10 years ago, my son would still be alive now, but since this medicine was not available then, my son is not alive now.

#### 4.5. Negative polarity items (or scalar expression) conveying negative valuation and in turn implicating epistemic distancing

Shown in (13) is an English example of future predictive conditional (one of the parade examples given by Fillmore 1990) with a distanced stance, using the construction type ‘if P-past, Q-would.’ Though English encodes the subjunctive notion less extensively compared to Romance and Slavic, English has retained this subjunctive construction for epistemic distancing for future reference.

- (13) Predictive conditional (Future reference): distanced stance  
 b. If she opened it, they’d escape. **If P-past, Q-would**  
 Cf. Predictive conditional (Future reference): neutral stance  
 a. If she opens it, they’ll escape. **If P-present, Q-will-future**

In Japanese, by contrast, it is normally assumed that the subtle difference between (a) and (b) regarding the degree of epistemic is not linguistically encoded (especially for future reference). I agree that this distinction is not as clear in Japanese as in English. The subjunctive notion in English often disappears in Japanese translations, and it tends to be more obscure in Japanese.

Nevertheless, I suggest that Japanese appeals to grammatical devices other than verbal mood to indicate epistemic distancing. There are certain devices other than tense/aspect/modality that can communicate the distanced epistemic stance in (b) in Japanese. One such example is shown in (14):

(14) Predictive conditional (future): distanced stance

b. (*Kanozyo ga*)    *ake*    *demo sitara*    *nigeru*    *daroo*  
          she    NOM    open    even    do    escape    MOD(will )

**verb-stem *demo suru* + conditional linker**

Lit. If she does even (the act of) opening it, ....

    If she just opens it, they'll escape.

This construction contains a verb-stem followed by *demo* ‘even’ and *suru* ‘do’, and establishes a negative polarity context. There is no exact translation natural in English, and the literal translation is “If she does even (the act of) opening it” or “If she just opens it”. But the functional equivalent that is natural in English discourse, I believe, is the subjunctive conditional (b) at issue.

As mentioned above, this construction establishes a negative polarity context. The property of negative polarity in this construction also reveals the speaker’s negative valuation toward the act of opening it: The speaker does not want it to happen. This phenomenon relates to one of the explanatory concepts mentioned in Section 1.2 – namely the speaker’s valuation (negative or positive valuation on the situation in which P holds). This parameter is different from the parameter of epistemic stance, and thus these two parameters must be kept apart. Nonetheless, their linguistic manifestations can sometimes be intertwined. In the construction illustrated in (14), the manifestation of the speaker’s negative valuation leads to the implication of the speaker’s epistemic distancing. This argues that, in modern Japanese, which does not have rich clear-cut verbal mood dedicated to distinguishing the speaker’s epistemic stance (between neutral and distanced negative stance), the constructional meaning of negative valuation (accomplished through the use of negative polarity items) serves to indicate epistemic distancing.

To be fair, we need to note here that past tense might also serve to indicate epistemic

distancing, when the past form happens to be an available option for the verbal form preceding the clause-linker in the antecedent. As mentioned earlier, the linker NARA is one such linker that allows either the past or non-past form of a verb. Thus, in (15), the use of the past form in the antecedent *aketa* ‘opened’ (as opposed to the non-past form) can be interpreted as conveying the speaker’s epistemic distancing.

- (15) Predictive conditional (future): distanced stance
- b. (*Kanozyo ga*) *aketa* *nara* *nigeru* *daroo*  
 she NOM open-PAST Cond(if) escape MOD(will )  
 b. If she opened it, they’d escape.
- a. (*Kanozyo ga*) *akeru* *nara* *nigeru* *daroo*  
 she NOM open Cond(if) escape MOD(will )  
 a. If she opens it, they’ll escape.

The problem, however, is that the simple past form appearing in the NARA antecedent, as in (15), might also serve to convey the speaker’s positive stance taking the antecedent event as ‘given’. (I.e., ‘If it is true that she opened it, I guess they will escape.’) Thus, the construction is not dedicated to the function of marking epistemic distancing, unlike the English If P-past, Q-*would* construction.

#### 4.6. Nominalized antecedent MONO nara

Another special subtle device for epistemic distancing is the NARA conditional antecedent taking the nominal MONO ‘thing’ (see Fujii 2000 for details).

As shown in (16), MONO (which is formally a noun, whose original prepositional meaning is “things”) can appear immediately preceding the conditional connective NARA ‘if’. This MONO construction serves to encode the speaker’s epistemic stance without changing the propositional content. Consider the following minimal pair (16) and (17):

- (16) *dekiru* ***mono*** *nara* *mooitido* *yarinaositai*.  
 do-POT MONO if (conditional linker) once again redo-want  
 ‘If it was possible, I wish I could do it all over again.’
- (17) *dekiru* ***nara*** *mooitido* *yarinaositai*.  
 do-POT if (conditional linker) once again redo-want  
 ‘If it is possible, I wish to do it all over again.’

In (16), the conditional connective NARA ‘if’ marks a conditional subordinate clause both semantically and syntactically. (17), using NARA only, is perfectly well-formed both syntactically and semantically, and is a sufficient expression of the conditional clause ‘if it

is possible' and the main clause 'I wish to do it all over again'. The addition of MONO to the conditional clause in (16), however, reveals the speaker's additional attitude toward the proposition — namely that the speaker considers the situation referred to by the proposition (expressed in the clause preceding MONO) very unlikely or even impossible. In the English translations contrasting (16) and (17), I have used the subjunctive mood (or past counterfactual conditional) for (16) containing MONO. Although such differences in propositional attitudes cannot easily be captured in translations, I believe that the difference at issue (i.e., the difference created by the addition of MONO to the conditional clause) is analogous to effects expressed by verbal mood in many other languages.

(18) also uses MONO to encode the same epistemic stance, a belief that the proposition in the MONO NARA clause cannot (possibly) be true.

- (18) 1905 M91: *iya da naa moo*  
'I hate it.'
- 1906 M91: *ikkagetu yasumi totte sutoraiki sityau*  
one-month take off go on strike  
'I'll take one month off and go on strike.'
- 1907 Y91: *yareru mono nara yatte mina.*  
do-POT MONO if do try (imperative)  
'If you could ever do it, why don't you do it? (I believe you cannot do it.)'

In the discourse context of (18), it is already clear to both speaker and addressee that the addressee cannot take one month off and go on strike. The speaker not only believes that the addressee could never do it, but wishes to highlight this impossibility by coming out with this rather unkind, ironic statement, "If you could ever do it, do it." Though not obligatory, potential expressions (glossed -POT, above) often accompany the verb in the subordinate clause in this use of MONO.

(19) involves a slightly different construal of the MONO NARA clause. In this use of MONO, the verb in the NARA conditional clause takes the volitional form (y)oo in *siyoo*. (With the volitional form on the verb, NARA alone cannot mark the conditional clause.)

- (19) ... *wagahai no hoo de sukosi demo tedasi o siyoo mono nara*  
'on my side' a little even meddle ACC do-VOL MONO NARA  
*kanai soogakari de oimawasite hakugai o kuwaeru*  
whole family together chase around harm ACC add  
'If I meddled in their business even a little bit, the whole family would get together to chase me around and do me harm.'

With the addition of MONO to the conditional clause in this use, the speaker's attitude is that the proposition expressed in the *consequent* clause (main clause) is undesirable. If the speaker thinks that the consequent is undesirable, the antecedent that leads to the

undesirable consequent must also be undesirable for the speaker.

In this construction, as mentioned earlier with another case, there seems to be a conceptual link between the speaker's epistemic stance for low probability (i.e. unlikelihood) and the speaker's subjective valuation for undesirability of the situation. What the speaker considers undesirable may as well be considered very unlikely to occur; or else it may be something that the speaker considers to be likely but with respect to which she displays her subjective desire that it should be unlikely. In either case, the use of the MONO NARA construction reveals that the speaker is subjectively putting herself at a psychological distance from the conditional proposition. This psychological distance and bias result in such specific attitudes as unlikelihood in the epistemic sense and undesirability in the subjective valuation sense. Though subtle, the addition of MONO seems to yield this modal nuance — that the speaker is subjectively putting psychological distance between herself and the conditional proposition.

The issue, again, is that this construction is not exclusively dedicated to this function of registering the speaker's epistemic distancing; though this construction can be used to convey it, we can find other uses of the MONO NARA construction that are not related to epistemic distancing.

#### 4.7. Other devices

The present paper has discussed the grammatical devices (1) through (6) below for encoding the speaker's epistemic stance, and briefly mentioned (8) and (9). Other devices related to the manifestation of the speaker's epistemic stance include (7) and (10).

1. tense, aspect on the antecedent and the consequent
2. epistemic modal expressions on the consequent
3. adverbs in the antecedent
4. clause-linkers: consequent-clause-final connectives
5. negative polarity items (scalar expression) conveying negative valuation and in turn implicating epistemic distancing <stem>-*demo sitara*
6. nominalized antecedent MONO: *mono nara*
7. nominalized antecedent NO: *no nara, no dattara*
8. final pragmatic particle such as *yo*
9. intonation
10. choice of clause-linker (for the antecedent)

## 5. Conclusion

This paper has explored constructional mechanisms for conveying the speaker's epistemic stance in predictive conditionals in Japanese as compared to English. It has shown first that Japanese makes a much less clear distinction than English regarding the speaker's epistemic stance. More significantly, this paper has shown that Japanese employs a variety of grammatical devices for encoding the speaker's epistemic stance, including not only tense/aspect/mood verbal morphology but also a variety of other grammatical devices. The analysis shows that English and Japanese appeal to different grammatical devices for conveying and manifesting the speaker's epistemic stance and other conditional meanings in conditional constructions.

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# Global Applicability of *NURIGEUL* for Literacy Program and Multilingual Word-processing

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## Abstract

The Korean alphabet known as *Hangeul* is truly one of the great achievements of human invention. It was invented by King Sejong (1397-1450) for the literacy program in 1443 and promulgated in 1446. The official title of this alphabet is “*Hwunmin Cengum*-(HC-訓民正音)”, or “The Correct Phonetic Alphabet-Education For All People”. This title coincides with UNESCO’s idea of “Education For All (EFA).” *Nurigeul* is a combination of the Korean word *nuri* (globe) and *geul* (script). *Nurigeul* is a globalized version of *Hwunmin Cengum* which I developed and extended to a universally applicable phonetic alphabet for the world wide literacy program and multilingual communication and word-processing. Since the graphic shapes of *Nurigeul* are designed by the depiction of articulatory-acoustic correlates, I call this script as ‘Visible Speech Sounds’.

**Keywords:** *Hwunmin Cengum*, Global Script *Nurigeul*, Universally Applicable Phonetic Alphabet, Global Literacy Program, Multilingual Wordprocessing, Visible Speech Sounds

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## 1. Rationales for the Graphic Design of *Cengum-Nurigeul*

The rationales for designing the Correct Phonetic Alphabet-*Nurigeul* are clearly stated and exemplified in the original texts of *Hwunmin Cengum* (HC-translated: Correct Phonetic Alphabet-Education For All People) and *Hwunmin Cengum Haylyey* (HCH-translated: Explanations and Examples on the Text HC)

According to the original texts of HC and HCH, *Nurigeul* is created from the beginning for solving illiteracy problem by the originator of the alphabet in the mid 15<sup>th</sup> century. King Sejong, explained his purpose of inventing the HC (The Correct Phonetic Alphabet) as follows:

### 1.1. Sejong's Preface to the Text, HC

#### —Nurigeul is Designed for Literacy Program

“國之語音,異乎中國,與文字不相流通.故愚民,有所欲言,而終不得伸其情者,多矣.予爲此憫然,新制二十八字,欲使人易習,便於日用耳.” —世宗大王 序文  
“The speech sounds of our country's language are different from those of China and are not communicable with the Chinese characters. Therefore, when my beloved ignorant people want to say something, many of them are unable to express their wishes in writing. Feeling compassion for them, I have newly designed twenty-eight letters, only ardently hoping that **everyone learn them at ease** and readily practice and use them conveniently everyday.”

Besides King Sejong's Preface to the HC, the compilers of the Text of HCH (*Hwunmin Cengum Haylyey*) provided more on the rationale for the graphic design and functions of Nurigeul for its global applicability. Below are some of the remarkable statements justifying why Nurigeul is the best-fit script for global applications.

### 1.2. Characters are Designed in accordance with the Sound Pattern

“有天地自然之聲,則必有天地自然之文.所以古人因聲制字,以通萬物之情,以載三才之道,而後世不能易也.”

“If there is speech sound natural to Heaven and Earth, then there should certainly be a writing system natural to Heaven and Earth. Thus the people of antiquity, relying on speech sound [in accordance with both in produced sounds and perceived sounds] designed [Old Seal] characters, by depicting sounds and shapes of the objects, there through to communicate circumstances of the Myriad Things and to register the Way of the Three Germinants [Heaven, Earth and Man]; we of later generations cannot change this [design principle of the Old Seal characters].”

—Head compiler Ceng In-Ji's Postface to the Text HCH

### 1.3. Graphic Function as Universally Applicable Phonetic Alphabet

“以二十八字而轉換無窮,簡而要,精而通.故智者不終朝而會,愚者可浹旬而學.”

—Head compiler Ceng In-Ji's “Envoy of Postface” to the Text HCH

“Though only twenty-eight letters are used, their shifts and changes in function are endless. They are simple and succinct, reduced to the minimum of finite rule, yet **universally applicable**. Therefore, **an intelligent man can get acquainted with the script before the morning is over, and even a ignorant man can learn them in space of ten days.**” —Head-compiler Cheong's Envoy of the Tex of HCH

#### 1.4. The Creation of Ubiquitous Script, *Nurigeul* is not a man made thing

“殿下, 天縱之聖. 制度施爲超越百王. 正音之作, 無所祖述. 而成於自然. 豈以其理之無所不在, 而非人爲之私也.”

“Our Monarch, with his Heaven-endowed wisdom, the codes and measure that have been proclaimed and enacted, exceed and excel those of a hundred kings. The creation of the *Cengum-Nurigeul* is not something that has been transmitted by our ancestors; they have been perfected out of nature itself. Now since there is no place where the all-reaching Pattern is not found, this **ubiquitous script** certainly is not a man made, isolated thing.” —Head compiler Cheong’s Postface

#### 2.0. Graphic Design of the Correct Phonetic Alphabet, *Nurigeul*

What makes *Nurigeul* superior to all other writing systems is its design principle which takes into account significant physiological features of speech production and perception.

*Nurigeul* was developed by extending the design principle of the HC in terms of speech production and perception. Since there exists perfect correlation between the graphic shapes and graphic functions, letter shapes of the *Nurigeul* are designed by *visualizing* the places of articulation and the manner of articulation and its associated perceived sounds. Thus *Nurigeul* alphabet can be called “**Visible Speech Sounds.**”

#### 2.1. Graphic Design of the Five Basic Consonant Graphemes

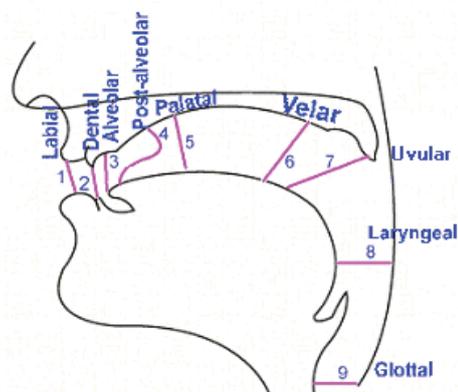
The design principle of *Nurigeul* is so simple and easy to learn that with only Five basic consonant letters, [○[0] or zero cipher] ▿[g<sup>h</sup>] ⊥[n] ^[s] and □[m], as building blocks, we can assemble and generate a whole new writing system according to increased and decreased sound energy.

The actual graphic shapes of the consonants were designed by depicting either the shapes of articulatory organs (i.e., the place of articulation: throat ○ and lips □) or the configurations of articulatory gestures (i.e., the manner of articulation: the velar ▿, the lingual ⊥ and the incisor ^).

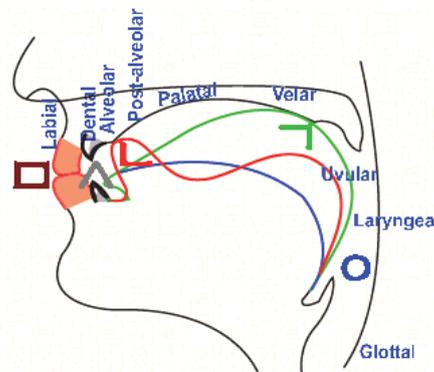
Speech sounds are produced in an order beginning in the **Throat** at the rear of the vocal tract and proceeding through the **Soft palate**, the **Tongue** and the **Incisors/Dentals** to the **Lips**.

A 35-year old male subject was fed thick valium liquid to enhance the outline of the soft tissue. From the filmstrip, one can see a corresponding relationship between the **Letter Shape** and the **Vocal tract Configuration** traced from cine-radiographic X-ray film.

- Diagram of the Left-lateral Head Orientation for the Depiction of the Five Basic Consonant Graphemes:  $\bigcirc$  [0]  $\neg$  [g<sup>h</sup>]  $\perp$  [n]  $\wedge$  [s]  $\square$  [m]



Target areas and Places of Articulation

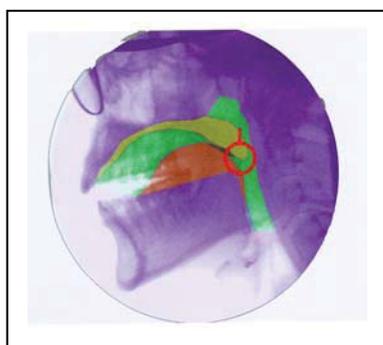


Articular Contours of The Five Basic Consonants

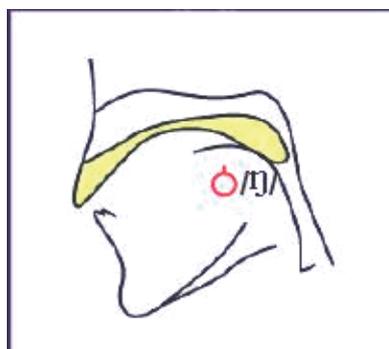
- Depiction of the Five Basic Consonant Graphemes

1. The basic shape of the throat sound  $\bigcirc$  [0] is a depiction of the outline of the laryngeal aperture from frontal observation. It looks like an opening of a pipe.
2. The basic shape of the velar sound  $\neg$  [g<sup>h</sup>] is a depiction of the outline of the back part of the tongue touching the velar region.
3. The basic shape of the lingual sound  $\perp$  [n] is a depiction of the tongue tip touching the alveolar ridge.
4. The basic shape of the dental sound  $\wedge$  [s] is a depiction of the jointed portion of the upper incisors “/” and lower incisors “\”.
5. The basic shape of the labial sound  $\square$  [m] is a depiction of the outline of the closed mouth from frontal observation.

## 2.2. Presentation of Frame Samples traced from the Cineradiographic Filmstrip



Frame A is a copy of the original X-ray frame of the vocal tract during the utterance of the nasal velar sound  $\bigcirc$  [ŋ].



In Frame B the soft palate region is blocked by the raising of the back of the tongue and lowered velar-uvula to produce the nasal velar sound  $\bigcirc$  [ŋ].

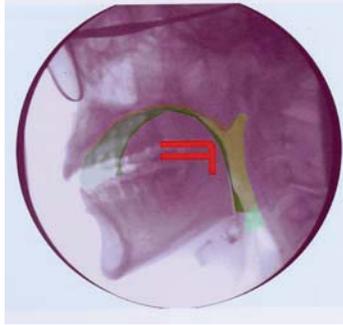


Fig. 2.2.1. The tracing of the mid-consonant structure for the utterance of /ha-k<sup>h</sup>-a/, (the letter **Ɵ**).



Fig. 2.2.2. The tracing of the mid-consonants structure for the utterance of [ha-**n**-a], (the letter **⊥**).

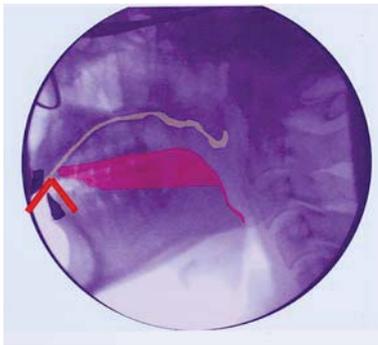


Fig. 2.2.3. The tracing of the mid-consonant structure for the utterance [ha-**s**-a], (the letter **^**).

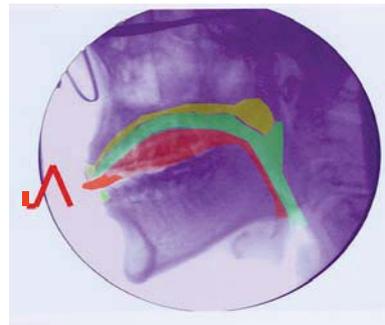


Fig. 2.2.4. The tracing of the mid-consonan structure for the utterance [ha-**θ**-a], (the letter **⋈**).

The aim of utilizing “cine-radiographic tracing” was to visually capture the structures of articulatory configurations. A systematic comparison of the shapes of the actual letters and the articulatory configurations in the Figures 2.2.1. through 2.2.4. show a complete correlation between the visualized configurations of the vocal tract activities and the consonant letters of Nurigeul. For example, the tongue-tip sticking out between the upper and lower incisors in order to produce English inter-dental sound [θ] is visible in the Fig. 2.2.4.

## 2.3. Overview of the Additive Stroke System of the Five Consonant Categories

### ⊙ Explanation of the ‘Additive Stroke System’

Besides the five basic consonant graphemes there are more letters that are either **Engraphed** or **Degraphed**.

- The “**Engraphed Graphemes**” are the letters with extra strokes added above the basic graphemes in order to portray “**increased harshness**”,  
e.g., ㄱ[ɡʰ] ㅋ ㆁ[ŋʰ], ㄷ[dʰ] ㅌ ㆁ[ŋʰ], ㅅ[s] ㅆ ㅈ[c]
- The “**Degraphed graphemes**” are the letters with extra strokes added below the basic graphemes in order to indicate “**decreased harshness**”,  
e.g., ㅅ[s] ㅆ ㅈ[c], ㄹ[r] ㄴ ㄷ[ɹ], ㅃ[bʰ] ㅅ ㅆ[β].
- There are also some letters that have the same letter written side by side,  
e.g., ㅎ[ħ] ㄱ[ʰ] ㄷ[ʰ] ㅅ[ʰ] ㅈ[ʰ] ㅊ[zʰ/zz] ㅍ[pʰ].  
These are called “**Diplograms**”, which typically involve tense sounds.

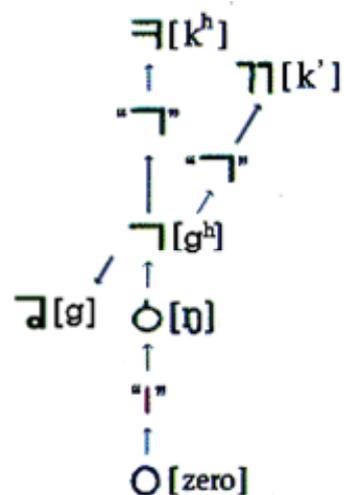
#### 2.3.1. Additive Stroke System of the Lanrymngal Graphemes: 〇[0] 〰[ʔ] ㅎ[h] ㅎ[ħ²]

1. The basic throat grapheme 〇 has no phonetic value as in the case of silent ‘h’ in ‘Hour’ it is a zero cipher.
2. When we add a horizontal stroke ‘—’ on top of the 〇, it is the engraphed throat sound [ʔ] as in ‘Hawaii’.
3. The engraphed throat grapheme ㅎ[h] as in ‘Hot’ is formed by adding an extra vertical stroke ‘|’ on top of the grapheme ‘〰’.
4. The throat diplogram ㅎ[ħ] is formed by writing ㅎ side-by-side. This sound is like the German word ‘Achtung’.



### 2.3.2. Additive Stroke System of the Velar Graphemes: 〇[n] ㄱ[g<sup>h</sup>] ㅋ[k<sup>h</sup>] ㆁ[k'] g[g]

1. The velar nasal 〇[n] as in '*sing*' is formed by engraving a vertical stroke " | " on top of the throat grapheme 〇. The protruding stroke is a symbol of the emission of sound energy through the nasal cavity.
2. The basic velar grapheme is ㄱ[g<sup>h</sup>]. This slightly aspirated sound is between [g] and [k].
3. The heavily aspirated sound ㅋ[k<sup>h</sup>] as in '*kid*' or '*cool*' is formed by engraving an extra grapheme "ㄱ" on top of the basic grapheme ㄱ.
4. The diplogram ㆁ[k'] as in '*sky*' is a tense velar sound.
5. The voiced velar stop ㄲ[g] as in '*God*' is formed by adding a symbol of voiced sound "ㅇ" to the lower left corner of the grapheme ㄱ.

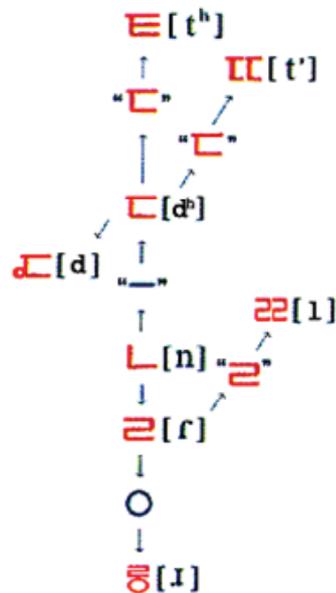


### 2.3.3. Additive Stroke System of the Lingual Graphemes:

ㄴ[n] ㄷ[d<sup>h</sup>] ㅌ[t<sup>h</sup>] ㄸ[t'] ㄹ[d] ㄺ[r] ㄻ[ɹ] ㄼ[l]

➤ Lingual-alveolar graphemes involve tongue and alveolar ridge.

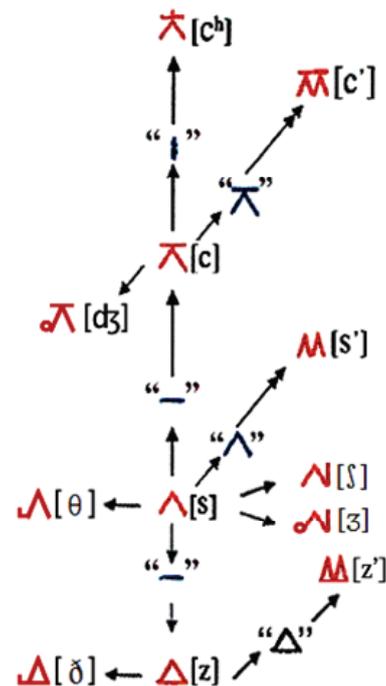
1. The basic lingual-alveolar nasal grapheme is ㄴ[n].
2. The engrahed grapheme ㄷ[d<sup>h</sup>] is formed by adding the horizontal stroke "—" on top of the basic grapheme ㄴ. This sound is between the English [d] and [t].
3. The heavily aspirated alveolar stop ㅌ[t<sup>h</sup>] as in English '*tool*' is formed by engraving the extra stroke "ㄷ" on top of the grapheme ㄷ.
4. The tense alveolar diplogram ㄸ[t'] as in '*still*' is formed by the same grapheme ㄷ written side by side.
5. The voiced lingual-alveolar stop ㄹ[d] as in '*dad*' is formed by adding a symbol of voiced sound "ㅇ" to the lower left corner of the basic grapheme ㄷ.
6. The lingual-alveolar grapheme ㄺ[r] as in '*throw*' is formed by the depiction of the tongue rolled up.
7. The degrahed lingual-alveolar grapheme ㄻ[ɹ] as in '*run*' and '*girl*' is generated by adding the symbol of voiced sound "ㅇ" below the grapheme ㄺ.
8. The lingual diplogram ㄼ[l] as in '*life*' is formed by the same grapheme ㄺ written side by side.



### 2.3.4-A. Additive Stroke System of the Dental-Palatal Graphemes:

$\wedge$ [s]  $\rceil$ [c]  $\text{A}$ [c<sup>h</sup>]  $\mathbb{M}$ [s']  $\mathbb{M}$ [c']  $\text{A}$ [dʒ]  $\Delta$ [z]  $\times$ [z']  $\text{A}$ [θ]  $\Delta$ [ð]  $\text{A}$ [ʃ]  $\text{A}$ [ʒ]

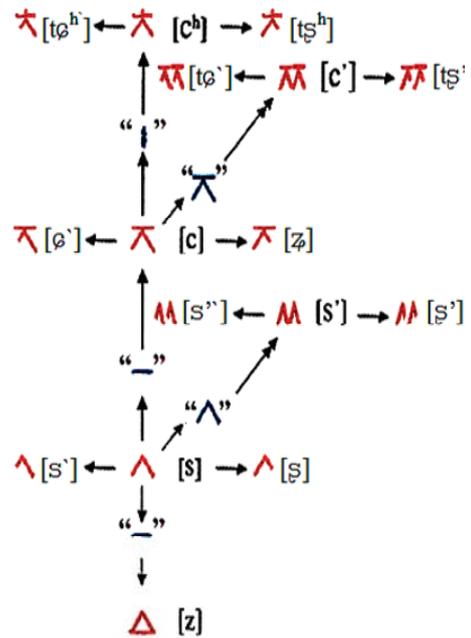
- Dental-Palatal graphemes involve dental-palatal area for production of dental-palatal sounds.
- 1. We have the basic incisor grapheme  $\wedge$  as in ‘Son’.
- 2. The engraphed grapheme  $\rceil$ [c] is formed by engraving the horizontal stroke “—” on top of the basic grapheme  $\wedge$ . This horizontal stroke represents the palatal area. This sound is between [dʒ] and [ch]. It is a typically pronounced affricate.
- 3. The heavily aspirated palatal sound  $\text{A}$  as in ‘Church’ is formed by engraving an extra vertical stroke “|” on top of the grapheme  $\rceil$ .
- 4. The tense diplogram  $\mathbb{M}$ [s'] as in ‘Seed’ is formed by the same letter  $\wedge$  written side by side.
- 5. The tense diplogram  $\mathbb{M}$ [c'] is formed by the same letter  $\rceil$  written side by side. This sound is as in ‘catchup’.
- 6. The voiced palatal stop  $\text{A}$ [dʒ] as in ‘juice’ is formed by adding a symbol of voiced sound “o” to the lower left corner of the letter  $\rceil$ .
- 7. The degraphed incisor grapheme  $\Delta$ [z] as in ‘visa’ is formed by adding the horizontal stroke “—” below the grapheme  $\wedge$ .
- 8. The tense diplogram  $\times$ [z'] as in ‘pizza’ is formed by the same letter  $\Delta$  written side by side.
- 9. The dental-lingual fricative  $\text{A}$ [θ] as in ‘think’ and  $\Delta$ [ð] as in ‘these’ are produced with the tongue tip sticking out between the upper and lower incisors. The letter shapes are formed by adding the lingual subscript ‘<sub>l</sub>’ to  $\wedge$  and  $\Delta$ .
- 10. The voiceless palatal fricative  $\text{A}$ [ʃ] as in ‘Sheet’ is formed by adding the vowel [ | ] to the grapheme  $\wedge$ .
- 11. The voiced palatal fricative  $\text{A}$ [ʒ] as in ‘viSion’ is formed by adding a ‘symbol of voiced sound “o” to the lower left corner of  $\text{A}$ .



2.3.4-B. Additive Stroke System of the Dental-Palatal Graphemes:

ㄣ[s] ㄣ[z] ㄣ[tʃʰ] ㄣ[tʃʰ'] ㄣ[s'] . ㄣ[s'] ㄣ[ʃ'] ㄣ[tʃʰ] ㄣ[tʃʰ'] ㄣ[s'] .

1. There are ten more unique dental-palatal fricatives generated in the mid 15<sup>th</sup> century for the accurate transcription of the Chinese language.  
Fricative refers to a sound produced by the friction of the breath issuing through a narrow opening of the speech organs as [f, v, s, z].
2. There is a category of retroflex fricative which involves the tongue tip curled back in the production of the sound.
3. There are five dental-palatal retroflex fricatives in the Chinese language. They are ㄣ[s] ㄣ[z] ㄣ[tʃʰ] ㄣ[tʃʰ'] ㄣ[s'].
4. There are five dental-palatal fricatives in the Chinese language. They are ㄣ[s'] ㄣ[ʃ'] ㄣ[tʃʰ] ㄣ[tʃʰ'] ㄣ[s']. These sounds are produced with the tongue tip between the lower lip and incisors.







### 3.0. Graphic Design of the *Nurigeul* Vowel Graphemes

The graphic design of the *Nurigeul* vowels is based on the two rationales. One was the traditional Yin-Yang cosmological features and the other is the Distinctive Features as the classificatory device. In the Yin-Yang rationale, Yin means dark and Yang means bright. This Yin-Yang concept involves the Three Great Powers: Heaven • [ʌ], Earth —[ɨ], and Man | [i].

Yang-Bright Vowels refer to Strong Vowels; Yin-Dark Vowels refer to Weak Vowels. Phonetically those three cardinal vowels • [ʌ], —[ɨ], and | [i] are Neutral Vowels. Based on these three neutral vowels, secondary and tertiary vowels are generated by the combination of three cardinal-neutral vowels. Thus, the rationale underlying the graphic depiction of the *Nurigeul* vowels has taken into account dual dichotomy. They are the Yin-Yang and Distinctive Features which are determined by the Amplitude of the vowels.

#### 3.1. The Three Cardinal Vowels: • [ʌ] —[ɨ] | [i]

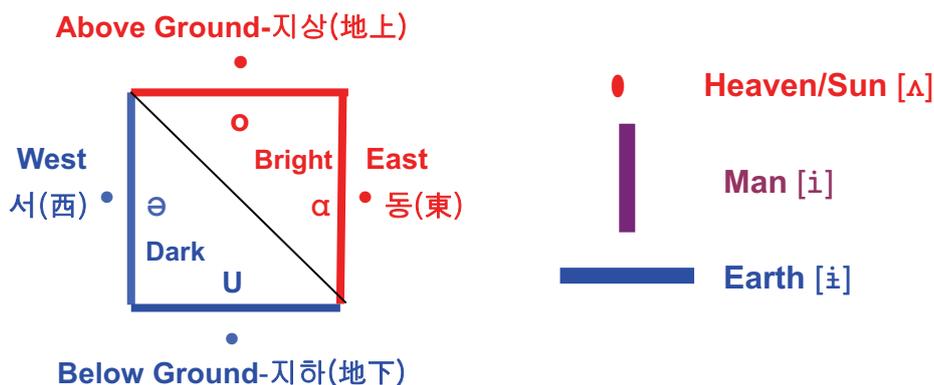
The three cardinal vowels • [ʌ] —[ɨ] and | [i] are designed by depicting Heaven/Sun (•), Earth (—) and Man (|) standing between heaven and earth. They are phonetically represented as Neutral Vowels. Since neutral vowels have no independent phonetic value they can be combined with any vowels.

The sound of neutral vowel • [ʌ] is as in ‘bus-bʌs’, ‘cut-kʌt’, ‘love-lʌv’.

The sound of neutral vowel —[ɨ] is produced when vowel [u] is uttered with the lip shape of vowel | [i].

The sound of neutral vowel | [i] is as in ‘sing-siŋ’, ‘sick-sik’ or ‘tear-tiə’.

#### 3.2. The Four Secondary Vowels: † [a] ⇄ [o] and † [ə] ⇄ [u]



The sound of the bright-strong vowel † [a/α] is as in ‘mama-mα : mə’.

The sound of the bright-strong vowel ⇄ [o] is as in ‘Ohio-Ouhaiou’.

The sound of the dark-weak vowel is † [ə] is as in ‘about-əbaut’, ‘earth-ə : rθ’

The sound of the dark-weak vowel is ⇄ [u] is as in ‘rude-ru : d’, ‘cool-ku : l’.

### 3.3. The Four Yodized Vowels: ㅟ [ya] ㅠ [yo] ㅡ [yø] ㅢ [yu]

Yodized vowels are vowels combined with the vowel ㅣ [i/y] pronounced with the ㅟ first. The four Yodized Vowels are generated by the conjugation of ㅣ and ㅏ → ㅟ; ㅣ and ㅑ → ㅠ; ㅣ and ㅓ → ㅡ; ㅣ and ㅕ → ㅢ.

The sound of ㅟ [ya] is as in ‘yacht-jɔt’, ‘YAHOO-jɔhu:’

The sound of ㅠ [yo] is in ‘yoga-jouŋø’, ‘yolk-jouk’

The sound of ㅡ [yø] is as in ‘yearn-jø:n’ or ‘shirt-ʃø:t’.

The sound of ㅢ [yu] is as in ‘news-nju:s’ or ‘shoes-ʃu:z’.

### 3.4. Other Complex Vowels Combined with Neutral Vowel ㅣ [i /y]

Complex vowels are generated by the combination of the neutral vowel ㅣ [i /y]

Note: All the Yodized vowels (vowels combined with ㅣ i /y) and the combination of simple vowels are called ‘diphthongs’.

	Other Complex Vowels combined with ㅣ [y]	IPA	Examples	Yin-Yang Features
*(8)	ㅏ + ㅣ → ㅟ	[ya]	as in ‘yacht’	bright/strong
(9)	ㅑ + ㅣ → ㅠ	[yo]	as in ‘york’	bright/strong
(10)	ㅓ + ㅣ → ㅡ	[yø]	as in ‘yearn’	dark/weak
(11)	ㅕ + ㅣ → ㅢ	[yu]	as in ‘news’	dark/weak
(12)	ㅏ + ㅏ → ㅝ	[æ]	as in ‘pan’	bright/strong
(13)	ㅓ + ㅏ → ㅞ	[e]	as in ‘pen’	dark/weak
(14)	ㅑ + ㅏ → ㅟ	[œ]	as in Goethe	bright/strong
(15)	ㅓ + ㅓ → ㅠ	[ü]	as in über	dark/weak
(16)	ㅡ + ㅏ → ㅡ	[Ø]	as in deux	dark/weak
(17)	ㅏ + ㅓ → ㅝ	[yæ]	as in ‘yet’	bright/strong
(18)	ㅓ + ㅓ → ㅞ	[ye]	as in ‘yes’	dark/weak
(19)	ㅑ + ㅏ → ㅟ	[wa]	as in ‘what’	bright/strong
(20)	ㅑ + ㅓ → ㅠ	[wæ]	as in ‘wagon’	bright/strong
(21)	ㅓ + ㅓ → ㅡ	[wø]	as in ‘work’	dark/weak
(22)	ㅕ + ㅓ → ㅢ	[we]	as in ‘wet’	dark/weak

⊙ Those 7 vowels ㅏ ㅑ ㅓ ㅕ ㅝ ㅞ ㅠ are simple vowels.

⊙ Position of Vowels in the Syllable: The vowels ㅏ ㅑ ㅓ ㅕ ㅝ ㅞ ㅠ are written just under the initial consonant/phoneme: e.g., 찻스교무교휴 while ㅏ ㅓ ㅕ ㅟ ㅡ ㅢ are written just to the right: e.g., 미가녀샤벼

#### 4. *Nurigeul* is the Only Solution!

In 1905, British phoneticians began collecting all the variable sounds of consonants and vowels used in world languages. In 1993, SIL (Summer Institute of Linguistics) finalized and promulgated IPA (International Phonetic Alphabet) as “SIL IPA 93.” There are 126 IPA symbols consisting of 98 consonants and 28 vowels. 126 IPA is the ultimate and complete collection of all the phonetic sounds classified according to the standardized ‘place of articulation’ and ‘manner of articulation’.

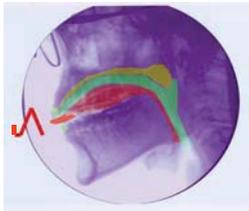
I have completed the Article entitled: **Nurigeul is the Only Solution!**  
 —**Let’s go with 126 Nurigeul Instead of 126 IPA.**

Shown below are some samples from the Comparative Chart of 126 IPA vs. 126 Nurigeul. Phonetic Description and Rationale for the Graphic Design are based completely on the Standard of IPA.

#### Let’s Go with 126 Global Script Nurigeul!

##### Pulmonic Consonants

IPA Nurigeul	A. Phonetic Description B. Rationale for the Graphic Depiction
[1] b <sup>h</sup> 𐄀	A. Voiceless bilabial stop. It is typically an aspirated sound. The phonetic value is between [p] and [b] produced with a complete closure of lips with no vocal fold vibration. B. The bilabial grapheme 𐄀 depicts and represents the increased harshness caused by the emission of labial pressure during the production of slightly aspirated voiceless labial stop 𐄀, as compared to the basic labial grapheme 𐄁. The engrahed <sup>3</sup> protruded stroke ‘! ’ added to the grapheme 𐄁 represents the emission of labial pressure from the lip opening.
[2] p <sup>h</sup> 𐄂	A. Voiceless aspirated bilabial stop, produced in the same manner as [p] but with a wide open glottis. B. The engrahed bilabial grapheme 𐄂 depicts and represents increased labial pressure discharge. The engrahed segmental stroke ‘= ’ refers to an indicator as an [h] superscript which represents the additional feature of ‘heavy aspiration’ and its pressure discharge.
[3] f 𐄃	A. Voiceless labio-dental fricative, as /f/ in forest, produced in the region between the lower lip and upper incisors without vocal fold vibration. B. The grapheme 𐄃 depicts the outline of the upper incisors sticking out from the lower lip to produce the labio-dental fricative /f/. The segmental stroke ‘^ ’ added to the lower left corner of the grapheme 𐄃 is an indicator of ‘incisors stuck out’ from the lower lip.
[4] v 𐄄	A. Voiced labio-dental fricative as /v/ in vine, produced in the region between lower lip and upper teeth with vocal fold vibration. B. The grapheme 𐄄 depicts the outline of the upper incisors sticking out from the lower lip to produce the labiodental fricative /v/. The segmental stroke ‘^ ’ added to the lower left corner of the grapheme 𐄄 is an indicator of ‘incisors stuck out’ from the lower lip.

<p>[5] θ ʌ</p>	<p>A. Voiceless interdental fricative as /th-θ/ in theory, with turbulence generated at the narrow region between the protruded tongue and incisors.</p> <p>B. The voiceless interdental fricative grapheme ʌ depicts the outline of the incisors and tongue tip (┘), required for the production of the interdental ʌ, as compared to the basic incisor grapheme ^.</p> <p>The segmental lingual stroke ‘┘’ is an indicator of a protruded tongue.</p> 
<p>[39] ð Δ</p>	<p>A. Voiced interdental fricative as /th-ð/ in thee, produced in the same manner as /θ/ but with vocal fold vibration.</p> <p>B. The voiced inter-dental fricative grapheme Δ depicts the outline of the incisors and tongue tip (┘) which represents decreased harshness as compared to the voiceless inter-dental ʌ. The segmental lingual stroke ‘┘’ added to the lower end of the upper incisor indicates the ‘protruded tongue’ for the production of the voiced interdental sound Δ.</p>
<p>[40] s ^</p>	<p>A. Voiceless incisor-alveolar fricative as /s/ in soap, produced through a narrow gap between the tongue tip and alveolar ridge, causing friction.</p> <p>B. The basic incisor grapheme ^ depicts the outline of the jointed portion of the upper ( / ) and lower ( \ ) incisors where the sibilant feature is produced.</p>

Note:

1. Each *Nurigeul* script was chosen from the Unicode-ISO 10646 except some scripts.
3. I used some exceptional *Nurigeul* scripts which, like J [v], consists of the combined letter like ʌ [v] that is listed in the ISO 10646. Other examples are as follows: K [f]←ʌ, A [θ]←ʌ, x [ð]←Δ

#### 4.1. Chinese Syllabary System as a Case Study of *Nurigeul*

Besides being a system of syllabic units, the Chinese characters are also ideographs, many of which tend to have the same pronunciation in spite of their widely different meanings. For example, ‘*tong*’ could be “East”, “Sameness”, “Winter”, “Frozen”, “Infant”, “Motion” and other homonyms. In order to differentiate their varying meanings, the Pinyin System is obliged to place one or the other of the Four Tone Markers. As shown in the following example, it is very simple to place the Tone Markers right after the *Nurigeul*’s syllabic units compare to Pinyin System.

Symbols of the Four Tones: /1<sup>st</sup> tone ' 2<sup>nd</sup> tone ;' 3<sup>rd</sup> tone ;4<sup>th</sup> tone

Ul;'Ekh 『x0/dk/aj'』 .	Tngn Ul;'EkhXj;RjEl;vk.	dkl, NñEkhVj..
请到 『天安門』	师傅, 请到这个地方.	哎, 知道了.
qǐngdào Tiānānmén .	shīfu, qǐngdào zhège dìfang.	ai, zhī dào le.

**Note:**

1. The 21 Initial Consonants currently in use in Chinese language have been established on the basis of the “Comparative Chart of Consonants in IPA vs. *Nurigeul* Graphemes”.
2. In order to transcribe the Pre-literate languages, a chart must be prepared as shown below. The chart which illustrates the difference between Pinyin/Romanization systems, IPA and Nurigeul for 21 Chinese Consonants.

4.2. Comparative Chart of Pinyin, IPA, Nurigeul for 21 Chinese Initial Consonants

Based on the following chart we can transcribe/transliterate the Chinese Mandarin pronunciation perfectly in Nurigeul script.

		Bilabial	Labio-dental	Dental	Retroflex	Palatal	Velar	Glottal
Plosives	Un-aspirated	(1) b[p'] ㅃ			(2) d[t'] ㄸ		(3) g[k'] ㄱ	
	Aspirated	(4) p[p <sup>h</sup> ] ㅍ			(5) t[t <sup>h</sup> ] ㅌ		(6) k[k <sup>h</sup> ] ㅋ	
Affricates	Un-aspirated				(7) z[ts] ㄷ	(8) zh[tʃ] ㅈ	(9) j[tʃ] ㅊ	
	Aspirated				(10) c[ts <sup>h</sup> ] ㄸ	(11) ch[tʃ <sup>h</sup> ] ㅈ	(12) q[tʃ <sup>h</sup> ] ㅊ	
Nasals		(13) m[m] ㅁ			(14) n[n] ㄴ			
Fricatives			(15) f[f] ㅍ	(16) s[s'] ㅍ	(17) sh[ʃ] ㅍ	(18) x[ç] ㅍ		(19) h[h <sup>2</sup> ] ㅎ
Voiced Continuant				(20) l[l] ㄹ	(21) r[z] ㄹ			

Notes:

1. The phonetic representation of the Chinese initial consonants is transcribed by IPA. The **IPA symbols written in red** indicate that that Pinyin System does not match the actual speech sounds of Mandarin Pronunciation. That means out of 21 Chinese initial consonants, 15 consonants represented by Pinyin are mismatches. Hence we are justified to adopt Nurigeul script for the correct phonetic representation of the Mandarin Chinese.
2. The actual phonetic features of the global language are represented by IPA. Without IPA symbols we can not evaluate the actual sound values.
3. The 21 Initial Consonants currently in use in Chinese language have been established also on the basis of IPA as the international standard. In order to transcribe languages without writing system, a chart must be prepared as shown above which illustrates the difference between Pinyin, IPA and Nurigeul for 21 Chinese Consonants.



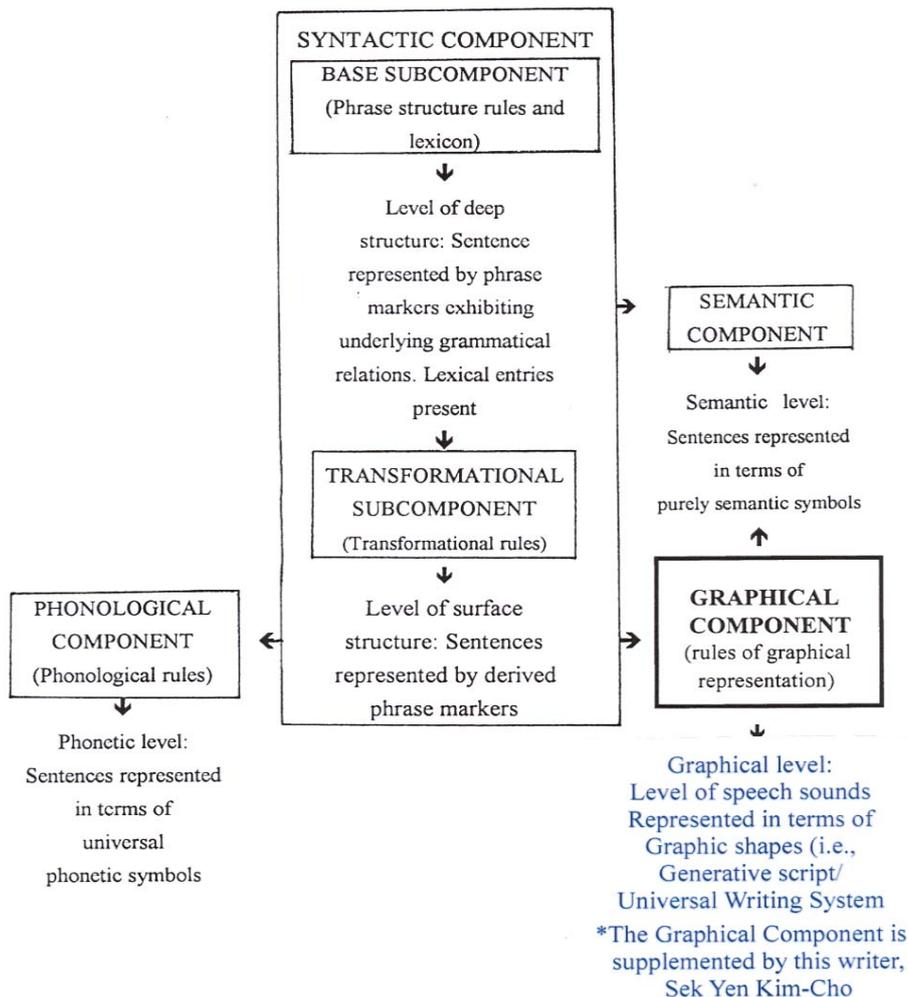
## 5. *Nurigeul* is A Generative Script—Generative Principle as the Common Denominator of Sejong and Chomsky

Justification for the rationale of designing of *Nurigeul* could be seen in the application of a “generative rule.” This means that as long as articulatory-physiological and acoustic-phonemic data are given, the graphic shapes can be generated infinitely by visualizing the related articulatory-acoustic information.

According to Chomsky, generative grammar is an outgrowth of a persistent concern with the “creative” aspect of language use. The Korean phonologists of the 15<sup>th</sup> century were just as deeply concerned with the creative use of script. In other words, the “generative script” was conceived as an “all-reaching Pattern” that could transcribe any sound that is linguistically significant. Consequently, the Correct Phonetic Alphabet of the consonant graphemes may be considered a Universally Applicable System of Writing. The goal of “Generative Graphic Universals” may be achieved by the pervasive portrayal of the “Sound Pattern of Speech.”

The following chart is taken from Chomsky’s *Syntactic Structure* (1965), to which I have added the “**Graphical Component**” in the belief that a complete **Organization of the Grammar** should include this level of “**Generative-Universal Script.**”

Organization of the grammar



The *Nurigeul* Script is intended to portray the correlation between the graphic shapes and their corresponding speech physiological data. Therefore, the verification of this correlation is tantamount to the identification of the “universal generative theory” implied by and used in the creation of *Nurigeul* that “any speech sound can be generated into a letter shape by graphically depicting the speech physiological data (which can be visualized by X-Ray tracing as well as the computerized visualization of the articulatory configurations)”. As such, the phonetic theorization of the generative rules in *Nurigeul* evolved into an applied theory of “Generative-Universal Transcribability of Speech Sounds,” and this points directly toward a conclusion that *Nurigeul* is a “**Universally Applicable Phonetic Alphabet.**”

Roman Jakobson’s (1969) theory of distinctive features can be interpreted as making an assertion about substantive universals with respect to the phonological component of generative grammar. It asserts that each output of this component consists of elements that are characterized in terms of a small number of *fixed, universal, phonetic* features. Each feature has substantive acoustic-articulatory correlates independent of any particular language.

It has been demonstrated that it was the search for the nature of universal phonetics that motivated the 15<sup>th</sup> century Korean linguists to adopt the **distinctive feature, generative script theory.**

The Korean phonologists of the 15<sup>th</sup> century conceived the graphic function as a phonetic symbol with a one-to-one correspondence between any kind of noise/sound and its correlated writing system.

Assume that a series of numbers, 1, 3, 6, 10, 15, 21 and 28, are given to two persons. They are instructed to deduce the number sequence and generate the subsequent components. One may generate the sequence 36, 45, 55, 66, 78, etc., in a minute, and the other may take twice as long, but the result would be identical.

It may be concluded that this reflects the difference in the learning ability of the two subjects. Regardless of the learning time, each subject had to have deduced the fundamental Pattern of sequencing by the iterative/infinite use of a finite rule. Thus they both understood the infinitely pre-existing Pattern of generative processes. A concrete idea of generating the “universal script” was suggested in the following quotation: “Though only twenty eight letters are used, their shifts and changes in function are endless. They are simple and succinct, reduced to the **minimum of finite rule, yet universally applicable.** Therefore, **an intelligent man can get acquainted with the script before the morning is over, and even a ignorant man can learn them in space of ten days.**” —Head-Compiler Cheong’s concluding remarks to the Commentary Text of HC

Thus, the main idea of the rationale is nothing other than the “Generative Pattern or Principle” which underlies the “Universally Applicable Script Function,” the Correct Phonic Alphabet-*Nurigeul*.

### **5.1. Originator’s Intent was to create “Universally Applicable Phonetic Alphabet”**

The originator’s intent in the 15<sup>th</sup> century was to determine precisely how this generative theory could exhaustively portray the “Nature of Sound Pattern” in human

speech sounds. The most explicit example could be found in the design of the labial graphemes. As for the design of the labial graphemes, the originator used different system of engraving from the other four homorganic categories.

In order to represent the class of labial sounds, the engraved strokes are assigned to reflect the labial pressure discharge. If the originator had not considered the relationship between the graphic shape and the associated physiological data, they would have designed labial graphemes as  $\square[m] \rightarrow \bar{\square}[b^h] \rightarrow \hat{\square}[p^h]$ , instead of  $\square[m] \rightarrow \sqcup[b^h] \rightarrow \amalg[p^h]$ . Those extra strokes “—” and “+” added to the basic labial grapheme  $\square$  do not have an associated physiological dimension in the vocal tract. This is because, the lips are located at the end of the vocal tract, and hence, no additional physiological dimensions, such as alveolar, palatal, etc. could be involved for the production of the harsher labial sounds.

Therefore, the originator of the Nurigeul script could not follow the same engraving system that was taken into account in the generation of the other four categories. Thus the originator has utilized different rationale for the additive stroke system for the Labial category.

As for the engraving system of the labial category, the amount of labial pressure discharge was taken into account for the generation of the harsher labial sounds. Thus the engraved segmental strokes ‘11’ and ‘::’ are added to the basic labial grapheme  $\square[m]$  as an indicator of  $[^h]$  superscript which represents the additional feature of ‘heavy aspiration’ and its pressure discharge. The additive stroke system for the labial graphemes are generated as follows:  $\square \uparrow 11 \rightarrow \sqcup$ ;  $\square \Rightarrow :: \Rightarrow \amalg$ .

## 5.2. Language, Script and Computer are the Tools to Facilitate Literacy Program, Multilingual Processing and Designing Scripts for Pre-literate People

I suggest the new metaphor that “If Language is the House of Being, then Script is the House of Language, and Computer is the House of Script.” The metaphor “house” is used to denote the sense of guarding, preserving and making accessible the vital function of those three elements, language, script and computer, which are in a dynamic, interdependent and mutually complementing relationship. We may envision a three-story house to make the metaphor complete.

Such sense of protection and guardianship may become apparent when we realize that those unreached people who have either no writing system or, even if they have one, it is so difficult that they cannot consider it practical to use it. In short, Endangered Languages will wither away and soon be lost unless they are “housed” and given a shelter.

Illiteracy inevitably implies computer illiteracy. But literacy itself is not a guarantee of computer literacy, if the script is so complex and hard to learn for ordinary people.

For the language processing of such cumbersome characters as Chinese and Mongolian Uigre script and Devanagari of Nepal language, an **inerlanguage** has to be made available in order **to bridge** between the spoken language and the written language. *Nurigeul* is uniquely fit to perform this role by word-processor.

In conclusion, Nurigeul is a global writing system that makes transparent language processing for all the languages in the world. Indeed a Standard Global Writing System should be recognized as the ubiquitous tool to solve the illiteracy problem in writing and multilingual word-processing for universal access to computer users.

## 6. Conclusions and Some Suggestions

1. In its graphic function and applicability, *Nurigeul* can hardly be surpassed. More and more experts recognize it as the best fit tool for “Global Literacy Program.”
2. The point has been raised that some people felt resistance at the fact that *Nurigeul* has its origin in a specific culture and geography. However, we all know that many great and universally recognized truths had a humble origin.
3. I, a humble linguist, am a living example. For no sooner I understood Sejong’s *Cengum*-Alphabet design principle, than I could expand it to the Global Script-*Nurigeul*. Moreover, no sooner I understood the principle of *Nurigeul*, than I was able to expand it as a vehicle for exiting from the darkness of illiteracy. A host of linguists from world’s leading universities has attested in one voice the remarkable scientific design principles that underlie Korean *Cengum-Nurigeul* Alphabet.
4. The Korean phonologists of the 15<sup>th</sup> century were just as deeply concerned with the creative use of script as Chomsky was in our time with the “creative” aspect of language use. The “generative script” was conceived as an “all-reaching Pattern” that could transcribe any sound that is linguistically significant. The goal of “Generative Graphic Universals” may be achieved by the pervasive portrayal of the “Sound Pattern of Speech.” It can be said that Roman Jakobson’s and Guna Fant’s distinctive features approach is also incorporated into the framework of the “generative script design.” The purpose of this generative theory is to find the most efficient strategy for swift language acquisition. Exactly the same intention was expressed by King Sejong well over five centuries ago. In fine, the system of rules that was adopted in Sejong’s *Nurigeul* script design was none other than the “Processes of Generative Pattern.”
5. Even though Inner Mongolians and Outer Mongolians have been speaking the same language, they were using two different writing systems. Therefore, they had no way of communicating with each other in writing. Also in India there are eight tribes living in the same area using the same language, but they use each different scripts, thus unable to correspond with each other. This sorry situation is still widespread in the 21<sup>st</sup> century. Since we have *Nurigeul* as the “Global Standard Writing System” already at hand and need only a public awakening to spread its remarkable efficiency, we must strive toward obtaining the support of UNESCO. For UNESCO has the exactly same goal to alleviate the illiteracy of today’s world citizens as when *Nurigeul* was first designed for its own time.
6. “SIL IPA 93” is the only writing system that had a single, internationally valid standard. For this reason, SIL IPA 93 ought to be recognized and adopted as the International Phonetic Alphabet. Unfortunately, IPA happened to be a phonetic symbol rather than a writing system. In this regard, IPA is similar to the musical notes that must be individually memorized, posing a heavy burden on our memory.
7. *Nurigeul* accomplished the feat of sidestepping this memory problem by transforming the phonetic symbol into a writing system. This transition was accomplished by the most efficient, ergonomic way, namely, by establishing correlation between sight and sound. Once the simple sense of correlation is

- captured, the 4 TN (Teaching Teachers To Teach *Nurigeul*) Workshop ideally recommends itself as the most effortless way of achieving illiteracy. In this respect, *Nurigeul* is comparable to Metric System, which proceeds by the simplest, additive scale known to us.
8. Graphic shapes of the *Nurigeul* script are designed by depicting the articulatory-acoustic correlates of speech sounds. There exists a direct correlation between the letter shape and its associated speech sounds. Therefore, *Nurigeul* is a script that can correctly transcribe the entire range of speech sounds.
  9. The *Nurigeul* script is the easiest and most efficient script to master from a learner's point of view. Sejong's statement that his Phonetic Alphabet can be mastered before one morning is over, means specifically that it can be learned even without a teacher. Moreover, as a universally applicable script, it is the optimal tool for Correct-transcription of speech sounds in a global sense.
  10. The biggest technological challenge in promoting multilingual processing and multilingual communication in cyberspace may be **digitization of writing systems**. It appears especially appropriate to recommend the **Use of *Nurigeul* as Uniscript** in the cyberspace. Reasons for favoring such a recommendation are very succinct and concrete; the graphic function of *Nurigeul* are visually captured by the cine-radiographic tracings and are identified as the Global Writing System at 2001 UNESCO Symposium on Language in Cyberspace, held in Seoul, Korea. At that symposium, the shape-function relationship of *Nurigeul* script has been verified.
  11. Dr. Victor Montviloff, Vice Chair of the Symposium, made the following comment: **"This *Nurigeul* is the best phonetic alphabet for the transliteration of entire range of human speech sounds."**
  12. Dr. Christian Galinski, Chair of the Symposium, also made the remark: **"This certainly is a universally applicable Phonetic Alphabet."** After hearing those comments, I told them "It was my ardent wish to see this *Nurigeul* adopted by the UNESCO as *Global Standard Writing System*." Thereupon both Dr. Galinski and Dr. Montviloff advised me to conduct case studies in the field of minority languages with the non-literate or pre-literate people, and submit the results. If the results were successful, they would consider adopting the "*Nurigeul*" as the "Global Script." Thus since April 2002, I have been giving 4TN Workshop for the literacy workers of unreached people and received enthusiastic responses.
  13. The Japanese computer specialist Dr. Kobayashi, who also took part in the Symposium, was a strong advocate of the Universal Writing System. He clearly saw the necessity of "One Simple Formula as a Universal Character Set" for the universal access to the database in the Cyberspace.
  14. The voice dictation system could use the *Nurigeul* script as it can portray and visualize the multi-dimensions of speech phenomena. Specifically, we can represent graphically places of articulation, manner of articulation and perceived discrete sounds. Thus, the *Nurigeul* was shown to be the most appropriate writing system for the Voice Dictation/Speech-to Text.
  15. Since *Nurigeul* script has two ways of spelling, i.e., in the syllabic level and the phonemic level, the best choice for the accurate transcription of the Chinese language is *Nurigeul* script which has one-to-one correspondence. If we choose Roman/Latin orthography for the linguistic representation of Chinese, we will end up in a similarly chaotic state again like the one Pinyin System had to go through.

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- (B) Reference pertinent to Cine-radiographic studies

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# Modal, Temporal, and Evidential Aspects of Reduced Quotative Constructions in Korean

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## Abstract

Sentence-final *S-ta-ko* and *S-ta-y* in spoken Korean are quotative constructions reduced from bi-clausal to mono-clausal sentences in the process of grammaticalization. These reduced quotative constructions (RQCs) and their variants including the retrospective *S-ta-te-la* are examined with focus on their formal (morphosyntactic and prosodic) constraints and modal-temporal-evidential functions. Multifarious meaning components pertinent to RQCs are presented as conjunctions of elementary predications in a neo-Davidsonian framework; they are situational, deictic, thematic, modal, temporal, aspectual, evidential, and illocutionary. Grams [QUOTE] (for quotative evidential) and [RETRO] (for retrospective modal) postulated in the syntax component interact with the TAM component of the grammar CUG (Constraint-based Unified Grammar), which is illustrated in an AVM (attribute-value matrix) in Appendix.

**Key words:** reduced quotative construction (RQC), gram, quotative evidential, retrospective modal

## 1. Introduction

This paper aims at describing two types of what is dubbed ‘reduced quotative construction (RQC)’ in spoken Korean: (1) *-ta-ko* and (2) *-ta-y* (and its subvariety *-ta-te-la*).<sup>1</sup> They are the outgrowth of grammaticalization through the process of deleting the main subject and its verb of saying (in the *ta-ko* RQC) or the complementizer *ko* and the verb of saying *ha* (in the *-ta-y/-ta-te-la* RQC).<sup>2</sup> It is proposed that these RQCs, which are bivalent with respect to clausality, get a quotative evidential [QUOTE] posited at the deletion site and are interpreted as bi-clausal with an additional subject.<sup>3</sup> The *-ta-te-la* RQC, containing the retrospective modal *-te*, gets a separate treatment along with the non-quotative retrospective *-te-la* and the retrospective quotative *-te-la-y* constructions.

In section 2, formal (morphosyntactic and prosodic) constraints of the RQCs and their temporal, modal, and evidential functions are examined along with the bivalent trait of mono- and bi-clausal constructions. In section 3, diverse meanings of RQCs are represented in a neo-Davidsonian framework: situational, deictic, thematic, temporal, modal, evidential, mirative, and illocutionary. Section 4 is summing-up and conclusion. A CUG-based AVM of a reduced quotative sentence is provided in Appendix.<sup>4</sup>

## 2. Form and function

To begin with, let us briefly look into regular quotative constructions. There are two types: direct and indirect. A direct quotation (DQ), flanked by quotation marks in writing, is in the form of a sentence or a sentence fragment. It is positioned either after the matrix subject as in (1a), or sentence-initially before the matrix subject as in (1b). Normally, a complementizer (COMP) (or quotative marker), *lako*, *hako*, or *ko is* appended to the direct quotation. By contrast, an indirect quotation (IQ) is in the form of a finite clause marked with *ko* (not *lako*, *hako*) and followed by a verb of saying. It is placed, as in the case of the direct quotation, either after the subject as in (2a), or sentence-initially as in (2b).

### (1) Direct quotation

- a. NP - “DQ” - *lako/hako/ko* - V  
     |                                    |  
     SUBJ                                COMP
- b. “DQ” - *lako/hako/ko* - NP - V  
                                   |            |  
                                   COMP       SUBJ

### (2) Indirect quotation

- a. NP - IQ - *ko* - V  
     |            |  
     SUBJ        COMP
- b. IQ - *ko* - NP - V  
       |        |  
       COMP   SUBJ

In the *-ta-ko* construction, *ha* 'say' and its tense and sentence-type morphemes are left out, and the construction is marked only with a terminal contour (TC) or a punctuation mark---period (.), question mark (?), or exclamation mark (!). The fusion of COMP and the verb of saying is widely attested cross-linguistically: e.g., the Japanese *-tte* (← *to iu* 'say that'; Martin 1988:559) and *diz.que* 'say that' in



the Sejong Corpus (2007) of 12,500,000 words.

(6) a. *-ta-ko* (728), *-ta-ko-yo* (80), *-ta-kwu* (318), *-ta-kwu-yo* (252), *-nya-ko* (176), *-nya-ko-yo* (40), *-nya-kwu* (89), *-nya-kwu-yo* (93), *-la-ko* (744(88-656)),<sup>7</sup> *-la-ko-yo* (185), *-la-kwu* (615), *-la-kwu-yo* (335), *-ca-ko* (58), *-ca-ko-yo* (81), *-ca-kwu* (81), *-ca-kwu-yo* (11)

b. *-ta-y* and its variants:

*-ta-y* (433), *-ta-y-yo* (363), *-ta-n.ta* (748), *-ta-p.ni.ta* (574), *-ta-p.ni.kka* (34), *-la-y* (478), *-la-y-yo* (232), *-ca-y* (4), *-ca-y-yo* (1)

+ PAST:<sup>8</sup>

*-ta-y-ss-e* (1), *-ta-y-ss-e-yo* (1), *-ta-y-ss-ta* (1), *-ta-y-ss-p.ni.ta* (0), *-ta-y-ss-p.ni.kka?* (0), *-la-y-ss-e* (3), *-la-y-ss-e-yo* (2), *-la-y-ss-ta* (2), *-la-y-ss-p.ni.ta* (2), *-la-y-ss-p.ni.kka?* (0)

c. *-ta-te-la* and its variants:

*-ta-te-la* (74), *-ta-te-nya?* (15), *-ta-te-y* (6), *-ta-te-y-yo* (0), *-ta-p.ti.ta* (17), *-ta-p.ti.kka?* (10), *-la-te-la* (11), *-la-te-nya?* (6), *-la-te-y* (2), *-la-te-y-yo* (0), *-la-p.ti.ta* (7) *-la-p.ti.kka?* (4)

Let us now take up three RQCs one by one and look into their temporal, modal and evidential functions.

### 2.1. RQC *-ta-ko*

This RQC is commonly used in a dialogue exchange as an echo utterance (Chang 1982) – an echo question with a rising TC (↗), or an echo statement with a falling TC (↘) in response to a prior utterance. The echoic question is also called ‘reprise’ (Bolinger 1957, Ginzburg and Sag 2000) or ‘question raised to the second power’ (Jespersen 1924:304). Jespersen notes that most languages use the same form as in indirect questions with a much more marked rising of the interrogative tone. It is here called a high rising TC (↗), carrying mirative overtones. The listing in (7) illustrates, as observed in many languages, constructional traits of echo questions in contrast to those of yes-no questions.<sup>9</sup>

(7) Echo questions

Echo Q	Yes-No Q	Remark
E: <i>Is that true?</i> ↗	<i>Is that true?</i>	high-rising TC
F: <i>Si c'est vrai?</i>	<i>Est ce que c'est vrai?</i> (or <i>Est ce vrai?</i> )	<i>si</i> added; word order

G:	<i>Ob</i>	<i>das wahr ist?</i>	<i>Ist das wahr?</i>	<i>ob</i> added; word order
D:	<i>Om</i>	<i>det er sandt?</i>	<i>Er det sandt?</i>	<i>om</i> added; word order
K:	<i>Cengmal-i-nya-ko?</i>	<i>Cengmal-i-ya?</i>		<i>ko</i> added
	(정말이냐고?)	(정말이야?)		
J:	<i>Hontoo-ka-tte?</i>	<i>Hontoo-ka?</i>		<i>tte</i> added
	(本当かって?)	(本当か?)		
C:	<i>Ni shuo</i>	<i>zhen de ma?</i>	<i>Zhen de ma?</i>	<i>ni shuo</i> ‘you say’ added
	(你说真的嗎?)	(真的嗎?)		

C=Chinese D=Danish E=English F=French G=German J=Japanese  
K=Korean

In the European languages, except English,<sup>10</sup> the echo question is morphosyntactically distinct from the normal yes-no question. It has an additional word—a complementizer (or a subordinate conjunction) and word order is not inverted. Chinese has an additional clause *ni shuo* ‘you say’, similar to the periphrastic expressions ‘you say.’ and ‘did you say?’ in English. Japanese, similar to Korean, has *-to* (complementizer ‘that’, corresponding to *-ko*) or colloquial *-tte*. With a high rising TC, the speaker expresses his/her mirative overtones—surprise, joy, irony, and the like.

Let us now consider the following dialogue exchange between Yong and Tol and see how the *-ta-ko* RQC functions: (8a) is Yong’s statement about Mia; (8b) is Tol’s echo question, which is either to verify what Yong said by a rising TC or to show his mirative overtone by a high rising TC;<sup>11</sup> (8c) is Yong’s echo statement, which is to reaffirm his earlier statement (8a).

(8) a. Yong: Mia-ka o-ko iss-e-yo.<sup>12</sup>

SM come-PROG-POL.DEC

“Mia is coming.”

b. Tol: Mia-ka o-ko iss-ta-ko? ↗ / ↗

SM come-PROG-DEC-COMP-QUOT-INT/EXL

“Mia is coming--did you say?” (or “Mia is coming! --Unbelievable!”)

c. Yong. Yey, Mia-ka o-ko iss-ta-ko-yo. ↘

yes SM come-PROG-DEC-COMP-QUOT-POL.DEC

“Yes, Mia is coming--I said.”

Notice that in the English rendition a parenthetical phrase ‘did you say?’ or ‘I said’ is added like a tag, to give a quotative meaning. The tense is past. English has no gram corresponding to the Korean *-ta-ko* construction (or the Japanese *-to/-tte*). In echo utterances the intonational

contour of falling, rising, or high rising is essential in determining the type of speech act since there is no morphological distinction among declarative, interrogative and exclamatory. A high rising terminal contour denotes various mirative overtones. In the context of dialogue exchange, the unspecified quoter/reporter is the speaker in declaratives or the hearer in interrogatives; that is, the speaker or the hearer is the direct source of quoted information. This is the primary function of the *-ta-ko* constructions. However, as a secondary function, the *-ta-ko* RQC is also used to inquire (with a rising TC) or reaffirm (with a falling TC) an indirect source of information by a third person, either definite or indefinite, or hearsay.<sup>13</sup> See examples in (9).

(9) a. Yong: Nayil pi-ka o-n.ta-kwu? ↗  
 tomorrow rain-SM come-DEC-COMP-QUOTE-INT  
 “It’s going to rain tomorrow--did (s)he/they say?”

b. Yong: Nayil Mia-ka o-n.ta-kwu-yo. ↘  
 tomorrow rain-SM come-DEC-COMP-QUOTE-DEC  
 “Mia is coming tomorrow--(s)he/they told me/I was told.”

The direct or indirect auditory evidential coming from the speaker-hearer (by default), or a third person or hearsay is phrased in English as a tag, thus resembling a bi-clausal construction.<sup>14</sup> In the *-ta-ko* RQC, the parenthetical clause is implicated, not expressed, thus presented as mono-clausal construction on the surface but interpreted as bi-clausal.

## 2.2. RQC *-ta-y*

The *-ta-y* RQC, unlike the *-ta-ko* RQC, has tense and S-level variants, as we saw in (6b). Some of the variants are given in (10), each marked with the quotative evidential [QUOT] after the clausal ending in the morpheme sequence.

(10) a. <i>-ta-y</i> .	b. <i>-ta-y-ss-e</i> .	c. <i>-ta-y-ss-ta</i> .
DEC-QUOT-IMT.DEC	DEC-QUOT-PST-IMT.DEC	DEC-QUOT-PST-PLN.DEC
d. <i>-ta-y-ss-sup.ni.ta</i> .	e. <i>-la-y-ss-e.yo?</i>	f. <i>-la-y-ss-sup.ni.kka?</i>
DEC-QUOT-PST-DEF.DEC	IMP-QUOT-PST-POL.INT	IMP-QUOT-PST-DEF.INT

Normally, the quoter/reporter in a *-ta-y* sentence is a third person, not a direct discourse participant (the speaker or the hearer), and the third-person subject is unspecified as given in (11a). However, the quoter-subject may show up overtly as in (11b); thus the *-ta-y* RQC is a bona fide bi-clausal construction.<sup>15</sup> This reveals the constructional trait of the *-ta-y* RQC—

bivalent clausality.

(11) a. Mia-ka cikum o-ko-iss-ta-y-ss-e.yo

SM now come-PROG-DEC-QUOT-PST-POL.DEC

“Mia is coming now—(s)he/ they said.”

b. Yong-i Mia-ka cikum o-ko iss-ta-y-ss-e.

SM SM now come-PROG-DEC-QUOT-PST-POL.DEC

“Yong said Mia is coming now.”

Consider now examples in (12), which are modifications of (11b) with temporal expressions.

(12) a. Ecey Yong-i Mia-ka nayil o-n.ta-y-ss-e.yo.

yesterday SM SM tomorrow come-DEC-QUOT-PST-POL.DEC

“Yesterday Yong said Mia will come tomorrow.”

b. Ku cennal Yong-i Mia-ka taum.nal o-n.ta-y.ss-e.

the prior.day SM SM next.day come-DEC-QUOT-PST-IMT.DEC

“On the previous day Yong said Mia would come next day.”

c. Ecey Yong-i Mia-ka kucekkey/ku cennal wa-ss/\*o-n -ta-y-ss-e.yo.

yesterday SM SM day-before-yesterday come-PST/come -DEC-QUOT-PST-POL.DEC

“Yesterday Yong said Mia came the day before yesterday/on the previous day.”

The time reference *cikum* ‘now’ in (11) is concurrent to the speaker’s speech time, not to Yong’s quoting time; likewise, *ecey* ‘yesterday’, *kucekkey* ‘the day before yesterday’ and *nayil* ‘tomorrow’ are relative to the speech time ‘now’. If the temporal reference were to be relative to the Yong’s speech time (that is, quoting time), *ku cennal* ‘the previous day’ and *taum.nal* ‘next day’ should be used as in (12b). The quoted clause of (12c) contains the past reference *kucekkey* ‘the day before yesterday’; thus the verb form is marked past--*wa.ss* ‘came’. The same holds in English. In English, however, the tense in the reported clause may vary between present (*is*) and past (*was*) or future (*will/would*), which is due to the sequence-of-tenses constraint and also to the speaker’s temporal vantage point.

The speech act involved in the *-ta-y* RQC is the speaker’s stating (or the hearer’s questioning) what a third person quoted; it is not the act of the speaker’s asserting (or the hearer’s questioning) the propositional content of the situation itself. The speaker/hearer is not committed to the truth value of the proposition.<sup>16</sup>

### 2.3. RQC *-ta-te-la*

The RQC *-ta-te-la* is a subvariety of *-ta-y* and involves the retrospective modal *-te*.<sup>17</sup> It

expresses the speaker's (in declaratives) or the hearer's (in interrogatives) recalling of his/her auditory perception of what was quoted by a third person or hearsay. It has two S-types: declarative and interrogative. Some of its S-level variants are given in (13); the structural meanings of its declarative and interrogative constructions are given in periphrastic form in (14).

- (13) a. *S-ta-te-la.* ↘ (DEC-QUOT-RETRO-PLN.DEC)  
 b. *S-ta-te-nya?* ↗ (DEC-QUOT-RETRO-PLN.INT)  
 c. *S-ta-te-y* ↘ (DEC-QUOT-RETRO-IMT.DEC)  
 d. *S-ta-te-y* ↗ (DEC-QUOT-RETRO-IMT.INT)  
 e. *S-ta-te-yo* ↘ (DEC-QUOT-RETRO-POL.DEC)  
 f. *S-ta-te-y.yo?* ↗ (DEC-QUOT-RETRO-POL.INT)  
 g. *S-ta-p-ti-ta.* ↘ (DEC-QUOT-DEF-RETRO-DEC)<sup>18</sup>  
 h. *S-ta-p-ti-kka?* ↗ (DEC-QUOT-DEF-RETRO-INT)

- (14) a. S--y said, x perceived, x recall. (=13a) (x = I; y = third person)  
 b. S--did y say, did x perceive, do x recall? (=13b) (x = you; y = third person)

One who quotes a situation is a third person normally unspecified as in (15a,b) but the quoter-subject may show up as in (15c). And one who recalls someone's quoting is the speaker in a declarative sentence (15a) or the hearer in an interrogative sentence (15b).

- (15a) a. *Mia-ka o-ko iss-ta-te-la.*  
 SM come- PROG-DEC-QUOT-RETRO-PLN.DEC  
 "Mia is coming—(s)he/they said, I heard, I recall."  
 b. *Mia-ka o-ko iss-ta-te-nya?*  
 SM come-PROG-DEC-QUOTE-RETRO-PLN.INT  
 "Mia is coming—did (s)he/they say, did you hear, do you recall?"  
 c. *Yong-i Mia-ka o-ko iss-ta-te-la.*  
 SM SM come-PROG-DEC-QUOT-RETRO-PLN.DEC  
 "Yong said Mia is coming—I heard, I recall."

In addition to the sentence-external RQC (form: *-ta-te-la*), the retrospective morpheme *-te* normally occurs sentence-internally in a non-quotative construction (form: *-te-la*) and also in a sentence-internal RQC (form: *-te-la-y*). See the three retrospective constructions in (16a-c).

- (16) a. *-te-la* (S-internal retrospective)  
*Mia-ka o-ko iss-te-la.*  
 SM come PROG-RETRO-PLN.DEC  
 "Mia is coming--I saw, I recall."  
 (More natural: "I saw Mia coming--I recall.")

b. *-te-la-y* (S-internal retrospective-quotative)

Mia-ka o-ko iss-te-la-y.

SM come PROG-RETRO-QUOT-IMT.DEC

“Mia is coming--they saw, they recalled, they say.”

(More natural: “They saw Mia coming--they recalled, they say.”)

c. *-ta-te-la* (S-external quotative-retrospective)

Mia-ka o-ko iss-ta-te-la.

SM come PROG-DEC-QUOTE-RETRO-PLN.DEC

“Mia is coming—they said, I heard, I recall.”

The retrospective *-te* induces perceptual (visual or auditory) evidential: (16a) denotes the speaker’s recollection (at speech time) of his/her direct perceptual (visual) act in the past; (16b) denotes a third person’s quoting (at speech time) of his/her recollection of his/her perceptual act in the past; (16c) denotes the speaker’s recollection (at speech time) of his/her auditory act (in the past) of a third person’s quoting of a situation. The primary function of *-te* is a speech participant’s recollection of his/her sensory perception; it denotes not a simple perceptual evidence but its recollection.<sup>19</sup>

Let us consider the issue of what is negated in the negative answer to a retrospective quotative question *-ta-te-nya*. Four negative replies (17b.i-iv) are all possible, with preferred interpretation in the given order (i-iv).

(17) a. Mia-ka o-ko iss-ta-te-nya?

SM come-PROG-DEC-QUOT-RETRO-PLN.INT

“Mia is coming--did they say, did you hear, do you recall?”

b. Ani-yo.

“No.”

i. An o-ko iss-ta-tey-yo.

no come-PROG-DEC-QUOT-POL.DEC

“Mia is not coming--they said, I heard, I recall.”

ii. O-ko iss-ta -ko ha-ci anh-tey-yo.

PROG-DEC-COMP say-CONN NEG-RETRO-POL.DEC

“They didn’t say Mia is coming—I heard, I recall.”

iii. Kulen mal mos tul-ess-e.yo.

such saying not hear-PST-POL-DEC

“I haven’t heard such a thing.”

iv. Sayngkak an na-yo.

thought not come.out-POL.DEC

“I don’t remember.”

Negation of the eventuality described (that is ‘Mia is not coming’) may come up first of all, followed by negation of quoting, auditory perception and lastly, negation of the speaker’s recollection of his/her past perceptual act. It may be that a reduced quotative-retrospective question almost presupposes, or takes for granted, the respondent’s mental recollection of his/her past perceptual act.

### 3. Meaning Representation

Meanings of reduced quotative constructions described in section 2 are represented, as laid out in (18), by unifying multifarious meaning components in a discourse. A unified meaning of a sentence is the conjunctions of the relevant meaningful elements enumerated in (20). They are represented in a new-Davidsonian framework, augmented with event (e) and time (t) arguments in elementary predications.

(18) Meaning components

- a. Situation: e.g., come(x,e,t)
- b. Thematic-role: e.g., agent(x,e), theme(x,e), agent-theme(x,e)<sup>20</sup>
- c. Discourse participant: e.g., named(x,Mia), named(x,Yong)
- d. Speech-act:
  - i. Deictic:<sup>21</sup> speaker(a), hearer(b), utterance-time(t<sub>U</sub>).
  - ii. Illocutionary:<sup>22</sup> e.g., state(a,b,e<sub>RETRO</sub>,e<sub>U</sub>,t<sub>U</sub>), ask(a,b,e<sub>RETRO</sub>,e<sub>U</sub>,t<sub>U</sub>)
  - iii. Manner of speaking:<sup>23</sup> e.g., plain(a,b,e<sub>U</sub>,t<sub>U</sub>), polite(a,b,e<sub>U</sub>,t<sub>U</sub>)
  - iv. Mirative:<sup>24</sup> e.g., surprising(e,t), incredulous(e,t)
- v. TAM:<sup>25</sup>
  - (a) Temporal:
    - Relational: overlap(t<sub>i</sub>,t<sub>j</sub>), precede(t<sub>i</sub>,t<sub>j</sub>)
    - Referential: e.g., event-time(t<sub>E</sub>), retrospection-time(t<sub>RETRO</sub>), perception-time(t<sub>PER</sub>), quoting-time(t<sub>Q</sub>)

(b) Aspectual:<sup>26</sup> e.g., in-progress(e,t), culminate(e,t), hold(s,t)

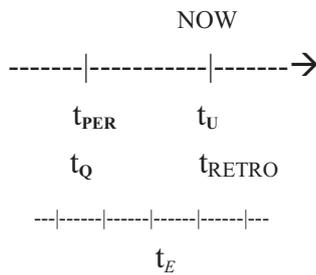
(c) Modal:<sup>27</sup> e.g., recall(x,e,t<sub>RETRO</sub>), intend(x,e,t), infer(x.e.t)

(d) Evidential: e.g., perceive(x,e,t<sub>PER</sub>),<sup>28</sup> quote/report(x,e,t<sub>Q</sub>)

Before presenting a unified meaning of a retrospective quotative sentence, let us look into the temporal relations pertinent to the *-ta-te-la* RQC. They are indicated by temporal overlapping (=) and preceding (<) relations as in (19a), or graphically as in (19b).

(19) a.  $t_U = t_{RETRO}$ ,  $t_{PER} = t_Q$ ,  $t_{PER} < t_U$ .

b.



Note: the event time  $t_E$  can be located anywhere on the timeline.

A *-ta-te-la* quotative sentence (15a), repeated below as (20), is paraphrased roughly as in (21a); its unified meaning is given in (21b)

(20) Mia-ka o-ko iss-ta-te-la. (=15a)

(21) a. Paraphrase:

I say to you in a plain manner of speaking that I recall that I heard that (s)he/they quoted that Mia was coming.

b. Unified meaning:

$come(x,e,t_E) \wedge agent(x,e) \wedge named(x,Mia) \wedge speaker(a,t_U) \wedge hearer(b,t_U) \wedge$   
 $plain(a,b,t_U) \wedge say(a,b,e_{RETRO},t_U) \wedge recall(a,e_{PER},e_{RETRO},t_{RETRO}) \wedge$   
 $perceive(a,e_Q,e_{PER},t_{PER}) \wedge quote(x,e,e_Q,t_Q) \wedge overlap(t_{RETRO},t_U) \wedge overlap(t_E,t_Q) \wedge$   
 $overlap(t_Q,t_{PER},) \wedge precede(t_Q,t_U) \wedge in-progress(e,t_E)=s \wedge hold(s,t_E)$

#### 4. Summary and Conclusion

Reduced quotative constructions *-ta-ko*, *-ta-y* and *-ta-te-la* retain a bivalent trait with respect to clausality and they are analyzed and interpreted as bi-clausal constructions. The postulated quotative gram [QUOT] interacts with a quotative evidential in the TAM component of the

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grammar CUG.

The *-ta-ko* RQC is typically echoic or repetitive and its reduced tense is past. Its high rising TC denotes the speaker's mirative overtones, its rising TC the speaker's inquiry about what was said or hearsay, and its falling TC the speaker's reaffirmation of what he/she said earlier or hearsay. The *-ta-y* RQC, in which normally the quoter/reporter is a third person, denotes a quotative speech act; the speaker/hearer is not committed to the truth of the proposition quoted. The *-ta-te-la* RQC, marked with the retrospective modal [RETRO] in addition to the quotative evidential [QUOT], denotes the speaker/hearer's recollection of his/her past auditory perception of what was quoted by a third person or hearsay.

## Acknowledgments

I am grateful to Jae-Woong Choe, Kiyong Lee and Jae-Mog Song for their comments and suggestions on a previous draft.

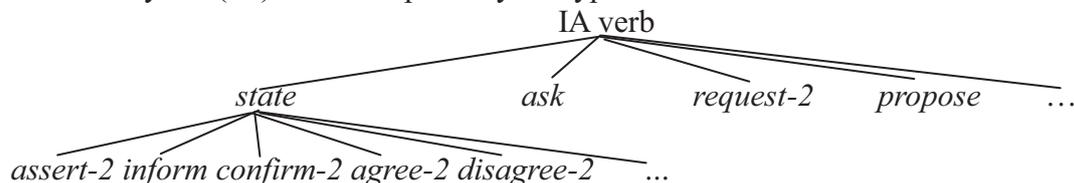
## Notes

1. For ease of reference I use the forms *-ta-ko* and *-ta-y* as representative of the two types of RQCs, which have each a number of S(entence)-level and S-type variants.
2. A similar, and widespread, pattern of grammaticalization is that of dependent-clause connectives (e.g., *-ketun*, 'if', *-nikka* 'as' and *-myense* 'while') functioning as sentence-final grammatical morphemes with main clauses left out. (See Rhee 2008 and works cited therein).
3. 'Quotative' is kept apart from 'reported' by Aikehenvald (2004:177): if the authorship of the evidence is known, it is 'quotative; if not, it is 'reported'. The two terms are interchangeably used here; the former is preferred, though, since 'direct/ indirect/reduced quotation' is used throughout. Explicating Korean reportative evidentials, Kim (2000:24) distinguishes 'quotative' from 'reportative' on the basis of the syntactic reduction of the complementizer *ko* and the verb *ha*, and their morphological fusion after the reduction. The category 'quotative' is regarded primarily as modal by Dahl (1985:149) and he cites the Japanese *soo da*, which is treated as inferential evidential by Aoki (1986:231-235) along with *yoo-da* and *rasi-i*.
4. CUG (Constraint-based Unified Grammar; cf. Chang 2005, 2007), an offshoot of HPSG (Pollard and Sag 1994, Sag et al. 2003), is designed to be an all-embracing grammar encompassing prosody, phonetics, orthography, and pragmatics on top of the usual tripartite components of phonology, syntax, and semantics.
5. Korean has half a dozen S-levels, each showing a distinct manner of speaking: plain (PLN), polite (POL), deferential (DEF), intimate (IMT), blunt (BLT) and familiar (FML). S-level and S-type are fused to form a sentence/clause ender: e.g. *-ta* (PLN.DEC), *-p.ni.kka*

- (DEF.INT). Of these S-levels only the plain (PLN) is admitted to form a quotative clause. The S-level terms are from Chang (1996).
6. See (6b) for other S-type variants (e.g., *-ta-n.ta*, *-ta-p.ni.kka*) or past tense variants (e.g., *-ta-y-ss-e*, *-ta-y-ss-ta*).
  7. The form *-la* (in *-la-ko*), which is an imperative ending, is also an allomorph of the declarative ending *-ta*, when used with the copula *i/ani* ‘be/be not’. Notice that its imperative use (88 tokens) is scanty in comparison to its declarative use (656 tokens).
  8. Those marked ‘0’ are possible forms but not found in the Corpus.
  9. European examples are taken from Jespersen (1924:304).
  10. In Chaucerian English, a retorted wh-question had the quotative marker *that* inserted after a wh-word: e.g., ‘But wherefore **that** I speke al this?’ (Jespersen 1924:304).
  11. For a mirative reading the punctuation mark (! or !!) may be used with a gloss EXL (exclamatory) or MIR(ative).
  12. The form *V-ko iss* ‘be V-ing’ is termed PROG (progressive aspect), corresponding to the Japanese *-te iru* ‘be V-ing’. The Japanese *-te i-ru* gram also functions as resultative (Nakau 1976:430), corresponding to the Korean *-e iss* ‘be V-en’ construction. The particle *ko* (or the Japanese *te*) in these constructions is a connective (CONN) (or a continuative called ‘gerund’ by Martin (1988, 1992)).
  13. Indirect evidence can be divided into quoted/reported and inferred: the former into second-hand evidence and evidence from hearsay or folklore; the latter into inference from results and inference from reasoning (Bybee et al. 1994:323-4).
  14. The English sentence (9a), repeated below as (i), is a pseudo-bi-clausal sentence, whereas (ii) is a genuine one.
 

i. (9a) It’s going to rain tomorrow—did they say?	(pseudo)
ii. Did they say it’s going to rain tomorrow?	(genuine)
  15. In the framework of CUG an additional NP argument (i.e. subject) is placed on the ARG-STR (argument structure) list.
  16. This type of speech act is termed ‘presentative’, which is distinct from the assertive type (Faller 1994, Chung 2005).
  17. The grammatical status of *-te* has been described variously: tense (Choe 1937), aspect (Martin 1954), tense-aspect (Lee 1991), mood (Sohn 1975, Chang 1996, Suh 1996, Ko 2004), spatial deictic tense (Chung 2005), evidential (Song 1998, 2002; Kim 2000).  
A Japanese dialect, spoken in Goshogawara, north of Aomori, is described to have a verbal construction (V-) *te-ra*, which like the Korean (V-) *te-la* denotes ‘direct evidential’ (Urushibara (2008), presented at CIL-18). The following are from her examples:
    - i. *Mina-ga hon-o yon-de-ra*. ‘Mina is reading a book.’ (direct evidential) or ‘Mina has read a book.’
    - ii. *Mina-ka chayk-ul ilk-te-la*. ‘Mina read/has read a book.’ (direct evidential).
 We may render (ii) as: ‘I saw Mina read(ing) a book, I recall.’ Or ‘Mina read/was reading a book—I saw, I recall.’
  18. The morpheme sequence of *-p-ti-ta* (in *S-ta-p-ti-ta*) is DEF-RETRO-DEC; likewise, *-p-ti-kka* is DEF-RETRO-INT. Notice RETRO is posited between S-level *-p-* and S-type *-ta/kka*.
  19. Note the modal and evidential difference between (i) and (ii). The Korean *-te-la* sentence (16a) is better rendered as (ii) rather than as (i).
    - i. I saw Mia coming.
    - ii. I saw Mia coming, I recall.
  20. The hyphenated role (e.g. agent-theme ‘both agent and theme’) is from Parson (1990:81).

21. Speaker and hearer indices are assigned variables a and b, respectively.
22. Illocutionary-act (IA) verbs are partially subtyped as:



The type *state*, which is unmarked, that is sense-1 in WordNet (v. 2.1), forms a synset (synonym set) with *say* and *tell*. Reference to WordNet (and its sense specification) is meant to provide a precise sense of each of IA verbs. The type *state/say/tell*, together with its subtypes, roughly corresponds with Austin's (1962) expositives, Searle's (1979) assertives and Bach and Harnish's (1979) constatives. These verbs are used performatively.

23. Manner of speaking, which is labeled 'DL (discourse level)' in CUG, may well be included in the TAM component; it is represented with discourse-level predicates--plain, polite, intimate, deferential, familiar, and blunt, which correspond to the identically termed syntactic S-levels. See Note 5.
24. Mirativity (cf. DeLancey 2001), like manner of speaking, may well be treated under TAM as interacting with TC in prosody and punctuation in orthography.
25. In CUG, TAM is a component of SA (speech act) in PRA(gmatics) as it is essentially deictic-centered or speaker/hearer-oriented. Evidentiality, as information source (Willett 1988:53), is included in TAM as its extended feature.
26. Aspectual predicates 'culminate' and 'hold' are taken from Parsons (1990): hold(s,t)--a state holds at t (that is, a resultant state).
27. Modal is delimited to mood: *-te* 'retrospective', *-keyss* 'volitive, inferential' and *-n/nun* 'indicative'. The indicative mood is not marked and glossed as such in this paper.
28. Subtypes of *perceive* include *observe*, *see*, *hear*, and *feel-3*. (WordNet defines *feel-3* (sense-3 of *feel*) as 'perceive by physical sensation'; sense-1 as 'undergo an emotional sensation').

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## Appendixes

### Abbreviations (in AVM)

AGT (agent)	ASP (aspectual)	AVM (attribute-value matrix)
C-INDS (contextual indices)	CTR (center)	DF (discourse function)
DL (discourse level)	DP (discourse participant)	EVID (evidential)
FOC (focus)	HR (hearer)	IA (illocutionary act)
MDL (modal)	ORTH (orthography)	PHON (phonetics)
POV (point of view)	PRA (pragmatics)	PROS (prosody)
RELN (relation)	RESTR restriction	SA (speech act)
SARG (situation argument)	SEM (semantics)	SP (speaker)
STR (stress)	SYN (syntax)	TAM (tense-aspect-mood)
TARG (time argument)	TC (terminal contour)	TFA (topic-focus-articulation)
THM (theme)	TMP (temporal)	TOP (topic)
UT (utterance time)		

**Appendix: AVM (à la CUG) - Chang (2005, 2007)**

*Mia-ku o-ko iss-tu-te-la.* (=15c) - 'Mia is coming-they said, I heard, I recall.'

<b>PROS</b>	[TC fall STR ⟨⟩]																
<b>PHON</b>	⟨mlaga ogolt'ad?ra⟩																
<b>ORTH</b>	⟨미아가 오고 있다더라⟩																
<b>SYN</b>	[HEAD verb [FORM prog-dec-quote-retro-pln.dec]]																
<b>SEM</b>	[INDEX e RESTR ⟨ [RELN come AGT x SARG e TARG t <sub>E</sub> ] ⟩]																
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# Modality vs. illocution on the example of Japanese expressions of obligation and advice

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## Abstract

In Japanese the notions of obligation and advice are expressed in a form of conditionals, which literally translate as *eIf not p, not goodf* and *eIf p, goodf* respectively. In this paper we analyze both constructions with special focus on the role the speaker's attitude plays in determining both meanings. We propose that in the case of obligation the conditional construction represents a cause result relation. In the case of advice, on the other hand, the conditional construction serves to mark the proposition of the antecedent as potential and to provide propositional attitudes in the consequent. We argue that such approach leads to a more natural and precise descriptions of the phenomena involved in the comprehension of these conditional expressions.

## 1 Introduction

In Japanese, constructions involving conditional clause markers are used for expressing the notions of obligation (1) and advice (2).

- (1) yoyaku si-naker-eba nara-nai  
reservation do-NEG-COND become-NEG  
'You have to make a reservation.'  
(lit.: 'If you don't do reservation, it won't be good.')

- (2) tyotto yasun-dara ii  
little rest-COND good  
'You should rest a bit.'  
(lit.: 'If you rest a bit, it'll be good.')

The obligation construction translates literally as *'If not p, not good'*, and the one of advice as *'If p, good'*. Both constructions look alike, and have been treated in linguistic literature as grammaticalization of the speaker's positive or negative attitude toward the proposition, i.e., as realizations of the same logical structure.

IF  $p$ ,  $q$  where  $q$  is the speaker's evaluative judgement GOOD/BAD, towards the realization of  $p$ . (Akatsuka 1992, 4)

There is however, a crucial difference between obligation and advice. To express advice, positive attitude of the speaker toward the proposition is indispensable ((Searle 1969), (Vanderveken 1990)). However, no particular attitude of the speaker toward a proposition is required for expressing obligation. The main claim of the paper is that despite the overt resemblance the two expressions are interpreted in different ways.

We argue that adopting a clear distinction between modality as a content category and illocutionary force as a pragmatic category with respect to the structure '*IF p q*' gives a valuable insight into the comprehension of both obligation and advice.

The argumentation of the paper is organised as follows. In section 2, we will see that in contrast to advice, obligation is not performed with the speaker's attitude but it is propositional in the sense that it is capable of being true or false. Obligation depends on the relevant rules that also determine the consequences for being not obedient. Thus, we will propose that the '*If not p, not good*' construction represents a causal relation between the antecedent and the consequent.

In section 3 we will be paying attention to the fact that the structure '*IF p q*' yields advice not only when ' $q$ ' represents the speaker's positive attitude, but also when ' $q$ ' represents a question like 'how about?'. We adopt the relevance theoretic idea that illocutionary force is not encoded in a sentence, but the hearer recognises the speaker's intention within an inference process based on a sentence mood. We will show that also the '*If p good*' construction initiates an online inference process through which the hearer recognises the speaker's intention, cf., (Wilson and Sperber 1988) and (Lenci 1994).

## 2 Obligation

### 2.1 Obligation and the speaker's attitude

The speaker can express obligation and simultaneously either her/his positive (3) or negative (4) attitude towards it. Thus the attitude itself does not constitute the meaning of obligation.

- (3) asita-wa sooru-e ika-naker-eba ikenai ga  
 tomorrow-TOP Seoul-DIR go-NEG-COND go.well-NEG but  
 tanosimitai-to omou  
 enjoy.want-COMP hope  
 ‘I have to go to Seoul tomorrow, still I want to enjoy it.’
- (4) yara-naker-eba nara-nai keredo ima-wa yaritaku-nai  
 do-NEG-COND become-NEG however now-TOP do.want-NEG  
 ‘Although I have to do it, I don’t want to do it now.’

The speaker’s attitude, once expressed, cannot be judged as false. Obligation, on the other hand, can be rejected as false. In other words, obligation is part of the message conveyed by the proposition.

- (5) A: repooto-wa asita madeni kaka-naker-eba  
 report-TOP tomorrow until write-NEG-COND  
 nara-nai darou.  
 become-NEG guess  
 ‘The report has to be written by tomorrow, I guess.’
- B: iya, simekiri-ga nobita-yo  
 no deadline-NOM extend.PERF-PART  
 ‘No, the deadline has been extended.’

Therefore the ‘consequent’ in the ‘If not p, not good’ construction can not be treated as expression of the speaker’s negative attitude.

The construction indeed is not frozen, but revels quite high productivity, i.e. several conditional connectives and several negative expressions in the consequent are being used.

<i>p</i> naker-eba	<b>nara-nai</b>
<i>p</i> NEG-COND	become-NEG
<i>p</i> nai-to	<b>ike-nai</b>
<i>p</i> NEG-COND	go.well-NEG
<i>p</i> naku-tewa	<b>dame</b>
<i>p</i> NEG-COND	bad

Thus, the construction reflects an inference, which leads the addressee to the conclusion that ‘p’ is indispensable. Determining the sense of the consequent is crucial for describing the inference process.

Note that by uttering an obligation, the speaker informs the addressee that not executing the action in question will break some rules.

It can be natural laws, legal, moral, prudence rules etc. For example, saying that ‘*According to the law, you have to ask the author’s permission to copy his book*’ means that *Coping a book without the author’s permission violates the rules defined by the law*. The *If not p, not good* constructions sound odd in a context, where one does not know the rules an event applies to.

- (6) ? asita-wa ame-ga hura-naker-eba nara-nai  
 tomorrow-TOP rain-NOM fall-NEG-COND become-NEG  
 (int.: ‘It must rain tomorrow.’)

Note also that violating rules or laws does not always bring about real consequences. One could e.g. manage to copy a book without the author’s permission without any punishment for it. Thus, in our view, the construction does not convey the idea that not executing ‘p’ will bring about some negative consequences for the addressee, but that the negative expressions *nara-nai*, *ike-nai*, *dame* etc. refer to inconsistency with rules/laws the speaker is referring to. That is, the construction encodes the message that not executing *p* will result in violating the relevant rules.

## 2.2 Obligation and causation

The above analysis can be supported by the fact that similarly to obligation interpreting a cause-result relation requires considering some rules governing such relation. For example, interpreting fine as a result of crossing a street against red light requires considering the traffic laws. Feeling hungry as a consequence of skipping a meal is determined by natural laws, etc.

Let us examine here the conditional connectives used in the obligation construction. Japanese has several conditional connectives. In the obligation constructions *-(e)ba*, *to*, *tewa* are used.

- (7) yoyaku si-naker-eba ike-nai  
 reservation do-NEG-COND go.well-NEG
- (8) yoyaku si-nai-to ike-nai  
 reservation do-NEG-COND go.well-NEG
- (9) yoyaku si-naku-tewa ike-nai  
 reservation do-NEG-COND go.well-NEG  
 ‘I have to make a reservation.’

The conditional connective *-tara* is often used in advice constructions but never in obligations. This connective is used i.a. in future, non-causal contexts in which *-(e)ba*, *-to*, *tewa* are not acceptable.

- (10) kono repooto-wo kai-**tara** sensei-ni  
 this report-ACC write-COND professor-DAT  
 teisyutu-si-masu  
 submit-do-POLITE  
 ‘After I finish the report, I’ll submit it to the professor.’
- (11) a \*repooto-wo kak-**eba**/-**uto** sensei-ni  
 report-ACC write-COND professor-DAT  
 teisyutu-si-masu  
 submit-do-POLITE  
 ‘If I write the report, I’ll submit it to the professor.’
- b repooto-wo kak-**eba**/kaku-**to tan’i-ga moraeru**  
 report-ACC write-COND credits-NOM can.get  
 ‘If I write the report I will can the credits.’

In (10) there is no causal relation between the antecedent and consequent, here the *-tara* connective is perfectly acceptable. In the same context the *-(e)ba* and *-to* connectives are unacceptable (11a), but if the consequent is changed so that it refers to the result of the action described in the antecedent, both *-(e)ba* and *-to* are attested (11b). The connective *-tewa* is different from *-(e)ba* and *-to* in that it is used only with negative consequents. In the case of future events it is, however, the same as *-(e)ba* and *-to*, used only to mark causal relation (See (Arita 2004, 171) for more details).

- (12) taroo-ga ki-**tewa minna-ga komaru**  
 Taroo-NOM come-COND everybody-NOM be.trouble  
 ‘If Taroo comes everybody will be troubled.’ (Arita 2004, 171)

To summarise, we showed in this section that the speaker’s attitude toward the proposition does not influence the meaning of obligation as such and that like causality, obligation emerges from rules/laws.

Moreover, we saw that although obligation in Japanese is conveyed through conditional construction, the conditional connective *-tara* that marks relation between single events is not accepted in the obligation construction. Thus, we propose that the ‘*If not p, not good*’ construction should be analysed as a cause-result relation.

It is important to note also that the ‘*If not p, not good*’ constructions never convey the meaning of epistemic necessity, and we argue that it is this overtly marked cause-result relation that prevents the ‘*If not p, not good*’ construction from being extended into epistemic domain<sup>1</sup>.

### 3 Advice

#### 3.1 Advice and the speaker’s attitude

The speaker’s positive attitude is a sincerity condition for expressing suggestion (Searle 1969). However the speaker can express advice through the ‘*If p q*’ construction not only by filling it with her/his positive attitude towards the proposition, but also by embedding the proposition in e.g. an interrogative mood.

- (13)      mou sukosi yasun-dara dou-desu-ka  
           more little rest-COND how.about-POLITE-Q  
           ‘Why don’t you rest a little more.’

This fact is not surprising, if one considers speech acts as a purely pragmatic category as it has been proposed in Wilson and Sperber (1988). We adopt here the idea that illocutionary force is not encoded in a sentence, but the hearer recognises the speaker’s intention within an inferential process based on the information encoded in a sentence mood (c.f. also (Lenci 1994)).

To present the inference process in some more detail, let us first look at the definition of directives by Lenci (1994, 120)

Directives “Given the utterance  $\varphi$ , the hearer  $H$  identifies the intention of the speaker  $S$  to communicate a directive illocution with  $\varphi$  iff  $H$  recognizes a motive or reason for her/him to do an action  $e$  as belonging to the set of assumptions  $\{I\}$  that is consistent with the presumption of relevance of  $\varphi$ .” (Lenci 1994, 120)

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<sup>1</sup>Compare Sweetser (1990), Bybee et. all (1994) argument that the deontic notions were primary and developed into epistemic ones.

The additional condition for the hearer to recognise advice is that she/he understands that the action in question will bring her/him some benefits:

- “a suggestion can be recognized if the hearer understands that the reason for her/him to do the action derives from the fact that such an action can bring positive effects for the hearer her/himself (Lenci 1994, 120)”

### 3.2 *If p, good: optative mood*

In the case the proposition in ‘IF p q’ is embodied in an optative mood (13), the addressee’s inference could be as follows:

- (14) tyotto yasun-dara ii  
 little rest-COND good  
 ‘You should rest a bit.’ (lit.: ‘If you rest a bit it’ll be good.’)

(14) is a declarative sentence, with a lexical optative mood marker ‘ii’. That is, the addressee can decode from it the information that:

- (14a) ‘you rest’ is a desirable action.  
 (14a) activates other assumptions that belong to the hearer’s cognitive environment, e.g.:  
 (14b) The speaker knows I am tired.  
 (14c) Resting is crucial to muscle repair / allows for proper healing.  
 (14d) If resting helps me to regenerate then I have a REASON to do it.

The hearer recognises during the inference process, that the action can bring her/him some benefits, thus she/he interprets it as advice.

In some contexts *If p, good* is interpreted as hope or regret. Consider the following examples.

- HOPE.

- (15) asita hare-tara ii na  
 tomorrow be.sunny-COND good EMOT.  
 ‘I hope it will be sunny tomorrow.’

- REGRET

- (16) kono ko-ga otoko-dat-tara yoi noni  
 this child-NOM boy-COP-COND good EMOT  
 ‘I regret the child is not a boy.’ (Takeda 2004, 206)

In this case, the information encoded by the optative mood can be described as follows:

The propositions (15) and (16) represent a desirable event.

Note that (15) represents a future event, (16) a past event but neither of them can be controlled by the speaker or the addressee, thus both utterances can be interpreted only as expressions of the speaker's desire.

### 3.3 *If p, how about?: interrogative mood*

When the proposition in 'IF p q' is embodied in an interrogative mood, the addressee's inference could be as in the following:

- (17)      mou sukosi yasun-dara dou-desu-ka  
            more little rest-COND how.about-POLITE-Q  
            'Why don't you rest a little more.'

As (17) is an interrogative sentence, the speaker communicates with it that there is some completion of the thought represented by the proposition that is desirable (Wilson and Sperber 1988). Thus, the information decoded by the addressee is

(17a) my opinion about taking rest is desirable.

(17a) activates other assumptions that belong to the addressee's cognitive environment, e.g.:

(17b) I am tired now.

(17c) Resting is crucial to muscle repair / allow for proper healing.

(17d) If resting will help me to regenerate then I have a REASON to do it.

The above analysis shows that in the case of advice the '*IF p q*' structure should be considered not as a grammaticalization of the speaker's positive attitude towards the proposition 'p', but as a means to mark a proposition as potential (conditional) and embody it into a sentence mood.

The inference process based on the '*IF p q*' construction, where 'q' refers to an optative or interrogative mood can be summarised as follows. When 'p' refers to past, or future that the interlocutors do not have influence on, the 'IFp good' construction conveys a regret (past) or hope (future). When 'p' refers to an action that is controllable by the addressee, both *If p, good* and *If p, how about?* initiate

an inference that leads the hearer to the conclusion that executing the action described in the proposition may bring him/her some profits.

the sort of circumstances expressed in the antecedent	mood	result of the inference
uncontrollable by the hearer / past	optative	regret
uncontrollable by the hearer / future	optative	hope
controllable by the hearer	optative	advice
controllable by the hearer	interrogative	advice

## 4 Conclusions

In conclusion, we presented several lines of evidence that despite the overt resemblance the expressions of obligation and advice represent distinct structures. That is, obligation constructions represent a cause-result relation. Whereas, the advice constructions represent a proposition embedded in an optative or interrogative mood.

This approach allows us to account for (i) ellipsis and (ii) the usages of the *-to* connective in counterfactual contexts.

(i) Ellipsis:

Consider (18-19) where [e] indicates the ellipsis site.

- (18) kekkon si-naker-eba [e]  
 marriage do-NEG-COND  
 ‘I have to get married.’ or  
 ‘If I had not get married’ (When the speaker is married already).

- (19) hutatabi siken-ni oti-tara [e] na  
 again exam-DAT fail-COND EMOT  
 ‘I hope he will fail the exam again.’ or  
 ‘I am terrified of failing the exam again.’

Unless (18) refers to a counterfactual situation, and the rules the speaker is referring to are unclear to the addressee (i.e. when the addressee recognises that not getting married will violate the relevant rules) the sentence is interpreted as obligation. (19) on the other hand, can be interpreted as hope or regret depending on the intonation of the particle ‘na’, i.e. depending on the speaker’s attitude.

(ii) *-to* usages in counterfactual contexts.

The connective *-to* cannot mark counterfactual conditionals, therefore (20) has only one interpretation.

- (20) kekkon si-nai-**to**  
marriage do-NEG-COND  
'I have to get married.'

However *-to* can be followed by an optative mood marker expressing an attitude toward counterfactual event.

- (21) (It was very nice trip.)

anata-mo kuru-**to** yokat-ta-noni  
you-also go-COND good-PAST-EMOT.  
'It's a pity you didn't go with us.' (Sunakawa 1998, 295)  
(lit.: 'If you came, it would be good.')

In our view, such usage of '-to' is accepted, because the conditional connectives in the hope/advice construction do not function to mark a conditional relation between the antecedent and consequent but just to mark the event described in the antecedent as potential.

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# Similarity and Dissimilarity in Treebank Grammars

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## *Abstract*

To uncover rules in a treebank grammar which are of dubious quality, we investigate two methods for detecting problematic structures, both based on the same notion of similarity. The first is based on the notion that similar rules should receive the same annotation. The second is based on the idea that rules which are dissimilar to other rules are likely problematic. We show these two methods to be effective in detecting erroneous rules, rules used for ungrammatical or otherwise non-standard constructions, and rules which reveal non-uniform decisions made in the annotation scheme.

## 1 Introduction and Motivation

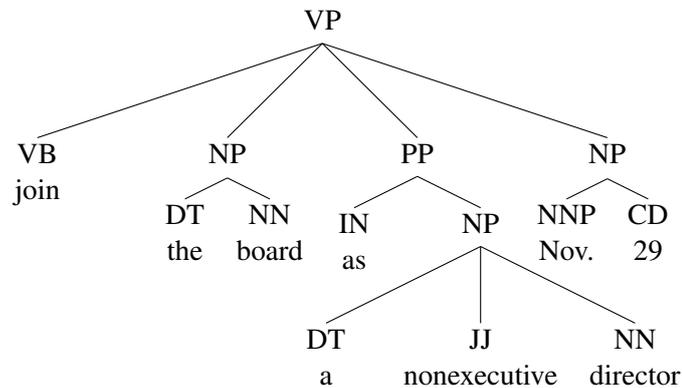
While annotated corpora are commonly used for both natural language processing (NLP) and for linguistic searching, there is a need to investigate the quality of such annotation. Corpora can be viewed as large repositories of language data, useful for the construction and validation of linguistic theories. As such, there is an increasing number of linguistically-annotated corpora, presenting information on a wide range of linguistic properties, such as morphological distinctions (e.g., Leech, 1997), syntactic distinctions (e.g., Sampson, 1995), semantic distinctions (e.g., Kingsbury et al., 2002), and discourse distinctions (e.g., Allen and Core, 1996). This annotation present in a corpus is the result of applying an annotation scheme to the data, capturing the desired distinctions. In other words, annotation encodes a linguistic description of the data, and in order for this to be useful, it must be of high quality.

When we speak of a theory being encoded in a treebank, of course, it is not that simple. There are competing factors in what kind of (descriptive) linguistic theory is encoded. On the one hand, corpus annotation is guided by external criteria: do the distinctions capture linguistic properties needed for certain corpus uses, such as parsing or linguistic searching? On the other hand, we have internal criteria: can the distinctions can be annotated easily and automatically (cf. Elworthy, 1995; Déjean, 2000)?

Syntactically-annotated corpora, or treebanks, tend to emphasize broad coverage and these so-called internal criteria, making sure that the annotation can be done consistently, with high inter-annotator agreement (e.g., Voutilainen and Järvinen, 1995). This is often at the expense of true grammar development, however. While the treebank is annotated quickly and in a way which lends itself to parsing, it is not clear what the properties are of the encoded grammar. Does it match anything resembling linguistic theory, or was it annotated consistently at the cost of being theoretically desirable?

As one example, consider the partial tree from the Wall Street Journal (WSJ) corpus portion of the Penn Treebank (PTB, Marcus et al., 1993) shown in 1. To avoid disagreements between annotators, the trees are given flat structures; in this case, no one has to decide where the *as* phrase attaches, instead including it simply as a daughter of the VP. Thus, we wind up with rules like  $VP \rightarrow VB\ NP\ PP\ NP$ , which do not correspond to theories distinguishing arguments from adjuncts in the syntactic structure.

(1)



Although such treebanks have served to advance the state-of-the-art in computational linguistics, there are still problems with using grammars extracted from them, regardless of whether we intend to extract a grammar for parsing or for linguistic analysis. First, as illustrated above, treebanks commonly contain rather flat structures and coarse categories. This means that there are missing linguistic decisions, which would have to be recovered for linguistic searching. Indeed, these distinctions are often useful to use in parser models and must be recovered for parser training (cf. Petrov et al., 2006). Furthermore, the distinctions may not only be missing, but may be incompatible with a linguistic theory. Secondly, there is the sheer number of rules to contend with. The WSJ, for example, has over 17,000 rules for 50,000 sentences. Grammar compaction methods can reduce the size of the rule set (Krotov et al., 1998; Hepple and van Genabith, 2000), but there is still a need to sort useful rare constructions from unhelpful ones (Foth and Menzel, 2006; Daelemans et al., 1999). Finally, there is the problem of annotation errors, which arise in the process of creating a large corpus. These errors have a detrimental effect on the training and evaluation of natural language processing (NLP) systems (cf. Dickinson and Meurers, 2005a; Hogan, 2007) and also on the precision and recall for finding desired linguistic constructions (cf. Meurers, 2005). For example, Padro and Marquez (1998) show that, for many current comparative evaluation situations, one cannot truly tell which technology is better.

These three problems are related, in that they deal with the quality of corpus annotation. To attack these problems, we set out to investigate and automatically identify problematic treebank rules, which reveal different quality issues with the treebank. Namely, problematic rules might be erroneous, cover ungrammatical constructions, or reveal the quirks of an annotation scheme, that is, where it needs feedback.

But how can one investigate rule quality in an automatic way? How can one rule be better or worse than another? To answer this, we use properties of the whole grammar itself as a guide to how rules should generally be organized. Specifically, we focus on finding similarities and dissimilarities among rules, and we make two hypotheses, which

we show to be effective. The first hypothesis is that similar rules should receive the same annotation, as discussed in section 3. The more similar two rules are, the more we expect them to be categorized in the same way. The second hypothesis is that rules which are dissimilar to every other rule are likely problematic, as outlined in section 4. If a rule behaves like nothing else, there should be a good reason for it; if there is no reason, there is likely a problem. For both approaches, the same definition of similarity can be used.

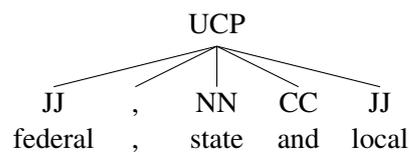
While we only investigate problematic rules, finding commonalities between rules provides insights into an appropriate syntactic model for treebank grammars. This is an important step for tasks such as recovering latent annotation, grammar compaction, and annotation scheme revision.

## 2 Background

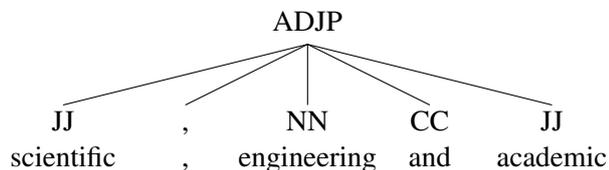
To motivate the need for a definition of similarity across treebank rules, we start with an error detection method that searches for inconsistency of labeling within local trees (Dickinson and Meurers, 2005b). The insight is that one can generally determine the syntactic category of the mother of a rule based on the categories of its daughters. In other words, linguistic phrase structure rules tend to be endocentric (cf. X-bar syntax, Jackendoff, 1977). If the same daughters list has more than one mother, this might indicate a violation of endocentricity. Thus, Dickinson and Meurers (2005b) search for variation in mother categories which dominate the same daughters; daughters lists with more than one mother are flagged as potential errors. This method turns out to be quite successful at detecting errors, as 74% of variations in the WSJ contain errors.

As an example, consider the daughters list JJ , NN CC JJ, which varies between unlike coordinated phrase (UCP) and adjective phrase (ADJP), as in (2). Here, we successfully flag an error, as there is no need for variation: the guidelines indicate that ADJP is erroneous Bies et al. (1995, p. 120).

- (2) a. [<sub>UCP</sub> federal/JJ ,/, state/NN and/CC local/JJ] public officials



- b. [<sub>ADJP</sub> scientific/JJ ,/, engineering/NN and/CC academic/JJ] communities



A limitation of the method is its lack of generality, in that a rule occurring once cannot vary with any other rule (Dickinson, 2006). Furthermore, it is not only identical daughters lists which must share the same mother, but also very similar daughters lists. In order to increase recall, we note that many rare rules are actually quite similar to other rules. Currently, for example, the daughters lists ADVP RB ADVP and ADVP , RB ADVP, as shown in (3), are treated distinctly. If they are treated as the same daughters list, then

there are two different mothers, PP (prepositional phrase) and ADVP (adverbial phrase), and this variation points to the presence of an error, in PP in this case. What is needed is a way to say that these rules are behaving in the same way.

- (3) a. to slash its work force in the U.S. , [*PP* [*ADVP* as] soon/*RB* [*ADVP* as next month]]
- b. to report their purchases and sales [*ADVP* [*ADVP* immediately] ,/, not/*RB* [*ADVP* a month later]]

### 3 Similarity

To increase the number of errors found, therefore, we relax the identity requirement between daughters lists. Namely, we automatically create equivalence classes of daughters lists to assist in error detection, where the defining property of making equivalences is that the mother of each rule is still predicted to be the same by all daughters list in the class. To create such equivalences, we can use the insight that anything not contributing to prediction can be ignored. Grouping rules based on the predictive information of daughters will result in better recall of errors.

#### 3.1 Equivalence criteria

Based on this notion of predictability, we can use fairly simple properties of rules in order to establish equivalences between them. For each daughters list, the steps we employ are the following (Dickinson, 2006):

1. Remove daughter categories that are always non-predictive to phrase categorization.
2. Group head-equivalent lexical categories.
3. Model adjacent identical elements as a single element.

In the first step, we remove daughter categories that are always non-predictive to phrase categorization, and these are categories which are always adjuncts. Clearly, we need to keep the head in a list of daughters, as head information generally percolates up to the mother. We also need to keep all arguments, as arguments can distinguish one rule from another. For example, *SINV* (inverted sentence) is the mother for the daughters list *VP NP PP* because the head (*VP*, verb phrase) precedes the argument (*NP*, noun phrase). We thus want to remove adjuncts, but this has to be done in such a way that it generalizes across all rules. Thus, we focus on eliminating “inherent” adjuncts, which come in a few different forms in the PTB. First, there is punctuation, which is not involved in the predicate-argument structure (cf. Hollingshead et al., 2005), and is often not included in treebank rules (cf. Brants et al., 2002). Secondly, parentheticals (*PRN*) refer to solely parenthetical material and thus are always adjuncts when they occur in a daughters list. Finally, empty elements (i.e., *-NONE-*) can refer to any category, and thus they are uninformative with respect to the mother category.<sup>1</sup>

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<sup>1</sup>Note that empty elements are generally a problem for error detection (Dickinson and Meurers, 2003).

The second step is to group what we call *head-equivalent* lexical categories, or categories which are the same in predicting the mother. The intuition here is that phrases headed by, for example, either singular common noun (NN) or plural common noun (NNS) are generally NP, and this distinction does not add any information in predicting the mother. The full set of mappings is given in table 1, which is similar to mapping #2 in Hepple and van Genabith (2000). All other lexical tags (i.e., not in the table) are not grouped with any other tags: there are 13 such tags only equivalent to themselves.

Base category	Head Equivalence Classes
Determiners	{DT, PDT, PRP\$}
Adjectives	{JJ, JJR, JJS}
Nouns	{NN, NNS, PRP}
Proper nouns	{NNP, NNPS}
Adverbs	{RB, RBR, RBS}
Verbs	{MD, VB, VBD, VBG, VBN, VBP, VBZ}
<i>Wh</i> -determiners	{WDT, WP\$}

Table 1: Head-equivalence classes in the WSJ

The final step is to model adjacent identical elements as a single element. This is akin to modeling a flat series of identical categories with the Kleene + operator (XP+), and we do this for arbitrarily long sequences. For instance, for the daughters list NN IN NP IN NP, the second IN NP says nothing more about predicting mother category, and so this is mapped to NN IN NP. All repetitious sequences are mapped into the shortest possible sequence that is still predictive. For JJ NN NN JJ NN, for example, we first reduce it to JJ NN JJ NN, and then to JJ NN. This Kleene reduction step bears much in spirit to the correcting of illegal syntactic structures for the Penn Korean Treebank in Han et al. (2002), where legitimate right-hand sides of rules are hand-encoded as regular expressions, in order to detect and correct illegal syntactic structures.

## 3.2 Results

**Evaluation of equivalence criteria** Before testing the effect of grouping rules into equivalence classes for error detection, we first want to ensure that the equivalence criteria are not eliminating anything essential to phrase categorization. In other words, do we lose any predictive information by using equivalence classes? To gauge this, we sampled 100 equivalence classes from section 00 of the WSJ and examined them by hand. It turns out that in 98 cases, nothing predictive has been removed. In fact, in 24 of those cases, the mapping is complete; that is, nothing more should have been removed.

The two unsuccessful mappings involve the label NAC (not a constituent), as illustrated in (4). The daughters list NNP , NNP , reduces to NNP, but NNP by itself does not predict NAC. In fact, Bies et al. (1995, p. 208) mention that the presence of a comma partially determines NAC here. In the future, one could consider being more careful with punctuation, but the results are effective enough for us to continue.

- (4) [<sub>NAC</sub> Albuquerque/NNP ,/, N.M./NNP ,/,]

**Results for rule similarity** Turning to the results for the rule similarity error detection method, by grouping daughters lists into equivalence class, we map 15,989 daughters lists to 3783 equivalence classes. From these 3783 classes, 546 have variation in their labeling. While 546 is less than the original 844 varying daughters lists, each class is much bigger. In fact, since all instances of an original rule are within the same class, we are guaranteed to find at least as many varying rules as before.

We sampled 100 of these 546 variations and marked for each whether it contained an error, and we thus estimate 71% error detection precision. Significantly, this is on a par with the original error detection precision (74%), which means that we are increasing recall without sacrificing precision.

Indeed, this method points to nearly a thousand erroneous rule types, and these are a superset of the cases in Dickinson and Meurers (2005b). As one example, consider the equivalence class JJ VB, as shown in examples (5) and (6). Here, we have four different daughter lists all mapping to JJ VB, with variation between ADJP and NP. Crucially, without equivalence classes, the list JJR VBN, with ADJP as its mother category, would not have been found to be in variation with NP when using daughters lists.

- (5) a. [<sub>NP</sub> personal-income/JJ growth/VB]
- b. [<sub>NP</sub> other/JJ high-yield/JJ deals/VBZ]
- c. [<sub>NP</sub> last/JJ May/MD]
- (6) [<sub>ADJP</sub> lesser/JJR developed/VBN]

Thus, we successfully increase error detection recall, without sacrificing precision, and we do so with only a small amount of manual work.

While this is successful for the WSJ, new criteria would have to be hand-written for other treebanks and languages. The same general principles apply, namely maintaining the predictability of the mother category. The only caveat is that one must be careful about which abstractions to make; for example, case distinctions important for subcategorization should not be conflated.

**Annotation scheme issues** Detecting errors is not all that these method allows us to do. This method of using rule similarity also reveals various issues with the annotation scheme. We provide a few brief examples here, as a way to illustrate the types of cases that such methods uncover.

First, as before, we are able to turn up cases of acceptable non-endocentricity, as in example (7), where a PP is headed by a verb. We also find more subtle cases where the annotators had difficulty in deciding what type of phrase a sequence should be categorized as. For example, we find nominal constructions functioning adverbially, as in (8), with ADVPs apparently headed by nominals, apparent violations of endocentricity whose annotation is not entirely clear. Finally, we find inconsistent treatment of undocumented constructions, for instance, *due to* phrases.

- (7) [<sub>PP</sub> not/RB including/VBG [<sub>NP</sub> the Soviet Union]]
- (8) a. [<sub>ADVP</sub> way/NN sky/RB] high
- b. [<sub>ADVP</sub> [<sub>NP</sub> a week] ago/RB [<sub>NP</sub> Friday]]

## 4 Dissimilarity

Using equivalence classes allows us to compare the similarity of rules, but looking at the comparability of treebank rules has a broader effect. So far, equivalence classes provide a way to talk about rule similarity; the other side is to talk about rule dissimilarity. Equivalence classes can be used to provide support for the validity of a rule: the more rules that are within a class, the more evidence that the annotation scheme legitimately licenses that sequence.

Or, to view this from the opposite direction, a rule which does not have any equivalents in the grammar is more likely to be covering a non-linguistic construction. This is indeed worth investigating, as 2141 of the 3783 equivalence classes in the WSJ have only one unique daughters list. Consider an example like (9): here, the daughters list RB TO JJ NNS has no similar rules in the treebank, and it indeed is erroneous (Bies et al., 1995, p. 179).

(9) [NP close/RB to/TO wholesale/JJ prices/NNS]

From a random sample of 100 of the 2141 unique rules, we find that 39 of them are errors. Thus, we estimate 835 errors, with a 95% confidence interval of 630 to 1040 errors. Additionally, we find four rules which cover ungrammatical sentences.<sup>2</sup>

This 39% precision is rather low, but recall that we essentially get these dissimilar cases for free, in that the same notion of similarity is used here as in the endocentricity-based method. Furthermore, as we will see below, there are interesting reasons other than errors for rules being anomalous.

Additionally, we can identify a subset of cases which is more likely to contain errors. The notion of dissimilarity is based on the notion that daughters lists can and should vary (e.g., by having more or less adjuncts), but this is not always the case. Some rules correctly allow for no fluctuation; for example, the rule NP → EX for the existential use of *there* (with 1075 occurrences) cannot be modified in any way. It turns out that 777 of the 2141 unique rules map to themselves; that is, nothing was changed in creating the equivalence class. But the other 1364 rules did change, more strongly indicating that they could potentially fluctuate: they map to something that could have been comparable but does not exist in the treebank. Sampling 100 of these 1364 cases turns up 49 errors and 6 rules for ungrammatical sentences. In the future, one could experiment with more carefully identifying daughters lists which are rightfully incomparable to other rules.

We can finally note that the errors we detect overlap very little with the errors detected in the similarity method. Of the 1364 cases, only five have more than one mother. Furthermore, because we are looking at unlikely sequences of daughters, we tend to find more bracketing errors than in the first method. So, even though the methods share the same notion of equivalence, they lead to finding different types of errors because they look for different types of anomalies.

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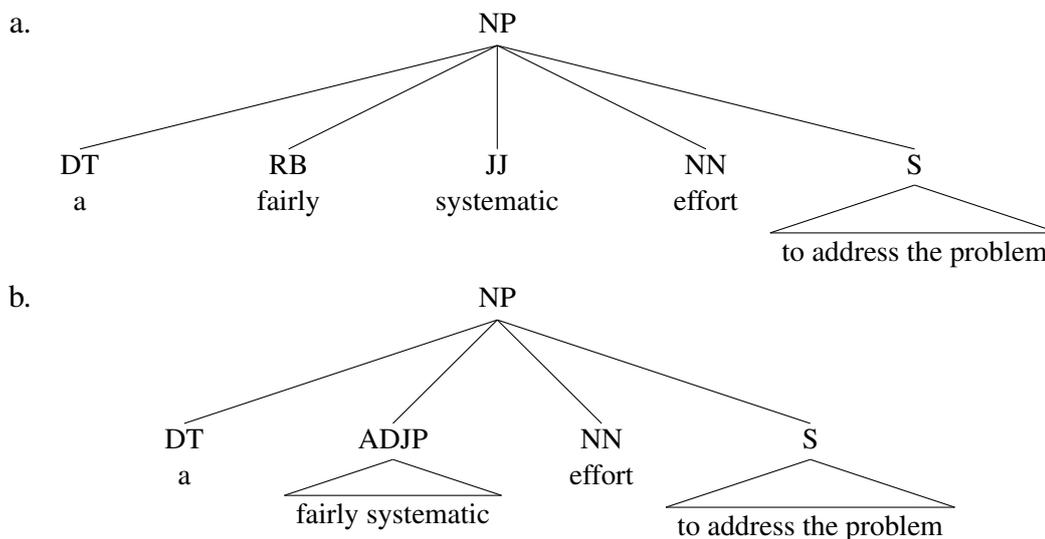
<sup>2</sup>While the term “ungrammatical” can be debatable, we use it in instances where the sentence is simply non-English; see, e.g., Foster (2007) for more discussion of grammaticality and the need to distinguish it in natural language parsing.

## 4.1 Analyzing the cases

To understand what this method does, it is instructive to walk through the different kinds of cases that the method turns up, both for dissimilarities which highlight errors or cover ungrammatical sentences and for those which are correct, as they reveal interesting properties of the annotation scheme. We thus outline the three kinds of cases here.

**Errors** We have established that there are errors in the treebank, but a major question is, why are there errors? As it turns out in this case, one of the major sources of errors is the overapplication of flat structures in the treebank. In the WSJ, many constructions are supposed to be left flat, such as nominal modifiers which are themselves nouns, but this does not apply to all cases. In (10), for example, the RB JJ sequence annotated as in (10a) should be bracketed as an ADJP, as in (10b). We find these cases because the sequence is more anomalous without that extra layer of structure.

(10) there seems \* to be [<sub>NP</sub> a/DT fairly/RB systematic/JJ effort/NN [<sub>S</sub> \* to address the problem]]



Likewise, the dissimilarity method finds categories which appear in the wrong context. In (11), for instance, the category DT (determiner) appears in the daughters list DT ADJP CC PP, which should be CC ADJP CC PP. Finding a DT next to an ADJP is normally not a problem, but given the context of the whole rule (where CC [coordinating conjunction] is present), we are able to detect a misplaced category.

(11) [<sub>UCP</sub> both/DT [<sub>ADJP</sub> prudent] and/CC [<sub>PP</sub> in the best long-term interest of the shareholders]]

Finally, we even detect some non-endocentric structures with the dissimilarity method, as in (12), where the POS (possessive ending) category appears to be heading a VP. The reason we detect these cases is that these are also categories in the wrong context. POS NP SBAR is not a normal sequence, irrespective of its mother category, which in this case does not match.

- (12) It [<sub>VP</sub> 's/**POS** [<sub>NP</sub> that last set of numbers ,] [<sub>S<sub>BAR</sub></sub> as much as anything else , that \*T\* gives the Giants hope in the Series games 0 \*T\* to come]] .

**Ungrammatical constructions** In addition to errors, this method uncovers constructions which are for ungrammatical language, or non-standard English. For example, in (13), we see rules such as QP → RB JJ \$ CD, which are the best analyses given the annotation scheme, but which are clearly for ill-formed constructions (e.g., *as little \$ 3* should be *as little as \$ 3*). Likewise, as shown in (14), there are rules which are used to cover “financialspeak.” In either case, it is not clear that these types of rules should be annotated in the same fashion as grammatical rules.

- (13) a. Now , they 're charging [<sub>QP</sub> as/RB little/JJ \$/\$ 3/CD] \*U\* a day .  
 b. Chemical earnings [<sub>VP</sub> declined/VBD [<sub>PP</sub> by one-third] [<sub>PP</sub> to \$ 120 million \*U\*] [<sub>X</sub> last year 's robust levels]]
- (14) a. [<sub>NP</sub> [<sub>NP</sub> Net income] [<sub>X</sub> \*] :/ : [<sub>NP</sub> \$ 599.9 million \*U\* ; or \$ 20.20 \*U\* a share] ]  
 b. [<sub>FRAG</sub> [<sub>NP</sub> Call] [<sub>PP</sub> at par] [<sub>PP</sub> after two years] and/CC [<sub>ADVP</sub> thereafter] [<sub>PP</sub> at par] [<sub>NP</sub> every six months] ./.]

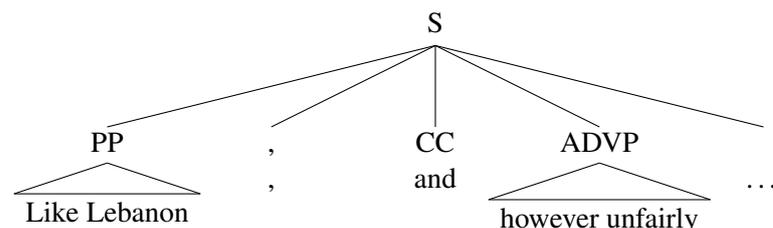
**Annotation scheme & guidelines** Finally, we turn to some correct corpus examples, where the method uncovers properties of the annotation scheme and the guidelines which seems to be reflective of non-uniform practices. For treebanking purposes, this is perhaps the most useful aspect of the dissimilarity method: it reveals properties of the annotation which need to be revisited. We present only a few examples here, although there are more which are discovered.

First, we find issues with the category QP (quantifier phrase), used for complex numerical determiners. According to the guidelines, both *as little as* and ranges of dollar amounts are annotated as flat QPs (Bies et al., 1995, p. 194-202). Crucially, though, there is no guidance on what to do when they are together, and so we find flat QP structures, as in (15).

- (15) [<sub>QP</sub> as/RB little/JJ as/IN \$/\$ 89/CD to/TO \$/\$ 109/CD]

Secondly, we have cases like (16) which arguably contains a parenthetical, namely the string *and however unfairly*. Since parentheticals (PRN) are “determined ultimately by individual annotator intuition” (Bies et al., 1995, p. 50), we cannot say that this analysis is incorrect. We can note, however, that with a parenthetical analysis, the daughters list PP PRN NP VP would reduce to the frequent PP NP VP.

- (16) [<sub>S</sub> [<sub>PP</sub> Like Lebanon] ./, and/CC [<sub>ADVP</sub> however unfairly] ./, [<sub>NP</sub> Israel] [<sub>VP</sub> is regarded \* by the Arab world as a colonial aberration] ./.]



Relatedly, sometimes one analysis is not the absolutely correct one, but only preferred over another analysis. For example, VP gapping is the preferred analysis in some structures, but variability is explicitly allowed for (Bies et al., 1995, p. 125). Thus, we find odd rules such as  $NP \rightarrow NP$ ,  $ADVP RB NN$ , which could also have been analyzed as having a gapped verb.

(17) they do not serve [<sub>NP</sub> [<sub>NP</sub> the people] ,/, and/CC [<sub>ADVP</sub> particularly] not/RB consumers/NN]] .

## 5 Possible extensions

The methods we have described are clearly effective for detecting errors and other anomalous rules in a flat treebank, but they can be generalized for work on this and other treebanks.

### 5.1 Generalizing the search for anomalous rules

We have treated the dissimilarity method essentially as a side effect of the similarity one, using only strict equivalences. The problem is that using strict equivalence misses some generalizations between rules. Consider, for example, the one occurrence of the correct rule in (18).

(18) [<sub>NP</sub> the/DT 100/CD largest/JJS Nasdaq/NNP financial/JJ stocks/NNS ]

While DT CD JJS NNP JJ NNS may be the only daughters list of its kind, i.e., it has no equivalents, we can infer its correctness from similar rules in the treebank. For example, there are three instances of  $NP \rightarrow DT CD JJ NNP NNS$  in the WSJ, which are not strictly equivalent, but which are similar.

Thus, the search for dissimilar rules can be broadened, and this is what is done in Dickinson (2008). Namely, one can search for similar rules by using edit distance between rules; the principle put forth here that rules with few similar rules are the most anomalous is still true. Putting the idea of dissimilarity more directly in the task, one can also examine anomalous subsequences of daughters (e.g., bigrams) to find those which are the most problematic.

### 5.2 Portability

We here also sketch out ways in which the notion of similarity can be broadened to include richer treebank formalisms. The method we have used is based on a simple notion of rule similarity; thus, to apply it to treebanks with relatively flat context-free rules, one need only write a small set of treebank-specific adjunct categories and category mappings. The method faces challenges in extending to other types of treebanks, however, and we outline those challenges here, offering some pointers to solutions.

First, there are treebanks which contain discontinuous constituents, that is, constituents which are not contiguous. In example (19) from the TIGER treebank (Brants et al., 2002),

for instance, the noun phrase *Ein Mann det lacht* ('a man who laughs') is a complete constituent with material intervening.

- (19) **Ein Mann** kommt , **der lacht**  
 a man comes , who laughs  
 'A man who laughs comes.'

We have assumed contiguous context-free rules in our definitions of rule similarity and dissimilarity, as categories are strictly ordered with respect to each other. In this new situation, we need a way to map discontinuous trees to context-free rules. Following work on context-free parsing with discontinuous treebanks (cf. Boyd, 2007), one possible solution is to split each constituent into its component parts. For example, with a split NP, we might have  $S \rightarrow NP-d \text{ VMFIN} , NP-d$  as a rule, where *-d* marks one part of a discontinuous element. This would allow the NP elements to be compared with other NPs, while at the same time not making any assumptions about free word order.

Secondly, there are treebanks, which employ less flat structures, often only binary-branching trees (e.g., CCGbank (Hockenmaier and Steedman, 2007)). Obviously, this results in much fewer rule possibilities. The question for our method is: what information still highlights inconsistency?

Consider what happens when flat trees are binarized. In (20), for instance, we have an endocentricity violation. Here, it does not matter whether we have binary-branching or flatter trees; the fact that VP is the mother of POS is generally sufficient to indicate a problem. That is to say, endocentricity violations are in principle detectable with binary trees.

- (20) a. It [<sub>VP</sub> 's/**POS** [<sub>NP</sub> ... ] [<sub>SBAR</sub> ... ]]  
 b. It [<sub>VP</sub> 's/**POS** [<sub>NP</sub> [<sub>NP</sub> ... ] [<sub>SBAR</sub>] ... ]]

Consider now how we would detect the overapplication of a flat structure, as shown in (21). To detect that RB JJ in (21b) should be ADJP, we either need to move beyond local trees, or we somehow need to flatten them. It seems that we need to examine trees which contain only maximal projections (e.g., NP in (21b)) and pre-terminal categories (e.g., RB, JJ, NN), skipping over intermediate levels.

- (21) a. [<sub>NP</sub> a/DT fairly/**RB** systematic/**JJ** effort/NN ... ]  
 b. [<sub>NP</sub> a/DT [<sub>N'</sub> fairly/**RB** [<sub>N'</sub> systematic/**JJ** [<sub>N'</sub> effort/NN [<sub>SBAR</sub> ... ] ]]]]

Finally, we can consider richer linguistic annotation, such as treebanks with head-driven phrase grammar (HPSG) and lexical-functional grammar (LFG) annotation, such as the kind used to convert treebanks into more deeply annotated resources (e.g., Miyao et al., 2004; O'Donovan et al., 2005). As the conversion process typically involves hand-written grammatical constraints, these treebanks can be expected to have a greater amount of consistency.

But the question remains: since nonterminal elements are now complex bundles of features instead of a simple category, how does one compare rules in this context? For our methods, the main questions to answer are: which features of the daughters predict the mother's category, and which sequences can be seen to be anomalous? For

example, in an HPSG feature structure, one would likely want to use the value of the `SYNSEM|LOC|CAT|HEAD` path to determine the POS or category of each unit.

In this context, we can note that a potential benefit of our method is that it can assist in preprocessing of treebanks. That is, we can detect structures which lead to a failure of “grammar acquisition” (Miyao et al., 2004), and this requires very little work in extracting problematic constructions.

## 6 Summary and Outlook

We have shown how one can use basic linguistic abstractions to group treebank rules into equivalence classes. These equivalence classes of rules can be used, in the first place, to assist in detecting non-endocentric structures, by finding classes of rules which should have the same mother category, and, in the second place, to detect anomalous structures by finding rules which do not fit into an equivalence class with any other rules. This is done by using only a few simple, highly precise properties that maintain the predictive information of the daughters.

There are a variety of ways in which this work can be taken in the future. First, to validate the methods further, it needs to be applied to other treebanks and languages. Elucidating which properties of a treebank are predictive can provide further insights into general grammar compaction methods. In particular, applying equivalence mappings to treebanks with discontinuous and binary-branching representations (see section 5.2) will further the connections between flat context-free representations and other formalisms employing approximately the same amount of category information, but with different structural requirements.

Finally, one can use the insights of equivalence classes to explore regularities in the grammar. This could take the form of adding latent annotation (cf., e.g., Petrov et al., 2006) to subclasses of rules which have much in common, or this could involve generalizing the treebank grammar to predict new rules which did appear in the original data set.

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# Linearization of Syntactic Dependency Graphs in terms of Traversal Algorithms

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## Abstract

Assuming dependency graphs as syntactic representations instead of phrase structure trees, this study attempts to derive the major word orders, SVO, SOV and VOS, via the set of three tree traversal algorithms common in graph theory and computer science, and to explain their correlations with some of the syntactic differences: (i) clause-internal scrambling in V-peripheral languages and its absence in SVO languages, (ii) obligatory *wh*-movement in SVO languages and its absence in V-peripheral languages; and (iii) pseudo-cleft *wh*-questions in V-initial languages besides in-situ *wh*-phrases. The proposed word order parameter is three-valued in contrast to the more familiar two-valued one, offering finer distinctions between SVO and VSO languages, which are both head-initial.

**Keywords:** Dependency Graph, Traversal Algorithms, Scrambling, *Wh*-movement, Word Order

## 1. Dependency Graphs with Bound Morphemes as Independent Nodes

We can identify two kinds of syntactic representations in the current theories of syntax: phrase structure tree adopted in Chomsky (1957) and subsequent work, and dependency tree employed under various frameworks (e.g., Hudson (1984), Mel'čuk (1988), Debusmann & Kuhlmann (2008), and Joshi (1985)). Formally, they are both trees, with a root node dominating all the other nodes and each non-root being immediately dominated by exactly one node (see Diestel 1997). Their PF interpretations, however, are totally different; only the terminal nodes of a phrase structure tree are pronounced, whereas every node is relevant to PF interpretation in a dependency tree. The contrast is illustrated by a pair of subtrees in (1a,b).



(1a) is a phrase structure of the generative tradition. Its non-terminal nodes are not pronounced, whether they are reanalyzed according to the bare phrase structure theory of Chomsky (1995) or not. On the other hand, the two nodes of the dependency tree in (1b) are to be pronounced.

Another related difference is that a phrase structure tree like (1a), if the order of sister nodes is specified by phrase structure rules or a particular value of the head parameter, is mapped into a single word ordering via a very simple algorithm: pronouncing the terminal nodes from left to right. A dependency tree like (1b), in contrast, is not associated with any self-evident ordering algorithm. In fact, drawing on the idea in Gazdar et al. (1985), a dependency tree is decomposed into two parts: immediate domination (ID) and linear precedence (LP) trees. Of course, their correspondence should not be totally free, and a number of formal constraints have been proposed such as projectivity and nestedness.<sup>i</sup>

A tree is a kind of data structure and its properties have been extensively studied in graph theory and computer science, where several algorithms have been formulated and used widely to traverse all the nodes. The left-to-right PF interpretation mentioned above appears to be taken for granted among linguists, but it has almost no resemblance to the common traversal algorithms on trees. Following Yasui (2003, 2004), I will adopt one set of standard graph-theoretic traversal algorithms and apply them to dependency-based syntactic representations.<sup>ii</sup> The key syntactic assumption taken from the generative tradition is that tenses, which are bound morphemes in many languages, constitute independent syntactic nodes. This is not adopted in most dependency-based studies and explicitly denied by Hudson (1984) and Sugiyama & Hudson (2006). I will show that the morphological properties of tenses and other bound morphemes in a dependency structure are crucial in causing displaced phenomena in its PF realization, which include scrambling, *wh*-movement and verb-second.

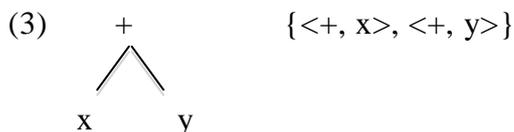
## 2. A Dependency Graph and its Traversals

An infix arithmetic expression like (2a) has the prefix and postfix variants in

(2b,c).

- (2) a. x+y
- b. +xy
- c. xy+

(2a-c) can be associated with the single hierarchical structure in (3), where the operator + immediately dominates its operands.



The graphical configuration in (3) can be defined by the set of two edges or ordered pairs on its right; the set-theoretic notation will be adopted below. (2a-c) can be derived from (3) in terms of the well-known recursive algorithms on trees, i.e., by starting a depth-first traversal from the root and pronouncing each node between, before, and after visiting its child nodes, respectively (cf. Knuth (1997:318-320)). They are called inorder, preorder, and postorder traversals. If the right child is traversed before its left child, the three more orderings given in (4a-c) are obtained.

- (4) a. y+x
- b. +yx
- c. yx+

(2a-c) and (4a-c) have the same value if '+' is taken as addition.

It is reasonable to extend this line of analysis to word order variation found in natural languages exemplified in (5a-c).

- (5) a. He scolded her.
- b. *Kare-ga kanozyo-o sikatta.*  
      he-NOM she-ACC scolded  
      'He scolded her.'
- c. *Ha-fahan si Maria i bistidu-ña gi tenda.*  
      3S-buy Maria the dress-3S LOC store  
      'Maria bought her dress at the sore.' (Chung 1990: 562)

The inorder and postorder traversal algorithms mentioned above derive (5a, b) from the common dependency structure defined in (6), which is given in English for ease of illustration.

- (6) {<scolded, he>, <scolded, her>}

(5c) can be derived analogously with irrelevant details set aside. As in (4), the child nodes of the verb are commutative in Japanese and Chamorro but are not in English.

- (7) a. \*Her scolded he.



The local syntactic relations listed above are directional; (8) defines a directed graph with the matrix tense as its root. It is, however, not a tree since the subject is directly governed by more than one element (i.e., the tense and the verb). The standard traversal algorithms take trees as inputs but also work properly with rooted acyclic directed graphs like (8) if formulated as in (9):

- (9) Given a node A in a graph G *and A has not been pronounced*,
- i. traverse A's child 2,
  - ii. pronounce A, and
  - iii. traverse A's child 1.<sup>vii</sup>

The order of the three components in (9) is inorder; the preorder and postorder traversals are (ii)-(i)-(iii), and (i)-(iii)-(ii), respectively. The italicized proviso prevents a doubly-connected node from being pronounced twice.

The inorder, postorder and preorder traversals of (8) yield (10a-c), where child 2 is traversed before child 1.

- (10) Child 2 of [past] and child 2 of *scold* traversed first
- a. INORDER: [past]-he-[past]-scold-(he)-scold-her-scold-[past]  
=> he [past] scold her (SVO)
  - b. POSTORDER: [past]-he-[past]-scold-(he)-scold-her-scold-[past]  
=> he her scold [past] (SOV)
  - c. PREORDER: [past]-he-[past]-scold-(he)-scold-her-scold-[past]  
=> \*[past] he scold her

Each node is to be pronounced where it is underlined in (10a-c); the occurrence of *he* after it has been pronounced is parenthesized. The resultant sequences are given after the arrows. If we make a reasonable assumption that a tense morpheme must be adjacent to the verb it is affixed to in the output of traversal, (10a,b) satisfy it but (10c) does not. The output of (10c) is asterisked in this sense.

If traversals are relaxed so as to let either child be traversed first at the two branching nodes, three more sets of outputs are obtained.

- (11) Child 1 of [past] and child 2 of *scold* traversed first
- a. INORDER: [past]-scold-he-scold-her-scold-[past]-(he)-[past]  
=> \*he scold her [past]
  - b. POSTORDER: [past]-scold-he-scold-her-scold-[past]-(he)-[past]  
=> he her scold [past] (SOV)
  - c. PREORDER: [past]-scold-he-scold-her-scold-[past]-(he)-[past]  
=> [past] scold he her (VSO)

- (12) Child 1 of [past] and child 1 of *scold* traversed first

- a. INORDER: [past]-scold-her-scold-he-scold-[past]-(he)-[past]  
=> \*her scold he [past]
- b. POSTORDER: [past]-scold-her-scold-he-scold-[past]-(he)-[past]  
=> her he scold [past] (OSV)
- c. PREORDER: [past]-scold-her-scold-he-scold-[past]-(he)-[past]  
=> [past] scold her he (VOS)

(13) Child 2 of [past] and child 1 of *scold* traversed first

- a. INORDER: [past]-he-[past]-scold-her-scold-(he)-scold-[past]  
=> \*he [past] her scold
- b. POSTORDER: [past]-he-[past]-scold-her-scold-(he)-scold-[past]  
=> he her scold [past] (SOV)
- c. PREORDER: [past]-he-[past]-scold-her-scold-(he)-scold-[past]  
=> \*[past] he scold her

The asterisked outputs in (10)-(13) violate the verb-tense adjacency. Note, first, that all the four outputs of postorder traversal satisfy the condition, resulting in SOV and OSV. In postorder traversals, heads are pronounced after all their child nodes regardless of which child is traversed first; so they appear adjacent to each other in clause-final position. As for inorder traversal, of the four outputs, only (10a) is allowed, which yields SVO.<sup>viii</sup> In this way, the present theory predicts the correlation between the possibility of clause-internal scrambling and the position of heads in SOV and SVO languages, which is confirmed by data from Japanese and English

Of the four outputs of preorder traversal, (11c) and (12c) are morphologically well-formed, yielding VSO and VOS. Thus, with respect to the S-O reversal, Chamorro is correctly predicted to behave on a par with postorder languages rather than inorder languages. On closer examination, however, preorder traversals are more restricted than postorder traversals. In particular, while the postorder traversal of (8) can visit either child of the root first, the preorder traversal necessarily chooses the edge between the tense and the verb, skipping the other edge with the subject; otherwise, the verb-tense adjacency would be disrupted. Suppose that a given word order counts as basic or unmarked if derived by a consistent traversal: either child is given priority throughout. Then, the basic order obtained in inorder is SVO, with each node traversed as in (10a), whereas the preorder traversal should proceed as in (12c), in which child 1 is traversed first and VOS results. This accords with the observation that V-initial languages like Malagasy and Palauan, unlike Chamorro, have the rigid VOS order, though the syntactic status of the so-

called ‘subject’ has attracted much controversy (see Chung (2005a) and Pearson (2005) among others). I reserve my conclusion on this issue.

#### 4. Moved and In-Situ *Wh*-phrases

##### 4.1 Overt *Wh*-movement in Inorder Languages

The S-V-O order in tensed declarative clauses can be generalized into specifier-head-complement, which subsumes *wh*-movement. It is worth examining how much of its parametric differences can be deducible from the theory advocated here.

First, English moves a *wh*-phrase obligatorily into the specifier of CP, whereas Japanese and Chamorro do not. Take (14) as an example, with its dependency graph defined in (15).

(14) What did John buy?

(15) {<[WH], what, 2>, <[WH], [past], 1>, <[past], John, 2>, <[past], buy, 1>, <buy, John, 2>, <buy, what, 1>}

It has been proved that within the subgraph rooted by a tense, the edges marked with 2 (i.e., specifiers) need to be traversed first in English. Let us suppose that on the CP level headed by [WH], edge 2 is traversed first, which results in (16):

(16) [WH]-what-[WH]-[past]-John-[past]-buy-(John)-buy-(what)-buy-[past]-[WH] ==> what [WH] John [past] buy

Traversing edge 1 first on the CP level yields (17).

(17) [WH]-[past]-John-[past]-buy-(John)-buy-what-buy-[past]-[WH]-(what)-[WH] ==> John [past] buy what [WH]

[WH] is adjacent to *what* in both (16) and (17), but in neither is [WH] adjacent to [past]. Of the two outputs, (16) appears to be the more plausible for (14). As a first approximation, suppose that [WH] needs to be adjacent to a tense just like a verb is. Then, this morphological condition can be met in (16) if [past] moves to COMP followed by *Do*-support, which are well-justified processes.<sup>ix</sup> The traversal output in (17), on the other hand, does not seem to be salvaged by any known syntactic operation. Syntactic *wh*-movement is captured in the present theory as obligatory traversal of the edge between the interrogative marker and the *wh*-phrase. I will assume that this line of analysis can be extended to overt *wh*-movement in other SVO languages as well as the so-called verb second property in Germanic languages.

Note that the subject-auxiliary inversion does not apply if the matrix subject is a *wh*-phrase as in (18), with its dependency graph defined in (19a).

(18) Who brought it?

(19) a. {<[WH], who, 2>, <[WH], [past], 1>, <,[past], who, 2>, <[past], buy, 1>, <buy, who, 2>, <buy, it, 1 >}

b. [WH]-who-[WH]-[past]-(who)-[past]-buy-(who)-buy-it-buy-[past]-[WH]  
 ==> who [WH] [past] buy it

Traversing (19a) in order with child 2 always first will yield (19b), where [WH], [past] and the verb are not interrupted by the initial *wh*-phrase; hence, the inversion is unnecessary. It remains to explain why the inversion is absent entirely in the embedded context. I will assume that selection of [WH] by a higher interrogative predicate somehow remedies its morphologically dependent status.

#### 4.2 *In-situ Wh-phrases in Postorder and Preorder Languages*

Second, Japanese and Korean do not obligatorily front a *wh*-phrase. For instance, Japanese allows the two orderings corresponding to (14).

(20) a. *John-ga nani-o kaw-ta ka/no?*

NOM what-ACC buy-PAST Q

b. *Nani-o John-ga kaw-ta ka/no?*

what-ACC NOM buy-PAST Q

'What did John buy?'

Suppose that (20a,b) share the configuration in (15), apart from the phonetic content of each element. It is easy to verify that (20a, b) are obtained in postorder by giving priority to child 1 and child 2 at each branching node, respectively. In either case, the interrogative marker, tense and verb are pronounced clause-finally due to the head-last nature of the postorder traversal. Note that unlike in English, <[WH], what, 2> in (15) can but need not be traversed in Japanese. In this sense, Japanese lacks syntactic *wh*-movement, and (20b) is an instance of clause-internal scrambling discussed in Section 3.

As for V-initial languages, Georgopoulos (1991), Potsdam (2006), and the references cited therein show that quite a few of them allow a *wh*-phrase in situ. Consider the Malagasy example in (21a), which is assumed here to have the configuration defined in (15) apart from irrelevant details.

(21) a. *nividy inona i Bao?*

buy.ACT what Bao

'What did Bao buy?' (Potsdam 2006: 2158 with a slight modification)

- b. [WH]-[past]-buy-what-buy-Bao-buy-[past]-(Bao)-[past]-[WH]-(what)-  
[WH] ==> [WH] [past] buy what Bao

The in-situ ordering is obtained from (15) by consistently giving priority to child 1 as in (21b).

So far, Malagasy apparently behaves on a par with Japanese, which is V-final. If the counterpart of (20b) is considered, some crucial differences arise. If child 2 of the root is traversed first (and the rest is analogous to (21b)), (22) is obtained.

- (22) [WH]-what-[WH]-[past]-buy-(what)-buy-Bao-buy-[past]-(Bao)-[WH]  
==> [WH] what [past] buy Bao

If (22) were to surface, the *wh*-object *inona* in (21a) would simply be fronted. In fact, the construction with the clause-initial *wh*-object should be (23).

- (23) *inona no novidin' i Bao?*  
what PRT buy.PASS Bao

'What was bought by Bao?' (Potsdam 2006: 2159)

While the Japanese scrambled *wh*-question in (20b) does not differ from (20a) apart from the word order, (23) differs from (21a) in two respects: the verbal morphology is changed and the particle *no* is required. Setting aside the first point, much evidence has been offered that (23) is a kind of pseudocleft on a par with (24); both involve the particle *no*.

- (24) *ny mofo [ no novidin-dRasoa ]*  
the bread PRT buy.PASS-Rasoa

'It was the bread that was bought by Rasoa.' (Potsdam 2006: 2169)

The pseudocleft strategy for clause-initial *wh*-phrases and focused phrases is attested in other Austro-onesian languages.<sup>x</sup> It differs from scrambling of a *wh*-phrase in V-final languages and overt *wh*-movement in SVO languages.

Before going into the pseudocleft analysis of (23) in more detail, it should be noted that (22) violates the morphological condition on an interrogative marker tentatively proposed for the English *wh*-question in (14): [WH] needs to be adjacent to the tense. Presumably, the clause-initial position is by far the most salient perceptually in languages of any word order, and it should be able to host a semantically special expression like a *wh*-phrase and topic. English meets this need with its child 2-first in-order traversal, while Japanese employs scrambling permissible in its postorder traversal. I will claim that as (22) is unavailable, Malagasy and some

other Austronesian languages resort to the pseudocleft strategy.

#### 4.3 Clause-initial *Wh*-phrases in Preorder Languages

If (23) is a kind of pseudocleft, the verb is part of the headless relative rather than the matrix element. In other words, (23) lacks a matrix tense and a copula just as predicative constructions like (25a-c).

- (25) a. [NP *vorona ratsy feo*] *ny goaika*.  
bird bad voice the crow  
'The crow is a bird with an ugly voice.'
- b. [AP *faly amin' ny zanany*] *Rasoa*.  
proud PREP the child.3SG Raso 'Raso is proud of her children.'
- c. [PP *any an-tsenà*] *aho*.  
PREP ACC-market 1SG.NOM 'I am at the market.'

(Potsdam 2006: 2157)

Predicative constructions without a finite copula are not uncommon in natural languages. Then, it is necessary to reconsider the morphological conditions on a tense and an interrogative marker assumed for English.

If a clause contains a bound tense morpheme, it must be affixed on some appropriate free morpheme: a verbal in English and an adjective as well in Japanese, for instance. If a language allows a tenseless clause, the adjacency condition is vacuously satisfied.

As for an interrogative marker, Chung's (1991) clausal typing theory crucially depends on the assumption that languages like English lack it; they are forced to front a *wh*-phrase to type a clause as interrogative. In contrast, I have been assuming that an interrogative marker exists in all questions, including a covert one in English. Languages with overt *wh*-movement typically exhibit the verb-second property, which I have claimed to be deducible from the adjacency condition between a phonetically empty interrogative marker and a tense. I thus need to claim that tenseless questions like (23) contain a phonetically empty interrogative marker. Since (23) is well-formed, the abstract interrogative marker should be morphologically innocuous without the presence of tense.

Note that the interrogative marker *ka* in Japanese can follow not only verbs and adjectives but also nouns and prepositions in their predicative usages:

- (26) *Kore-wa nani ka/dare-kara ka?*  
this-TOP what Q who from Q

'What is this/Who is this from?'

(26) are tenseless clauses with the *wh*-phrases in situ. If Malagasy is strictly head-initial, (23) can be analyzed as containing the abstract interrogative marker initially as the head of the entire sentence, followed by the *wh*-phrase in-situ, which, as Potsdam (2006) and others argue, is the focus predicate of a pseudocleft, with the *no*-marked constituent as the complex subject. This is an instance of the unmarked head-initial order and is the mirror image of the head-final Japanese word order: subject-predicate-*ka*.

If an interrogative bound morpheme in general needs to attach to a predicative constituent rather than a tense, the morphological condition on the English abstract interrogative marker proposed earlier should be revised accordingly; it should be adjacent to a predicate in the matrix context, which is a constituent headed by a finite verbal element including the copula *be*.

In summary, to place a semantically special expression like a *wh*-phrase clause-initially, natural languages employ different strategies depending on their basic word order or traversal mode: overt *wh*-movement as an instance of in-order traversal, clause-internal scrambling inherently available in postorder traversal, and the pseudocleft strategy in pre-order languages.

#### 4.4 *In-situ Wh-phrases in Chinese and Indonesian*

Potential counterexamples to the present theory in favor of Chung's (1991) clausal typing theory are Chinese and Indonesian, which are SVO like English but allow a *wh*-phrase in-situ like Japanese. As is well-known, Chinese is head-final in N projections. If the interrogative marker is under C, as Chung (1991: 26) and others assume, C projections are also head-final at least on the surface level. Some Germanic languages are mixed as to the position of head across categories. Then, it is necessary to specify the mode of traversal for each category in these languages rather than for an entire language once. Any typological study would be burdened with this much of complication. If Chinese is head-final within C projections, its in-situ strategy for *wh*-phrases is not surprising.

As for Indonesian, Chung (1991) analyzes in-situ and fronted *wh*-phrases on a par with those in other V-initial Austronesian languages like Palauan. Moreover, Cole et al. (2005) argue that the clause-initial 'subject' in verbal sentences of Standard Indonesian is like the clause-final 'subject' in other Austronesian languages in disallowing a *wh*-phrase; a pseudocleft construction needs to be adopted instead. If

Indonesian exhibits typical syntactic properties as V-initial languages, one possibility in my theory is to claim that its surface SVO order derives from some V-initial structure. In fact, the Indonesian existential construction with the verb *ada* is V-initial. As for *apa(kah)*, which marks yes/no questions in Indonesian, it is clearly a free morpheme, and its presence in clause-initial position is not problematic (see Sneddon (1996)). Needless to say, much is to be worked out especially on what is often referred to as subject in Indonesian as well as in V-initial languages.

## 5. Two-valued and Three-valued Parameters on Word Order

My approach is quite similar to Fukui (1993), Saito & Fukui (1998) and Haider & Rosengren (2003) in that it rests on the correlation between the position of head and word order freedom. They share the idea that scrambling is possible if its output accords with the head parameter value of a language in question; for example, Japanese allows leftward scrambling since it does not disturb its right-headed or head-final structure, while the opposite holds in English. I will concentrate on Fukui (1993) as it mentions V-initial languages while the other two do not. He cites Chamorro data as examples of rightward scrambling in a V-initial language in parallel with leftward scrambling in Japanese, which is V-final. If Palauan and Malagasy are strictly VOS as mentioned in Section 3, however, they do not straightforwardly fit into Fukui's theory. As for leftward movement to the other side of V, V-initial languages are predicted to behave on a par with SVO languages. If the pseudocleft analysis of clause-initial *wh*-phrases in the former is correct, it is totally different from overt *wh*-movement in the latter.

Moreover, Fukui (1993) mentions extraposition and heavy NP shift as instances of rightward scrambling in English.

(27) a. I read a review  $t_i$  last week [of John's book]<sub>i</sub>. (Fukui 1993: 410)

b. They brought  $t_i$  into my room [the beautiful pink dress]<sub>i</sub>.

Constituents to be moved rightward need to be heavy; so (28a, b) are not acceptable.

(28) a. ?\*I read a review  $t_i$  last week [of it]<sub>i</sub>.

b. ?\*They brought  $t_i$  into my room [that]<sub>i</sub>.

The heaviness does not govern leftward scrambling in Japanese or rightward scrambling in Chamorro. Fukui and the other two studies mentioned above assume a familiar two-valued head parameter. The differences exemplified in (28) and initial *wh*-phrases would favor the present approach with a three-valued parameter.

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<sup>i</sup> According to Debusmann & Kuhlmann (2008) and others, projectivity disallows discontinuous dependency, and nestedness forbids cross-serial dependency. Since discontinuous dependency is amply attested, while cross-serial dependency is rare, projectivity needs to be relaxed but in a restricted manner, by limiting the number of discontinuities in a subtree. The mainstream dependency-based studies focus on mathematical aspects of dependency trees and pay little interest to parametric differences as to word order. Specifically, ID and LP trees are integrated into order-annotated trees to which tree traversal algorithms are applied but for purposes totally different from mine.

<sup>ii</sup> Kural (2005) adopts the same traversal algorithms but apply them to standard tree notations, whereby only terminal nodes are PF-interpreted. Brody (2000) adopts a dependency-like structure to derive the linear order of tense, light verb and main verb but his motivation is quite different from mine.

<sup>iii</sup> It follows from the present theory that long-distance scrambling should be treated differently. This conclusion is supported by data involving A-binding, but I will not go any further here.

<sup>iv</sup> Quite a few researchers claim to derive some instances of V-initial order from SVO, adopting Kayne's (1994) LCA.

<sup>v</sup> Layered structures proposed by Hale and Kayser (1993) and others can be adopted here, but the choice does not affect the overall argument in this paper.

<sup>vi</sup> If each directed edge is expressed as an (annotated) ordered pair, and such pairs are stacked as the structure is built up, the priority of specifier over complement corresponds to the last-in first-out mode in all the three word order types. See Fukui and Takano (1998) for a related but distinct approach.

<sup>vii</sup> Given a set of ordered triplet of the form  $\langle x, y, n \rangle$  (i.e., the edge  $x$ - $y$  with the annotation  $n$  on it), to traverse  $A$ 's child 2 is to find a node in the second slot of the triplet where  $x=A$  and  $n=2$ , and go on to another triplet with the obtained node in its first slot.

<sup>viii</sup> English modal auxiliaries are often assumed to be base-generated under  $T$ . I assume that the existence of bound tense morpheme as an independent syntactic node limits their traversal choice to be consistently child 2-first.

<sup>ix</sup> Head movement can be defined as an operation on graphs called edge contraction

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(Diestel 1997: 16).

<sup>x</sup> Clause-initial *wh*-phrases in Chamorro can be analysed analogously, but see Chung (2005b).

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# Geographic Information Systems (GIS) in Linguistic Research. Studies, Data and Future Perspectives

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## Abstract

In the context of worldwide efforts to document endangered languages (Aristar Dry 2002, Crystal 2002), we discuss Language GIS, a possible corner-stone methodology for future language studies and the management and coordination of documentation and preservation projects. We will give a panoramic of possible applications, and focus on the problem of the nature and availability of data for Language GIS. We show how computational linguistics can contribute to the development of Language GIS. The newly developed technology and resources should be reinvested into the support of documentation and preservation projects.

**Keywords:** GIS, Language death, documentation, computational linguistics, language mapping

## 1. Introduction to GIS

GIS (Geographic Information System) is software to capture, store, manage and analyze structured data that consist mainly of geographically referenced information. With GIS, for example, one can assign a measure of elevation (the *geospatial information*) to the points of the earth (the *geospatial references*). This elevation model, then, can be mathematically processed or visualized dynamically in maps.

The exploration of a scientific question with GIS begins usually with the inspection of maps generated from the data. A researcher might, for example, add different information layers, each of them describing the flora and fauna of the region onto the elevation model and observe possible interdependences. Does the habitat of an animal depend on the height or the plants or other animals living in that region? How strong are the border lines of habitats and do animals cut across the border lines?

If an observation fits into a scientific framework, the generality of the observation can be tested statistically, using the formal data in the GIS. The data view might, for example, suggest that carnivorous animals cut more easily across habitats, this could be tested not only for the region observed, but for all available data, potentially all known animals of the globe. GIS, like a coin, has two sides. One can look at the data through maps for inspection and process the raw data for testing. It is this double possibility that makes GIS an epistemologically sound and mighty research tool.

## 2. From GIS to Language GIS

### 2.1. From Language to Space

In terms of a linguist, with GIS, one creates and manages a corpus of data that can be used for developing and testing spatial theories (Wright et. al 1997) or theories that rely on data that can be stitched together through spatial and temporal references. Lan-

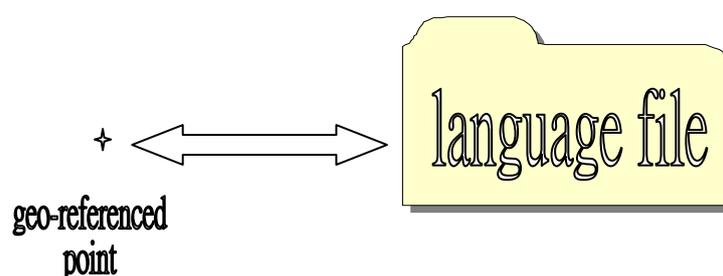
guage data might be thought of being of both types, either directly or indirectly linked to space. But any closer inspection will reveal that space and languages are always indirectly linked, mediated at least through time and the activities of the speaker community

Working on the spatial distribution of whistled languages (Gartner & Streiter 2006, 2007), one would explore the hypothesized link between features of languages, e.g. to be whistled, and spatial features, e.g. to be rough and remote, as suggested in literature. But one cannot understand the origin of whistled languages without reference to the activity of people, e.g. shepherding for El Silbo (Classe 1957) and hunting for Mura Pirahã (Everett 2005). In addition, the whistling of Pirahã might come from a time when the Pirahãs lived in more mountainous regions (c.f. Morris 2007). Time, like the activity are thus an almost indispensable features for language mapping.

The grammaticalization of notions like 'uphill' and 'downhill' (Brown & Levinson 1993) is conditioned by the physical features of the environment and relevant activities in that environment like climbing or descending. Inherent links between a language as such and space do thus not exist, while the tuple language, time and activity might be meaningfully mapped onto space.

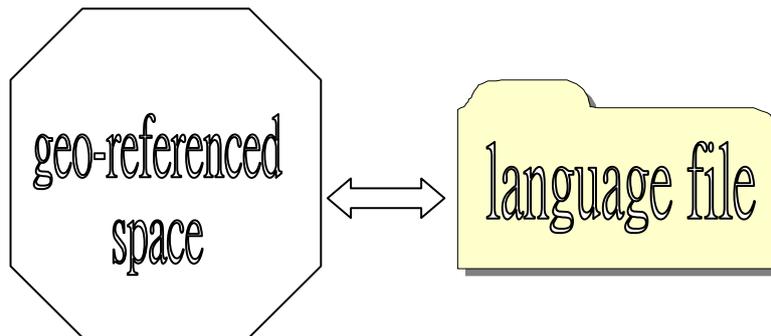
## 2.2. Language Mapping

Language Mapping refers to the modelling of a relation between language related features and geospatial references, as well as compiling data into the model. What characterizes different approaches to language mapping is the way that language features, including language names, are linked directly or indirectly to different types of mathematically defined regions. Technically, languages can be mapped to a point, a line or a polygon. Using a point to map a language, one might take, e.g. for the language French, the centre of Paris as localization, c.f. Figure 1. This model, as everyone understands, might be interesting for a Martian. For a linguist it is only sub-optimal.



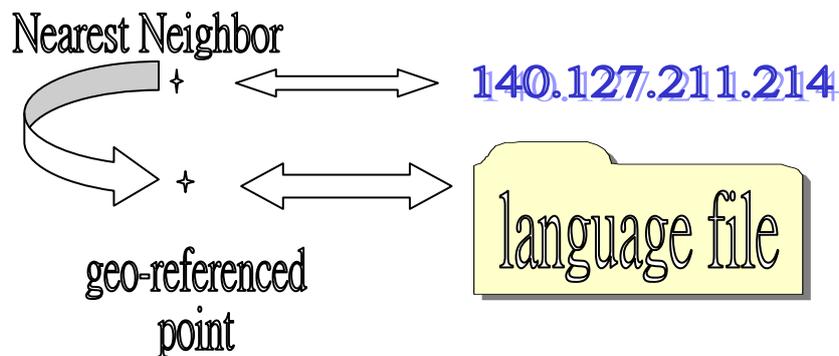
**Figure 1:** *Point-based, direct language mapping: A folder of language-related data is mapped directly onto a point in space and time.*

Lines can be used to represent, for example, migration paths of language communities, or to represent derived, hypothesized language data, such as isoglosses. Most widely used is the polygon and, in the case of French, a multi-polygon. Since a point might always be calculated from the polygon, e.g. in PostGIS as 'update language set gps\_point=centroid(gps\_polygone)', the polygon mapping is to be preferred over the point representation.



**Figure 2:** Polygon based, direct language mapping: A folder of language-related data is mapped onto space and time. A simplified and suboptimal model.

Actually one might find applications where the direct mapping as point or polygon might seem sufficient. The point method, for example, might seem sufficient if one want to map the IP of a web-client to its geospatial references and these to the nearest language, to generate automatically a web-site in the clients language, cf. Figure 3. The polygon might be sufficient for drawing automatically webs, provided that there are reasonably clear border lines.

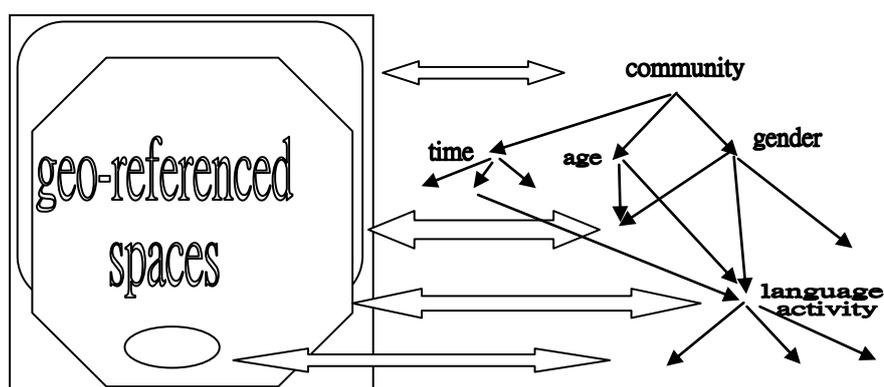


**Figure 3:** Point-based, direct language mapping, a possible application: Mapping IP-addresses to languages files.

Both methods, however, more often than not, map to irrelevant spaces in plain nature or to places where other languages are spoken instead of or in addition to the indicated language. In addition, all types of direct language mapping can quite easily be abused for ideologies, as the relation between language and space is not represented as mediated by time, activities, sub-populations etc, but as somehow supernaturally been given.

Instead, using a community as a basic unit, as suggested by Dahl and Veselinova (2006), one might obtain much richer, more precise and more relevant data. In addition, we suggest that a community can be modelled in the form of a lattice where sub-branches describe gender, activities, age, professions or other factors. These communities can be mapped through time onto a space in the form of a polygon. Nomadic groups, for example, that have different pastures in different times of the year might be mapped

onto different space in time. The hunters of a community are mapped for the time of hunting to another space than the non-hunting part of the community. The tuple of community or sub-community defined through age, activity, gender etc., the place and the time can than be mapped through language activities like ‘reading Arabic’, or ‘writing Mongolian with Cyrillic characters’ onto space and time. As this model is fully functional even if partially underspecified in the absence of data, it is not more difficult to implement and enrich with data. Actually, census data can be easily converted in to a basic language maps if the locations of the communities have been geo-referenced. E.g. for Taiwan, cities and villages are mapped in National Statistics, Republic of China (Taiwan), <http://eng.stat.gov.tw> (2008.10.14). The provided data, available also through XNLRDF map ethnic groups onto cities and villages. Using known percentages of language skill of ethnic groups might be sufficient to create a first model that can be refined step by step, as long as interpolated values are distinguished from hard data.



**Figure 4:** Polygon based, language mapping through communities and language activities.

The benefits of this approach are obvious. Maps can be drawn for different sub-groups or different times of the day or the year. The encounter of language communities can be described or predicted through space and time. Not languages are mapped but language activities, giving a much richer image of the state of a language.

For this model or any other model for language mapping, common standards, however, are crucial, e.g. for the naming of languages, ethnicities, localities, writing systems, language activities or religions. In addition, such standards have to be built on consensus and be publicly available so that data can be mapped. We thus hypothesize that the understanding of the importance of common standards and data sharing, which matured in computational linguistics over many years, will help Language GIS from the ground. Our personal contribution in this light is the development of unambiguous mappings among names of languages, scripts, writing standards, orthographies, ethnicities or other social groups, religions, localities and practices in the framework of XNLRDF. Unambiguous naming is achieved at the cost of longer, sometimes arbitrary names, such as 'Eton (Vanuatu)', 'Eton (Cameroon)', 'Eton (Berkshire)', 'Eton (Georgia, U.S. State)'.

### 2.3. *Obstacles to Language GIS*

Although GIS has become a standard tool in many areas such as conflict management, biology, archeology, the management of heritage sites, journalism and economy, language related research has, with a few noticeable exceptions, yet failed to grasp the implications of this technology, although discussed in linguistic literature already in Williams (1996). As early as 1990, the Linguasphere Project, cited in Williams (1996), tried to map the languages of the world, but the data have not been made available to the community and are probably lost.<sup>1</sup>

A few language studies have since then made use of the map-drawing facility of GIS, e.g. for the creation of language atlases (Crissman 2002) or the mapping of linguistic bibliographic entries (Blundell et al. 2007). GIS has also been used in Language Archiving Projects, e.g. the Formosan Language Archive, for browsing and as a source of meta-data for lexical entries, grammatical structures, language distribution etc. (Weng et al. 2003). GIS has also been used to understand linguistic, cultural and biological diversity on the globe, c.f. (Maffi 2005).

In a maybe first systematic investigation of language mapping for GIS (Dahl & Veselinova, 2006), the question how languages can be linked to geospatial and temporal references is raised. Dahl and Veselinova examine the suitability of the traditional polygon-based, direct language mapping, where a certain space is directly linked to a language. According to the authors, this model is suboptimal, especially for smaller languages, languages in multilingual regions and languages occurring in more than one place (Dahl & Veselinova, 2006). A language name is thus a suboptimal geospatial information to be linked to a geospatial reference. As suggested above, language activities of sub-communities are more informative and maybe less ideological.

Very recently, the need of systematic investigations of Language GIS seems to have been recognized as it is apparent from the set-up of the LL-Map project (<http://www.llmap.org>) and of the Colloquium on Geography and GIS in Language Documentation, scheduled to take place at the University of Hawai'i on March 12-14, 2009.

In spite of these promising steps in Language GIS, it is worth to look at the reasons why linguists have ignored GIS for 20 years. The first reason might related to the research paradigm. Under the influence of generative linguistics many linguists turned away from the study of languages as social phenomenon to a functional study of the human genome. Ignoring GIS helps to stabilize this paradigm that stresses unity instead of diversity. The point-based or polygon-based direct mapping of languages, as used for example in typological studies as in (Haspelmath et al. 2005, 2008), can be seen as minimal commitment to language as a social phenomenon and the variations that result from that.

Another aspect adding to the cold reception of GIS as linguistic tool by linguists might have been the limited acquaintance with now omnipresent technologies like Internet, GPS and XML. But even for those eager to try GIS for language studies, there have been and still are a number of obstacles. First, there is the lack of available data, in addition the linguistic information needed might not be available and the mapping might be suboptimal. Therefore data have to be created before research can start. This however is more a psychological argument than a principled argument, as corpus linguists neither wait for corpora to be sent from heaven. Instead they develop corpora, together with

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<sup>1</sup> For a discussion about the relation of sharing and preserving data cf. (Streiter, Scannell & Stuflesser 2006).

guidelines of how corpora have to be constructed. In the same line, we have to recognize that proposing models of how languages are mapped to space and time and how such data can be obtained is a linguistic question that merits time and support. Once this space is academically and institutionally granted, the development of data for Language GIS may start.

Second, GIS technology is conceptually and technically more complex than, for example, concordancers. Thus, small projects are less likely to engage in Language GIS. Instead, Language GIS will be started most likely by heterogeneous teams of linguists, information scientists and GIS-experts, mediated, possibly, by computational linguists as the latter have the communicative competence to engage with linguists and computational scientist, two groups which sometimes are difficult to bring together.

### **3. Getting Language GIS from the Ground**

We foresee three possible directions that studies in Language GIS might take. We suggest that computational linguists contribute in these three directions to get Language GIS from the ground, gaining at the same time expertise and resources which position computational linguistics in this new field that otherwise might be contested by information scientists, GIS-experts, linguists or corpus linguists. But any of these groups in isolation might not be in state to tackle the complex question of language mapping.

#### *3.1. Language GIS for Linguists*

One branch in the development of Language GIS will use data as they become available by and by to explore their potential for language-related research. We have argued elsewhere (Streiter 2007), that Language GIS-based studies are scientifically sound through the double nature of the data. One view on the data consists of automatically drawn maps which either focus on a subset of the available data or, as an alternative, compress data for visualization in a map. Thus data can be seen only distorted, filtered or in a zoom and only these visible data can be used for theory formation. Theory testing then can be done using statistics on the entire data set. As the entire data, luckily, can neither be understood nor memorized by a human brain, the research method, from a statistical point of view, is sound. Computational linguistics could help in the process of setting up tools and resources, contributing with their collaborative esprit, their knowledge of open standards and their computational infrastructure, sharpening the understanding of the potentials, needs and problems in this field. A fundamental problem for the development of Language GIS relates to data.

#### *3.2. Language GIS Data*

The second branch of Language GIS research will be concerned with the creation of Language GIS data, for all parts of the world, for modern and historical languages and for an ever growing set of linguistic features (typological features, socio-linguistic features, features describing writing systems etc). Thus, beside the problem of specifying where a language is spoken, Language GIS might include data showing where languages are written, with which writing system, where a language can be reached through radio or television, how street signs are written, where and how languages are taught etc.

In contrast to many GIS data, e.g. on elevation, crops, natural vegetation, population etc, which are freely or easily available (c.f. Decker 2001), Language GIS data are difficult to get or put into usage. Some Language GIS data are either available under a commercial license which impedes further development, as for example the data published by Global Mapping International (2006). Although one might use these data to offer services over the Internet, the usefulness of the data would be limited to the functions provided in the interface. The LL-Map project sets out to create data for Language GIS, but as data are based on the data provided by Global Mapping International, the question remains how these data can be distributed. All available information on the LL-Map project seems to indicate that only services and no data are made available, e.g. the project states a commitment to “An argument for the web services model” (Max Planck Institute, Leipzig 2007). In addition, the data of Global Mapping International are based on the potentially suboptimal polygon-base direct language mapping, shown in Figure 2. None of the LL-Map relevant documents seems to tackle these problems, c.f. <http://www.lmap.org/>.

The ECAI Pacific Language Mapping Project at the Electronic Cultural Atlas Initiative (<http://ecai.org>) aims at the electronic mapping of the languages of the Pacific, South Asia and Madagascar. Data can be freely downloaded and used. However, due to the way the data have been acquired, the naming of languages is unusual and unclear. Language names overlap, for example, only for a small part with the language names used by Ethnologue (<http://www.ethnologue.com>). In addition, names are distorted by spelling errors or, potentially, OCR. As a consequence, hundreds of languages names have to be manually mapped onto more frequently used and unambiguous language names, a work that is done by the author and made available within the XNLRDF-downloads.<sup>2</sup> A varied set of language data and maps is distributed by Ljuba Veselinova at <http://www.ling.su.se/staff/ljuba/maps.html>.

Overall, a situation in which a few research centres have access to GIS data of languages and just provide other researchers with services or tools that allow accessing the data only through an interface is to be avoided as that would impede the growth of science. Imagine, for example, the huge amount of research that would not have been done if corpora like the Penn Treebank (Marcus et al. 1994) would have been accessible through a Web-based interface only, or if Google would not have made its API for Google Maps or Google Web available. The LL-Map project is thus not well conceived and divides the linguistic community into those who have Language GIS data and those who haven't. An API solution, similar to those offered by Google might allow to compromise between ownership of data and promoting research.

By making available as many Language GIS data as possible, even if incomplete or in a suboptimal model, the interested community might limit the respective advantage of retaining Language GIS data, till the point where retaining and not sharing Language GIS data turns into a disadvantage (cf. Streiter, Scannell & Stuflesser 2006).

As for the involvement of computational linguists, we foresee a situation, similar to corpus linguistics, where computational linguists became more and more involved in the creation of corpora, especially of rich corpora, once the potential of corpora had been realized. GIS-data share with corpora a multi-functional potential and will go a similar way. In addition, GIS data conform to concerns of computational linguists with portability. Data are not encapsulated and not compressed, or at least, encapsulated and

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<sup>2</sup> For more information on XNLRDF cf. (Streiter & Stuflesser 2006) and <http://140.127.211.214/research/nlrdf.html>.

compressed GIS data can be compiled for backup and distribution, e.g., into XML. Although different formats can be transformed and merged in popular GIS tools, incompatibilities or data-loss might occur if the same phenomenon is modeled differently e.g. once as a polygon, e.g. a language distributed over a specific area, or as point, where each speaker or each community would be a distinctive data point (c.f. Galton 2005, Dahl & Veselinova 2006). It is here where standardization efforts might start, extending then to the naming of languages, writing standards, scripts or ethnicities etc within GIS systems.

### *3.3. Language GIS and Computational Linguistics*

The third branch of development will be concerned with conceiving and implementing new applications in language research, Computational Linguistics, Information Retrieval and the simulation of language development. Merging corpora, dictionaries, CALL-systems and NLP-tools with GIS will create new perspectives and new qualities. Before achieving complete merges of GIS data, GIS applications, linguistic data and linguistic applications, one might compile either GIS data into computational linguistic data and applications, or integrate computational linguistic functionalities into a GIS.

This might result in the first case in geospatial references in a computational lexicon, in corpora, in termbanks, giving access to spatial world knowledge, e.g. for anaphora resolution, in extracting geospatial information from text, in creating dynamic web-pages according to the cultural background mapped from the IP address through the geospatial references, text generation, question answering from GIS (translating spatial predicates into NL-predicates), in mapping language communities through IP addresses and much more. An immense research field is basically unexplored.

The integration of computational linguistic applications into GIS might result in geo-referenced dictionaries, dictionary entries, corpora, textual entries from corpora, syntactic structures derived from geo-referenced texts or Optimality Theory (OT) parameters, creating computational models that can calculate over languages, time and space. Technically speaking, GIS can access all kind of computational linguistic data, e.g. through interfaces to databases such as PostgreSQL/PostGIS (<http://www.postgresql.org>, <http://postgis.refractions.net>). For spatial calculations over the maybe precompiled computational linguistic data, GIS provides predefined functions for borders, overlaps, inclusions, densities, distances etc. In addition, phenomena like syntactic structures or lexicon entries can be mapped onto different layers to represent contact and borrowing,

Other research directions might relate to the simulation and prediction of language development in order to predict the endangerment of languages and identify critical zones and constellations for the survival of languages. GIS might also be used as a monitor for the development of languages on the one hand and revitalization or documentation efforts on the other, to manage and coordinate such efforts for an optimal usage of available resources.

## **4. Summary and Conclusion**

To sum up, the overall purpose of this paper is to stimulate the linguistic community to reflect about, experiment with and set up an infrastructure for GIS, a powerful tool, which has entered many sciences (c.f. Lang 2003, WHO 2006) but has passed, with a few exceptions (Crissman 2002, UNESCO 2005, Lin 2006) almost unobserved

by a discipline which cannot deny its relation to space and time. The combination of GIS and languages goes far beyond the drawing of maps and the range of possible applications can barely be overseen at the moment. While showing the principal problems that might interfere with the promotion of Language GIS, we discuss the potential contribution of Computational Linguists in getting Language GIS from the ground. Finally we encourage linguist to reinvest the newly developed technologies and data into the urgent problem of language documentation and language maintenance. While the reformation of linguistics through Language GIS is needed and will happen, the mapping of vanishing languages cannot wait.

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# TimeML Challenges for Morphological Languages: A Korean Case Study

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## Abstract

TimeML is a specification language for annotating temporal information in text. Since it was developed based on English, it tends to reflect the specificity of English constructions. English is an isolating language, which makes porting TimeML to typologically different languages (e.g., agglutinative ones) challenging. In this paper, we analyze some of these issues based on Korean, an agglutinative language, and suggest possible solutions. We address two general situations. First, cases in which English conveys information by means of two independent events (e.g., quotative and evidential constructions), while Korean employs a single event together with bound morphemes. Second, constructions of verbal periphrasis in English (e.g., involving modal or aspectual auxiliaries) which in Korean correspond to verbal clusters with two separate events.

**Keywords:** TimeML, temporal information, event representation, isolating languages, agglutinative languages, corpus annotation.

## 1. Introduction

The past decade has seen a renewed interest in temporal and event-based reasoning in natural language, applied to a number of tasks, from information extraction to reasoning systems (cf. Allen and Ferguson 1997; Mani and Wilson 2000; Harper et al. 2001; Setzer 2001; Ferro et al. 2005). The most basic issues concern the identification and representation of temporal data in discourse. TimeML, a specification language aiming at capturing the richness of temporal information in natural language, has been created within this context (Pustejovsky et al., 2005) and has recently been adopted as an ISO standard (ISO WD 24617-1:2007).

TimeML was conceived as a surface-based annotation scheme. That is, it does not encode the actual interpretation of the constructions it marks up, but their grammatical features. For example, the *leaving* event in the sentence *We are leaving tomorrow* is not annotated as expressing a future tense, but as expressed by means of a present tense form. Several considerations motivate this surface-based approach. As an annotation language, it must guarantee the marking up of corpora in an efficient and consistent way, ensuring high

inter-annotator agreement. As a representation scheme, it needs to be used for training and evaluating algorithms for both temporal information extraction and temporal reasoning.

A surface-oriented approach is the suitable option for meeting such requirements. Nevertheless, it poses a challenge at the representation level, since it encodes information mainly based on the structure of the target language, and thus content equivalences among different languages are hard to establish. For example, aspectual information is annotated by means of a relation between two event entities, which parallels the syntax of aspectual constructions in English, involving an aspectual predicate (e.g., *begin*) and the event expressed by its subordinated clause. Nonetheless, this representation (i.e., two events linked by a relation) is not adequate for languages conveying aspectual information at the morphological level, such as Slavic ones.

Constructions of indirect quotation in Korean offer a further example of mismatch of linguistic devices employed in different languages to express the same. Where English (and most other Indo-European languages) uses specific verbs (e.g., *say*, *tell*) syntactically scoping over the reported event, in Korean the reported event is generally marked by the mood morpheme *-ko*. As in the previous case, English quotative constructions are annotated using a link between the two events. But because of the morphological nature of the phenomenon in Korean, this is not a satisfactory solution for that language.

The goal of the present research is to establish equivalent TimeML representations for phenomena expressed by different constructions across languages, which can reflect the grammatical specificity of each construction (morphologic vs. syntactic) and at the same time ensure a semantic correspondence. We work with some of the Korean constructions that are realized in different ways than their English counterparts, due to the different typology (agglutinative vs. isolating) of these two languages.

Next section summarizes TimeML, paying specific attention to the elements that will be needed in what follows. Then, section 3 delves into the correspondence between English and Korean TimeML representations of temporal- and event-related constructions. Two general situations are addressed. First, English conveys information by means of two independent event expressions (e.g., quotative and evidential constructions), while Korean employs a single event together with one or more morphemes (section 3.1). Second, those structures realized with a verbal periphrasis in English (e.g., constructions with modal and aspectual auxiliaries) but with a verbal cluster in Korean, composed of two distinguished event-tagable expressions (section 3.2).

## 2. TimeML in a Nutshell

TimeML features four major data structures: EVENT, TIMEX3, SIGNAL, and LINK. EVENT, TIMEX3 and SIGNAL are text-consuming tags. The **EVENT** tag encodes event-denoting expressions, which can be expressed by different predicative elements; mainly, verbs (e.g., *dance*, *play*), nouns (*embargo*, *election*), adjectives (*willing*, *expectant*), and prepositional phrases (e.g., *on board*). The **TIMEX3** tag annotates temporal expressions of different sorts: fully specified dates, times, and durations (respectively: *Tuesday*, *October*

28, 2008; *midnight of January 1, 1994*; and *4 months*), or just partially specified dates, times, and durations (*two days ago*; *some time tomorrow*, and *few months*). Finally, the **SIGNAL** tag annotates elements that indicate how temporal objects are related among them (e.g., subordinating connectors such as *when* or *after*).

On the other hand, the LINK tag is non-text consuming as it relates temporal objects to one another. It splits into three main types: (a) **TLINK**, which encodes temporal relations among EVENTS and TIMEX3s; (b) **ALINK**, representing aspectual information as expressed between an aspectual predicate and its embedded event; and (c) **SLINK**, encoding subordination relations conveying evidentiality (e.g. *Mary **said** [she bought some wine]*), factivity (*John **regretted** [Mary bought wine]*), or intensionality (*Kate **thought** [Mary bought beer]*).

Information relevant to each tag is characterized by means of attribute-value pairs. The current research concerns the tags EVENT, SLINK, ALINK, and TLINK, so here we only introduce the attributes that are relevant to these tags. EVENT attributes are: event ID (*eid*), event instance ID (*eiid*), class (e.g., perception, reporting, aspectual, state, etc.), tense (present, past, future), aspect (perfective, progressive, etc.), pos (part-of-speech), vform (form of non-finite verbs, such as infinitive, gerundive, etc.), polarity, modality, and mood.

On the other hand, SLINKs are characterized by the attributes: link ID (*lid*), eventInstanceID (which points to the subordinating event), subordinatedEventInstance (pointing to the subordinated event), and *reltype*, with possible values: *factive*, *counter-factive*, *evidential*, *negative-evidential*, *modal*, and *conditional*.

Finally, ALINKs and TLINKs have the attributes: link ID (*lid*), eventInstanceID and *relatedToEventInstance* (both of them taking event IDs as their values), and *reltype*. This later attribute has different values for TLINKs and ALINKs. For the former, these are: *before*, *after*, *ibefore*, *iafter*, *including*, *is\_included*, *during*, *during\_inv*, *begins*, *ends*, *begun\_by*, *ended\_by*, *simultaneous*, *identity*. And for the later: *initiates*, *culminates*, *terminates*, *continues*, *reinitiates*. As an example, (1) illustrates the use of these tags:

(1) John said<sub>e1</sub> that Mary began<sub>e2</sub> to work<sub>e3</sub>

*John*

```
<EVENT eid="e1" class="REPORTING" tense="PAST" aspect="NONE"
  polarity="POS">
```

*said* </EVENT>

*that Mary*

```
<EVENT eid="e2" class="ASPECTUAL" tense="PAST" aspect="NONE"
  polarity="POS">
```

*began* </EVENT>

*to*

```
<EVENT eid="e3" class="OCCURRENCE" tense="NONE" aspect="NONE"
  polarity="POS">
```

*work* </EVENT>

```
<TLINK eventID="e1" relatedToEventInstance="e2" relType="AFTER"/>
```

```
<SLINK eventID="e1" subordinatedEventInstance="e2"  
  relType="EVIDENTIAL"/>  
<ALINK eventID="e2" relatedToEventInstance="e3"  
  relType="INITIATES"/>
```

Sentence (1) presents three EVENT expressions (*said*, *began*, and *work*), an SLINK conveying a relation of type evidential between events *e1* (*said*) and *e2* (*began*), a temporal relation between these two same events (*e1* took place after *e2*), which is annotated by means of a TLINK, and an aspectual construction (*began to work*), encoded with an ALINK of type *initiates*. Due to space limitations, some EVENT attributes are obviated.

### 3. Porting TimeML to Korean

In the past years, there has been much research carried out within the field of Natural Language Processing (NLP) which has targeted Asian languages, including Korean. Nonetheless, there are still clearly identifiable gaps when comparing the NLP state-of-art NLP between most Asian languages and English. For example, it does not exist yet any system for identifying temporal information and applying temporal reasoning, which is specifically focused on the Korean language. Temporal systems are fundamental components of several NLP applications, such as information extraction, question answering, or narrative understanding (cf. Pustejovsky et al. 2005). Porting TimeML to Korean is therefore a fundamental step towards the advancement of several fields within Korean NLP.

TimeML has recently become an ISO standard markup language for time-related information. Among other languages, the ISO-TimeML spec includes Korean, although a fully-fledged version addressing all the specificities of this language has not been completed yet. Currently, the Korean part of ISO-TimeML, written by Kiyong Lee, mainly reflects a conceptual analysis of how temporal information is conveyed in Korean. The next step is thus finding out what problems there are in porting TimeML to Korean regarding forms rather than interpretational level, and subsequently setting the subset of TimeML that is suitable for representing Korean, as well as its corresponding annotation guidelines. In what follows, we identify some of these issues and consider what could be adequate solutions to them.

#### 3.1. Information Expressed by a Single Morpheme

### 3.1.1. Quotative Construction

The main issues in porting TimeML to Korean are due to the typological differences between Korean and English.<sup>1</sup> TimeML was developed using English as the reference language, and given that it was conceived as a highly surface-based annotation scheme, the structure of English is often reflected in the choices made regarding its tags and attributes.

English is a rather isolating language, and therefore many levels of linguistic distinctions are expressed in a periphrastic manner. On the other hand, an agglutinative language such as Korean tends to use morphological combinations to express its grammatical distinctions (e.g. markers of evidentiality, sentence mood morpheme, etc.). For example, quotation constructions in English use two predicates, the reporting and the reported one, which TimeML marks up as independent EVENTS:

(2) John said<sub>e1</sub> that he bought<sub>e2</sub> some wine.

```
John
<EVENT eid="e1" class="REPORTING" tense="PAST" aspect="NONE"
  polarity="POS">
said
</EVENT>
that he
<EVENT eid="e2" class="OCCURRENCE" tense="PAST" aspect="NONE"
  polarity="POS">
bought
</EVENT>
some wine.

<SLINK eventInstanceID="e1" subordinatedEventInstance="e2"
  relType="EVIDENTIAL" />
```

TimeML uses a subordination link (SLINK) in order to convey the evidentiality feature that the reporting predicate projects to the event expressed by its subordinated argument.

On the other hand, Korean quotative constructions, such as that in (3), consists of only one verb stem, which corresponds to the subordinated predicate in English. Note that there is no reporting predicate such as *say* in English. Nevertheless, the sentence has a reporting interpretation.

(3) 존-이 그가 와인-을 사-쓰-다-ㄴ-다<sup>2</sup>  
John-i ku-ka wine-ul sa-ss-ta-n-ta  
J-Nom he-Nom wine-Acc buy-Past-Dec.Quo-Pres-Dec

<sup>1</sup> From the morphological point of view, languages can be classified as isolating (also known as analytic) or agglutinative. Isolating languages are those in which words are composed of a single morpheme. By contrast, words in agglutinative languages tend to consist of several morphemes. Korean is an agglutinative language whereas English is an isolating one.

<sup>2</sup> This sentence has ambiguity brought by anaphora. But because this issue is not related to the topic of this paper, we will not address it here, choosing only one of the possible readings.

‘John said that he bought some wine’

The quotative expression *-ta-n-ta* above is a contracted form of *-ta-ko malha-n-ta* ‘Dec-Quo say-Pres-Dec’. Even though example (3) is a simple sentence involving no subordination at the syntactic level, the two distinguished tense markers, ‘-ss-’ and ‘-n-’, are evidence of the existence of an implicit reporting event. Specifically, the past tense marker ‘-ss-’ applies to the main event here (buying), while the present tense marker ‘-n-’ is understood as applying to an implicit reporting event. As additional evidence in favor of two independent events, there are also two different sentence mood markers.

The sentences in (4) and (5) show that each of the two tense markers is related with one event separately.

- (4) a. 존-이 그-가 와인을 사-ㄴ-다-ㄴ-다  
John-i ku-ka wine-ul sa-n-ta-n-ta  
J-Nom he-Nom wine-Acc buy-Pres-Dec.Quo-Pres-Dec  
‘John says that he will buy some wine’  
b. reporting time < speaking time < buying time

- (5) a. 존-이 그-가 와인을 사-ㅅ-대-ㅅ-다  
John-i ku-ka wine-ul sa-ss-tay-ss-ta  
J-Nom he-Nom wine-Acc buy-Past-Dec.Quo-Past-Dec  
‘John said that he bought a wine’  
b. buying time < reporting time < speaking time

In (4a), the sentence has two present tense markers, one of which applies to the reporting event and the other to the buying event, separately. The resulting temporal order among events and speaking time is shown in (4b). On the other hand, the sentence in (5a) has two past tense markers, which results in the temporal order among events that is shown in (5b).

Constructions like these presented above pose problems for the standard TimeML treatment of quotative constructions. Although they are just simple sentences, the relationship between the reporting and reported events is expressed morphologically, and thus the SLINK mechanism employed in English to relate both (surface-expressed) events does not seem to apply here. On the other hand, the reported nature of the main event in Korean sentences (corresponding here to the buying event) cannot be marked by means of an EVENT attribute because it actually stems from a relation between two events (one of them implicit), which are both characterized with specific tense and mood values.

Nevertheless, the evidence of an implicit reporting event argues in favor of marking two independent EVENTS, each of which with different tense and sentence mood values. But because there is no surface predicate for the implicit reporting event, it needs to be annotated as a non-text consuming EVENT, as shown in (6):

- (6) 존-이 그-가 와인-을 사-ㅅ-다-ㄴ-다  
John-i ku-ka wine-ul sa-ss-ta-n-ta

J-Nom he-Nom wine-Acc buy-Past-Dec.Quo-Pres-Dec  
 ‘John says that he bought some wine’

*John-i wine-ul ku-ka*

```
<EVENT eid="e1" class="OCCURRENCE" tense="PAST"
  sentenceMood="DEC" yaleRomanization="sa-ss-ta-n-ta">
sa-ss-ta-n-ta </EVENT>
```

```
<EVENT eid="e2" class="REPORTING" tense="PRESENT"
  sentenceMood="DEC"/>
```

```
<SLINK eventInstanceID="e2" subordinatedEventInstance="e1"
  relType="EVIDENTIAL"/>
```

```
<TLINK eventInstanceID="e1" relatedToEventID="e2"
  relType="BEFORE" />
```

As can be seen, the semantic and grammatical features of the implicit event (i.e., event class, tense, and mood) are annotated as attribute values in that empty EVENT tag, and then the adequate SLINK and TLINK relating the (explicit) reported event and the (implicit) reporting event can be introduced.

To sum up, tense and sentence mood markers in Korean quotative constructions provide grammatical evidence for the existence of two different events. Based on that, TimeML can annotate these constructions by means of two EVENT tags together with the appropriate links relating them (SLINK and TLINK). Because the construction has only one verb form at the surface, TimeML needs to appeal to a non-text consuming EVENT tag.

### 3.1.2. Evidential Constructions

In contrast to quotative constructions, there are other structures in Korean that do not present morphological evidence in favor of the existence of implicit events, which nevertheless need to be interpreted as involving two (or even more) events. This is for instance the case of evidential constructions in Korean.

Broadly speaking, evidentiality is concerned with the way the information that is conveyed in statements was acquired by the speaker. As such, it concerns distinctions like: direct perception, hearsay, inference, assumption, etc. In Korean, there are many evidential morphemes. Here are some examples.

- (7) a. 존-이 와인-을 사-더-라  
 John-i wine-ul sa-**te**-ra  
 J-Nom wine-Acc buy-**Retro**-Dec  
 ‘I saw that John was buying some wine’
- b. 아이-가 참 예쁘-네  
 ai-ka cham yeppu-**ney**  
 child-Nom really pretty-**Evi**  
 ‘(Now I see) the child is really pretty’
- c. 존-이 와인-을 사-리 가-쓰-구나

- John-i wine-ul sa-re ka-ss-**kwuna**  
 J-Nom wine-Acc buy-to go-Past-**Evi**  
 ‘(I guess) John went to buy some wine’
- d. 메리-는 참 착하-지  
 Mary-nun cham chakha-**ci**  
 M-Top really kind-**Evi**  
 ‘(I already know) Mary is really kind’

The final endings ‘-ney’, ‘-kwuna,’ and ‘-ci’ are all evidential markers in Korean: ‘-ney’ expresses the speaker’s realization of some information by perception at the present time; ‘-kwuna’ is usually considered to express knowledge by inference; and ‘-ci’ denotes previously acquired knowledge. The morpheme ‘-te-’, a marker of retrospective mood, is also considered an evidential marker, since it has comparable behavior both conceptually and grammatically. In spite that there is no predicate denoting a seeing event, ‘-te-’ conveys it and temporally locates before the speaking time.

On the other hand, being an isolating language, English expresses evidentiality in a periphrastic manner. Hence, the TimeML treatment of these constructions consists in marking the two involved predicates as EVENTS, and introducing an SLINK between them:

(8) I saw<sub>e1</sub> that John bought<sub>e2</sub> some wine

```

I
<EVENT eid="e1" class="PERCEPTION" tense="PAST" aspect="NONE"
  polarity="POS">
saw </EVENT>
that John
<EVENT eid="e2" class="OCCURRENCE" tense="PAST" aspect="NONE"
  polarity="POS">
bought </EVENT>
some wine

<SLINK eventInstanceID="e1" subordinatedEventInstance="e2"
  relType="EVIDENTIAL"/>

```

Let us now consider the Korean counterparts:

(9) a. Periphrastic

존-이 와인-을 사-는 것-을 내-가 보-았-다  
 John-i wine-ul sa-nun kes-ul nay-ka po-ass-ta  
 J-Nom wine-Acc buy-rel.ending thing-Acc I-Nom see-Past-Dec  
 ‘I saw that John bought some wine’

b. Morphological

존-이 와인-을 사-더-라

John-i wine-ul sa-te-ra  
 J-Nom wine-Acc buy-Ret-Dec  
 ‘(as I saw) John bought some wine’

Korean has both a periphrastic and a morphological way for expressing evidentiality. Annotating the periphrastic version (9a) with the standard TimeML treatment poses no problem because it has two predicates denoting events like English counterpart.

(10) *John-i wine-ul*

```
<EVENT eid="e1" content="BUY" class="OCCURRENCE"
  tense="PRESENT" aspect="NONE" polarity="POS">
sa-nun </EVENT>
Kes-ul nay-ka
<EVENT eid="e2" content="SEE" class="PERCEPTION" tense="PAST"
  aspect="NONE" polarity="POS" >
po-ass-ta </EVENT>

<SLINK eventInstanceID="e2" subordinatedEventInstance="e1"
  relType="EVIDENTIAL" />
```

Morphological constructions, however, are harder to handle (9b). They are similar to quotative constructions in the sense that, although there is only one predicate expressed at the surface, the sentence refers to more than one event. For instance, in the case of (9b), there is the implicit reference to a seeing event, brought about by the retrospective mood morpheme ‘-te-’. Unlike quotative constructions, however, there is no morphological evidence of the implicit event; e.g., tense or sentence mood markers independent of those applied to the only verbal predicate in the sentence. The issue to consider is therefore whether to treat these evidential constructions in the same way as quotative constructions (namely, introducing a non-text consuming EVENT --refer to example 6), or to handle them by specifying the evidential value of the main predicate at the mood attribute of its EVENT tag, as illustrated in (11).

(11) 베트남-은 참 덥-더-라  
 Vietnam-un cham tep-te-la  
 Vietnam-Top really hot-Ret-Dec  
 ‘(as I saw) Vietnam was really hot’

```
Vietnam-un cham
<EVENT eid="e1" content="HOT" class="STATE" pos="ADJECTIVE"
  tense="NONE" mood="RETROSPECTIVE" >
tep-te-ra </EVENT>
```

ISO-TimeML uses the mood attribute for retrospective mood, thus not introducing any non-consuming tag and respecting, in this way, the surface-based philosophy of TimeML. This is, however, different than the English counterpart, which presents two EVENTS related

with a TLINK signaling their relative temporal order. But besides the mismatch between the English and the proposed Korean treatment, the main drawbacks of treating evidential markers by means of the mood attribute are two. First, by not annotating the implicit event, the representation loses information concerning the temporal relation between this and the explicit event. And second, there is the practical issue of how to annotate sentences with more than two mood markers. Consider (12):

- (12) 내일        비-가    오-ㄴ-다-더-라  
 nayil       pi-ka    o-n-ta-te-la  
 tomorrow rain-Nom come-Pres-Dec.Quo-Ret-Dec  
 ‘(as I heard) (someone said that) it will rain tomorrow’

The above sentence has two mood morphemes: quotative ‘-ta-’ and retrospective ‘-te-’. Data like this favor to the use of a non-text consuming EVENT tag which can be related to the explicit EVENT by means of an SLINK, very much as it is done for evidential constructions in English.

- (13) 존-이 와인-을 사-더-라

*John-i wine-ul*

```
<EVENT eid="e1" yaleRomanization="sa-te-la" class="OCCURRENCE"
  tense="PRESENT" aspect="NONE" polarity="POS">
```

```
sa-te-ra </EVENT>
```

```
<EVENT eid="e2" class="PERCEPTION" tense="PAST"
  polarity="POS"/>
```

```
<SLINK eventInstanceID="e2" subordinatedEventInstance="e1"
  relType="EVIDENTIAL"/>
```

```
<TLINK eventInstanceID="e2" relatedToEventInstance="e1"
  relType="OVERLAP"/>
```

The use of non-text consuming EVENT tag is not compliant with the surface-based annotation philosophy followed in TimeML. However, it makes it possible to recover information regarding implicit events in discourse and seems closer to the conceptual level.

### 3.2. Information expressed at the Verbal Cluster

In the previous section, we analyzed some problems regarding the TimeML annotation of linguistic information realized at the morphological level in Korean. Here, we show a different kind of problem in porting TimeML to morphological languages.

Korean has many kinds of verbal clusters consisting of two verbs and their associated morphemes. These constructions are devices to represent grammatical elements such as aspect, voice, modality, etc. Consider the following examples:

- (14) a. 메리-가 울-고        있-다  
 Mary-ka wul-ko        iss-ta

M-Nom cry-ending exist-Dec

‘Mary is crying’

b. 메리-는 존-이 와인-을 사-게 하-였-다

Mary-nun John-i wine-ul sa-key ha-ess-ta

M-Top J-Nom wine-Acc buy-ending do-Past-Dec

‘Mary caused John to buy some wine’

c. 메리-가 와인-을 사-야 하-ㄴ-다

Mary-ka wine-ul sa-ya ha-n-ta

M-Nom wine-Acc buy-ending do-Pres-Dec

‘Mary should buy some wine’

In (14a), ‘-ko iss-’ is a progressive aspect marker composed of the connection ending ‘-ko’ and the verb ‘iss-’, which means *exist* or *be*. In (14b), ‘-key ha-’ is a causative construction. Finally, ‘-ya ha-’ in (14c) is a modality expression which denotes necessity. The fact that these constructions use both morphemes and verbs makes it difficult for them to be annotated in TimeML. Next, we describe the problems more specifically and suggest possible solutions for the aspectual and modal constructions.

### 3.2.1 Aspectual Construction

In English, aspect is realized by means of a periphrastic construction involving one or more auxiliary verbs and the main verb (in bold face below).

(15) Mary **has gone** to New York

*Mary has*

```
<EVENT eid="e1" class="OCCURRENCE" tense="PRESENT"
  aspect="PERFECTIVE" polarity="POS">
```

*gone* </EVENT>

*to New York*

TimeML applies the EVENT tag only to its head, if the event is expressed by a verbal phrase. Therefore, it does not annotate auxiliary verbs and encodes the aspect information at the *aspect* attribute, within the EVENT tag of the main verb. Now consider the Korean aspectual construction:

(16) 메리-는 뉴욕에 가-(어) 있-다

Mary-nun New York-ey ka-(e) iss-ta

M-Top New York-to go-ending exist-Dec

‘(lit.) Mary went to New York and stays there’

‘Mary has gone to New York’

ISO-TimeML proposes to annotate the verb phrase together as in (17).

(17) 미아-가 미국-에 가-(어) 있-다  
 Mia-ka mikwuk-ey ka-(e) iss-ta  
 M-Nom USA-to go-(ending) exist-Dec  
 ‘Mia has gone to USA’

*Mia-ka mikwuk-ey*

```
<EVENT eid="e1" yaleRomanization="ka iss-ta" content="GO"
  class="STATE" pos="VERB" tense="NONE" aspect="PROGRESSIVE">
ka iss-ta </EVENT>
```

Nevertheless, this approach is not compliant with the TimeML surface-based annotation philosophy. So we need to consider the other ways of annotation for this case. There can be two. A first possibility is to annotate only the verb ‘ka-(e)’ but not ‘iss-’ (18), hence treating it as a kind of auxiliary verb. The aspect and tense information of the whole sentence is encoded at the *tense* and *aspect* attributes. This solution goes along the lines of the treatment for the equivalent constructions in English:

(18) *Mia-ka mikwuk-ey*

```
<EVENT eid="e1" class="OCCURRENCE" tense="PRESENT"
  aspect="PERFECTIVE" polarity="POS">
ka-(e) </EVENT>
iss-ta
```

The second possible solution consists in annotating both events as such, and then connecting them via a TLINK:

(19) *Mia-ka mikwuk-ey*

```
<EVENT eid="e1" class="OCCURRENCE" tense="NONE" aspect="NONE"
  polarity="POS">
ka-(e) </EVENT>
<EVENT eid="e2" class="STATE" tense="PRESENT" aspect="NONE"
  polarity="POS">
iss-ta </EVENT>

<TLINK eventInstanceID="e1" relatedToEventInstance="e2"
  relType="I_BEFORE"/>
```

This second option is surface-based, hence respecting TimeML basic philosophy, but it cannot express the perfective aspectual value because neither of the represented events has aspect. Many modal expressions bring about the same problem, as discussed in the next section.

### 3.2.2. Modality

In English, modality is expressed in a periphrastic way, in many cases by means of auxiliary verbs. TimeML encodes this information at the attribute `modality` that is assigned to the main verb:

(20) I must buy some wine

*I must*

```
<EVENT eid="e1" class="OCCURRENCE" tense="PRESENT"
  aspect="NONE" modality="must" polarity="POS">
```

*buy* </EVENT>

*some wine*

Now consider the Korean counterpart of modal constructions:

(21) 나-는 와인-을 사-야 하-ㄴ-다

na-nun wine-ul sa-ya ha-n-ta

I-Top wine-Acc buy-modal do-Pres-Dec

'I must buy some wine'

The combination of a morpheme and a verb stem derives into the modal expression '-ya ha-' in Korean. It is not one word, unlike English modal auxiliary verbs (e.g., *must*). In spite of that, the proposed treatment in ISO-TimeML considers the two elements as one chunk and annotates them together. This is specifically the solution it proposes for handling the verb stem 'o-' and the conjectural modal expression '-l kesita':

(22) 부산-에-는 지금 비-가 오-ㄴ 것-이다

Pusan-ey-nun cikum pi-ka o-l kes-ita

Pusan-in-Top now rain-Nom come-ending thing-Dec

'Now, it will be raining in Pusan'

*Pusan-ey-nun cikum pi-ka*

```
<EVENT eid="e1" content="COME" class="OCCURRENCE" pos="VERB"
  tense="NONE" modality="CONJECTURAL" verbalEnding="sFINAL">
```

*o-l kes-ita* </EVENT>

Nevertheless, such treatment is not compliant with the TimeML surface-based annotation philosophy. Let us go back to the modal construction of necessity in (21). Similar to aspectual constructions in Korean, there are also two possible annotations for modal expressions in Korean. One is to consider the verb 'ha-' as an auxiliary verb and not to annotate it:

(23) *na-nun wine-ul*

```
<EVENT eid="e1" class="OCCURRENCE" tense="PRESENT"
  aspect="NONE" polarity="POS" modality="-ya ha-">
```

*sa-ya* </EVENT>

*ha-n-ta*

This solution is consistent with the treatment for the English counterpart, but is not surface-based. The second possibility consists in annotating both verbs as EVENTS and introducing a TLINK expressing that they are identical (`relType="IDENTITY"`), given that there is only one event expressed in fact by of the sentence.

(24) *na-nun wine-ul*

```
<EVENT eid="e1" class="OCCURRENCE" tense="PRESENT"
  aspect="NONE" polarity="POS" modality="NECESSITY">
  sa-ya </EVENT>
<EVENT eid="e2" class="OCCURRENCE" tense="PRESENT"
  aspect="NONE" polarity="POS">
  ha-n-ta </EVENT>
```

```
<TLINK eventInstanceID="e1" relatedToEventInstance="e2"
  relType="IDENTITY"/>
```

This is, however, a more complicated and redundant solution, since it marks up two elements that refer to the same entity.

#### 4. Conclusion and Future Work

TimeML annotation scheme was developed taking English as the language of reference, which typologically belongs to the group of isolating languages. Given TimeML surface-based approach to annotating temporal information in text, porting it to agglutinative languages such as Korean poses problems regarding different types of constructions. Where English resources to expressing grammatical or semantic information in a periphrastic way, Korean tends to appeal to different types of morphological combinations.

In this paper, we analyzed some Korean constructions that do not have an easy treatment within TimeML and suggested possible solutions. In particular, we address two general situations. English conveys information by means of two independent event expressions (quotative and evidential constructions), while Korean employs a single event together with one or more morphemes. On the other hand, those structures realized with a verbal periphrasis in English (constructions with modal and aspectual auxiliaries) but with a verbal cluster in Korean, composed of two distinguished event-tagable expressions.

For all these cases, we considered two alternative solutions: a first one that is surface-based and, consequently, language-specific, and a second one that parallels the annotation structure for English and which therefore conveys a conceptual analysis of the Korean structure. We consider this second option more useful for potential tasks concerning the extraction of implied events. But it has potentially lower inter-annotator agreement, and thus can lead to less consistently annotated data.

Together with the ISO-TimeML proposal, the present research is one of the first steps towards porting TimeML to languages very different from English, such as agglutinative ones, focusing in particular on Korean. In this work, we did not choose between the alternative solutions that we put forward, since making a final decision requires deepening into the theoretical analysis of Korean grammar, as well as enlarging the data sets to explore. This is, in fact, research that we are carrying on at present, and which we expect will lead to conclusive results in a near future.

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# An Exemplar-based Approach to Automatic Burst Detection in Spontaneous Speech

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## Abstract

This paper introduces a novel algorithm for detecting burst in voiceless stops in spontaneous speech. This algorithm uses an exemplar-based approach for detecting aspiration noise, and avoids the normalization problem since the exemplars are inherently speaker-specific and environment-specific. The algorithm is trained and tested on 19 speakers' data. The overall error is estimated to be under 5 ms. We also show the wide range of variation in the phonetic makeup of stops in spontaneous speech and how the algorithm is improved to deal with the difficult cases.

**Keywords:** automatic burst detection, VOT, spontaneous speech.

## 1. Background

### *1.1 Methodological issue in research on pronunciation variation*

In recent years, as many large-scale speech corpora (TIMIT, Switchboard, the Buckeye corpus, among others) are made available, quantitative analysis of these corpora has become an active new research area. In a seminal work, Keating et al. (1994) demonstrated two studies on the TIMIT corpus of read speech: a transcription study on segmental variation and an acoustic study using the audio signal. Since then, a growing body of literature has developed in the area of pronunciation variation in spontaneous speech (Byrd 1993; Keating 1997; Jurafsky et al. 1998, 2002; Gregory et al, 1999; Bell et al 2003, to appear; Raymond et al, 2006; Gahl, 2008; among others). However, the majority of these studies are limited to segmental and durational variation, such as shortening/lengthening, t/d deletion, flapping, and vowel alternation. Acoustic signal analysis is relatively rare (maybe with the only exception of vowel formants). This asymmetry in the literature is at least partly due to the fact that segmental/durational variation is easy to code as the information is already available in the transcription.

However, as the research on pronunciation variation develops in both depth and breadth, it becomes necessary to go beyond the transcription files and enter the acoustic signal. In order to do so, new methods need to be developed for extracting phonetically-important information from the speech data.

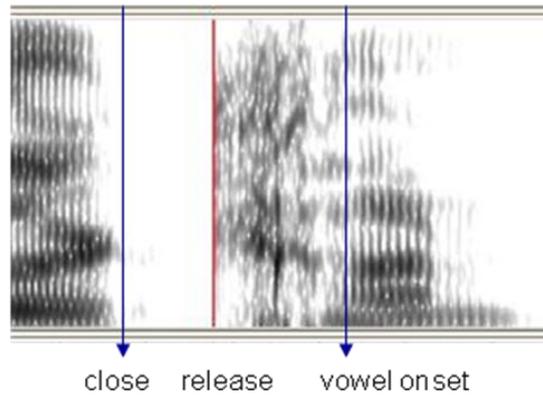
For many acoustic measures, there already exist automatic processing techniques. Nonetheless, these techniques are mostly developed for speech

engineering and may not be directly applicable to the type of the research discussed here. Among other things, the techniques used in speech engineering are often designed to aid speech recognition and therefore precision (either in time domain or in frequency domain) is not of the highest concern. In pronunciation variation studies, however, precision is highly important, both because the acoustic measures are the actual objects of investigation, and that the size of the effect that researchers are looking for is often very small. For instance, it is not uncommon that certain factors are found to correlate with less than 5% of the variation in the acoustic measure, which would require the random error in the acoustic measure to be well under 5%.

### *1.2 The current study*

In this paper, we report an attempt to address the above methodological issue, by presenting a case study on automatic burst detection in English voiceless stops. Automatic burst detection is widely used in speech engineering. The prevailing algorithm is one that detects the point of maximal energy change in high frequencies (Liu 1996; Niyogi and Ramesh, 1998; Das and Hansen, 2004). Liu (1996) reported an automatic burst detector as part of a larger landmark detecting system. The detector was trained on four speakers' read speech recordings (20 sentences per speaker) and was tested on two new speakers' recordings of 20 new sentences. In the training set, the detector had 5% deletion errors (i.e. missing real bursts) and 6% insertion errors (i.e. detecting spurious bursts) while in the test set, the rates are 10% and 2%, respectively. Liu didn't specify the temporal precision of the burst detector, but it was mentioned that of all landmarks (three different types altogether), 44% were detected within 5ms of the hand-labeled transcription, and 73% within 10ms. Though the system was not designed with high precision requirement, it still serves as a baseline model for the current study.

Our system makes use of a different approach. The general idea is that before burst (i.e. during closure phase), the spectrogram is similar to that of silence, while after burst (i.e. during aspiration phase), the spectrogram is similar to that of a fricative (see Figure 1). Therefore, the program finds the point of burst by constantly comparing the spectra of a moving time window to the spectral templates of silence and fricatives and looking for the point where silence-like-ness suddenly drops and fricative-like-ness suddenly rises. The system is trained and tested on 19 speakers' data from the Buckeye speech corpus (Pitt et al., 2007). The average temporal error is estimated to be within 5ms. The spectral template approach was first introduced in Johnson (2006), as an attempt to automatically analyze large speech corpora in a speaker-specific way. The main advantage of this approach is that it is inherently sensitive to differences among talkers and recording environments and therefore is more generalizable to new data.



**Figure 1.** Spectrogram of a typical voiceless stop (the blue arrows mark the beginning and the end of the stop, while the red line marks the point of release.)

## 2. Data

### 2.1. Corpus

The Buckeye Corpus contains interview recordings of 40 speakers, all local residents of Columbus, OH. Each speaker was interviewed for about an hour with one interviewer. Only the interviewee’s speech was digitally recorded. At the time of this study, 20 speakers’ transcription was available, among which, one speaker’s data were not used due to inconsistencies in the transcripts. The remaining 19 speakers are nearly balanced in gender and age (10 female, 9 male; 10 above 40 years, 9 under). Non-linguistic sounds, including silence, noise, laughter, and interviewer’s speech, are also time-marked in the transcription. Silence in a running speech flow is not transcribed as silence, but attributed to neighboring sounds.

### 2.2. Target set

Since word-medial stops are often flapped in American English, we limit our target set to word-initial [p], [t] and [k], of which each speaker has from 231 to 1243 tokens (see Table 1).

Speaker	F01	F02	F03	F04	F05	F06	F07	F08	F09	F10
N	674	572	777	900	1243	490	231	449	699	412

Speaker	M01	M02	M03	M04	M05	M06	M07	M08	M09
N	514	931	624	793	657	406	541	557	628

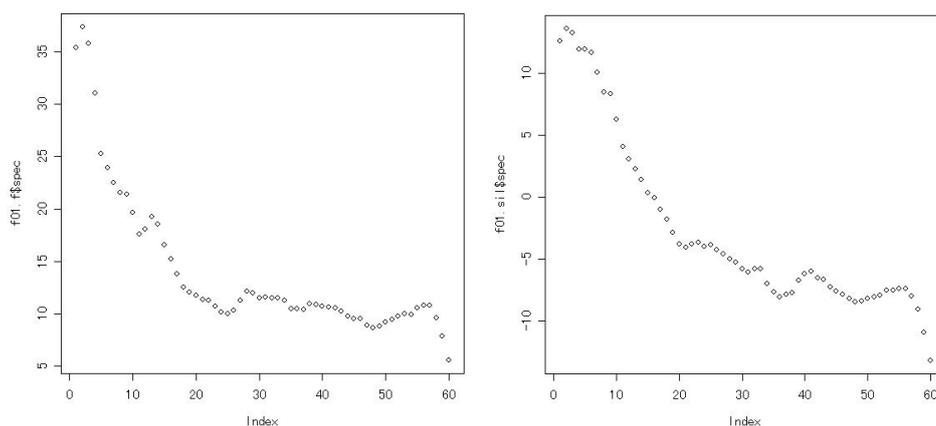
**Table 1.** Count of target tokens in all speakers (top: female speakers; bottom: male speakers). N= number of tokens

### 3. Algorithm design

In view of the pattern in Figure 1, we build spectral templates of silence and voiceless fricatives for each speaker, and use these templates as references for evaluating how silence-like and fricative-like a certain chunk of acoustic data is.

#### 3.1. Building spectral templates

Separate spectral templates are built for silence and voiceless fricatives of each speaker, using the following procedure. First, find all tokens of the phone in the speaker's speech data and discard the ones that are shorter than the medial duration (which would technically exclude half of the tokens). For each remaining token, calculate a 1X60 Mel frequency spectral vector using a 20 ms analysis window centered at the center of the phone and average across all tokens. The final template consists of an average Mel spectral vector, as well as the standard deviation of each dimension. Figure 2 below illustrates the spectral templates of [f] and silence of one speaker as examples.



**Figure 2.** The Mel spectral vector in the templates for [f] (left) and silence (right) of speaker F01. The X-axis represents 60 equidistant bins on the Mel scale from 0 to 8000 and the Y-axis is the value of the corresponding dimension.

#### 3.2. Calculating similarity scores

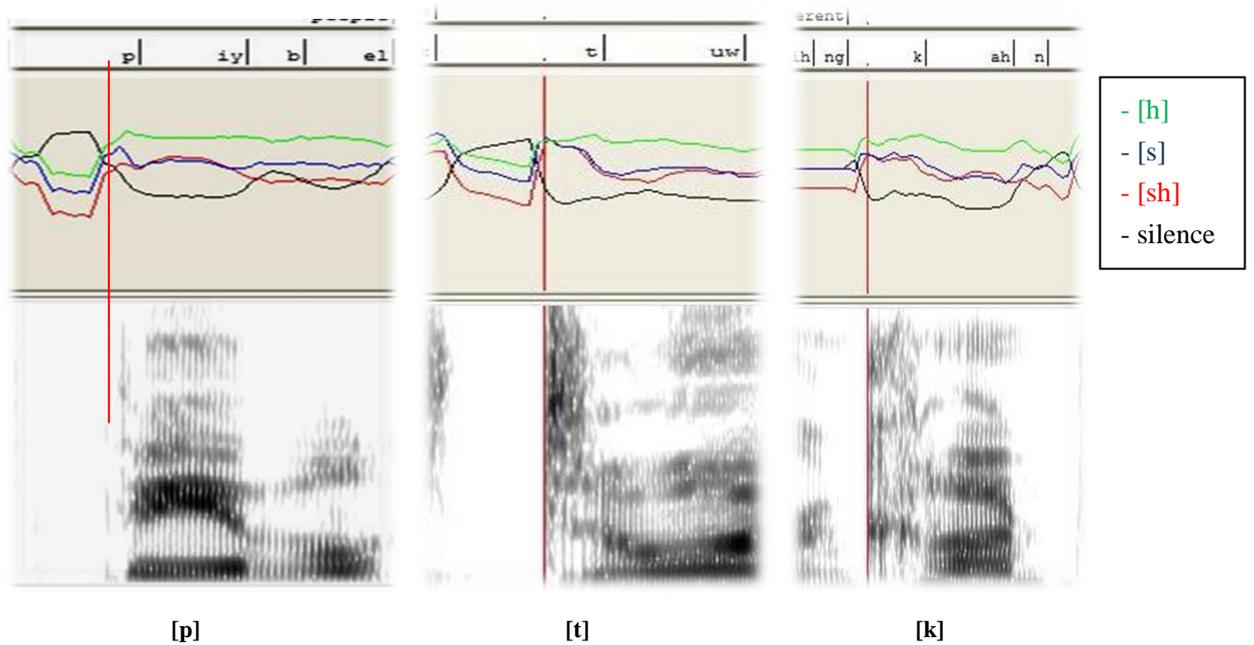
A similarity score measures how similar the acoustic data in the current window (size=20ms) is to a spectral template. It is calculated in two steps. A distance measure is first calculated between the Mel spectral vector of the current window and the average Mel spectral vector the template (see (1)), and then normalized to be the similarity score (see (2)).

$$(1) \quad d_{x,u} = \frac{\sum_{j=1}^{60} |x_j - u_j| \frac{1}{sd(u_j)}}{60}$$

(where  $d_{x,u}$  is the distance measure between the Mel spectral vector of window  $x$  and the template  $u$ ;  $x_j$  is the  $j$ th coordinate in the Mel spectral vector of  $x$ , and  $u_j$  is the  $j$ th coordinate of the Mel spectral vector of template  $u$ ;  $sd(u_j)$  is the standard deviation of the  $j$ th coordinate in the Mel spectral vector of template  $u$ .)

$$(2) \quad S_i = e^{-0.005d_i} \quad (\text{where } S_i \text{ is the similarity score of the current window to template } i.)$$

The window moves with a step size equal to 5ms. Figure 3 below illustrates the similarity scores for silence and some fricatives during three example tokens of speaker F01. It can be seen that in all three tokens, the fricative similarity scores all rise around the point of release whereas the silence score drops.



**Figure 3.** Similarity scores and spectrogram of three stop tokens of F01: [p] (left), [t] (middle) and [k] (right). A red bar marks the position of first release in every token. Four similarity scores are shown: [h] (green), [s] (blue), [sh] (red) and silence (black).

### 3.3. Finding the point of release

As mentioned above, the general idea of the algorithm is to find the point within the stop where the silence similarity score suddenly drops and the fricative similarity score suddenly rises. There are two issues that need to be resolved here: (a) which period of rise/drop should be used, and (b) which fricative sound(s) should be used in spectral comparison. In the preliminary analysis, we found that the point of burst occurs most consistently after the point of fastest change in the similarity scores (i.e. maximal/minimal slope), and that using only one fricative score, the [sh] similarity score, is enough to capture the fricative-like-ness. Thus our baseline

algorithm (see (3)) makes use of the silence similarity score (hereafter the <silence> score) and the [sh] similarity score (hereafter the <sh> score).

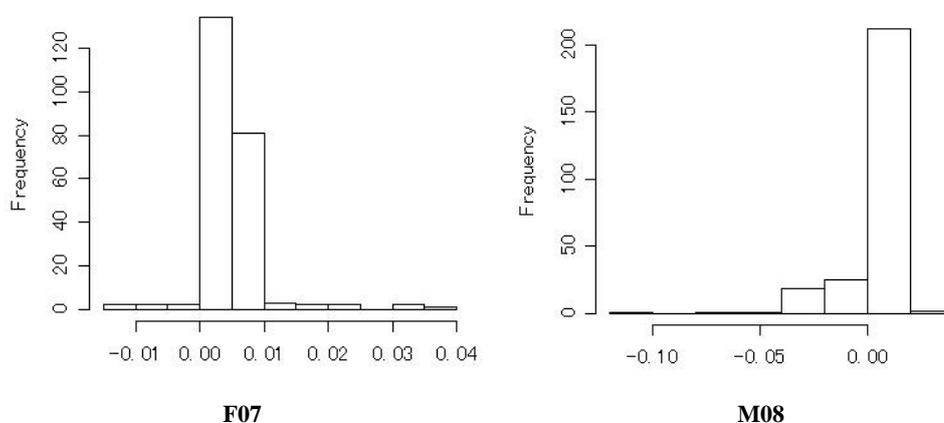
(3) *Baseline algorithm*

Find the end point of the period of fastest decrease in <silence> score and the end point of the period of fastest increase in <sh> score, and return the midpoint of the two as the point of release. If no decreasing period is found in <silence> score or no increasing period is found in <sh> score, exclude the token from the data set.

#### 4. Testing and tuning

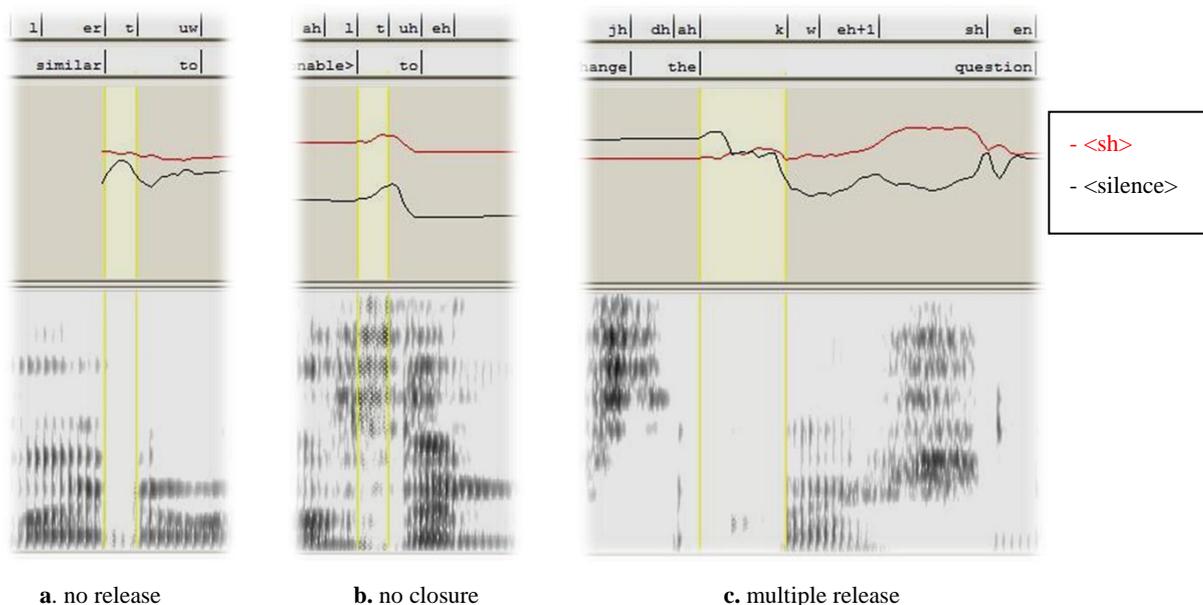
Part of speakers F07 and M08’s data are used as developmental data. These two speakers are selected because they differ from each other in all available dimensions. Speaker F07 is an older female speaker, with the lowest average speaking rate (4.022 syll/s) of all 19 subjects, while speaker M08 is a young male speaker, with the highest average speaking rate (6.434 syll/s) (see Appendix I for all speaker’s average speech rate). The developmental dataset consists of 231 tokens from F07 and 261 tokens from M08. Each token is hand-tagged for the point of release, judging from both the waveform and the spectrogram. If a stop token has no reliable trace for release, the beginning point of the phone is marked as the point of release, for the sake of calculating errors. If the stop has more than one release, the first release point is recorded.

Using the baseline algorithm, the root mean square (RMS) of error (calculated as the lag between estimated point and tagged point) for F07 is 7.22ms. Moreover, errors are mostly distributed around 5ms, with a mean of 5.35ms (see Figure 4). This suggests that the estimated point is consistently earlier by about 5ms than the real point of release. If 5ms is added to all estimated values, the RMS of error is further reduced to 4.85ms.



**Figure 4.** Distribution of error values (in s) in F07 (left) and M08 (right). X-axis shows the error intervals in s, and Y-axis is the number of cases in the error interval. Error is calculated as the lag between the estimated point and the tagged point

When the baseline algorithm is applied to M08's training data, the RMS of error is much bigger, exceeding 13ms. The majority of errors are within 20ms, but there are a number of outliers that are more than 50ms in absolute value (see Figure 4). Similar to F07's data, most errors are positive, suggesting that the estimated point is consistently earlier than the real burst point. However, when 5ms is added to the estimation, the RMS error goes up to 14ms, probably due to the negative outliers. A closer examination of the outlier cases reveals three common types: cases with no release, cases with no closure, and cases of multiple releases (see Figure 5).



**Figure 5.** Illustration of three problematic cases in M08: (a) no release, (b) no closure and (c) multiple release. The duration of the target stop token is highlighted. <sh> score is shown in red and <silence> score is shown in black.

In Figure 5a, the transcribed duration of [t] is basically all blank in spectrogram. In other words, the release happens as the following vowel starts, but not during the stop. Figure 5b shows a case where the transcribed duration of the stop is all aspiration, with no closure portion. Being an extremely fast and soft talker, M08 has many tokens like these in the training set (23 out of 261). Since the points of release in these cases are hand-tagged as the starting point of the phone (for the purpose of calculating error), they greatly inflate the average error. Figure 5c shows a word-initial [k] in speaker M08. This velar stop is weakly (and doubly) released, which corresponds to two faint lines on the spectrogram around the mid point of the duration of the phone, with no noise-like distribution of energy following the release, which makes it hard for the program to recognize.

#### 4.1 First rejection rule

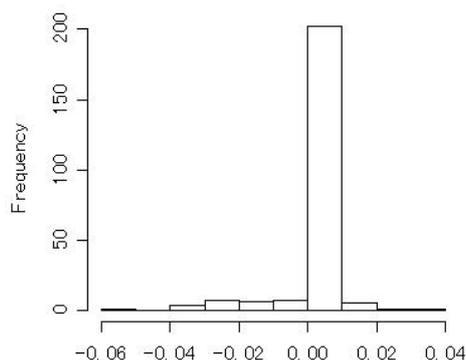
In view of the first two types of problematic cases (see Figure 5a and 5b), we implemented the first rejection rule (see (4)) to reject cases that have insignificant

changes in the similarity scores due to no obvious closure-burst transition.

#### (4) *First rejection rule*

A target word will be rejected if the most drastic changes found in scores are not drastic enough. The delta criterion is defined as a rising rate of 0.02 per step (i.e. per 5 ms) for <sh> score and a dropping rate of 0.04 per step for the <silence> score. If the <silence> score and <sh> score don't meet the delta criterion, the case will be rejected, i.e. no release point will be estimated.

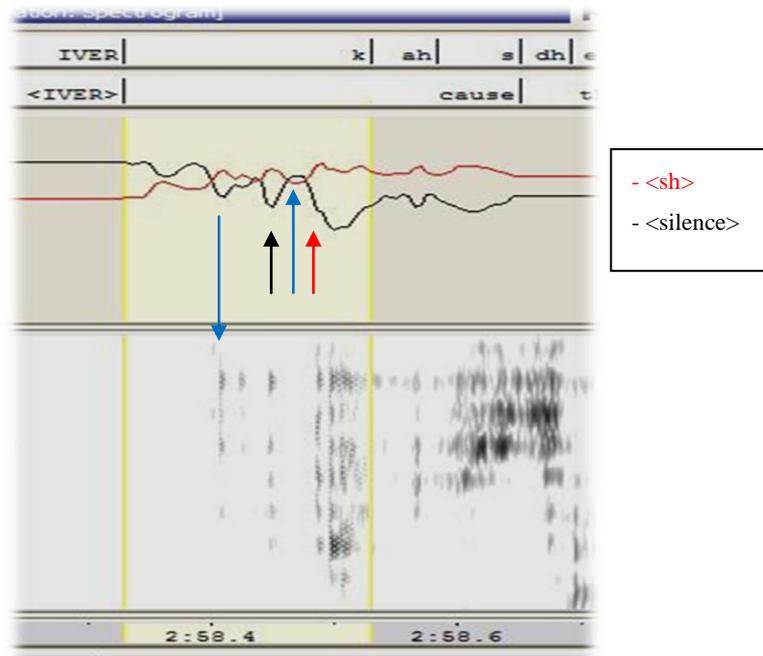
The two cutoff numbers, 0.02 and 0.04, are decided based on the observation from the training dataset. By applying the first rejection rule, 28 cases in M08's training data are rejected, 19 of which are hand-tagged for not having a reliable release point. The RMS error in M08's training data goes down to 9.27ms (see Figure 6). When 5ms is added to the estimated point, the error goes down by 0.01ms. For comparison, when applied to F07's data, the rule rejects 4 cases, and the RMS error goes down to 6.81ms. When 5ms is added to the estimated points, the RMS error further goes down to 4.22ms.



**Figure 6.** Error distribution in M08 after the first rejection rule is applied

#### 4.2 *Second rejection rule*

The first rejection rule is designed to tackle with cases with no obvious closure-burst transition, due to missing closure or release gestures. What remains a problem are the cases with multiple releases. The program is designed to find the most significant change in similarity scores, but not necessarily the first one. This becomes a problem in multiple-release cases, since the first release is not always the most significant one. Multiple-release happens most often in velar stops. In fact, the case with the greatest error value (error = -60ms) in M08 is a multiply-released initial [k] in the word *cause* (see Figure 7). Not only is the velar stop multiply-released but also the first three (or four) releases are widely apart. Instead of finding the first release, the <silence> score tracker finds the second major release while the <sh> score tracker finds the third major release, and thus the program returns the mid point of the two, which is 60ms later than the first release.



**Figure 7.** Multiply-released initial [k] in the word *cause* of speaker M08. First release is marked by the blue downward arrow; the candidate point found by the <silence> score is marked by the black upward arrow while the point found by <sh> score is marked by the red upward arrow; the final point of burst returned by the program is marked by the blue upward arrow in the middle

It would be ideal if the program find all points of release during the stop and return the first one. However, in practice, this is hard to do. Among other things, this would potentially interfere with the rejection of spurious releases. Therefore for the time being, we use a simple rule to reject cases of multiple releases, which partially addresses the problem. The general idea is to exclude cases where the two candidate points of release, returned by the <silence> score and the <sh> score respectively, are too far apart, which is indicative of an unusual multiple-release.

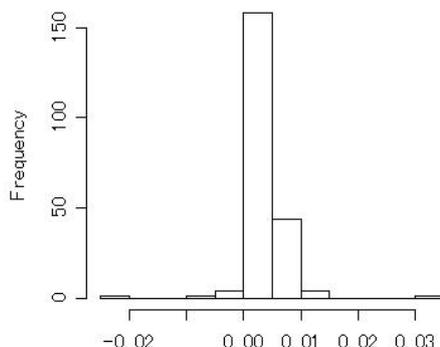
*(5) Second rejection rule*

If the two candidate points, one located in the <sh> score and the other one located in the <silence> score, are apart by more than 20ms, the case will be rejected, i.e. excluded from the data set.

By using the second rejection rule, the case shown in Figure 8 will be rejected because the two candidate points are apart by 40ms. It should be noted that this rule only rejects a particular type of multiple-release cases, i.e. the two candidate points (returned by the silence score and the fricative score) represent two separate releases and the two releases are more than 20ms apart. Even for this type, what the rejection rule does is simply exclude the case from the training set, without returning any release point.

Applying the second rejection rule to M08's data excludes 20 more cases and the RMS error is 5.64ms. After adding 5ms to the estimate values, the error is reduced

to 3.44ms (see Figure 8). Notice that the number of outliers (i.e. residual after the rejection rules) is reduced to only 2, one on the positive side and one on the negative side. After applying the rule to F07's data, 3 more cases are rejected, and the RMS error goes down to 6.02ms. When 5ms is added to the prediction, the error is further reduced to 3.22 ms.



**Figure 8.** Error distribution in M08 after the second rejection rule is applied

#### 4.3. Testing the algorithm on the rest of data

We have shown that the two rejection rules significantly improve the performance of the algorithm in both speakers' training data, especially in speaker M08's. Table 2 summarizes the number of cases excluded and the decrease in RMS error in both speakers after applying the two rejection rules sequentially.

	F07				M08			
	size	error	error <sub>+5</sub>	sd	size	error	error <sub>+5</sub>	sd
<b>Baseline algorithm</b>	231	7.22	4.85	4.85	261	13.11	14.00	13.17
<b>after 1<sup>st</sup> rejection</b>	227	6.81	4.19	4.19	233	9.27	9.26	8.94
<b>after 2<sup>nd</sup> rejection</b>	224	6.02	3.22	3.23	213	5.64	3.44	3.41

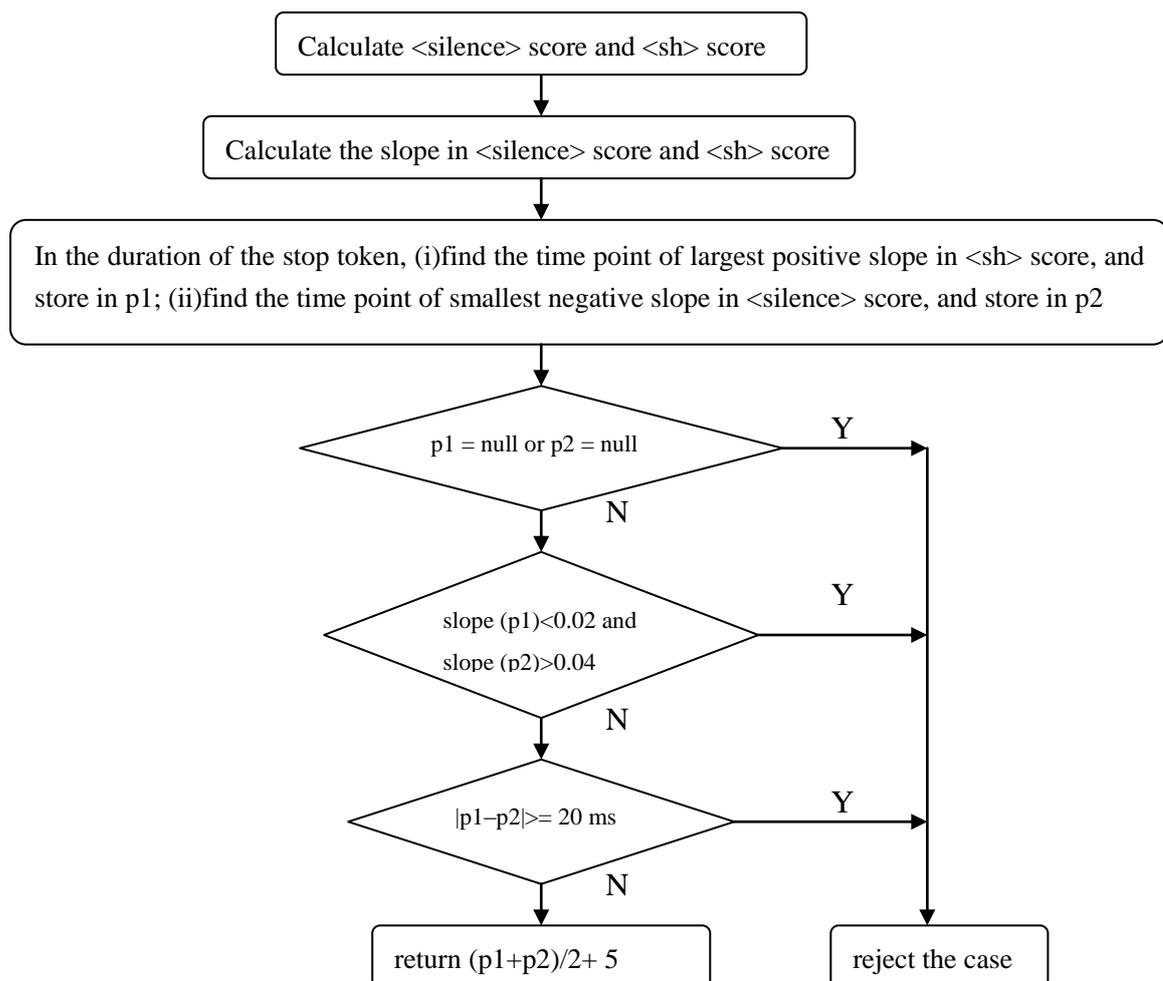
**Table 2.** Results with speaker F07's and speaker M08's developmental data. *Size* is the number of cases; *error* is the RMS error value; *error<sub>+5</sub>* is the RMS error after the estimates are shifted by 5ms to the right; *sd* is the standard deviation of error.

Overall, 7 of 231 cases are dropped from F07's data (rejection rate = 3.03%), and the RMS error is improved by 33.6%; in M08's data, 48 of 261 cases are dropped (rejection rate = 15.05%), and the RMS error is improved by 75.4%. For both speakers, the RMS error is further reduced when 5 ms is added to all estimated values, which suggests that the point found by the algorithm is consistently earlier than the real point of burst. Both speakers achieved a RMS error lower than 3.5ms after applying the two rejection rules. This is near-optimal, because given the step size of 5ms when calculating similarity scores, the optimal error in theory is  $5/2 = 2.5$ ms. However, the large difference in rejection rates, 3.03% vs. 15.05%, suggests that there is a great amount of individual differences, in terms of the detectability of stop releases. Apart from gender and age, the most important difference between F07 and

M08 is probably in speech style, as F07 is a relatively slow talker while M08 is extremely fast and soft (though the softness might be due to recording conditions).

We applied the baseline algorithm as well as the two rejection rules to all speakers' data, and found that the rejection rate ranges from 3.03% to 30.5%, with the average value of 13.13% and a standard deviation of 8.6%. (The details of rejection in all speakers are attached in Appendix II.) We also conducted a second test, using a random sample of 50 target tokens from all speakers, in which about half of the cases were from speakers with a high rejection rate (>20%). All 50 cases were hand-tagged for point of burst and the results were checked against the estimated values given by the program. Altogether 7 cases were rejected. In the remaining 43 cases, RMS error is within 5ms; in the 7 cases that were rejected, 4 were rejected by the first rule and 3 the second rule. Two rejected cases, one from each rule, were judged to be not strongly evidenced.

The complete algorithm, together with two rejection rules, is illustrated in the flow chart below.



**Figure 9.** Flow chart for finding the point of release

#### 4. Summary of results

Table 3 lists the estimated mean values and standard deviations of closure duration, VOT, and total duration across all speakers by place of articulation.

	labial ([p])	alveolar ([t])	velar ([k])
<b>N</b>	2461	4142	3566
<b>Mean(D<sub>c</sub>)</b>	69.5	48.9	54.9
<b>Sd (D<sub>c</sub>)</b>	36.4	23.9	22.9
<b>Mean(D<sub>r</sub>)</b>	48.0	51.2	57.9
<b>Sd (D<sub>r</sub>)</b>	25.1	27.5	26.0
<b>Mean(D<sub>t</sub>)</b>	117.6	100.2	112.9
<b>Sd (D<sub>t</sub>)</b>	46.5	41.2	37.7

**Table 3.** Summary of duration values (in ms). N = total number of tokens; D<sub>c</sub> = closure duration; D<sub>r</sub> = VOT; D<sub>t</sub> = total duration

Compared with the average durations found in Byrd (1993) for read speech in TIMIT (see Table 4), the Buckeye values are very similar, though the VOT values are a little bit longer.

	labial ([p])	alveolar ([t])	velar ([k])
<b>Mean(D<sub>c</sub>)</b>	69	53	60
<b>Sd (D<sub>c</sub>)</b>	24	29	26
<b>Mean(D<sub>r</sub>)</b>	44	49	52
<b>Sd (D<sub>r</sub>)</b>	22	24	24

**Table 4.** Duration values (in ms) from Byrd (1993). D<sub>c</sub> = closure duration; D<sub>r</sub> = VOT; D<sub>t</sub> = total duration

#### 5. General discussion

We present in this paper a pioneer case study in burst detection in voiceless stops in spontaneous speech. We use the exemplar-based spectral template approach, which was first proposed in Johnson (2006), and implement a burst detection program that finds the most likely point of burst within the duration of a voiceless stop in word-initial position.

A large part of the paper is devoted to the illustration of the wide range of variation in the realization of voiceless stops in spontaneous speech. Little is reported on this issue in the current literature, but we believe that it is central to the success of any automatic burst detection algorithm, especially those designed for spontaneous speech. We show in detail how different types of realization affects the performance of the algorithm, and how the algorithm can be improved to deal with the diversity. Two rejection rules are implemented to exclude cases where there is no obvious closure-burst transition and cases with more than one releases. Altogether these two rejection rules reduce the error by about 33.6% and 75.4% in

two speakers' training data. The final RMS error is around 3.22ms in the training data, and is within 5ms in the 50 random test cases (for comparison, 44% of the landmarks in Liu [1996] are found within 5ms of the hand-transcription). The estimated values of closure duration and VOT in this study are similar to previous results of corpus studies. In particular, the estimated VOT values show the canonical pattern of increasing as the place of articulation moves from the lips to the velum (i.e. [p] < [t] < [k]).

Further improvement of the algorithm can be made in the following aspects. First, in the current study, we only tested two speakers' data in detail but didn't explore the full range of speaker differences. In the next step, we plan to test the algorithm more thoroughly, using all 19 speakers' data (and presumably the other 21 speakers in the corpus, whose data have been made available recently). Second, the cases of multiple releases can be investigated in more detail. The second rejection rule in the current algorithm doesn't fully address this problem – it only excludes the most extraordinary cases of multiple-release, i.e. the cases where the silence score and the fricative score find two separate releases and the two releases are apart by more than 20ms. Future work will focus on the modification of this rule by providing a way to identify all existing releases and return the earliest one. Last but not least, the current algorithm is only trained and tested on word-initial voiceless stops. It should be possible to extend the current program to stops that are word-medial or word-final, as well as voiced stops, for finding point of release and calculating VOT values.

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**Appendix I** Speakers' average speaking rate and their relative rank in the group

	Average speaking rate	rank
F01	5.8552	3
F02	5.1846	10
F03	5.7704	4
F04	5.3442	8
F05	5.3042	9
F06	4.5032	16
F07	4.0218	19
F08	4.8831	12
F09	5.3513	7
F10	4.3584	18
M01	4.4421	17
M02	5.889	2
M03	4.8757	13
M04	4.6359	14
M05	5.6882	5
M06	4.6359	15
M07	5.6137	6
M08	6.4345	1
M09	5.1081	11
<b>Mean</b>	<b>5.152</b>	

Average speaking rate = total number of syllables produced / total amount of time (in s)

rank: the fastest (highest averaging speaking rate) is ranked 1, and second fastest speaker is ranked 2, and so on.

## Appendix II Rejection rates in all speakers

	F01	F02	F03	F04	F05	F06	F07	F08	F09	F10
N	674	572	777	900	1243	490	231	449	699	412
Rsil	2	1	0	0	4	0	0	1	0	0
Rsh	1	1	1	0	1	0	0	0	0	0
R1	46	48	207	28	75	24	4	29	21	14
R2	12	30	29	33	48	31	3	18	15	18
Ngood	613	492	540	839	1115	435	224	401	663	380
R%	9.05	13.98	30.5	6.77	9.64	11.22	3.03	10.69	5.15	7.76

	M01	M02	M03	M04	M05	M06	M07	M08	M09
N	564	1027	784	865	724	512	636	618	718
Rsil	0	0	0	1	0	0	0	0	0
Rsh	0	1	0	0	2	0	1	0	1
R1	31	94	7	48	93	53	3	54	7
R2	12	128	39	27	98	21	12	44	20
Ngood	521	804	738	789	531	438	663	520	690
R%	7.62	21.71	5.86	8.78	26.65	14.45	2.51	15.85	3.89

N = the total number of target cases

Rsil = the number of cases where no decreasing period is found in <silence> score

Rsh = the number of cases where no increasing period is found in <sh> score

R1 = the number of cases rejected by the first rejection rule

R2 = the number of cases rejected by the second rejection rule

Ngood = the number of remaining cases after all rejection

R% =  $1 - \text{Ngood} / \text{N}$ , the rejection rate

Rejection is applied in the above sequence.

# Implementation of Syntax and Semantics of Questions in Computational Minimalism

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## Abstract

Questions are one of the major sentence types in natural languages, and syntax and semantics of questions have been studied in linguistics for a long time. We use them to ask something. This paper provides computational algorithms by which we can implement syntax and semantics of questions in computational minimalism. For the implementation of questions, this paper modifies Stabler's Computational Minimalism and proposes an RCM system. Within the RCM system, syntactic behaviors of questions are implemented by syntactic operations in Chomsky's recent minimalist syntax. Semantic interpretations of questions are calculated when one syntactic operation ends, because syntactic operations and their semantic counterparts are connected by *homomorphism*. In addition, the semantic interpretations of questions are compositionally calculated based on Montagivan semantics.

**Keywords:** questions, computational minimalism, an RCM system, compositionality.

## 1. Introduction

Questions are one of the important sentence types, and we usually use them when we want to ask something.<sup>1</sup> Every language has questions, and we can derive different types of questions from a declarative sentence. Let's see an example.

- (1) a. John loves Mary
- b. Does John love Mary?
- c. Who loves Mary?
- d. Who(m) does John love?

From a declarative sentence (1a), we can derive two different kinds of questions. (1b) is a yes-no question, and (1c) and (1d) are wh-questions.

The goal of this paper is to provide computational algorithms by which we can implement syntax and semantics of questions in computational minimalism (CM). In order to computationally implement questions, this paper modifies Stabler’s system and proposes a Revised Computational Minimalism (RCM) system. Within this RCM system, the syntactic behaviors of questions are implemented by syntactic operations in Chomsky’s recent minimalist syntax (Chomsky, 2000, 2001, 2005). For the semantic part, this paper incorporates Montague grammar (Montague, 1974), and all the semantic interpretations of questions are compositionally calculated based on mechanisms in Montagivan semantics. For the implementational efficiency, this paper supposes that syntactic operations and their semantic counterparts are connected by *homomorphism*, and all the semantic interpretations of questions are automatically calculated whenever one syntactic operation terminates.

This paper is organized as follows: Section 2 provides brief overviews of previous approaches to questions, which contain the approaches in syntax and semantics. Section 3 introduces computational minimalism. Two types of computational approaches are introduced: Stabler’s CM and Lee’s RCM system. Section 4 develops computational algorithms for questions within the RCM system, and Section 5 summarizes this paper.

## 2. Previous Approaches to Questions

### 2.1. Syntactic Approaches

Syntactic approaches to questions can be divided into two categories depending on whether they employ *movement* as a major syntactic operation or not. One category is the movement approach which analyzes questions with movements. The other is the lexicalist approach which analyzes them without any movement operation.

In Chomskyan syntax, major focuses have been on how questions can be derived from their declarative counterparts. The table in (2) summarizes how the syntactic analyses on questions have historically developed in Chomskyan traditions.

#### (2) Syntactic Analyses with Movement

	Yes-No Question	Wh-Question
TG (Chomsky 1957/1977)	Subject-Aux Inversion	Wh-movement
GB (Chomsky 1981/1986)	I-to-C Movement	Wh-movement
MP (Chomsky 1995)	Move (Head Mvt.)	Move (Wh-Mvt.)

As you can observe in this table, *movement* is crucial in explaining syntactic behaviors of questions, whether it is a yes-no question or a wh-question.

There are other types of syntactic analyses where *movement* plays no role. They include the analyses in GPSG (Generalized Phrase Structure Grammar; Gazdar et al. 1985) and HPSG (Head-driven Phrase Structure Grammar; Pollard and Sag 1994, Sag and Wasow 1999). In those kinds of syntactic approaches, both yes-no and wh-questions are analyzed with feature instantiation and feature percolation.

## 2.2. *Semantic Approaches*

Semantic approaches to questions have mainly focused on what the semantic interpretations of various types of questions are. They can be divided roughly into three groups. The first is *Categorial Approaches*, where semantic types are used to catch the meaning of questions. The second is *Embedding Approaches*, where the meaning of questions is captured by embedding the questions into declarative sentences, along with some verbs such as *know*, *wonder*, etc. The last one is *Propositional Approaches*, where the meaning of questions is represented by propositions.

There are three major claims in *Propositional Approaches* to questions. Hamblin (1973) said that the meaning of a question is the set of possible answers. Karttunen (1977), however, claimed that the meaning of a question is the set of true answers. Groenendijk & Stokhof (1982, 1984) took a little different position and said that the meaning of a question is just propositions, not a set of propositions.

## 3. **Computational Minimalism**

### 3.1. *Stabler's System*<sup>3</sup>

Stabler's works (1997, 2001, forthcoming) have tried to implement the ideas in Chomsky's *Minimalist Program* (1995). He defined minimalist grammar as follows.

(3) Definition of Minimalist Grammar (Stabler, 2001:73)

A *minimalist grammar* is a 4-tuple  $(V, Cat, Lex, F)$ , where

$V = (P \quad I)$ , (non-syntactic feature)

$Cat = (base \quad select \quad licensors \quad licensees)$ , (syntactic features)

$Lex$  is a finite set of expressions built from  $V$  and  $Cat$  (the lexicon)

(where an "expression" is a tree), and

$F = \{merge, move\}$  (the generating functions)

Here,  $P$  refers to the phonetic feature and  $I$  to the semantic feature. Their examples are shown in (4). These examples are for English lexicon.

(4) Phonetic Feature  $P$  and Semantic Feature  $I$

$P = \{/marie/, /quechua/, /speaks/, /believes/, \dots \}$

$I = \{(marie), (quechua), (speaks), (believes), \dots \}$

As you can see, phonetic features are indicated by placing slashes around the standard orthographic representations of the word, and semantic features are indicated by placing parentheses around standard orthographic representations.

The syntactic feature  $Cat$  can be partitioned into four parts as in (5).

(5) Syntactic Feature  $Cat$

$Cat = (base \quad select \quad licensors \quad licensees)$ , where

$base = \{C, T, v, D, N, \dots \}$ ,

$select = \{=x, =X, X= \mid x \in base\}$ ,

$licensors = \{+nom, +acc, +wh, +WH, \dots \}$ ,

$licensees = \{-nom, -acc, -wh, \dots \}$ .

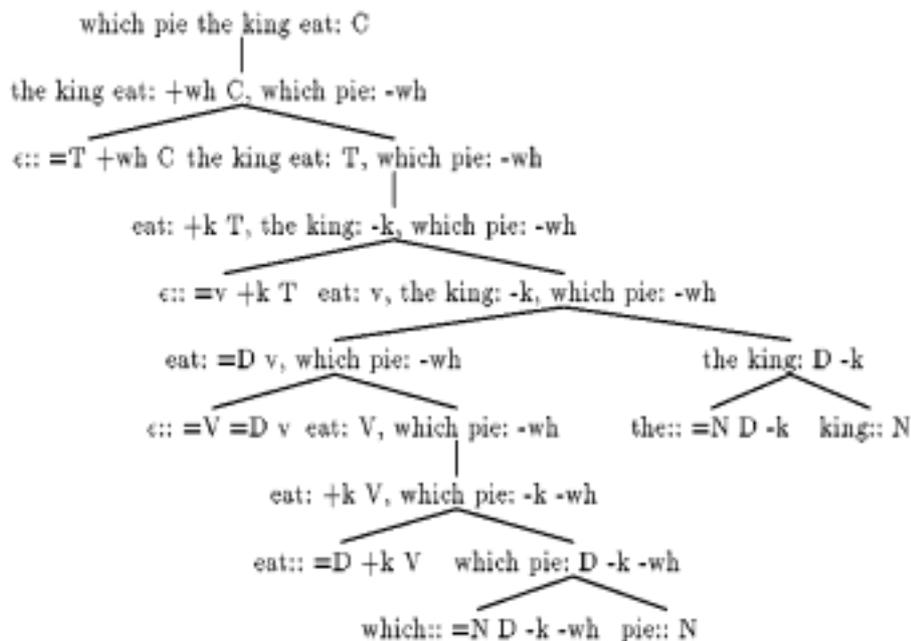
Here,  $base$  refers to a set of basic syntactic categories such as C, T, N, V, v, and so on. For each type of the syntactic category, we may have three types of selecting constituent(s) of the category, which is encoded in  $select$ . The feature  $=x$  or  $=X$  implies that the category  $x$  or  $X$  follows the current category, whereas  $X=$  means that the category  $X$  precedes the current category. Here, upper case letters refer to the feature that causes an overt movement, whereas lower case ones refer to the feature that causes a covert movement. The remaining feature sets are  $licensors$  and  $licensees$ . These feature sets are involved in phrasal movements. A head assigns a feature  $+f$  or  $+F$  to  $-f$  constituents.

The generating function  $F$  consists of two operations *merge* and *move*. *Merge* is an operation that combines two syntactic constituents, where one of two constituents serves as a head. *Move* is an operation that moves a constituent from one position to another position. This *move* operation is triggered to cancel out [-interpretable] feature +f or +F. In Stabler (2001), he revised some notational conventions. Accordingly, in Stabler (2001), *merge* is represented by binary branch, whereas *move* is indicated by unary branch.

In his system, an example sentence (6) is analyzed as in (7).<sup>2</sup>

(6) Which pie did the king eat?

(7) Analysis Tree for the Sentence, *Which pie did the king eat?*



An important trait of Stabler's system is that the analyses proceed in a bottom-up style. That is, the first operation in (7) is to combine (or to merge) *which* and *pie*. Because the *select* of *which* is =N and the *Cat* of *pie* is N, the *Cat* of *pie* satisfies the *select* of *which*. Therefore, the former cancels out the latter. The other features of *which* and *pie* are unified. Then, *which pie* combine with *eat*. The analyses proceed as such until all the words in the sentences are exhausted

### 3.2. Lee's System

Lee (2005a, 2005b) modified Stabler's CM, and introduced a Revised Computational Minimalism (RCM) system. The most important change in the RCM system is that ideas in Chomsky (2000, 2001), such as probe-goal relations, are implemented computationally. The characteristics of the RCM system are enumerated in (8).

- (8) Characteristics of the RCM System
  - a. attribute-value ordered pairs (**avop**)
  - b. Probe-Goal relations
  - c. feature matching processes
  - d. modified unification algorithms
  - e. Montagovian semantics in semantic interpretations

These characteristics can be explained as follows:

First, the RCM system uses attribute-value ordered pairs in (9). Three attributes are separated by colon (:), and these attributes are explained in (10).

- (9) Attribute-Value Ordered Pairs (**avop**)  
PHON : SYN : SEM

- (10) Three Attributes
  - a. PHON
    - (i) phonological/morphological form
    - (ii) concatenates words to form a stream of words
  - b. SYN
    - (i) category information
    - (ii) other syntactic features
  - c. SEM
    - (i) semantic interpretation
    - (ii) based on Montagovian semantics

Stabler used parentheses for semantic interpretations. In the RCM system, however, semantic parts are based on Montagovian semantics, and semantic interpretations are compositionally calculated.

Second, the RCM system adopts Chomsky's probe-goal relations for syntactic operations. The locality condition between probe-goal is shown in (11).

- (11) Locality Condition between Probe and Goal (Chomsky, 2000:122)
- a. Matching is feature identity.
  - b. D(P) is the sister of P.
  - c. Locality reduces to closest c-command.

Case markers are one of the typical examples where these probe-goal relationships play a role. In order to implement these relations, this paper proposes the following techniques.

- (12) Implementation of Probe-Goal Relations for Case in the RCM System
- a. The feature-matching process for [acc] is activated when  $\nu$  is merged.
  - b. The feature-matching process for [nom] is activated when T is merged.

Though V has the [acc], the feature-matching process is not activated until  $\nu$  is merged. When  $\nu$  is merged, the feature-matching process is activated and it checks if the [acc] feature of the probe matches with that of the goal. In order to distinguish between the [acc] feature in V and that of DP/NP, let's use subscript notations for them. That is, let's call the [acc] feature in V [acc<sub>0</sub>] and the others in DP/NP [acc<sub>1</sub>], [acc<sub>2</sub>], etc. When the feature-matching process is activated, [acc<sub>0</sub>] and the others make a pair, viz., [acc<sub>0</sub>]-[acc<sub>1</sub>], [acc<sub>0</sub>]-[acc<sub>2</sub>], [acc<sub>0</sub>]-[acc<sub>3</sub>], etc. If the [acc<sub>0</sub>] feature of V matches with [acc<sub>i</sub>] of NP/DP, the matched [acc<sub>0</sub>]-[acc<sub>i</sub>] pair itself disappears (where  $i = 1, 2, 3, \dots$ ). The feature-matching process for [nom] is similar. Along with these algorithms, we can implement probe-goal relations in Chomsky (2000).

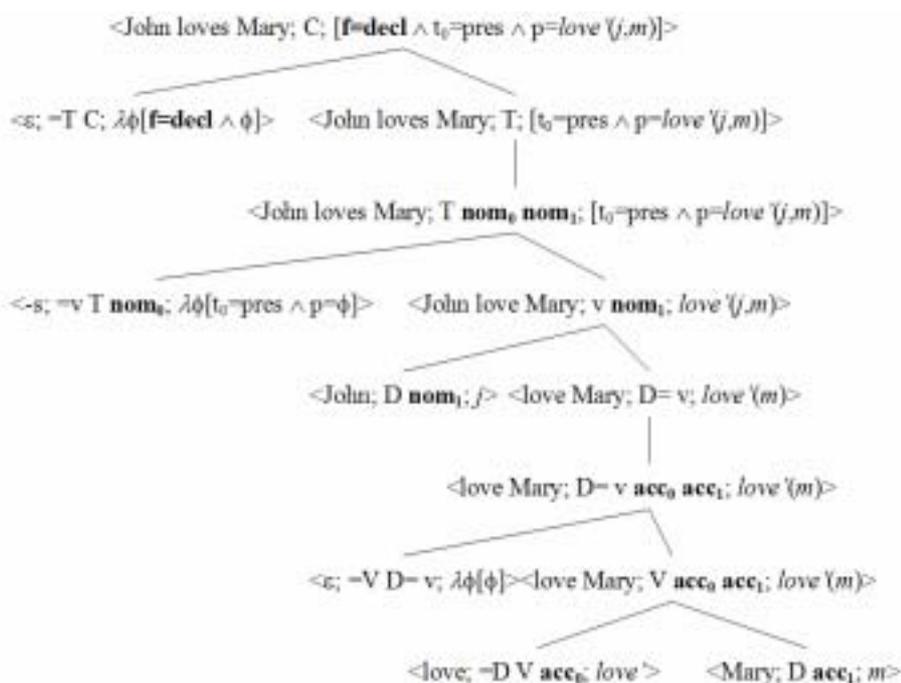
Third, the RCM system in this paper makes use of feature-matching processes. How these processes are activated, especially those for Case feature, is explained in the above paragraph. Like [acc] or [nom], we will make use of these feature-checking processes also for wh-movements along with an uninterpretable feature [wh].

Fourth, the RCM system makes use of modified unification algorithms for other features. In the original unification algorithms such as those in HPSG, when there are incompatible features, we determine that the input sentence is ungrammatical. On the contrary, in the RCM system, when we meet incompatible features, the system does not crash immediately. Instead, it will postpone the crash until the relevant feature is activated.

Finally, the RCM system takes Montague grammar in its semantic part, and all the semantic interpretations are compositionally calculated based on the mechanisms in Montague semantics. As mentioned above, the RCM system takes a bottom-up parsing strategy. Therefore, it is easy to implement Montague-style semantics. In Stabler's CM system, semantic features are indicated by placing parentheses around a standard orthographic representation. This kind of representation makes it quite simple to understand what the semantic interpretation of the given sentence is. The RCM system takes Montague grammar in its semantic part and solves the shortcomings in Stabler's system. Now, let's take an example sentence and see how sentences are analyzed in the RCM system. In comparison with interrogatives/questions, I start from a declarative sentence in (1a). A declarative sentence in (1a) is analyzed as in (13) in the RCM system.

(1) a. John loves Mary

(13) Analysis Tree for the Sentence, *John loves Mary*



The analysis proceeds as follows: First, *love* is merged with *Mary*. Because the category D of *Mary* satisfies the select feature =D in *love*, D of *Mary* is matched with =D in *love*. The other features are unified. Then, *love Mary* is combined with a light verb *v*. Since the category V of *love Mary* satisfies the select feature =V of the light verb *v*, V of *love Mary* is matched with =V in the light verb. The other features are unified. As *v* is

merged, we may activate the feature-matching process, and we check the identity of the pair  $[\text{acc}_0]$ - $[\text{acc}_1]$ . Since these two features are identical, this pair disappears. That is, Accusative Case in *Mary* is licensed. Now, *John* is merged with *love Mary*. Because the category D of *John* satisfies the *select* feature  $D=$  in *love Mary*, D of *John* is matched with  $D=$  in *love Mary*. The other features are unified. Now, T *-s* is merged, and  $v$  of *John love Mary* is matched with  $v=$  of T. The other features are unified. Since T is merged, we may activate the feature-matching process, and we check the identity of the pair  $[\text{nom}_0]$ - $[\text{nom}_1]$ . Since these two features are identical, this pair disappears. Finally, C is merged with *John loves Mary*, and T of *John loves Mary* is matched with  $=T$  in C. In the tree of (13),  $t_0$  refers to the tense of the sentence, and  $f$  to the force of sentence, i.e. type of sentences.

#### 4. Implementations of Questions in Computational Minimalism

##### 4.1. Deriving Semantic Interpretations of Questions

Before we implement syntax and semantics of questions, let's see how we can represent the semantic interpretation of questions. In order to derive questions from a declarative sentence, Karttunen(1977) made use of the following rule in (14).

(14) Proto-Question Rule (Karttunen, 1977:13)

If  $\Phi \in P_t$ , then  $?\Phi \in P_Q$ .

If  $\Phi$  translates to  $\Phi'$ , then  $?\Phi$  translates to  $p[\vee p \wedge p = \wedge \Phi']$

Here,  $\Phi$  is a declarative sentence, and  $?\Phi$  refers to a question.

In his system, a yes-no question in (15a) can be translated as in (15b) (Karttunen, 1977:16).

(15) a. Does Mary cook?

b.  $p[\vee p \wedge [p = \wedge \text{cook}'(m) \vee p = \wedge \neg \text{cook}'(m)]]$

c.  $[\text{cook}'(m) \vee \neg \text{cook}'(m)]$

As you can see in (15b), the semantic interpretation of yes-no questions is too complex. It is also too difficult to implement *intensionality* in computational implementations. Therefore, this paper simplifies the semantic interpretation of (15b) and uses that of

(15c), where all the complex notations are eliminated including *intensionality*. This paper will use the semantic interpretation in (15c) for implementational efficiency.

Now, let's move on to the semantic interpretations of wh-questions. Karttunen(1997) analyzed a wh-question in (16) through the steps in (17).

(16) Who dates Mary?

(17) Semantic Interpretation (Karttunen, 1977:20)

- a. ?he<sub>i</sub> dates Mary       $p[\forall p \wedge p = \wedge date'(x_i, m)]$
- b. who                       $P \ xP\{x\}$
- c. Who dates Mary?       $p \ x[\forall p \wedge p = \wedge date'(x_i, m)]$

He translated *who* into  $P \ xP\{x\}$ . Because this semantic interpretation contains *intensionality*, it is also necessary to simplify the notations in order to implement it computationally. Let's do it from the semantic interpretation of *some* in Montague grammar, which is shown in (18).

(18) Semantic Interpretation of *some* and *someone* (Dowty et al., 1981:108)

- a. *some*:       $Q[ \ P \ x[Q(x) \wedge P(x)]]$
- b. *someone*:  $P \ x[person'(x) \wedge P(x)]$
- c. *anyone*:     $P \ x[person'(x) \wedge P(x)]$

If *some* can be translated into the semantic interpretation in (18a), *someone* can be translated into the semantic interpretation in (18b). Likewise, *anyone* can be translated into the semantic interpretation in (18c). Note that *someone* and *anyone* have the same semantic interpretations. The only difference lies in their syntactic distributions. That is, *someone* is used in affirmative sentences, whereas *anyone* is used in negatives and interrogatives. Then, the semantic interpretation of wh-words such as *who* can be derived as in (19).

(19) Semantic Interpretation of *anyone* and *who*

- a. *anyone*:     $P \ x[person'(x) \wedge P(x)]$
- b. *who*:         $P \ x[person'(x) \wedge P(x)]$

Here, note that  $x$  of *anyone* is changed into  $x$  in *who*. Along with this semantic interpretation, we can implement wh-questions in the RCM system.

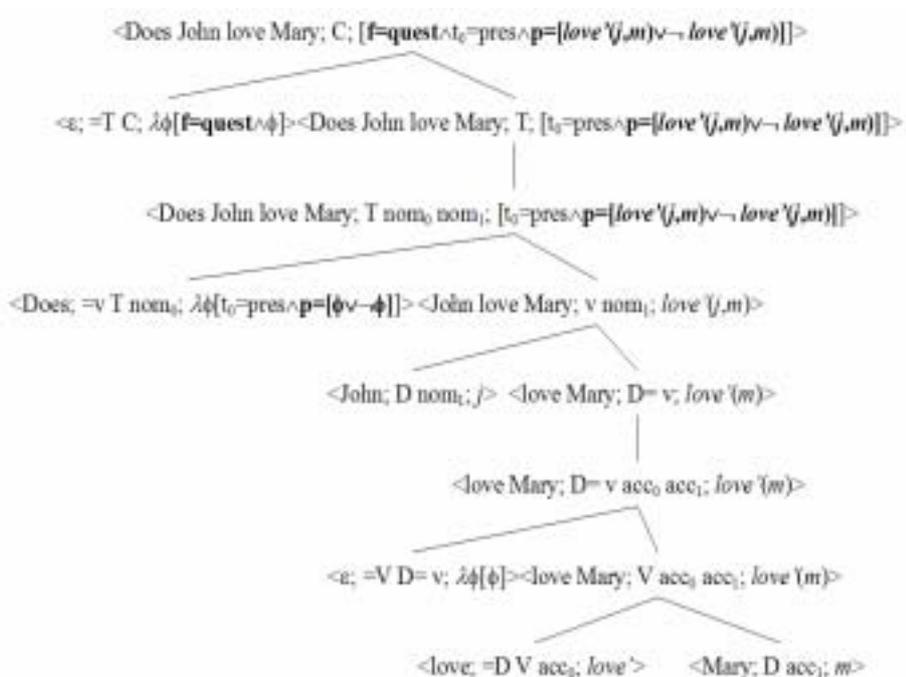
In sum, the semantic interpretations of yes-no questions and wh-questions are implemented in the RCM system as follows: The semantic interpretations of yes-no questions are represented by two propositions, one of which is true and the other is false. The semantic interpretations of wh-questions are represented by a set of entities that satisfied the propositions.

#### 4.2. Yes-No Questions

Now, let's start to implement syntax and semantics of questions. From a declarative sentence (1a), we can derive a yes-no question in (1b). This sentence can be analyzed as in (20).

- (1) a. John loves Mary  
 b. Does John love Mary?

(20) Analysis Tree for the Sentence, *Does John love Mary*



The analyses up to *John love Mary* are the same as those of (13). Then, T *does* is merged, and *v* of *John love Mary* is matched with *v*= of T. The other features are unified. Since T is merged, we may activate the feature-matching process, and we check the identity of the pair [nom<sub>0</sub>]-[nom<sub>1</sub>]. Because these two features are identical, this pair

disappears. Note that the semantic interpretation changes from  $love'(j,m)$  to  $[t_0=pres \wedge p=[love'(j,m) \vee \neg love'(j,m)]]$ , because  $love'(j,m)$  combines with  $\lambda\phi[t_0=pres \wedge p=[\phi \vee \neg \phi]]$  where the former is an argument and the other is a functor. Finally, C is merged with *Does John loves Mary*, and T of *Does John loves Mary* is matched with =T in C. Also note that the semantic interpretation changes from  $[t_0=pres \wedge p=[love'(j,m) \vee \neg love'(j,m)]]$  to  $[f=quest \wedge t_0=pres \wedge p=[love'(j,m) \vee \neg love'(j,m)]]$  because  $[t_0=pres \wedge p=[love'(j,m) \vee \neg love'(j,m)]]$  combines with  $\lambda\phi[f=quest \wedge \phi]$ , where the former is an argument and the other is a functor.

### 4.3. Wh-Questions

Now, let's move to wh-questions. From a declarative sentence (1a), we can derive wh-questions in (1c) and (1d). (1c) can be analyzed as in (21).

- (1) a. John loves Mary
- c. Who loves Mary?
- d. Who(m) does John love?

(21) Analysis Tree for the Sentence, *Who loves Mary*



The analyses up to *John love Mary* are the same as those of (13). Then, *Who* is merged

with *love Mary*. Because the category D of *Who* satisfies the select feature D= in *love Mary*, D of *Who* is matched with D= in *love Mary*. The other features are unified. Note that the semantic interpretation of *who* is  $\lambda P \lambda x_1 [person'(x_1) \wedge P(x_1)]$ . It becomes a functor, and the semantic interpretation of *love Mary* becomes an argument. Therefore, the semantic interpretation of *Who love Mary* becomes  $\lambda x_1 [person'(x_1) \wedge love'(x_1, m)]$ . Also note that *Who* contains a wh-feature  $[wh_1]$ . Now, T -s is merged, and *v* of *Who love Mary* is matched with  $v=$  of T. The other features are unified. Since T is merged, we may activate the feature-matching process, and we check the identity of the pair  $[nom_0]$ - $[nom_1]$ . Because these two features are identical, this pair disappears. Finally, C is merged with *Who loves Mary*, and T of *Who loves Mary* is matched with  $=T$  in C. Here  $[wh_1]$  feature of T is checked with  $[wh_0]$  of C, and *f* has a value *quest* (question).

Now, let's move on to the second wh-question. From a declarative sentence (1a), we can derive a wh-question in (1d), and (1d) can be analyzed as in (22).

(22) Analysis Tree for the Sentence, *Whom does John love*



The analysis proceeds as follows: First, *love* is merged with *whom*. Because the category D of *whom* satisfies the select feature =D in *love*, D of *whom* is matched with =D in *love*. The other features are unified. Note that the semantic interpretation of *whom* is  $\lambda P \lambda x_2 \lambda x_1 [person'(x_2) \wedge P(x_2)]$ . It becomes a functor, and the semantic interpretation of *love* becomes an argument. Therefore the semantic interpretation of *love whom* becomes

$\lambda x_2 \lambda x_1 [person'(x_1) \wedge love'(x_1, x_2)]$ . Also note that *whom* contains a wh-feature  $[wh_2]$ . Then, *love whom* is combined with a light verb  $v$ . Since the category V of *love whom* satisfies the select feature  $=V$  of the light verb  $v$ , V of *love whom* is matched with  $=V$  in the light verb. The other features are unified. Because  $v$  is merged, we may activate the feature-matching process, and we check the identity of the pair  $[acc_0]$ - $[acc_1]$ . Since these two features are identical, this pair disappears. That is, Accusative Case in *whom* is licensed. Now, *John* is merged with *love whom*. Because the category D of *John* satisfies the select feature  $D=$  in *love whom*, D of *John* is matched with  $D=$  in *love whom*. The other features are unified. Now, T *does* is merged, and  $v$  of *John love whom* is matched with  $v=$  of T. The other features are unified. Since T is merged, we may activate the feature-matching process, and we check the identity of the pair  $[nom_0]$ - $[nom_1]$ . Because these two features are identical, this pair disappears. Finally, C is merged with *does John love whom*, and T of *does John love whom* is matched with  $=T$  in C. Here, *whom* moves into the sentence-initial position by the operation on the PHON value, making a sentence *Whom does John love*. Here  $[wh_2]$  feature of T is checked with  $[wh_0]$  of C, and  $f$  has a value *quest*.

## 5. Conclusion

This paper provides computational algorithms by which we can implement syntax and semantics of questions in computational minimalism. In order to implement questions, this paper modifies Stabler's system and proposes an RCM system. Within this RCM system, the semantic interpretations of yes-no questions are represented by two propositions, one of which is true and the other is false. The semantic interpretations of wh-questions are represented by a set of entities that satisfied the propositions. Furthermore, the semantic interpretations are compositionally calculated based on the mechanisms in Montague semantics.

## Notes

<sup>1</sup> When we say *questions*, rather than *interrogatives*, it usually implies that we especially focus on semantic interpretations in addition to syntactic behaviors.

<sup>2</sup> Here, double colon ( $::$ ) stands for lexical items, and single colon ( $:$ ) stands for derived items.

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# Subjunctive-Negation Interaction in Persian

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## Abstract

The goal of this paper is to offer a morpho-syntactic account of the co-occurrence restrictions between the subjunctive marker in Persian on the one hand and the negative marker and aspect marker on the other. To do this, a polarity phrase is proposed with a head bearing either a negative or a [-imperfective] feature. Also, the aspect marker, heading the aspect phrase, is assumed to have a [+imperfective] feature. The complementary distribution of the subjunctive marker and the aspect marker is regulated by the feature composition of the verb which may bear a [+/-imperfective] feature. A Pol with a Neg feature lacks any specification for the [imperfective] feature, permitting the co-occurrence of the negative marker and the aspect marker.<sup>1</sup>

## 1. Introduction

Though mood has been discussed in traditional grammar books on Persian, there is no discussion on how it interacts with negation in this language. Persian has a relatively rich verbal morphology with the majority of verbal concepts expressed via complex predicates. A verb, light or heavy, may bear up to two inflectional prefixes and the maximum of three inflectional suffixes. The inflectional prefixes come from a set including the negative marker, the subjunctive marker, and the aspect marker. The suffixes come from a set including markers of tense, perfectivity, and subject agreement in that order. This is illustrated in (1) in which the negative marker precedes the aspect marker, and with the tense, the perfective marker and the subject agreement suffixes following the present stem of the verb in that order. Subjunctive clauses, marked with

the verbal prefix *-be* are usually selected by the matrix verb (2), an adverbial element, a modal (3), etc, or appear in imperative clauses (4).<sup>2</sup>

- (1) U nahar ne-mi-xor-d-e.  
 S/he luch not-Asp-eat-PST-PSP.3sg  
 ‘S/he has not been eating lunch.’
- (2) Pro mi-xa-m [<sub>CP</sub> PRO<sub>i</sub> be-r-æm unja].  
 Asp-want-1.sg Sub-go-1sg there  
 ‘I want to go there.’
- (3) Pro bayæd be-r-æm unja.  
 must Sub-go-1sg there  
 ‘I must go there.’
- (4) Ketab-a-ro be-zar ru miz.  
 Book-pl-Ac Sub-put on desk  
 ‘Put the books on the desk.’

The main concern of this paper is the strict co-occurrence restriction between the subjunctive mood marker on the one hand and the aspect marker and the negative marker on the other. I basically focus on simple verbs as the proposal in this article can easily be extended to compound verbs or complex predicates. The restrictions are shown in (5) and (6). While the subjunctive marker is in complementary distribution with both the negative marker and the aspect marker as shown in (5), there is no such restriction between the negative marker and the aspect marker as illustrated in (6).<sup>3</sup> Note that there is a strict ordering relationship between the negative marker and the aspect marker with the former always preceding the latter if the latter is present.

- (5) Pro mi-xa-m [<sub>CP</sub> PRO<sub>i</sub> be-(\*næ/\*mi)-r-æm unja].  
 Asp-want-1sg Sub(not/Asp)-go-1sg there  
 ‘I want (\*not) to go there.’
- (6) Mæn ne-mi-r-æm unja.  
 I not-Asp- go-1sg there  
 ‘I do not go there / I am not going there / I will not go there.’

In imperative sentences too, the verb is either marked with the subjunctive marker or with the negative marker. This is illustrated in (7) and (8), in which the relative ordering of the verbal prefixes in the complex predicate corresponding to ‘sign’ in English is irrelevant as they may not cooccur to begin with.<sup>4</sup>

- (7) Ketab-o (\*næ)-be-zar unja.  
 Book-Ac (not) Sub-put there  
 ‘(Don’t) put the book there.’

- (8) namæ-ro emzak be-(\*næ)-kon.  
 letter-Ac signature Sub(not)-do  
 ‘ (Don’t) sign the letter. ’

Section 2 discusses the affixal nature of the verbal prefixes. I show that the negative marker, the aspect marker and the subjunctive marker are better analyzed as verbal prefixes constituting a phonological word with the verb stem, rather than being independent heads to which the verb stem moves successive cyclically. In section 3 I discuss the structural position of these prefixes within the clause. Section 4 presents an account of the co-occurrence restrictions between the subjunctive marker and the other verbal prefixes. Section 5 concludes the paper.

## 2. The Affixal Nature of Verbal Prefixes

As noted earlier, there might be up to two verbal inflectional prefixes in Persian coming from a set including the negative marker, the subjunctive marker, and the aspect marker.

Subjunctive clauses in Persian, that are closest counterparts of English infinitival clauses, have a distribution similar to Greek subjunctive clauses marked with *na-* as discussed in Giannakidou (2007) in being selected by verbs of different semantic categories like volition (*xastæn* ‘want’), permission (*ejaze-dadæn* ‘allow’, *mæmnu’-kærdæn* ‘prohibition doing’), direction (*dæstur-dadæn* ‘order giving’, *tosiye-kærdæn* ‘advise doing’, *pišnæhad-kærdæn* ‘suggestion doing’) modality (*bayæd* ‘must’), verbs of fear (*tærsidæn* ‘be afraid’), and commission/implication (*mæjbur-budæn* ‘forced being’, *mæjbur-kærdæn* ‘force doing’) etc,. Of course, they may also be selected by a modal, an adverbial particle, etc, as was noted earlier

Though subjunctive clauses in this language usually seem to express a nonveridical proposition as in (2)-(3) above where they express a state of unknown (or as yet undefined) truth, Persian subjunctives are apparently not restricted to introduce a nonveridical proposition. The fact that the sentence in (9) entails that the referent of the main clause subject has been able to get to the goal of location of the embedded predicate suggests that Persian subjunctives do not necessarily express nonveridical propositions. Rather, they seem to state an unrealized tense with respect to the time of the main clause or the utterance time. This is similar to Baker’s (2004) treatment of *nà* in Lokaa which seems to be a general irrealis category, treated as mood marker in his analysis.<sup>5</sup>

- (9) Hæsæn tunest be-r-e unja.  
 Hassan could Sub-go-3sg there  
 ‘Hassan managed to go there.’

There are phonological reasons in support of analyzing the negative maker, the subjunctive marker, and the aspect marker as verbal affixes. To begin with the subjunctive marker, this prefix may participate in vowel harmony with the verb stem in colloquial Persian if the latter bears a high front or mid back vowel as shown in (10) below. This suggests that the subjunctive marker forms a phonological word with the verb stem.

- (10) a. æge be-šin-i → æge bi-šin-i  
 if Sub-sit-2sg  
 ‘if you sit down.’  
 b. æge be-xor-i → æge bo-xor-i  
 if Sub-eat-2sg  
 ‘if you eat.’

Moreover, the subjunctive prefix attracts the stress which usually falls on the last syllable of the verbal stem if the verb lacks any kind of inflectional prefixes. This is exemplified in (11)-(12), in which the stressed syllables are italicized. In (11), which lacks any verbal prefixes, the stress falls on the last syllable of the verb stem. However, in (12), where the verb stem is prefixed with the subjunctive marker, the stress falls on the prefix.

- (11) Mæn hedyæ-ro pæziroft-æm.  
 I gift-Ac accept.PST-1sg  
 ‘I accepted the gift.’  
 (12) Mæn bayæd hædyæ-ro be-pæzir-æm.  
 I must gift-Ac Sub-accept-1sg  
 ‘I must accept the gift.’

Once again, the stress attraction phenomenon would be accounted for straightforwardly if the subjunctive marker forms a single prosodic unit with the verb stem.

Another inflectional verbal prefix is *mi-*, which has traditionally been analyzed as the indicative mood marker. However, Windfuhr (1979:85) cites Lentz (1958) as stating that *mi-* marks an event not restricted in terms of its beginning or end. This makes it the marker of imperfect aspect, according to Windfuhr (1979:85). In a more recent analysis of *mi-* in Persian, Taleghani (2006:153) analyzes it as the head of the aspect phrase that marks imperfective aspect and encodes habituality or continuity of an action. This is

similar to the imperfective marker in Greek sentences that are generally ambiguous between the habitual and the progressive, as is often the case according to Comrie (1967). The interpretation of the sentences in (13)-(14) supports the analysis of this prefix as the aspect marker. Note that this prefix may mark the verb irrespective of its tense feature. This is in contrast to the subjunctive marker that strictly appears on the present stems of verbs in Persian. Interestingly, the aspect marker attracts the stress as well. This is illustrated in (13)-(14) with the stressed syllables italicized. In the absence of the aspect marker, the sentence in (13) would simply state a proposition that refers to a single action that was performed in the past corresponding to “I wrote a letter” in English.

(13) Mæn name *mi*-nevešt-æm.  
 I letter Asp-write.PST-1sg  
 ‘I (usually) wrote letters / I was writing letters.’

(14) Mæn name *mi*-nevis-æm.  
 I letter Asp-write -1sg  
 ‘I write letters / I am writing letters.’

The other remaining verbal prefix is the negative marker *næ-* ‘not’ which precedes the aspect marker if the latter is present on the verb. The stress shift phenomenon also holds true for the negative marker. In other words, the leftmost verbal inflectional prefix, being it the negative marker, the aspect marker or the subjunctive marker, attracts verbal stress as exemplified in (15)-(16). Therefore, I conclude that the verb stem already bears any permissible combination of mood, aspect, and negative features upon entering the derivation. (c.f, Baker 2004 and Blaszczyk 2007 for a similar treatment of infl in Lokaa, and the negative marker *nie-* in Polish respectively).

(15) Mæn name *ne*-mi-nevešt-æm.  
 I letter not-Asp-write.PST-1sg  
 ‘I did not (usually) write letters / I was not writing letters.’

(16) Mæn name *ne*-mi-nevis-æm.  
 I letter not-Asp-write-1sg  
 ‘I don’t write letters / I am not writing letters.’

As noted earlier, the stress attraction will be accounted for if the verbal prefixes form a single prosodic unit with the verb stem. Following the spirit of the Distributed Morphology (Halle & Marantz 1993), I take these inflectional prefixes as features on the verb stem that are phonologically realized after the application of postsyntactic Word Formation Rules and the insertion of lexical items at the morphological structure.

In other words, I do not take any of these prefixes as functional heads to which the verb stem moves successive cyclically.

### 3. The Structural Position of NegP in Persian

I assume that there is a parametric variation across languages with regard to the position of NegP in that in some languages NegP selects a TP as its complement, whereas in others NegP selects a VP (vP in more recent proposals for clause structure) (cf. Ouhalla 1990, Zanuttini 1991,1994, 1997, Acquaviva 1995, Cinque 1999 for this parametric view). Acquaviva (1995) maintains that negation does not have a fixed scope with respect to modal auxiliaries and does not have to occupy a fixed place or that it can only be interpreted in one particular position. It simply has to be above VP to include in its scope all the arguments of the sentence.

With regard to negation in Persian, Taleghani (2006:150) argues that NegP in sentence negation dominates TP in this language. She appeals to Laka's (1994) tense c-command condition in (17).

- (17) Tense C-command Condition: Tense must c-command at s-structure all propositional operators of the clause.

(Laka 1994:3)

She goes on to argue that the grammaticality of the Persian sentence in (18), as opposed to its English translation, indicates that the subject negative polarity item (NPI) *hičkæš* 'nobody' in Persian is in the c-command domain of the head Neg, as opposed to its English counterpart. This would be explained, according to her, if NegP is above TP, c-commanding the subject. She, then, follows Laka (1994) for a similar proposal for Basque and suggests that the tensed verb or the auxiliary raises to Neg to c-command the Neg in compliance with the Tense C-command condition.

- (18) *Hičkæš Sara-ro ne-mi-šenaxt.*  
nobody Sara-Ac not-Asp-knew.3sg  
\* 'Anybody didn't know Sara.' (Nobody knew Sara)

(Taleghani 2006:150:19b)

Leaving aside Kwak & Darzi's (2006) arguments in support of analyzing *hičkæš* 'nobody' as a Negative Concord Item (NCI) as opposed to an NPI, these items in Persian are not necessarily c-commanded by the licensing negative marker at spell out. What Taleghani (2006) treats as an NPI in Persian may scramble into a higher clause with the negative verb remaining in the embedded clause. This is shown in (19)-(20).

- (19) *Hičkæs* pro fekr mi-kon-æm Sara-ro *næ-šenas-e*.  
 nobody thought ASP-do-1sg Sara-Ac not-know-3sg  
 ‘Nobody, I think knows Sara.’
- (20) *Hičkæs-o* pro hæds mi-zæn-æm Ali *næ-šenas-e*.  
 nobody-Ac guess ASP-hit-1sg Ali not-know-3sg  
 ‘I guess that Ali does not know anybody.’

The sentences in (19)-(20) may be explained if the subject NPI/NCI is licensed in its merge position in the spec of vP, where it is c-commanded both by the Neg and by the T before it is scrambled into the matrix clause. In other words, the tense c-command condition is satisfied before the subject NPI/NCI undergoes any movement operations. Therefore, I assume that negation in Persian is embodied in a projection that is dominated by the TP and that dominates vP with an empty specifier position for the scope of negation (Haegeman 1995). This analysis is in line with Karimi’s (2005) proposal that subjects in Persian stay within the domain of vP unless they are topicalized or focused. As such, in-situ subject NPI/NCIs in negative sentences which do not bear any discursal features are licensed in the vP domain asymmetrically c-commanded by the head hosting the Neg feature.

Turning now to the so-called subjunctive marker in Persian, this prefix is in complementary distribution with both the negative marker and the aspect marker as shown in (5) above repeated here in (21).

- (21) Pro mi-xa-m [<sub>CP</sub> PRO<sub>i</sub> be-(\*næ/\*mi)-r-æ unja].  
 Asp-want-1sg Sub(not/Asp)-go-1sg there  
 ‘I want (\*not) to go there.’

However, the negative marker and the aspect marker may co-occur with the former always preceding the latter as exemplified in (15)-(16) above repeated here in (22)-(23).

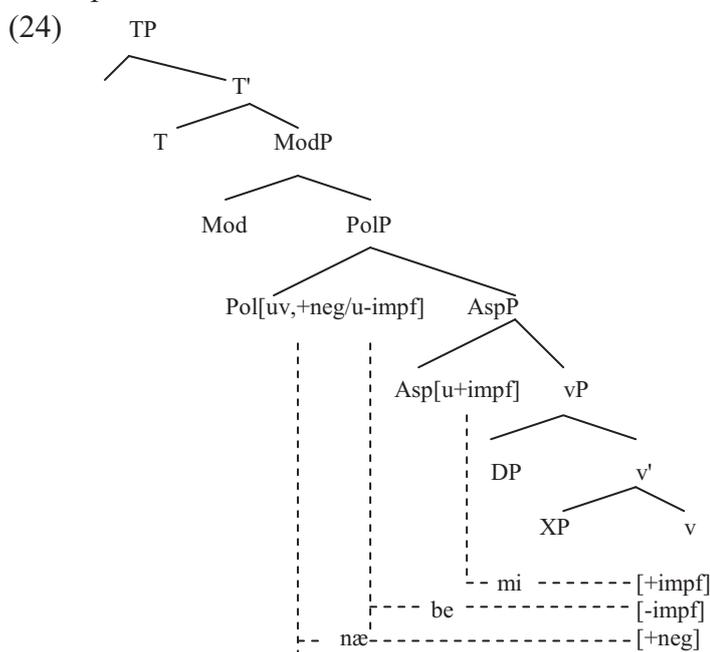
- (22) Mæn name **ne**-mi-nevešt-æm.  
 I letter not-Asp-write.PST-1sg  
 ‘I did not (usually) write letters / I was not writing letters.’
- (23) Mæn name **ne**-mi-nevis-æm.  
 I letter not-Asp-write -1sg  
 ‘I don’t write letters / I am not writing letters.’

Having this discussion in mind, I propose, in the next section, a hierarchical structure of functional projections responsible for negation, subjunctivity and aspect in Persian. Though I propose a feature-based analysis of the functional projections in question, I would adopt Baker’s (1985) Mirror Principle according to which there is a close parallelism between morphology and syntax. More specifically, I propose a PolP

that hosts negation and subjunctivity and that dominates the AspP, which in turn dominates the vP.

#### 4. Analysis

Following Taleghani (2006:196), I posit the modal *bayæd* ‘must’ as the head of a Modal Phrase (ModP). Also, following Baker’s (2004) proposal for Lokaa, I propose a PolP for Persian non indicative clauses with a head specified either for the subjunctive or the negative feature (see Haegeman 1995 for an overview; see also Zanuttini 1997). The PolP is assumed to be selected by a modal, a selecting verb or an adverbial, etc.. As such, I propose the structure in (24) for sentence negation in Persian. Under this proposal, negation would not only include in its scope all the arguments of the verb but is also c-commanded by the head T in compliance with the tense c-command condition. Note that whether the functional heads TP, PolP and AspP are head initial or head final does not have any bearing on my analysis. I have simply taken them to be head-initial just for exposition.



The head Pol is proposed to have an uninterpretable [v] feature (uv) requiring the head verb v to enter into a checking relation with the Pol. This head is the locus of

either the subjunctive or the post-modal negative feature, capturing the complementary distribution of the two. The head of the AspP has an uninterpretable [+imperfective] feature requiring a verb with the relevant feature. The complementary distribution of the subjunctive marker and the aspect suffix is regulated by the feature composition of the head *v*. If the head *v* has the [+imperfective] feature, it can only come into a checking relation with the head of the aspect phrase realizing *mi-* on the verb. The head Pol may have different sets of features just like the head T which may have different sets of features for number, person and tense. If the Pol is specified for an uninterpretable [-imperfective] feature, it checks the relevant feature on the verb giving rise to subjunctive morphology. This explains the complementarity of the aspect marker with the subjunctive marker. If the head Pol bears the [+neg] feature and lacks any specification for the [imperfective] feature, we may have a negative subjunctive clause, or a negative imperfective clause just in case the aspect phrase is present in the latter case, or a negative perfective clause.

## 5. Conclusion

In this paper I presented a morpho-syntactic account of Persian verbal morphology focusing on verbal prefixes. Co-occurrence restrictions were shown to hold among prefixes in that the subjunctive marker was incompatible with both the aspect marker and the negative marker. I proposed a structure for Persian clauses with a PolP dominating the AspP, which in turn dominates the vP. The head of the aspect phrase and the head of PolP were assumed to bear certain morpho-syntactic features that interacted with corresponding syntactic features on the head *v*. The head Pol is either the locus of the [neg] feature, or the locus of subjunctivity. More specifically, the Pol may come with either an uninterpretable [-imperfective] feature or a [+neg] feature. If it bears the [-imperfective] feature, it will be incompatible with the aspect marker which bears a [+imperfective] feature by nature. The head Pol may also bear the negative feature in which case it is compatible with the aspect marker. The [+neg] feature on the head Pol checks the relevant feature against the corresponding feature on the verb and is indifferent to the presence of the head Asp, accounting for the permissible co-occurrence of negation marker and the aspect marker. Of course the aspect phrase or the PolP or both may be absent.

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## Endnotes:

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<sup>1</sup> This paper was partially supported by a grant from the Vice Chancellor for Research at the University of Tehran.

<sup>2</sup> Persian is a pro-drop SOV language, however clausal complements in this language follow their selecting heads. The verb stems come in two forms, past and present (Lazard 1957:157). The past morpheme is not independently marked on past stems. This does not have much bearing on the analysis I will propose in this article within the distributed morphology framework.

It is to be noted that *-bi*, and *-bo* are two other allomorphs of the subjunctive marker as *ne-* and *ni-* are two other allomorphs of the negative marker *næ-*. In the literary register of Persian, *mæ-* is often employed as another allomorph of the negative marker.

I am using the following abbreviations:

Asp; aspect marker (also taken as the indicative marker in the Persian traditional grammars.)

Sub: subjunctive                      sg:singular

PSP: past participle                  Neg: Negative

Ac: accusative                         PST: past

<sup>3</sup> The only exception to this generalization in Persian is the suppletive subjunctive form of the verb corresponding to 'be' in English which may co-occur with both the negative marker and the subjunctive marker as in (i) below. Interestingly, this form, which is proscribed by grammarians, is not necessarily selected by a modal, a selecting verb etc, and is interpreted jus like an indicative form.

(i) In    be    ma    mærbut    ne-mi-ba-š-æd.

      This to us related    not-Asp-be.Sub-3s

      This is none of our business.

<sup>4</sup> The subjunctive marker may optionally be absent on the light verb of some complex predicates in Persian through which the bulk of Persian verbal concepts are expressed. This is shown in (i) below.

(i) Mæn mi-xa-m [CP PRO<sub>i</sub> namæ-ro emza (be)-kon-æm

      I      Asp-want-1.sg      letter-Ac      Signature (Sub)-do-1sg

      'I want to sign the letter.'

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<sup>5</sup> It is to be noted that in non-literary register of Modern Persian, the subjunctive mood marker does not get prefixed to verbs in the past tense. Compare the sentence in (9) in the text to that in (i) below.

- (i) \*Hæsæn tunest be-ræft unja.  
Hassan could Sub-went.3sg there  
'\*Hassan was able to went there.'

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# Number Agreement in a Sign Language

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## Abstract

Several authors have described agreement in American Sign Language in terms of abstract features (Padden 1983; Bahan 1996), of locative case (Janis 1995) or relatively to a two-person (Meier 1990). However, others have questioned the relevance of the notion of agreement for ASL, on the basis that there is an infinite number of variations for the third person (Liddell 2000). We show that there are no paradigmatic features of agreement in sign languages, notably in Langue des Signes québécoise. Why is that so? To answer this question, we must understand how the differences in modality affect the functioning of agreement in the linguistic system of oral languages and gestural languages. We concentrate on the case of Number agreement in LSQ.

**Keywords:** number agreement, quantification, Sign language, LSQ, space.

## 1. Introduction

There are numerous phenomena of agreement in oral languages, e.g., between a pronoun and its antecedent, or a noun phrase and a predicate. There are no instances of agreement in Langue des Signes Québécoises (LSQ, the sign language used by deaf people in the province of Quebec). We show that this absence of agreement is not fortuitous, but that it is due to a fundamental difference between some properties of the substance of the form in an oral language and a sign language. Agreement takes place in oral languages either because the signifier is short-lived and we must produce a new one to reactualize its denotation, or in order to facilitate parsing by introducing redundancy in the information which is provided. In a sign language, the elements which correspond to the ephemeral oral elements have a certain permanency in space, and this is why there is no agreement. Moreover, gestural information is typically more precise, less ambiguous, and grammatical parsing can operate without problems in the cases which

correspond to those which necessitate redundant agreement in oral languages. Therefore, agreement has no function to fulfill in sign languages and we predict that agreement should be absent from all sign languages. We show that cases which have been analysed as agreement are actually something else. In this paper, we illustrate this with the example of Number agreement, which in sign language is actually either quantification or aspect. In order to clarify the place of grammatical Number in the system, we describe the expression of plurality in LSQ and compare it with how it is expressed in an oral language with a fairly rich morphology in this regard, i.e., French. Next we clarify what agreement is and its function in grammar. We then analyze the LSQ constructions which are equivalent to those where there is Number agreement in oral languages and we show that there is never agreement in those cases in LSQ. We conclude with some thoughts on language universals.

## 2. The expression of quantity

Quantity in languages can be about the actants of the event expressed by a sentence (like singularity or plurality of the individuals to which a nominal expression refers). The quantity of individuals is expressed either by quantifiers with quite varied meanings (all, many, some, every, half, etc.), or by grammatical inflections of Number, which are relatively restricted semantically (singular, plural, sometimes dual, rarely more). Quantifiers can appear in nominal expressions (1) or as adverbials in the sentence (2).

It should be numbered with Arabic numerals (1,2,3, etc.) in parentheses and indented:

- (1) *Tous ces journaux originaux sont internationaux.*  
[All these original newspapers are international.]
- (2) *Les journaux originaux sont tous internationaux.*  
[(The) original newspapers are all international.]

The Number inflections can appear on various elements. As can be seen in (1), in French, there can be Number inflections on a noun (*journaux*, vs singular *journal*), on a determiner (*ces*, vs singular *ce*), on a quantifier (*tous*, vs singular *tout*), on an attributive adjective (*originaux*, vs singular *original*), on a verb (*sont*, vs singular *est*), on a predicative adjective (*internationaux*, vs singular *international*). The determiner bears the semantically meaningful Number in French; the Number inflections on the other elements are due to agreement and no meaning of quantity is attributed to them (as

shown in Bouchard 2002).

In addition to quantity about the individuals denoted by nominal expressions, languages may also express quantity about the events and sub-events expressed by a sentence (aspect, aktionsart). In this paper, we look mainly at the expression of the quantity of individuals referred to by a nominal.

### 2.1. Number inflections in LSQ

In order to understand how quantity is expressed in a nominal expression in sign languages, it is important to know how nouns are introduced in discourse in these languages. The substance of the signifier of a noun is spatial: a noun is introduced when its sign is produced in space. The noun may simply be produced without any particular localization in space (3), or, more typically, it is also assigned a locus in the signing space. This locus assignment can be done by directly signing the noun on the locus in space (4), or by a *pointer* (5) (a manual sign, but also possibly a glance (6) or an inclination of the torso (7) “pointing” to the locus) (Parisot and Rinfret, to appear). The loci assigned this way remain in the discourse until they are changed (Lillo-Martin 1986).

- (3) NOT-EASY FOR DEAF.<sup>1</sup>  
[It’s not easy for a/some/the(plur/sing) deaf-person(s).]
- (4) PHONE(loc) TO-RING.  
[The phone is ringing.]
- (5) ME TO-GUESS PHONE *pointer*.  
[I guess that it’s the phone (which is there that is ringing) ]
- (6) WHEN TO-WANT TO-CALL FRIEND(glance) DEAF ...]  
[When I want to call a deaf friend... ]
- (7) FIFTY PERCENT MINUS REBATE FOR DEAF(shoulder)  
[It’s a special fifty percent rebate for the deaf. ]

This assignment is a way to associate a noun with a locus. The locus can then be used to associate the noun with a predicate to assign it a grammatical function (subject if it is the first locus associated with the verb, object if it is the second one). Grammatical Number is expressed by the shape of the pointer at the initial assignment

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<sup>1</sup> The examples (3) to (7) are taken from a public interview in LSQ of a native deaf signer, broadcasted during a program called *La parole en mains*.

of a locus to the noun. If the pointer is a point on the locus, this corresponds to singular; if the pointer traces a circular movement which designates a zone in the locus (8), this corresponds to plural (Padden 1990).<sup>2</sup>

- (8) STUDENT pointer (zone) BOOK GIVE-1  
[The students give me a book.]

## 2.2. *Quantifiers in LSQ*

LSQ has signs corresponding to quantifiers like EVERY, SOME, ALL. For instance, universal quantification can be expressed or by using a linear movement across a series of loci:

- (9) DOOR pointer (linear movement) MAN CLOSE  
[The man closes all the doors.]

Quantification can also take place by incorporating a quantifier of cardinality which assimilates phonologically to a noun expressing time (2-HOUR), money (5-PENNY), or number (4-THOUSAND).

Because they operate in space, sign languages have a greater potential of iconicity. For instance, it is possible to express a plural quantity by assigning several loci to a noun as in (10), or by indicating several points inside the zone of a locus (11) (see Pizzuto and Corazza 1996, among others).

- (10) SHOE pointer pointer pointer MARIE GIVE -1  
[Marie gives me shoes.]

The number of loci does not correspond to an exact amount but is an indication of a certain quantity. This kind of reduplication appears in many sign languages. For instance, Johnston and Schembri (2007) mention that reduplication of the noun to express plural is optional in Australian Sign Language. In LSQ, this kind of modification is rare. It is typically found in cases of semantic plurals like FOREST (many trees) or LEXICON (many words), in a few cases where grammaticalization is productive like CHILDREN, or in contexts of iconic specification concerning the layout

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<sup>2</sup> Note that some nouns are semantically incompatible with the assignment of grammatical Number. For instance, LUMIÈRE ('light') expresses a non-countable concept and a special classifier must be used if we want to attribute a countable quantity to it by a point or a zone locus.

of units like CHAIRS (row of chairs) or BOOKS (pile of books).

Iconicity also makes it possible to use a zone-locus to indicate the size of a referent. If the referent is small (AMOEBA) or unique (CAT), it is assigned a point-locus. If it is big (REGION) or numerous (CHILDREN), it is assigned a zone-locus. When the referent is a collectivity, its zone corresponds to the type of quantity involved: a set of atomic units receives a series of point-loci, whereas a set expressed as a singularity receives a delimited zone. Collective zones can be divided in sub-zones to express a partition of the quantity (some of these units, half of the set, etc.). This partition can be highly iconic, as in (11), where the first point-pointer situates MONTREAL whereas the circular movement of the zone-pointer situates the collective REGION in which the nearby suburbs LONGUEUIL, LAVAL and ST-HUBERT are actualized, followed by another point-pointer which situates the geographically more distant SOREL.

- (11) FOR MONTRÉAL POINTER(point) REGION POINTER(zone)  
[LONGUEUIL LAVAL ST-HUBERT] SOREL POINTER(point)  
[[The services are] for here, in Montreal, [for the other cities of the region]  
Longueuil, Laval, St-Hubert, and [further away] Sorel]

It is also possible to express quantity by assigning to the noun a locus with different kinds of arrangements as, for example, on a linear dimension (12).

- (12) CHILD (linear movement) 1-GIFT  
[I give a present to the children.]

### 3. Agreement

Since quantifiers and Number inflections often involve the locus assigned to the noun, and since the locus is also used to establish a link between the noun and the predicate with which it has a grammatical relation (subject, object), these modifications of the shape of the locus are often analyzed as verbal inflections of agreement in Number (and person). But as we will now see, that is not the case. These are either simple assignments of grammatical functions, or aspectual markings bearing on the number of sub-events instead of the number of individuals.

### 3.1. Definition and function of agreement

In order to determine whether there is agreement or not, we must agree on a definition of what agreement is. We propose a classical definition: there is agreement when a word depends on another word or phrase for some of its features. Typically, the features involved are associated with morphological markings such as gender, Number or person, but they need not, as in *Mary, a joyful woman/\*man, stepped forward*. The morphological features can be associated with a referential or semantic content, such as *them* in (13a) which refers to more than one individual, distinct from the speaker or hearer, or the morphological features can be purely formal, like all the plural markings in (13b) except the one on *ces*.

- (13) a. Mary doesn't see them.  
b. *Ces journaux originaux sont internationaux.*

It is not surprising that theories to account for agreement phenomena oscillate between these two poles—semantic-discursive vs formal. For instance, Lehmann (1988) and Barlow (1992) propose a discursive approach in which agreement operates on features which have an informative value about the reference of the elements.<sup>3</sup> This approach can account for cross-sentential agreement, which cannot depend on syntactic operations, these being restricted to intra-sentential dependencies.

- (14) Mary and John came by yesterday. She left you some flowers.

Others, like Lapointe (1980, 1988), have defined grammatical agreement in a purely semantic perspective.<sup>4</sup> He includes in agreement the morphological features of nouns which vary according to grammatical functions, i.e., case markings.

In contrast, some adopt a strictly formal perspective, where agreement is a correlation of morphological features, including some features which are uninterpretable both semantically and phonologically, as in the minimalist program since Chomsky

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<sup>3</sup> “Agreement according to this theory consists not of a matching of features at a syntactic level, but rather a matching of properties contained in discourse referents equivalent to the source and target” (Barlow, 1992, p. 155). “[...] agreement is referential in nature. It helps identify or reidentify referents. It does this by giving information on grammatical properties of its referent and, thus, of the NP representing it if one is around. The function of agreement in the marking of syntactic relations derives from this primary function” (Lehmann, 1988, p. 55).

<sup>4</sup> “The term *agreement* will be applied to those morphosyntactic cooccurrences in which there is an overt controller and overt controllee and in which the form of the controllee depends on universally specified semantic categories of the controller” (Lapointe, 1988, p. 70).

(1995).

The theory of agreement of Bouchard (1984, 1987, 1995) is based on the notion of coherence. It covers all these variants of agreement—referential, semantic and formal— because coherence can operate on various types of elements : a reference, an interpretation, or a structure. Moreover, this approach allows us to understand the function of agreement, which is to ensure the coherence of the interpretation of the elements in order to facilitate parsing. This coherence can operate on the discursive/referential level as in pronominal reaccessing: for instance, a plural marking on a pronoun helps to determine its antecedent by reducing the potential antecedents to those which are more than one. When coherence operates on the formal level, as in *ces journaux originaux*, it serves to make the phrasal cohesion more salient in order to facilitate syntactic parsing.

We can now ask why there is agreement in a language like French (and other oral languages). In oral languages, abstract feature agreement is necessary when we want to actualize a referent anew because the perceptual substance of these languages restricts utterances to temporal sequences of elements which have no permanency. Any oral signifier is ephemeral: once pronounced, it cannot be reused (Bouchard 2002). For example, once we have said *La comtesse est sortie à cinq heures* ('The countess went out at five'), we cannot reuse this instance of the phrase *la comtesse*: we must say once again *la comtesse*, or introduce another specialized signifier, like a pronoun, to reactualize the information. There must be a new signifier, yet at the same time there must be an indication of permanency, of a recall of a previously established actualization. Since this cannot be done by a signifier which has a certain permanency like the locus in sign languages, the means used in oral languages to establish a certain permanency must be indirect: it is done through a paradigm of abstract features, and it is this paradigm which has permanency— in this case, the paradigmatic slot [+FEM; +SING; 3PERS] of *la comtesse*. So only pronouns with these feature values (such as *elle* or *la*) are appropriate to reactualize the information of *la comtesse*, because their morphological features are coherent with those of *la comtesse*. As mentioned by Lehmann (1988: 61), the referent is not identified by specifying all its attributes each time it is reactualized in discourse. It is identified by specifying only some of its features, for the sake of economy: it is less costly to use only a subset of its features. However, this economy comes with a certain lack of precision. For instance, the set of feature values [+FEM; +SING; 3PERS] may correspond to several antecedents in the context. However, discursive strategies usually restrict the possibilities to one element which is more salient at a given moment of discourse.

In contrast, in sign languages, the perceptual substance operates in space and the elements of the utterances are not as strongly restricted to temporal sequences, nor are they as momentary as in oral languages. The assignment of a locus to a noun is unique and non-ambiguous. According to Liddell (2000), a locus represents an entity directly and iconically in the sign space. Moreover, a locus assignment remains in the discourse unless it is changed (Lillo-Martin 1986). Therefore, loci have a certain permanency, in the sense that we can reuse the same locus—a tangible element, a signifier—whereas this is not possible for a signifier in an oral language. This special property allows a locus signifier not only to actualize a referent, but also to be reused, either with an anaphoric function to recall a discourse element, or to establish a grammatical relation between an argument and a verb (by producing the sign of the verb toward this locus, for example), all of this regardless of the number of signs produced between the assignment of the locus and its reuse (Parisot 2003). Because a locus assignment is relatively durable, a sign language need not have recourse to the permanency of a paradigm of features nor to restrictive discourse strategies in order to reactualize a referent. All the theories of agreement appeal to notions of agreement features (a partial set of features of the controller which are also on the target), and to morphosyntactic marking. But the need to mark an element with a set of formal features in an agreement relation seems to come from factors of articulation and economy arising from the exclusively temporal modality of oral languages rather than from a universal component. The oral modality has the property that its signifiers are momentary. On the other hand, in sign languages, there is no need for this kind of marking with morphosyntactic features coming from a paradigm, because their modality allows the signifier-loci to remain active during an exchange.

### *3.2. Agreement with a predicate in LSQ*

We propose that there is no agreement in sign languages because the need for morphosyntactic paradigms is a consequence of the modality of oral languages, which makes their signifiers ephemeral: belonging to a paradigm allows a certain permanency to reactualize actants. This proposal contrasts with several analyses which view certain phenomena in sign languages as instances of agreement. For instance, there are two classes of verbs in sign languages which directly relate with loci: directional verbs create a path towards a locus, or between two loci, and locative verbs are signed on a

locus.<sup>5</sup> According to Padden (1983, 1990), these are inflected verbs because they spatially agree in person and Number with their syntactic arguments. Padden assumes that the initial and final loci of the path of a directional verb are a subject marking and an object marking, respectively, which are added to the root of these verbs. The choice of signing a locative verb on a different locus depending on its subject or object, is also considered by Padden to be an agreement marker. Similarly, Bahan (1996) claims that anchored verbs also agree, by means of nonmanual markings, with features of person and Number of their arguments. In these analyses, the loci are defined as formal features of the nouns, the structural elements of the verb which are changed (place of articulation and orientation) are assumed to be agreement morphemes, and the association of the verb and the locus is seen as a relation of verbal agreement.

However, Liddell (2000) questions the relevance of the notion of agreement for ASL, on the basis that there is an infinite number of variations for the third person in ASL. He does not consider the reuse of loci as agreement morphemes. He even rejects the idea that the association of the verb to loci is a grammatical process. He claims that signs are located in space with respect to mental representations and not grammatical representations: the loci represent a conceptualization of the entities, as if they were present.

We partly agree with Liddell. These phenomena are not instances of agreement; however, they do partake in grammatical processes. They are not cases of agreement because there is no appeal to an abstract paradigm, *in absentia*: the verb is directly superimposed on a locus, *in praesentia*. It is therefore a syntagmatic signifier which expresses a grammatical function, just like a particular juxtaposition of a noun phrase with the verb can signify a particular grammatical function, as in *Paul loves Mary*. Producing a verb on a locus is a signifier belonging to the spatial substance, which is why we don't find it in oral languages; apart from that, there is nothing particular about it (Bouchard 1996, 2002). Establishing grammatical relations by means of loci is not an instance of agreement, but of syntagmatic relation. If it was an instance of agreement in features, in particular of Number, we would expect to find distinctions in the pointers which relate the verbs and the loci: the loci of the singular arguments should be reused by point-pointers, whereas those of plural arguments should be reused by zone-pointers. In fact, the pointers of verbs do not distinguish singular (15) from plural (16) in ASL (nor in LSQ). We never find a verb with plural agreement by a zone-pointer, even when

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<sup>5</sup> The same strategies as those described for the assignment of a noun to a locus are used to identify the locus of an argument of a verb: directly signing the verb on the locus assigned to the argument, or by a *pointer* to that locus (a manual sign, a glance or an inclination of the torso). There is a third class, that of verbs anchored on the body: these cannot be displaced in space to create a link with the actants, so pointers must be used in this case.

the argument was initially identified as plural by associating it with a zone-locus.

(15)  $_1$ INDEX  $_1$ ASK $_j$   $_2$ INDEX GO

[I ask her if she is leaving.]

(16)  $_{ipl}$ INDEX  $i$ HATE $_j$   $_{jpl}$ INDEX

[They hate them.]

However, several specialists of ASL consider that the verb can agree in Number with its object, due to examples with exhaustive plural (17) or multiple plural (18), and sometimes it appears to agree with its subject in case of dual agreement (19) and (20).<sup>6</sup>

(17) PAST CHRISTMAS C-0  $o$ GIFT $_j$ ,exhaus  $_{jpl}$ INDEX WORK+Ag TURKEY

[Last Christmas the company gave a turkey to each worker.]

(18) PRESIDENT STAND-UP  $O$ INFORM $_{i,mult}$

[The president stood up and informed them.]

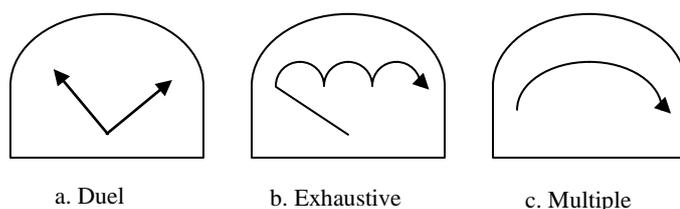
(19) SISTER BROTHER  $1$ ASK $_{i,du}$

[I asked my sister and my brother.]

(20) BOTH CHILDREN  $I,du$ ASK $1$  SIMULTANEOUSLY

[The two children asked me [that] at the same time.]

Figure 1, taken from Sandler and Lillo-Martin (2006), shows the movement of the verb for agreement with a dual object (a), each unit of the object (b), or with all the units of the object (c).



**Figure 1.** Schema of three types of additions of quantity, reproduced from Sandler et Lillo-Martin (2006: 39)

The analysis of these cases is doubtful, however. The change in the verb never

<sup>6</sup> Examples (15) to (20) are taken from Padden (1983).

seems to be an instance of formal agreement, with only some redundancy to facilitate the parsing: there is always some meaning of quantification which is added. For instance, example (18) actually expresses universal quantification on individuals (INFORM-EVERYONE). In general, the parts of paths schematized above seem to attribute a quantification bearing on the sub-events, hence aspect. Engberg-Pedersen (1993) considers that this type of movement of the verb in space has a distributive function in Danish Sign Language: “In Danish Sign Language, verbs are never modified for Number just because their arguments are nonsingular. Signs in predicative use, with an added linear, circular, semicircular, or random movement, with or without reduplication, have a distributive meaning beside denoting Number.” Klima and Bellugi (1979: 280) had already noted that “[t]he grammatical categories of Number and distributional aspect are so interrelated in ASL that we have treated them together as expressions of numerosity.” The change in the path of the verb has been abundantly described as a means to express variations in different aspects of an action, such as distributivity, continuity, or accomplishment (Cuxac, 1997 ; Dubuisson *et al.*, 1996 ; Engberg-Pedersen, 1993 ; Supalla and Newport, 1978 ; among others). Therefore, there is no formal agreement with the verb in Number (or any other feature): either it is an instance of a syntagmatic relation which establishes a grammatical function, or there is aspectual quantification.

### *3.3. Agreement inside a DP in a sign language*

As we saw in (1) and (2), in French, there can be Number inflections in a nominal expression on various elements (a noun, a determiner, a quantifier, or an attributive adjective). We also saw that in LSQ, the pointer expresses a singular or a plural depending on whether we designate a point-locus or a zone-locus. However, there is no inflection of Number on the noun: if there is an indication of quantity for the noun, it is not a simple inflection but the incorporation of a quantifier of cardinality (5-PENNY). The noun may be repeated on several loci, but this reduplication is an assignment of multiple loci: it relates to the link between the noun and loci and is not a Number inflection on the noun itself. As for the adjective, it never agrees in Number in LSQ. Therefore, the only indication of grammatical Number in LSQ shows up when the locus is assigned (point or zone): this is not agreement, not a redundant indication to help parsing, but rather the expression of semantic Number.

### 3.4. Anaphoric agreement in a sign language

In sign language, a locus can be reused in an anaphoric function to recall an element of the discourse. A locus reused in this way assumes a function similar to the one of a pronoun in oral languages. However, contrary to pronouns which often exhibit Number agreement with their antecedents, the reuse of loci never shows Number agreement. A locus is always reused by a point-pointer, without a circular movement delimiting a zone, even when the original assignment of a noun to that locus was as a plural, a zone. This lack of reuse of a locus by a zone-pointer holds both when there is anaphoric recall and when a grammatical relation is established with a verb.

### 3.5. Some thoughts on the absence of agreement in sign languages

Grammatical agreement is widespread among oral languages. It has a function of distinctivity. To operate this distinctivity, we associate an element with a slot in a paradigm. This slot is defined by a set of values for abstract features. For instance, a pronoun in English may have values for gender, Number and person which reduce the search space of identification to the elements evoked in the context which bear the same set of features: thus, the features allow us to distinguish this subset of elements. These three features are partially motivated at the semantic/conceptual level and are grammaticalized as abstract features. Agreement is a constraint on the distribution of the features of an element relative to those of another element. This constraint does not require that the material forms be identical, but that they express identical values of abstract features in a paradigmatic slot. In the terms of Saussure (1916: 171), this relation established by means of abstract features is an associative relation which unites terms *in absentia* in a virtual mnemonic series.

The absence of agreement in Number (or any other paradigmatic feature) in sign languages is due to the use of loci which is made possible by the spatial substance of their modality. A locus is a point in space which is physically present all through the exchange between signers: so it has a certain temporal permanency which makes it possible for us to reuse it to recall a discourse element. Since it is *in praesentia*, a locus operates a unique and unambiguous distinction among the elements. A language with this precise means of distinctivity does not have to resort to means *in absentia*, such as the use of abstract paradigmatic features. So in a sign language, reference is not ambiguous, even minimally, because locus assignment is precise, unique, whereas paradigmatic diversity is not extensive enough nor flexible enough to ensure unambiguity in an oral

language. Similarly, whereas the spatial relations between the elements of a sentence are unique and precise in sign languages, this is not the case in oral languages, where ambiguities are frequent, which is why oral languages often resort to redundancy by agreement in order to facilitate parsing. Grammatical agreement therefore seems to come from a property of the modality of oral languages, i.e., the ephemeral nature of their material content. The absence of agreement phenomena follows in languages with another modality that has material content that is not as ephemeral, like sign languages.

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# An Experimental Investigation into Scope Rigidity in Japanese\*

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## Abstract

This paper investigates the question of whether or not scope rigidity is a feature of the grammar of Japanese. Using a Truth Value Judgment Task experiment, we tested the judgments of 256 native speakers of Japanese on sentences containing both a subject and object quantifier. We conclude that scope rigidity does indeed have a role to play in the grammar of Japanese, but that other factors, such as the choice of quantifier can interact with scope rigidity, allowing for more readings than just the one provided by the surface scope.

**Keywords:** Japanese, scope, quantification, Truth Value Judgment Task.

## 1. Introduction

### 1.1. *Scope Rigidity in Japanese*

Scope ambiguity can be readily illustrated using an example from English:

- (1) Someone criticized every person.  
(✓some>every, ✓every>some)

Sentences of this type, containing an existential and a universal quantifier are classically ambiguous, with one reading, the surface scope reading, in which there is a single

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person criticizing everyone else, and the inverse reading in which the universal takes the wider scope, and for each person there is a unique critic.

As widely noted in the literature (Kuroda, 1970; Kuno, 1973; Hoji 1985), scope is rigid in Japanese and the scope ambiguity attested in (1) does not occur in the corresponding Japanese sentence:

- (2) a. Dareka-ga hitobito daremo-o hihanshi-ta  
someone-NOM people every-ACC criticize-PST  
'Someone criticized every person.'  
(✓some>every, \*every>some)
- b. [Hitobito daremo-o]<sub>i</sub> dareka-ga t<sub>i</sub> hihanshi-ta.  
people every-ACC someone-NOM criticize-PST  
'Someone criticized every person.'  
(✓some>every, ✓every>some)

In (2a), it is shown that only the surface scope reading is possible for the sentence. The inverse reading, where the quantified object takes scope over the quantified subject is not available. To obtain that reading, scrambling must take place, shown in (2b), where the object has overtly moved to a position at the left periphery of the sentence.

The relative scope of quantified elements is calculated based upon asymmetric c-command. That is, a quantifier takes scope over everything within its c-command domain. In English, the ambiguity is accounted for by LF quantifier raising (QR), which allows the object to move into a position c-commanding the subject. However, Japanese does not take advantage of this mechanism, and only those scope readings reflected by the surface c-command relation of quantifiers is obtained; scope is calculated before, rather than at, LF.

Because of scope rigidity in Japanese, the relative scope of quantified items can be employed as a test of syntactic structure: the available scope reading for a given sentence immediately makes clear the relative c-command relation between quantified elements.

## 1.2. Challenges to the Rigid Analysis

Recently, there have been challenges made to the claim that scope rigidity is indeed a property of the grammar of Japanese. Futagi (2004) notes the following

ambiguous example, whose ambiguity is previously cited by Shoji (1986) and Harada and Noguchi (1992):

- (3) Taro-wa Hanako-dake-to asob-eru.  
Taro-TOP Hanako-only-with play-able  
'It is possible that Taro plays only with Hanako.' (can>only)  
'Hanako is the only person Taro can play with.' (only>can)

This sentence has two possible readings, the first of which being the case where the modal *eru* takes the wider scope over the particle *dake*, making a claim that it is possible that Taro plays only with Hanako, but not ruling out other playmates. Conversely, *dake* can take the wider scope, yielding a reading where Hanako is the only possible playmate for Taro.

While one could attempt to make the argument that the scope of quantified elements might behave differently than the scope of something like a modal, this example still raises a challenge for the claim that Japanese is a scope rigid language. The expectation under scope rigidity is that only one of these readings should obtain, not both. Thus, two questions can be posed for further investigation: (i) how robust is the scope rigidity phenomenon for quantified elements in Japanese? That is, in a case such as (2), with a quantified subject and a quantified object, how pronounced is the effect of scope rigidity? (ii) does scope rigidity depend upon the choice of quantifiers in Japanese? It is these questions that we put to the test using an experimental approach.

The paper is organized as follows: in section 2, we provide a general description of the Truth Value Judgment Task (TVJT) as a means of extracting subtle semantic judgments from native speakers, followed by a more detailed explanation of our implementation of TVJT in section 3. Our experimental results are summarized in section 4, with a discussion of the implications of those findings in section 5. Finally, section 6 provides a brief conclusion and summary of further questions.

## **2. Truth Value Judgment Task**

### *2.1. The Method*

To test scope judgments from a large population, we make use of a Truth Value Judgment Task (TVJT), as described in Crain and Thornton (1998). This method,

designed originally for use with children, allows for judgments to be collected in a rich context with little functional load on the participants. This method calls for two experimenters: one telling a story using a series of small toys and props, and another playing the role of a puppet, Mickey Mouse in our case, who watches the story, and then provides a one-sentence summary of the action which took place. The task for participants is to judge whether or not Mickey's statement was true or false in the given context.

In a situation where the stimulus sentence is potentially ambiguous, it can be presented with a story that is compatible with only one of the two readings. For example, sentence (2a) could be presented with a scenario in which there is a group of eight people, shown to be comprised of four critic-criticized pairs (the inverse scope reading). If a participant were to say that sentence (2a) was false in such a scenario, we would conclude that the inverse scope reading is not available to that participant. If the participant answers that the sentence is true, then we would conclude that the inverse scope reading is available. Conversely, the same sentence (2a) could be presented with a scenario in which there is one single person criticizing a large group. Here, a response of "false" would indicate that the surface scope reading is not available. Only if the sentence were true in both scenarios could we conclude that it was ambiguous.

## *2.2 Implementation*

To apply this methodology for adults, we have made some modifications. Firstly, while the original protocol made use of live action presentations for each participant, we video-taped the interactions between the experimenters, focusing on the telling of the story and keeping the experimenter holding the Mickey puppet out of frame. This is not only more appropriate for adult participants, who might view a live performance of the scenarios as childish, but by using recorded scenarios, we ensure that all participants see and hear exactly the same stimulus.

Moreover, we further reduced the role of the experimenter with the puppet by presenting the statement to be evaluated as a printed subtitle on screen, rather than having it spoken aloud. This was done to minimize the effect of intonation upon the judgment of the stimuli. We assume that participants will invoke the Gricean maxim of quality, and expect that Mickey's statement is intended to be a true one. Upon seeing the printed stimulus, participants will assign to the sentence an intonational pattern which is most compatible with judging the sentence to be true in the given scenario.

Finally, while the original protocol is meant to be implemented with one

participant at a time, we carried out our experiments in groups of four to six, with one experimenter monitoring the group and controlling the video clips and screen presentations while another delivered the instructions. This does result in the loss of the opportunity to directly follow up on each participant’s answer as they work through the stimuli, but it was judged to be a worthwhile choice in that it allowed for many more participants to be surveyed. Justifications for each response were gathered in writing, and all participants were verbally debriefed as a group at the end of the experiment.

### 3. Experiment Design

#### 3.1. Stimuli

To test the questions posed at the end of section 1, we constructed sentences pairing four different quantifiers (*daremo* ‘every’, *minna* ‘every’, *subete* ‘all’, *futa-* ‘two’) with the existential quantifier *dareka* (‘some’). The four quantifiers were placed in object position, in order to determine whether they could scope over *dareka* in the subject position, similar to the sentence shown in (2a). As a control, stimuli were also prepared in which *dareka* was in the object position, with the other four quantifiers each appearing in subject positions. Crossing the four different quantifiers with two different syntactic positions yields eight different experimental conditions, outlined in Table 1.

To test the judgments, participants were shown a scenario in which three boys are playing in a park with three girls. They play a variety of hide-and-seek in which all the boys hide around the park, and all the girls must seek. By the end of the scenario, each girl has found a boy, and all stand paired, emphasizing that each girl found a different boy, as shown in Figure 1. The full paradigm of test sentences is shown below in examples (4) through (7). For the stimuli in (7), corresponding to Conditions 7 and 8 where the numeral *futa-* was used, the scenario was slightly modified. In this case, only two of the girls catch one boy each; the scenario ends with one girl not having found a boy, and one boy still in hiding, as shown in Figure 2.

Condition	Subject	Object	Target Scope
1	<i>daremo</i>	<i>dareka</i>	<i>daremo</i> > <i>dareka</i>
2	<i>dareka</i>	<i>daremo</i>	<i>daremo</i> > <i>dareka</i>
3	<i>minna</i>	<i>dareka</i>	<i>minna</i> > <i>dareka</i>

4	dareka	minna	minna > dareka
5	subete	dareka	subete > dareka
6	dareka	subete	subete > dareka
7	futa-	dareka	futa- > dareka
8	dareka	futa-	futa- > dareka

Table 1: Summary of experiment conditions



Figure 1: End state of hide-and-seek scenario (Conditions 1-6)



Figure 2: End state of hide-and-seek scenario (Conditions 7 and 8)

- (4) a. On'nanoko daremo-ga dareka otokonoko-o tsukamae-ta.  
 girl every-NOM some boy-ACC catch-PST  
 'Every girl caught some boy.' (Expecting true)
- b. Dareka on'nanoko-ga otokonoko daremo-o tsukamae-ta.

- some girl-NOM boy every-ACC catch-PST  
 ‘Some girl caught every boy.’ (Expecting false)
- (5) a. On'nanoko minna-ga dareka otokonoko-o tsukamae-ta.  
 girl every-NOM some boy-ACC catch-PST  
 ‘Every girl caught some boy.’ (Expecting true)
- b. Dareka on'nanoko-ga otokonoko minna-o tsukamae-ta.  
 some girl-NOM boy every-ACC catch-PST  
 ‘Some girl caught every boy.’ (Expecting false)
- (6) a. Subete-no on'nanoko-ga dareka otokonoko-o tsukamae-ta.  
 all-GEN girl-NOM some boy-ACC catch-PST  
 ‘All the girls caught some boy.’ (Expecting true)
- b. Dareka on'nanoko-ga subete-no otokonoko-o tsukamae-ta.  
 some girl-NOM all-GEN boy-ACC catch-PST  
 ‘Some girl caught all the boys.’ (Expecting false)
- (7) a. Futa-ri-no on'nanoko-ga dareka otokonoko-o tsukamae-ta.  
 two-CL-GEN girl-NOM some boy-ACC catch-PST  
 ‘Two girls caught some boy.’ (Expecting true)
- b. Dareka on'nanoko-ga futa-ri-no otokonoko-o tsukamae-ta.  
 some girl-NOM two-CL-GEN boy-ACC catch-PST  
 ‘Some girl caught two boys.’ (Expecting false)

Looking at (4a), where the universal appears in the subject position, and the existential in the object position, under the scenario described, scope rigidity would lead us to expect that the sentence should be true for all participants; for each girl there exists a specific boy she caught. However, for (4b), where the quantifiers are reversed and the universal is in the object position under the existential subject, scope rigidity predicts that all participants should evaluate this sentence as false. The surface scope reading describes a situation in which one girl caught all the boys, not one in which each boy is caught by a different girl. Similar predictions are made for the stimuli in (5) through (7). Even where (7) uses the modified scenario, the wide scope reading of *futa-* is expected to be true, reflected by the surface scope of (7a).

The structure of the quantified DP's varies between the quantifiers, with *daremo* and *minna* appearing between the head noun and the case marker, while *subete* and *futari* are positioned at the periphery of the DP preceding the noun and the case marker. Both orderings of elements are attested in a corpus study of the language (Kim, 1995), but the specific choices above were judged by a native speaker of Japanese to be the

most natural applications of these various quantifiers. While it does introduce a measure of variation, this choice was made to eliminate the possibility that a peripheral issue such as an unnatural word order might influence the participants' responses. We return to this issue in the discussion section of the paper.

### 3.2. Participants

In all, 256 participants took part in this experiment. All were native speakers of Japanese, living in the city of Vancouver, Canada. To qualify for the experiment, participants could have spent no more than one year living in an English-speaking country. Most were living in Vancouver to pursue ESL studies, and ranged in age from 18 to 39 years old, though the vast majority fell within the 20-30 range. All experiments took place in a classroom at the Vancouver campus of Simon Fraser University.

The sentences described above in (4) through (7) were embedded within a larger TVJT study involving quantifiers and negation. In all, participants saw sentences of numerous different configurations, generally with one quantifier, in either subject or object position, with or without negation. For the eight conditions in the scope rigidity study, stimuli of each condition were seen by 32 different participants out of the 256 total.

## 4. Results

The results of our experiment are shown in Figure 3. From these results, we derive four major findings.

Firstly, we see that in subject position, all four of our test quantifiers can take scope over an object existential, reflected in the near universal acceptance of sentences in which the target scope was reflected by the surface structure of the sentence. *Daremo* and *subete* were accepted as having a wide scope reading from subject position for all participants, while the acceptance was slightly lower (but still over 90%) for wide scope readings of both *minna* and *futa-* in the same position.

The second major finding was that in all cases, the acceptance rates for the wide scope readings of our quantifiers were significantly lower when those quantifiers appeared in the object position ( $F(1, 254) = 181.04; p < .0001$ ).

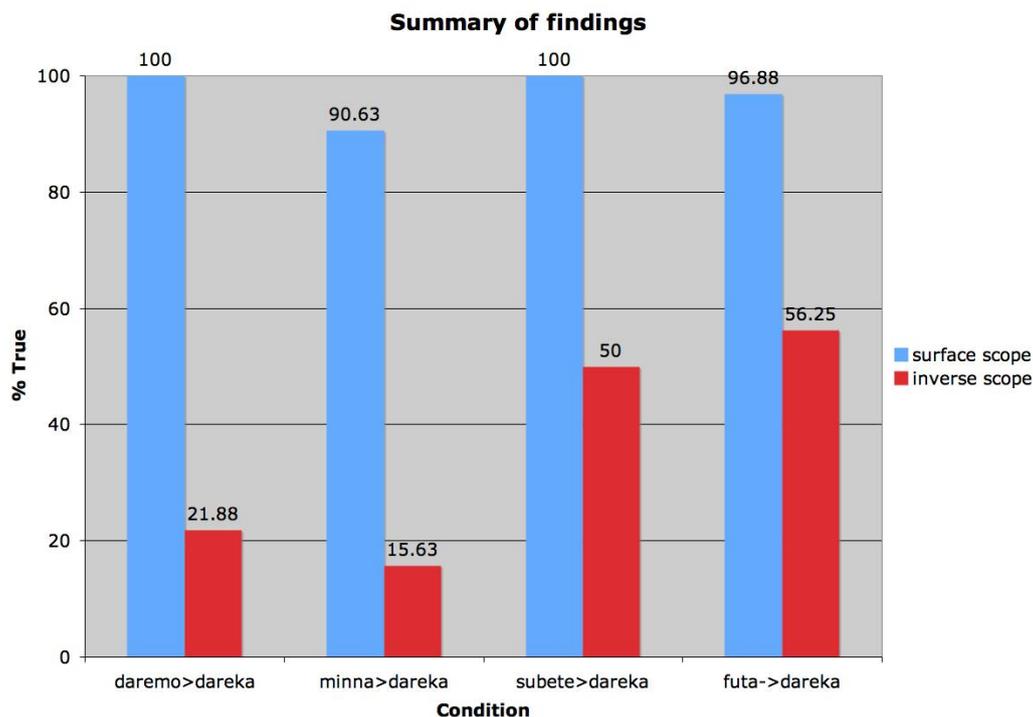


Figure 3: % True responses for each condition

Next, we observe from the distinctions between Conditions 2 & 4 and Conditions 6 & 8 that the wide scope readings of *subete* and *futa-* from object position were significantly more accessible to our participants than the wide scope readings of *daremo* and *minna* from the same position ( $F(1, 126) = 18.547; p < .0001$ ).

Finally, an examination of the results for Conditions 6 & 8 indicates that there is no significant difference in the acceptance rates for wide scope readings of *subete* and *futa-* from object position ( $F(1, 62) = 2.44; p > .05$ ).

## 5. Discussion

### 5.1. Does Japanese have scope rigidity?

The first two findings of section 4 speak to the first question posed at the outset of the paper, is scope rigidity a reality in the grammar of Japanese? The first finding, that there is a near-universal acceptance of the wide-scope readings of the quantifiers in a subject position, demonstrates that surface scope readings are readily available for native speakers of the language. Speakers do not appear to interpret sentences with their

inverse readings as opposed to the surface one.

The second finding re-enforces the conclusion that scope rigidity is indeed a reality in Japanese. The significantly lower acceptance of inverse scope readings points toward scope rigidity being a real factor in the interpretation of Japanese sentences. Especially in the case of *minna* and *daremo*, inverse scope readings are simply not available to a majority of Japanese speakers. Even including the cases of *subete* and *futa-* does not change the fact that as a whole: the inverse scope readings were significantly less available for the participants in our experiment. Based on these findings, we conclude that yes, scope rigidity does indeed exist within the grammar of Japanese; scopal interactions are calculated before LF, based upon the surface structure of the sentence before any covert movements after spellout.

## 5.2. Variability in the results

However, the results from Conditions 6 & 8 cannot be simply dismissed. To account for the variance with these two cases, we begin by examining the case of *futa-*. Unlike the other three quantifiers in this study, *futa-* is a numeral rather than a universal quantifier. As noted in Reinhart (1997), numerals have the ability to take their scope using a mechanism outside of quantifier raising. Using a choice function strategy, numerals can take scope over a c-commanding quantifier in cases where QR is not structurally possible. We postulate that the increased acceptance for wide scope readings of the numeral from object position is due to this choice function strategy being adopted by some of the participants.

Next, we consider the fourth finding, which is that there was no significant difference between the results for *futa-* and for *subete*. From this finding, we conclude that these two quantifiers receive the same treatment by speakers of Japanese. We therefore further postulate that the choice function strategy is available for *subete* as well as for *futa-*. This is not surprising, as it is not the fact that *futa-* is a numeral which allows the choice function strategy to be employed. Rather, it is the fact that numerals can be considered to be indefinites, and it is indefinites which can make use of the choice function. By extension, we then conclude that *subete* is also acting as an indefinite in a case like (6b).

One factor which remains to be accounted for is the different internal structure of the quantified phrases. As shown through word order and case marking, the object quantifiers in (6b) and (7b) are still within the c-command domain of the subject. As such, there should be no impact on the relative scope between the subject and object

quantifiers. However, in his corpus study of Japanese quantified DP's, Kim (1995) notes that the order of noun-quantifier-case marker, as in (4) and (5), is most often used for definite, discourse-old information. This suggests that the *subete* and *futa-* phrases of (6) and (7), having the order quantifier-case marker-noun, may be a signal of indefiniteness, which could encourage the use of the choice function strategy.

## 6. Conclusion

In short, the answer to both questions posed at the end of section 1 is yes. Japanese does indeed exhibit scope rigidity, and the apparent reach of scope rigidity does depend on the choice of scopal elements. The caveat suggested here is that the findings which appear to contradict the claim that Japanese is a scope rigid language are not a result of a failure of scope rigidity *per se*, but rather a circumvention of it. It is not that scope rigidity applies only in some cases, but rather that other properties of the lexical items at play may provide different mechanisms for the calculation of scope.

This idea that scope rigidity is not strictly an absolute, but interacts with other factors, is not new to this paper. Work on negation and quantifier scope in Japanese and Korean (a syntactically similar head-final language which has been argued to be scope rigid) has shown that there is disagreement in the literature on whether sentential negation scopes over an object quantifier or vice versa.<sup>1</sup> In those cases, it was concluded that a choice over verb raising was responsible for the various results, rather than a failure of scope rigidity (Han et. al. 2007, Han et. al. 2008).

A wider discussion of the different syntactic and semantic properties of scopal elements, such as modals and negation, and their interactions with scope rigidity is clearly called for, but outside the scope of the present paper. A part of this work would be to determine more systematically whether there are factors (such as word order) which seemed to make it possible to employ the choice function as a means of generating a wide-scope reading not supported by scope rigidity, and why this only happens about half of the time. Also left unanswered at this time is the question of scrambling. The present study only deals with quantified DP's in their canonical positions; variations in the word order and their effect on scope interpretation are held over for future work.

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<sup>1</sup> See Storoshenko (2004) for a discussion of the literature on Japanese, and Han *et al* (2007) for a similar discussion of Korean.

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# Verbs projecting as Nouns

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## Abstract

Korean process nominals are different from English process nominals in that they do not allow all adverbial modifications. Some have argued, upon this phenomenon, that unlike English process nominals Korean process nominals do not possess a verbal sub-structure. However, not all adverbial modifications are ungrammatical in Korean process nominals. When adverbs are attached low enough, below the VP, such as ‘tasi’ are allowed to modify Korean process nominals. Therefore, in this paper, I argue that Korean process nominals do in fact possess verbal sub-structure. The asymmetry between English and Korean process nominals is caused by the amount of verbal projection available under the nominals.

**Keywords:** process nominals, adverbial modification, verbal sub-structure, verbal nouns

## 1. Introduction

Fu, Roeper and Borer 2001 proposed that English process nominals, nominals bearing arguments, possess verbal sub-structure. The proposal is mainly based on the presence of verbal properties surfacing in the process nominals. Process nominals like ‘destruction’, appearing in (1a), can be modified by an adverb, as in (1b), which is generally regarded as a property of a verb.

- (1) a. John’s destruction of the city  
b. John’s destruction of the city completely

There are argument-bearing nominals in Korean as well, namely Verbal Nouns. Sentences in (2a-d) are examples of Korean verbal nouns surfacing as process nominal.<sup>1</sup>

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<sup>1</sup> All Korean data were Romanized using Yale Romanization. The grammaticality of Korean data was tested upon 39 subjects. Sentences that were rated grammatical by 65 to 100 percent of the testers are marked grammatical. Sentences that were rated grammatical by 35 to 65 percent of the testers are marked questionable. Sentences that

Generally, they are analyzed as some variation of English Process Nominals (Jung 1995, Miyamoto 1999).

- (2) a. [*pepkwan-uy*    *pephaysek-uy*                      *silswu*]-*nun*  
       [judge-Gen        interpretation of law-Gen        mistake]-Top  
       *phikoin-eykey*    *chimyengcekiesta*  
       defendant-Dat    critical  
       “Judge’s mistake in the interpretation of law was critical to the defendant.”
- b. [*caypel-uy*                      *pwu-uy*                      *chwukcek*]-*un*  
       [conglomerate-Gen    wealth-Gen        accumulation]-Top  
       *amwuto*    *makul*    *swu*                      *epsta*  
       nobody    stop        possible        cannot  
       “Accumulation of wealth by the conglomerates cannot be stopped by anybody.”
- c. [*othopai-uy*                      *cilcwu*]-*nun*                      *nwukwuto*  
       [motorcycle-Gen        run]-Top                      nobody  
       *makul*    *swu*                      *epsta*  
       stop        possible        cannot  
       “Nobody can stop the speeding motorcycle.”
- d. [*motwuka*    *kotayhaten*                      *kicha-uy*                      *tochak*]-*un*  
       [Everybody    anticipating                      train-Gen                      arrival]-Top  
       *yeysangwanun*    *talun*                      *kyelkwa-lul*                      *nahassta*  
       expectation-Nom    different                      result-Acc                      bring about  
       “The trains arrival that everybody has anticipated, brought about an unexpected result.”

[Korean]

However, as already observed by Yoon and Park (2004), they show different behavior concerning adverbial modification. As seen in (3a), English process nominals can be modified by ‘completely’. But Korea verbal nouns become ungrammatical when it is modified by *wancenhi*, a Korean version of completely (3b).

Based on this data, Yoon and Park (2004) claims Korean verbal nouns do not possess a verbal sub-structure. Following Yoon and Park, the ungrammaticality of (3b) would be natural, as there is no verbal structure. Consequently, they claim that Verbal Nouns are not derived from verbs. They are base generated as Nouns.

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were marked grammatical by 0 to 35 percent of the testers are marked ungrammatical.

- (3) a. John's destruction of the city **completely**  
 b. \**John-uy tosi-uy wancenhi phakoy*  
 John-Gen city-Gen completely destroy-N  
 "John's destruction of the city completely"

## 2. The Asymmetry within Korean Process Nominals

But not all Korean process nominals can be analyzed as base generated nouns. Verbal nouns, though they may be dominant, are not the only argument-bearing nominals in Korean. There are process nominals that are derived from Korean native verbs, such as 'tolao-m' in (4).<sup>23</sup>

- (4) a. [*cecwu-lul phepwusko ttenakan John-uy tolao-m*]-*un*  
 [curse-Acc pour leave John-Gen return-N]-Top  
*motwu-lul eiepskey mantulessta.*  
 everybody-Acc dumbfounded make  
 "That John, who had left after cursing all, returned, left everybody dumbfounded."  
 b. *cecwu-lul phepwusko ttenakan John-i tolao-ta*  
 curse-Acc pour leave John-Nom return  
 "John who had left after cursing all returned."

What is interesting is that these morphologically complex, derived nominals behave like Korean verbal nouns. As shown in (5a), process nominals derived from

<sup>2</sup> All Korean verbal nouns are of Chinese origin by definition.

<sup>3</sup> Unergative construction is used because transitive and unergative native verbs cannot surface as process nominals, as in (a-b). The cause of this phenomenon will be discussed later in the paper.

- a. \**[ku-uy pap-uy mek-um]-un*  
 [he-Gen rice-Gen eat-N]-Top  
*yeykyentoyn swuswuniessta.*  
 expected sequence  
 "Him eating the rice was an expected result."  
 b. \**[malathonsenswu-uy talli-m]-un*  
 [marathoner-Gen run-N]-Top  
*nwukwuto makul swu epsta.*  
 nobody stop can not  
 "Nobody can stop the marathoner from running."

verbs do not allow the modification by ‘*wancenhi*’.<sup>4</sup> This is unexpected by Yoon and Park’s analysis. The account for this phenomenon, they would have to postulate another factor independently blocking the modification in Korean process nominals derived from verbs.

- (5) a. \*[… *John-uy wancenhi tolao-m*]-*un*  
 […John-Gen completely return-N]-Top  
 “That John, who had fled after cursing all, returned completely…”
- b. \*[… *pepkwan-uy pephaysek-uy wancenhi silswu*]-*nun*…  
 [judge-Gen interpretation of law-Gen completely mistake]-Top  
 “Judge’s complete mistake in the interpretation of law…”
- c. \*[… *othopai-uy wancenhi cilcwu*]-*nun*…  
 [motorcycle-Gen completely run]-Top…  
 “The motorcycle running completely…”
- d. \*[… *kicha-uy wancenhi tochak*]-*un* …  
 […train-Gen completely arrival]-Top…  
 “The trains complete arrival…”

### 3. Proposal

In this paper, I propose an analysis that can capture the behavior of Korean Process Nominals as a whole. I claim that Korean Process Nominals, including Verbal Nouns, do, in fact, possess a verbal sub-structure. The adverbial modification in (5) is ungrammatical only because adverbs such as ‘completely’ and ‘*wancenhi*’ attaches to a higher functional projection than what is available to the Korean process nominals. I claim that Korean process nominals possess verbal structure only up to VP.

#### 3.1. Korean process nominals possess VP structure

Korean process nominals are nominal heads taking VP as its complement. (6) and (7) is the structure I propose for Korean process nominals. The embedded verb of the

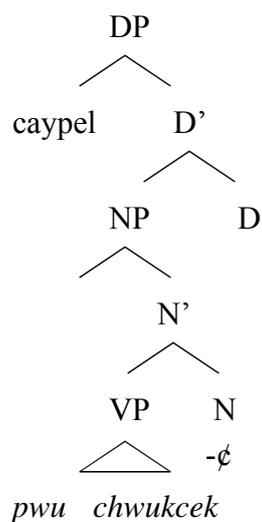
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<sup>4</sup> The process nominals derived from Korean native verbs concerned here are only those nominals that mark their arguments with genitive markers. When one of the arguments is marked with verbal case markers they are generally regarded as gerunds. Gerunds allow modification by *wancenhi* as shown below.

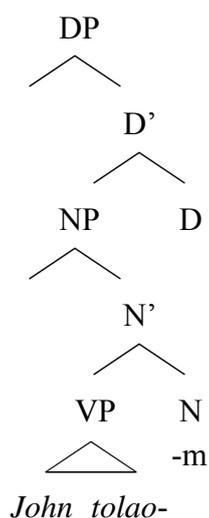
- i) [*John-i wancenhi tolao-m*] -*un*  
 John-Nom completely return -Top
- ii) [*pepkwan-uy pephaysek-ul wancenhi silswu-ha-m*]-*un*…  
 judge-Gen interpretation of law-Acc completely mistake] -Top

Verbal nouns and process nominals derived from native verbs alike, project only up to large VP. Then, a nominal head takes large VP as its complement embedding the verbal structure in the nominal projection. The only difference between Verbal Nouns and Process Nominals derived from native verbs is that the nominal head attaching to the Verbal Nouns is phonologically empty, where as, nominal head attaching to the Process Nominals derived from native verbs contains a phonological feature /-m/.

(6) Verbal Nouns



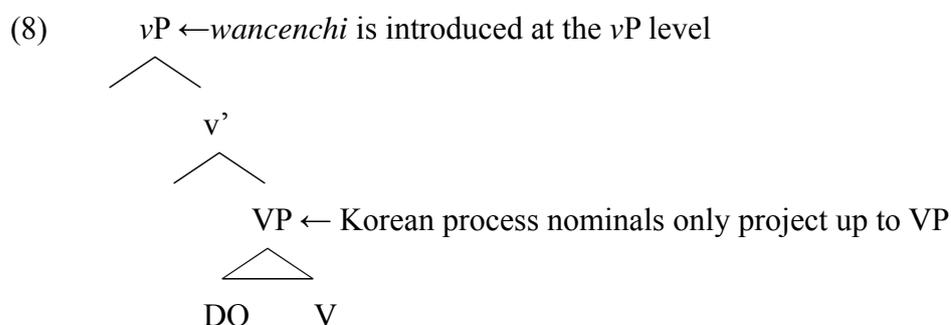
(7) Process Nominals derived from native verbs



3.2. Ungrammaticality of vP level adverbial modification

Cinque (1999) showed that the positions to which each adverb attaches are set, and adverbs can be categorized in a hierarchical order. Adverbs may attach to large VP,

little  $\nu$ P, TP or any other functional projection. According to Cinque 1999, completely is an adverb attaching at the  $\nu$ P level. I assume, following Cinque 1999, that *wancenhi* is an adverb attaching at the  $\nu$ P level.



Modification by *wancenhi* is ungrammatical because the functional head necessary for  $\nu$ P adverb modification, namely  $\nu$ P, is absent in Korean process nominals, as depicted in (8). It is not due to the absence of the entire verbal structure.

#### 4. Prediction

The proposal has some predictions. As there is a verbal sub-structure, adverbs merging low enough should be able to modify Korean process nominals. And as process nominal embed only large VP structure, verbal properties attributed to structures higher in the verbal projection would not be present. The prediction is born out.

##### 4.1. Restitutive ‘tasi’

Restitutive ‘tasi’ modifies the status event of the event structure. Assuming that restitutive ‘tasi’ attaches to a structure below the VP, in line with Stechow 1996 and Ko 2005, they should be allowed to modify Korean process Nominals. And as predicted, Process Nominals derived from native verbs modified by ‘tasi’ are perfectly grammatical as in (9).<sup>5</sup> Not only are they grammatical, they can all be interpreted with restitutive reading.<sup>6</sup>

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<sup>5</sup> The sentences

(9b) and

(9c) were found through Google search.

<sup>6</sup> The sentences in (9) are not interpreted with restitutive meaning obligatorily. However, mere fact that it could be interpreted with restitutive meaning indicates that *tasi* is inside the VP domain. If *tasi* is merged outside of VP, repetitive interpretation is forced, blocking the possibility of restitutive interpretation.

- (9) a. [*cecwu-lul phepwusko ttenakan John-uy tasi*  
 [curse-Acc pour leave John-Gen again  
*tolao-m]-un ...*  
 return-N]-Top  
 “That John, who had fled after cursing all, came back again...”
- b. [*yeyswu-nim-uy tasi sasi-m]-un*  
 [Jesus-Hon-Gen again live-N]-Top  
 “The rebirth of Jesus”
- c. [*kkoch-uy tasi phi-m]-un*  
 [flower-Gen again blossom-N]-Top  
 “The flower blossoming again”
- d. [*pi-uy tasi nayli-m]-un*  
 [rain-Gen again fall-N]-Top  
 “The rain falling again”

However, as you can see in (10), Verbal Nouns show different behavior. Verbal Nouns do not allow the modification by ‘tasi’.

- (10) a. \**[pepkwan-uy pephaysek-uy tasi silswu]-nun*  
 [judge-Gen interpretation of law-Gen again mistake]-Top  
*phikoin-eykey chimyengcekiesta*  
 defendant-Dat critical  
 “Judge’s mistake in the interpretation of law again was critical to the defendant.”
- b. \**[caypel-uy pwu-uy tasi chwukcek]-un*  
 [conglomerate-Gen wealth-Gen again accumulation]-Top  
*amwuto makul swu epsta*  
 nobody stop can not  
 “Accumulation of wealth by the conglomerates again cannot be stopped by anybody.”
- c. \**[othopai-uy tasi cilcwu]-nun nwukwuto*  
 [motorcycle-Gen again run]-Top nobody  
*makul swu epsta*  
 stop can not  
 “Nobody could stop the motorcycle from speeding again.”

- d. \*[*motwuka kotayhaten kicha-uy tasi tochak*]-*un*  
 [Everybody anticipating train-Gen again arrival]-Top  
*yeysangwanun talun kyelkwul nahassta*  
 expectation-Nom different result-Acc bring about  
 “The trains arrival again that everybody has anticipated,  
 brought about an unexpected result.”

Instead they are modified by *cay*, a Korean counterpart of English ‘re-’, as in (11). In line with Marantz 2007, I assume that Korean *cay* functions syntactically identical to restitutive *tasi*. Therefore my assumption is the modification by ‘*tasi*’ in Verbal Nouns is ungrammatical not because of the absence of verbal structure, but because the modification is morphologically blocked by ‘*cay*’ attachment.<sup>7</sup>

- (11) a. [*pepkwan-uy pephaysek-uy cay-silswu*]-*nun*  
 [judge-Gen interpretation of law-Gen again-mistake]-Top  
*phikoin-eykey chimyengcekiesta*  
 defendant-Dat critical  
 “Judge’s mistake in the interpretation of law again was critical  
 to the defendant.”
- b. [*caypel-uy pwu-uy cay-chwukcek*]-*un*  
 [conglomerate-Gen wealth-Gen re-accumulation]-Top  
*amwuto makul swu epsta*  
 nobody stop can not  
 “Accumulation of wealth by the conglomerates again cannot  
 be stopped by anybody.”
- c. ?[*othopai-uy cay-cilcwu*]-*nun* *nwukwuto*  
 [motorcycle-Gen again-run]-Top nobody  
*makul swu epsta*  
 stop can not  
 “Nobody could stop the motorcycle from speeding again.”
- d. [*motwuka kotayhaten kicha-uy cay-tochak*]-*un*  
 [Everybody anticipating train-Gen again-arrival]-Top  
*yeysangwanun talun kyelkwul nahassta*  
 expectation-Nom different result-Acc bring about

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<sup>7</sup> If *cay* functions syntactically identical to restitutive *tasi*, the possibility of *cay* modification in itself supports the existence of VP structure, as it would be an adverb merging below the VP.

“The trains arrival again that everybody has anticipated,  
brought about an unexpected result.”

#### 4.2. Secondary Predicates

Another class of adverb attaching below the VP is secondary predicates. I assume, along with Japanese object-oriented depictive predicates and secondary resultative predicates, that Korean Object-oriented Depictive Predicates (hereafter: ODP) and Secondary Resultative Predicates (hereafter; SRP) are also generated inside the large VP (cf. Koizumi 1994, Takezawa 1993).<sup>8</sup> Subject oriented depictive predicates are generated external to the large VP. As a result ODP and SRP should be allowed to modify Korean process nominals.

##### (12) Korean Process Nominals modified by ODPs

- a. ?[*wuntongsenswu-uy*    ***huthulecin chaylo***    *tochak*]-*ul*  
 athlete-Gen                      distracted                      arrival]-Acc  
*salamtul-un*    *yongnaphal*    *swu*    *epsessta*  
 people-Top            tolerate            can    not

“People could not tolerate the fact that the athlete has arrived distracted.”

- b. [*chelswu-uy*    ***maynpallo***    *tolao-m*]-*un*    *yeysangpakkuy*  
 chelswu-Gen    bare-foot            return-N-Top    unexpected  
*kyelkwayessta*  
 outcome

“Chelswu returning bare-footed was an unexpected situation.”

##### (13) Korean Process Nominals modified by SRPs

- a. [*ai-uy*    ***elunulo***    *sengcang*]-*un*    *wuli-lul*  
 child-Gen    to man            grow-N-Top    we-Acc  
*ppwutushakey*    *hayssta*  
 proud                      made

“That the child became a man, made us proud.”

- b. [*namwu-uy*    ***phwulukey***    *cala-m*]-*un*    *cayen-uy*    *ichiita*  
 tree-Gen            green                      grow-N-Top    nature-Gen    axiom

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<sup>8</sup> Secondary depictive predicates describe the state of the referent when the action denoted by the primary predicate occurs. Secondary resultative predicate describes the result state of the referent. When the referent is the object of the primary predicate it is termed object oriented. When the referent is the subject, it is termed subject oriented. For more discussion on Korean secondary predicates refer to Chung 2007

“A tree growing green is the axiom of nature.”

Sentences in (12) and (13) show that the modification is possible. But the results for ODP were not as straight forward as expected. However there is a clear distinction from sentences that are modified by adverbs merging external to the VP. As you can see in (14) sentences modified by *wancenhi* or by subject-Oriented Depictive Predicate *maynpallo* are rated ungrammatical.<sup>9</sup>

(14) Korean Process Nominals modified by high level adverbs

a. \*[…*kicha-uy wancenhi tochak*]-*un* ...

[...train-Gen completely arrival]-Top...

“The trains complete arrival...”

b. \*[…*malathon senswu-uy maynpallo cilcwu*]-*nun*

marathoner-Gen bare-foot run-Top

*wuli-lul kamtongsikhyessta*

we-Acc impressed

“The fact that the marathoner ran bare-footed impressed us.”

#### 4.3. Case

If Korean process nominals possess verbal structure only up to VP, functional structures responsible for case assignments such as *vP* or *TP* must be absent. Therefore no verbal case markers should be present in Korean process nominals. This is true by definition, as a structure possessing any sort of verbal case marker will not be defined a process nominal. Therefore by definition, all process nominal receive nominal case.

#### 4.4. External Argument

Another prediction is that, as none of the functional projection above the VP is present, only internal argument will be assigned. In turn, external argument of the embedded verb would not surface.

A sentence with transitive verb of native origin cannot surface as a Process nominal, as in (15b). This phenomenon seems to comply with the absence of external argument position in process nominals. The absence of external argument position in Korean process nominals could be the factor disallowing transitive process nominals.

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<sup>9</sup> *Maynpallo* can surface as either Subject or Object Oriented Depictive Predicate, depending on the position of the nominal it modifies.

However, the transitive Verbal Nouns are grammatical, as in (16b).

- (15) a. *John -i*            *pap-ul*        *mek-ta*  
           John -Nom        rice-Acc        eat-Comp  
           “John eats rice”
- b. \* *John -uy*        *pap-uy*        *mek-um*  
           John -Gen        rice-Gen        eat-N  
           “Eating of rice by John”
- (16) a. *caypel-i*                    *pwu-lul*            *cay-chwukcek-ha-da*  
           conglomerate-Gen        wealth-Gen        re-accumulate  
           “Conglomerates accumulate wealth again...”
- b. *caypel-uy*                    *pwu-uy*            *cay-chwukcek-un*  
           conglomerate-Gen        wealth-Gen        re-accumulation-Top  
           “Accumulation of wealth by the conglomerates again...”

The asymmetry in the behavior between Korean process nominals of native origin and Verbal Nouns is persistent in unergative verbs. As you can see in (17), process nominals derived from native unergative verbs are the only ones that are ungrammatical.

- (17) a. *chelswu-uy*        *cilcwu*  
           chelswu-Gen        run-N  
           “chelswu’s run”
- b. \**chelswu-uy*        *talli-m*  
           chelswu-Gen        run-N  
           “Chelswu running”

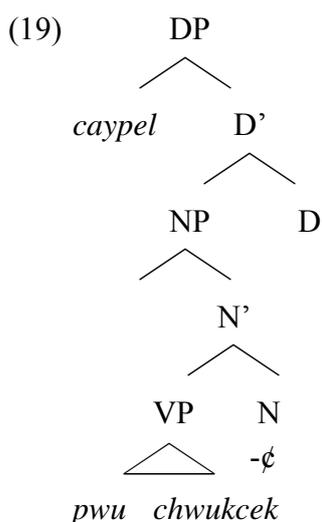
Unlike transitives and unergatives that show asymmetry, process nominals derived from unergative verbs are all grammatical, as shown in (18).

- (18) a. [*John-uy*        *tolao*]-*m*  
           John-Gen        return-N  
           “John’s return”
- b. [*kicha-uy*        *tochak*]  
           train-Gen        arrive-N

“Train’s arrival”

- c. [*chelswu-uy samang*]  
 chelswu-Gen die-N  
 “chelswu’s death”

At first glance, unlike the prediction, the dividing line seems to exist between the verbal nouns and native process nominals and not between verbs with external arguments and those without it. If all process nominals possess verbal sub-structure, and ungrammaticality of (5) is due to the absence of *vP* structure in Korean process nominals, the external argument position should be not present in process nominals, and one could predict that all transitive and unergative verbs would not surface as process nominals.



(6), repeated here as (19), is the structure I propose for Verbal Nouns surfacing as process nominals. *caypel* is base generated at the specifier of the DP with a general relatedness (cf. Kratzer 1996). The claim can be backed up by the fact that *caybel* is not always interpreted as the agent of the embedded VP. Therefore, I claim that *caybel* is not an external argument of the embedded VP.

My claim is that the apparent external argument of the Verbal Nouns is, in fact, not an argument of the embedded verb. They are introduced by a nominal functional projection higher in the structure. Therefore, the anomaly is not in the grammaticality of transitive and unergative Verbal Nouns, but in the ungrammaticality of transitive and

unergative process nominals of native origin.

As I have stated above, the ungrammaticality of process nominals derived from transitive and unergative verbs of Korean native origin is unexpected in my analysis. However, not all process nominals of native origin are impossible. Process nominals derived from native unergative verbs are grammatical, as shown in (18).

To accommodate this data, I claim that VP node of Korean native verb can not act as a syntactic unit.<sup>10</sup> Korean verbs must project up to *v*P to work as a syntactic unit. Process nominals can be derived from unergative verb only because the *v*P node of the unergative verb is defective or absent. The same analysis is adopted for Korean Verbal Nouns. Verbal Nouns are loanwords from Chinese. As loanwords, they lack proper functional projections. Therefore, Process nominals can be derived from Verbal Nouns without restriction.

## 5. Consequences

### 5.1. Korean *-um* nominalization

If my proposal is on the right track, Korean ‘*-um*’ nominalization can be explained as a whole. Previously, *-m* in (20a) and (20b, c) were analyzed as different syntactic units with different functions. *-m* in (20a) targets lexical units and lacks verbal properties, whereas *-m* in (20b, c) targets verbal projections and possesses verbal properties.

Opposing to previous analysis, I claim that *-m* in (20) all provides same function; nominalization of the verbal projection. The difference in the appearance of the verbal properties is only due to the difference in the amount of verbal projection available under the *-m* head. When ‘*-um*’ targets large VP, only internal argument is present. When it targets *v*P, external argument and accusative case marker is also present. When it targets TP, nominative case marker and tense marker also surface as well.

- (20) a. [*John-uy*            *tolao*]-*m*  
          John-Gen            return-N  
          ‘John’s return

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<sup>10</sup> Difference could be in the nominalizing suffix. If suffix ‘*-um*’ only targets higher verbal projections, unlike  $\emptyset$ -morpheme nominalizing suffix attaching to Verbal Nouns, the ungrammaticality of transitive and unergative Process Nominals derived from native verbs could be explained. However, it would wrongly predict that as unaccusative Process Nominals derived from native verbs are grammatical, they would possess higher verbal structures allowing modifications by higher adverbs.

- b. [*John -uy pap-ul mek*]-*um*  
 John -Gen rice-Acc eat-N  
 “John eating rice”
- c. [*John -i pap-ul mek-ess*]-*um*  
 John -Nom rice-Acc eat-past-N  
 “John eating rice”

## 5.2. Verbal Nouns

The analysis will apply to Verbal Nouns as well. When VP is embedded, only the internal argument is present. When *vP* is embedded, external argument and accusative case marker is also present. When TP is embedded, nominative case marker and tense marker surface as well. In (21a), Verbal Noun seems to appear as a bare Verbal Noun. I assume that a phonologically empty nominalizer attaches to the Verbal Noun and creates the process nominal. (21b,c) shows that *ha* emerges when a nominal embeds a structure containing *vP*.

- (21) a. [*Chelswu-uy tosi-uy phakoy*] -  $\emptyset$   
 Chelswu-Gen city-Gen destroy-N  
 “Chelswu’s destruction of the city”
- b. [*Chelswu-uy tosi-lul phakoy -ha*]- *m*  
 Chelswu-Gen city-Acc destroy-*v*-N  
 “Chelswu destroying the city”
- c. [*Chelswu-ka tosi-lul phakoy -ha-yess*]-*um*  
 Chelswu-Nom city-Acc destroy-*v*-past-N  
 “Chelswu having destroyed the city”

What is interesting is the unacceptability of *ha* insertion in process nominals without *vP* projections. Not only does the sentence become ungrammatical when *ha* is absent in the presence of higher verbal structures, as in (22b,c), the sentence become ungrammatical if *ha* emerges in sentences containing only VP structure, as in (22a). This is unexpected in analysis that postulate *ha* as a verbalizer; a lexical category changing affix turning nouns to verbs. I have shown above that process nominal with genitive marker in all of its arguments contains a VP. If *phakoy* is base generated as noun and *ha* is a lexical category changing affix turning nouns to verbs, *ha* must be needed and (22a) should be grammatical.

- (22) a. \**Chelswu-uy*      *tosi-uy*      *phakoy-ha-m*  
 Chelswu-Gen      city-Gen      destroy-N  
 “Chelswu’s destruction of the city”
- b. \**Chelswu-uy*      *tosi-lul*      *phakoy*  
 Chelswu-Gen      city-Acc      destroy-N  
 “Chelswu destroying the city”
- c. \**Chelswu-ka*      *tosi-lul*      *phakoy-yess-um*  
 Chelswu-Nom      city-Acc      destroy-past-N  
 “Chelswu having destroyed the city”

From this I claim that *ha* is not a derivational affix functioning as lexical category changer, but a verbal functional affix supplementing a defective verb to form a complete verbal projection. In (21b, c), *ha* is inserted to substitute the missing *vP* projection in Verbal Nouns.

- (23) a. *Chelswu-ka*      *tosi-lul*      *phakoy-ha-ta*  
 Chelswu-Nom      city-Acc      destroy-*v*-Comp  
 “Chelswu’s destruction of the city”
- b. \**Chelswu-uy*      *tosi-lul*      *phakoy-ta*  
 Chelswu-Gen      city-Acc      destroy-Comp  
 “Chelswu destroying the city”
- c. \**Chelswu-ka*      *tosi-lul*      *phakoy-yess-ta*  
 Chelswu-Nom      city-Acc      destroy-past-Comp  
 “Chelswu having destroyed the city”

(23a) is an example of Verbal Noun projecting up to the sentential projection to form a complete sentence. (23b, c) is ungrammatical because *phakoy* by itself cannot form a complete verb. The defective verb needs *ha* to complete its verbal projection.

## 6. Conclusion

In this paper, I have claimed that unlike previous analysis Korean process nominals embed verbal structure, though defective. To support my claim, I have shown that there are some adverbs such as *tasi*, which are able to modify Korean process nominals and that adverbs that can not modify Korean process nominals are *vP* level adverbs. I have also shown that Verbal case markers and External arguments of the verb

are absent in Korean process nominals.

If my proposal is on the right track, *-um* nominalizations previously thought as lexical nominalizations could be analyzed as phrasal nominalizations targeting lower projections. It would also shed new light on the long standing debate over the status of *ha*. If process nominals are verb derived nouns possessing incomplete verbal projection, *ha* is not be a verbalizer turning nouns into verbs, but is a verbalizer turning defective verbs to complete ones.

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# Possible Patterns of A'-Chains in Relative Clauses in Ulster Irish\*

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## Abstract

This paper investigates the possible patterns of A'-chains in relative clauses in Ulster Irish, when the relative clauses contain two embedded sentences, that is, three COMP positions and one trace/resumptive pronoun. As Ulster Irish has three types of COMPs and the tail end of an A'-chain involved in a relative clause is either a trace or a resumptive pronoun, the number of the logically possible combinations of the COMPs and the tail end of the chain in the relevant examples is 54. We found that 18 patterns were possible, some of which had the sequence (aL, that). We propose that these patterns suggest that *aL* and *that* are in an agreement relation, forcing *that* to function as *aN*.

**Keywords:** A'-chains, agreement, COMP alternation, relative clauses, Ulster Irish.

## 1. Introduction

Modern Irish (Irish, hereafter) has three types of complementizers: the [-Q] marker, the direct relative marker, and the indirect relative marker. The [-Q] marker *go/gur* behaves in the same fashion as English [-Q] COMP *that*. The direct and indirect relative markers appear in relative clauses and wh-interrogatives, among others.

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McCloskey (1979) proposes to use *aL* for the former, and *aN* for the latter for phonological reasons. The properties of the COMPs are illustrated by the examples in (1-3). (1) is a declarative sentence, and the embedded clause is headed by *gur* “that.” When the sentence involves relative clause formation, as in (2), the embedded COMP must change to *aL*, and another COMP *aL* must be inserted right after the head noun.

- (1) *Creideann Seán gur cheannaigh Máire an carr*  
 believe John that bought Mary the car  
 “John believes that Mary bought the car”

- (2) (*aL*, *aL*, *t*)  
*Sin an carr a chreideann tú a cheannaigh Seán t*  
 that the car *aL* believe you *aL* bought John  
 “That’s the car that you believe that John bought”

There is another way to form a relative clause, as shown in (3), where *rp* stands for resumptive pronoun.

- (3) (*aN*, *that*, *rp*)  
*Sin an carr a gcreideann tú gur cheannaigh Seán é*  
 that the car *aN* believe you that bought John it  
 “That’s the car that you believe that John bought”

In (3), the topmost COMP of the relative clause is an indirect relative marker *a*, the COMP of the embedded clause is a [-Q] COMP, and the embedded clause contains a resumptive pronoun *é* “it” instead of a gap.

The purpose of this paper is to investigate the possible patterns of A'-chains in relative clauses in the Ulster variety of Irish (Ulster Irish, hereafter), when the relative clauses contain two embedded sentences, that is, three COMP positions and one trace/resumptive pronoun. In this survey, we used relative clauses in Ulster Irish, one of three main dialects (Ulster, Connacht, and Munster) in Irish, because Ulster Irish retains a clearer distinction among the three COMPs than the other two varieties. As Ulster Irish has three types of COMPs and the tail end of an A'-chain involved in a relative clause is either a trace or a resumptive pronoun, when it has three COMP positions (COMP1, COMP2, COMP3, trace (*t*)/resumptive pronoun (*rp*)), the number of the logically possible combinations of the COMPs and the tail end of the chain is 54 ( $3 \times 3 \times 3 \times 2 = 54$ ). In the present survey, we discovered three facts shown in (4).

- (4) a. No relative clause with the COMP *go* “that” as the first member of the chain (*go*, COMP2, COMP3, *t/rp*) is grammatical, so that 18 patterns with this chain ( $1 \times 3 \times 3 \times 2 = 18$ ) are ungrammatical.

- b. Out of the remaining 36 potentially possible A'-chains, the chains in which the relationship between the COMP3 and the final member of the chain is either one of (*aL*, *rp*), (*aN*, *t*), and (*go*, *t*) are all illegitimate ( $2 \times 3 \times 3 \times 1 = 18$ ), so that there remain 18 potentially possible A'-chains.
- c. The remaining 18 A'-chains are all possible in Ulster Irish.

In this paper, we present the possible patterns of A'-chains in relative clauses in Ulster Irish, and discuss what these facts might suggest for the theory of (Ulster Irish) syntax.

The organization of this paper is as follows. Section 2 provides the properties of the complementizers in Irish and the types of A'-chains thus far observed as a background to the subsequent sections. Section 3 presents the data with possible patterns of A'-chains in relative clauses in Ulster Irish. Section 4 discusses implications of the findings. Section 5 points out a remaining issue. Finally, Section 6 concludes the paper.

## 2. Background

James McCloskey has investigated the mechanisms of COMP alternation in Irish since 1976 (McCloskey (1976)). Irish has three types of complementizers: the [-Q] marker, the direct relative marker, and the indirect relative marker. The [-Q] marker is realized as either *go* (non-past) or *gur* (past), and this behaves in the same fashion as English [-Q] COMP *that*. The direct and indirect relative markers appear in relative clauses and *wh*-interrogatives, among others. The basic form of the two markers is *a*, but the direct relative marker induces Lenition and the indirect relative marker Eclipsis/Nasalization on a following element. Therefore, McCloskey (1979) proposes to use *aL* for the former, and *aN* for the latter. The direct relative marker is realized as *a* (non-past and past), and the indirect relative marker as either *a* (non-past) or *ar* (past).<sup>1</sup> In this paper, following McCloskey (1979), we use the symbols *aL* and *aN* for the direct relative marker and the indirect relative marker, respectively. The properties of the three COMPs are summarized in (5).

- (5) Properties of the COMPs in Irish

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<sup>1</sup> Note that the indirect relative marker in the past form, whose default form is *ar*, is realized as *a* in front of a handful of irregular verbs such as *bí* "to be," *déan* "to do," and *feic* "to see."

	types of COMPs	non-past form	past form	symbol
a.	the [-Q] marker	<i>go</i>	<i>gur</i>	<i>that</i>
b.	the direct relative marker	<i>a</i>	<i>a</i>	<i>aL</i>
c.	the indirect relative marker	<i>a</i>	<i>ar</i>	<i>aN</i>

Let us illustrate the properties of the COMPs by using actual examples. (1), reproduced as (6), is a declarative sentence, and the embedded clause is headed by the [-Q] COMP *gur* “that.”

- (6) *Creideann Seán gur cheannaigh Máire an carr*  
 believe John that bought Mary the car  
 “John believes that Mary bought the car”

(6) is a declarative sentence, and the embedded clause is headed by the [-Q] COMP *gur* “that.” When the sentence involves relative clause formation, as in (2), reproduced as (7), the embedded COMP must change to the direct relative marker *aL*, and at the same time, another COMP *aL* must be inserted right after the head noun.

- (7) (aL, aL, *t*)  
*Sin an carr a chreideann tú a cheannaigh Seán t*  
 that the car aL believe you aL bought John  
 “That’s the car that you believe that John bought”

(7) would be ungrammatical if either one of the two COMPs were *go/gur* “that,” as shown in (8).

- (8) a. \*(aL, that, *t*)  
 \**Sin an carr a chreideann tú gur cheannaigh Seán t*  
 that the car aL believe you that bought John  
 “That’s the car that you believe that John bought”  
 b. \*(that, aL, *t*)  
 \**Sin an carr go gcreideann tú a cheannaigh Seán t*  
 that the car that believe you aL bought John  
 c. \*(that, that, *t*)  
 \**Sin an carr go gcreideann tú gur cheannaigh Seán t*  
 that the car that believe you that bought John

There is another way to form a relative clause in Irish, as shown in (3), reproduced as (9).

- (9) (aN, that, rp)  
*Sin an carr a gcreideann tú gur cheannaigh Seán é*  
 that the car aN believe you that bought John it  
 “That’s the car that you believe that John bought”

In (9), the topmost COMP of the relative clause is an indirect relative marker *a*, the COMP of the embedded clause is a [-Q] COMP, and the embedded clause contains a resumptive pronoun *é* “it” instead of a gap. The examples in (10) and (11) suggest that *aN* must bind a resumptive pronoun, and as long as the former binds the latter, no locality restriction is imposed on them.

(10) \*(aN, that, *t*)

*\*Sin an carr a gcreideann tú gur cheannaigh Seán t*  
 that the car aN believe you that bought John  
 “That’s the car that you believe that John bought”

(11) a. (aN, that, that, *rp*)

*Sin an carr a gcreideann tú gur dhúirt siad gur cheannaigh Seán é*  
 that the car aN believe you that said they that bought John it  
 “That’s the car which you believe that they said that John bought it”

b. (aN, *rp*)

*Sin teanga a mbeadh meas agam ar dhuine ar bith atá ábalta í a*  
 that a language aN would be respect at me on person any aL+is able it to  
*labhairt*  
 speak  
 “??That’s a language that I would respect anyone who could speak it”

((11b) is cited from McCloskey (1979) with slight editing.)

In (10), there is no resumptive pronoun which *aN* could bind, and the example is ungrammatical. In (11a) and (11b), *aN* binds the resumptive pronoun *é* across two CP boundaries, and *í* across a complex NP, respectively, and the examples are all grammatical.

McCloskey (2002) further investigates the patterns of COMP alternation in Irish, and presents three new patterns shown from (12) to (14).

(12) (aN, aN, *rp*)

*Sin an carr a gcreideann tú ar cheannaigh Seán é*  
 that the car aN believe you aN bought John it  
 “That’s the car that you believe that John bought”

(13) (aL, aN, *rp*)

*Sin an carr a chreideann tú ar cheannaigh Seán é*  
 that the car aL believe you aN bought John it  
 “That’s the car that you believe that John bought”

(14) (aN, aL, *t*)

*Sin an carr a raibh súil agam a cheannófá t*

that the car aN was hope at-me aL buy (COND) (S2)

“That’s the car that I hoped that you would buy”

Therefore, Irish allows five patterns of COMP alternation, when there are two COMP positions in the sentence. This is summarized in (15).

- (15) a. (aL, aL, *t*)  
b. (aN, that, *rp*)  
c. (aN, aN, *rp*)  
d. (aL, aN, *rp*)  
e. (aN, aL, *t*)

McCloskey (2002) provides an elegant analysis of the five patterns in (15) by proposing (16).

- (16) a. C whose specifier is filled by Move is realized as *aL*.  
b. C whose specifier is filled by Merge is realized as *aN*.  
c. C whose specifier is not filled is realized as *go/gur*.

McCloskey assumes that the SPEC of *aL* contains a null operator/null pronoun (henceforth, null operator) as a result of movement, that in the SPEC of *aN*, there is a base-generated operator, and that in the SPEC of *go/gur*, there is no operator.

Note, however, that Maki and Ó Baoill (2005) found the sixth pattern of COMP alternation in Ulster Irish, when there are two COMP positions in a relative clause. The pattern is (aL, *go, rp*), as shown in (17) and (18). These examples are modified versions of the original examples shown in Maki and Ó Baoill (2005).

- (17) (aL, that, *rp*)

*Sin an carr a mheasann Seán gur cheart dúinn é a cheannach*

that the car aL think John that right for-us it to buy

“That’s the car that John thinks that we ought to buy it”

- (18) (aL, that, *rp*)

*Sin an carr a mheasann tú gurbh fhiú dúinn é a cheannach*

that the car aL think you that worth for-us it to buy

“That’s the car that you think that it would be worth our while to buy it”

Note that in Ulster Irish, direct object in an infinitival clause is placed before the verb (verbal noun), so that in (17) and (18), the resumptive pronoun *é* “it” is put before the verbal noun (*a*) *cheannach* “(to) buy.” Note also that *gurbh* in (18) is the form of *gur* used before vowels and *fh* + vowel in the Conditional Mood.

Therefore, Ulster Irish allows six patterns of COMP alternation, when there are two COMP positions in the sentence, as shown in (19).

- (19) a. (aL, aL, *t*)

- b. (aN, that, *rp*)
- c. (aN, aN, *rp*)
- d. (aL, aN, *rp*)
- e. (aN, aL, *t*)
- f. (aL, that, *rp*)

### 3. Possible Patterns of A'-Chains

With the background established, let us examine the possible patterns of A'-chains in Ulster Irish. There were 18 possible patterns of A'-chains, when the relative clauses contain two embedded sentences, that is, three COMP positions and one trace/resumptive pronoun. The relevant data are provided from (20) to (37). Note that for some reasons still unknown, some chain patterns require particular predicates, so that not all the possible chain patterns contain exactly the same predicates in the relative clauses.<sup>2</sup> The examples from (20) to (28) start with *aL*, and the examples from (29) to (37) with *aN*.

(20) (aL, aL, aL, *t*)

*Sin an carr a chreideann Seán a dúirt Máire a cheannaigh Pól t*  
 that the car aL believe John aL said Mary aL bought Paul  
 “That’s the car that John believes that Mary said that Paul bought”

(21) (aL, aL, aN, *rp*)

*Sin an carr a chreideann Seán a dúirt Máire ar cheannaigh Pól é*  
 that the car aL believe John aL said Mary aN bought Paul it  
 “That’s the car that John believes that Mary said that Paul bought it”

(22) (aL, aL, that, *rp*)

*Sin an carr a mheasann tú a mheasann Seán gur cheart dúinn é a*  
 that the car aL think you aL think John that right for-us it to  
 cheannach  
 buy  
 “That’s the car that you think that John thinks that we ought to buy it”

(23) (aL, aN, aL, *t*)

*Sin an carr a bhí súil agam a mbeadh súil acusan a*  
 that the car aL was hope at-me aN be (COND) hope at-them(emphatic) aL

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<sup>2</sup> See Maki and Ó Baoill (2007) for relevant discussion.

cheannófá *t*

buy (COND) (S2)

“That’s the car that I hoped that they would hope that you would buy”

(24) (aL, aN, aN, *rp*)

*Sin an fear a chreid sé a raibh a fhios aige a raibh sé tinn*

that the man aL believed he aN was his knowledge at-him aN was he sick

“That’s the man that he believed that he knew that he was sick”

(25) (aL, aN, that, *rp*)

*Sin an rud a smaoinigh sé ar dhúradh leis go bhfaigheadh sé ann*

that the thing aL remembered he aN was-told with-him that found he there

*é*

it

“That’s the thing that he remembered that he was told that he would find it there”

(26) (aL, that, aL, *t*)

*Sin an carr a bhí súil agam go mbeadh súil acusan a*

that the car aL was hope at-me that be (COND) hope at-them(emphatic) aL

*cheannófá *t**

buy (COND) (S2)

“That’s the car that I hoped that they would hope that you would buy”

(27) (aL, that, aN, *rp*)

*Sin an rud a chreid sé gur dhúradh leis a bhfaigheadh sé ann é*

that the thing aL believed he that was-told with-him aN found he there it

“That’s the thing that he believed that he was told that he would find it there”

(28) (aL, that, that, *rp*)

*Sin an carr a chreideann Seán gur chreid Máire gur cheannaigh Pól é*

that the car aL believe John that believed Mary that bought Paul it

“That’s the car that John believes that Mary believed that Paul bought it”

(29) (aN, aL, aL, *t*)

*Sin an carr a gcreideann Seán a shamhlaigh Máire a cheannaigh Pól t*

that the car aN believe John aL imagined Mary aL bought Paul

“That’s the car that John believes that Mary imagined that Paul bought”

(30) (aN, aL, aN, *rp*)

*Sin an roilig ar mheas sé a ba chuimhneach leis a raibh siad*

that the graveyard aN thought he aL COP remembered with-him aN were they  
*curtha inti*

buried in-it

“That’s the graveyard that he thought that he remembered that they were buried in it”

(31) (aN, aL, that, rp)

*Sin an carr a gcreideann Seán a shamhlaigh Máire gur cheannaigh Pól é*  
that the car aN believe John aL imagined Mary that bought Paul it  
“That’s the car that John believes that Mary imagined that Paul bought it”

(32) (aN, aN, aL, t)

*Sin an carr a raibh súil agam a mbeadh súil acusan a*  
that the car aN was hope at-me aN be (COND) hope at-them(emphatic) aL  
*cheannófa t*  
buy (COND) (S2)

“That’s the car that I hoped that they would hope that you would buy”

(33) (aN, aN, aN, rp)

*Sin an fear ar chreid sé a raibh a fhios aige a raibh sé tinn*  
that the man aN believed he aN was his knowledge at-him aN was he sick  
“That’s the man that he believed that he knew that he was sick”

(34) (aN, aN, that, rp)

*Sin an carr ar mheas sé ar dhúradh leis go raibh feidhm leis*  
that the car aN thought he aN was-told with-him that was need with-it  
“That’s the car that he thought that he was told that it was needed”

(35) (aN, that, aL, t)

*Sin an carr a gcreideann Seán gur mhaígh Máire a cheannaigh Pól t*  
that the car aN believe John that claimed Mary aL bought Paul  
“That’s the car that John believes that Mary claimed that Paul bought”

(36) (aN, that, aN, rp)

*Sin an rud ar smaoinigh sé gur dhúradh leis a bhfaigheadh sé*  
that the thing aN remembered he that was-told with-him aN found he  
*ann é*  
there it

“That’s the thing that he remembered that he was told that he would find it there”

(37) (aN, that, that, rp)

*Sin an rud ar smaoinigh sé gur dhúradh leis go bhfaigheadh sé*  
that the thing aN remembered he that was-told with-him that found he  
*ann é*

there it

“That’s the thing that he remembered that he was told that he would find it there”

Out of the 18 possible A’-chains with three COMPs and one trace/resumptive pronoun, there are 5 chains, among others, that have not been reported in the literature. These chains contain the sequence in (38), as shown in (39).

(38) (aL, that)

(39) a. (aL, aL, that, rp) (=22)

b. (aL, that, aL, t) (=26)

c. (aL, that, aN, rp) (=27)

d. (aL, that, that, rp) (=28)

e. (aN, aL, that, rp) (=31)

Also, out of the 6 possible A’-chains with two COMPs and one trace/resumptive pronoun, there is a chain with the sequence in (38), as shown in (40).

(40) (aL, that, rp)

These newly found facts will contribute to uncovering the precise mechanism of A’-chain formation and the nature of the three COMPs in Ulster Irish. In the following, we will consider what they suggest for the theory of (Ulster Irish) syntax.

Under McCloskey’s (2002) system, all the chain patterns in (39) and (40) should be illicit, as *aL* appears without an obvious movement operation, that is, the element locally bound by the relevant *aL* is not a trace. Therefore, the fact that the chains in (39) and (40) are all licit is an interesting problem for the theory of chain formation in general.

Let us start with a case with two COMP positions in a relative clause. We have seen above that the chain pattern in (40) is allowed in Ulster Irish. The representative example was (17), reproduced as (41).

(41) (aL, that, rp)

*Sin an carr a mheasann Seán gur cheart dúinn é a cheannach*

that the car aL think John that right for-us it to buy

“That’s the car that John thinks that we ought to buy it”

Let us consider what McCloskey’s (2002) system in (16) will predict for (41). As there is an *aL* in (41), movement of some sort should have been involved. However, there is no trace in (41). Therefore, (16a) would incorrectly rule out (41).

There are three possible approaches to this problem. First, one may assume that *go* “that” could function as *aN*. If this option were allowed, however, (42), with *go* “that,” would be incorrectly predicted to be grammatical, contrary to fact.

(42) (aN/\*that, *rp*)

*Sin an carr ar/\*gur cheannaigh Seán é*  
that the car aN/that bought John it  
“That’s the car that John bought”

Second, one may assume that *aL* could function as *aN*. If this option were allowed, however, (43), with *aL*, would be incorrectly predicted to be grammatical, contrary to fact.

(43) (aN/\*aL, *rp*)

*Sin an carr ar/\*a cheannaigh Seán é*  
that the car aN/aL bought John it  
“That’s the car that John bought”

The third hypothesis is that (*aL*, *that*) would function as either (*aL*, *aN*) or (*aN*, *that*), only when *aL* and *that* are in a local agreement relation. Given this, (41) would be just like (13) ((*aL*, *aN*, *rp*)), reproduced as (44), under the first option, or (9) ((*aN*, *that*, *rp*)), reproduced as (45), under the second option.

(44) (*aL*, *aN*, *rp*)

*Sin an carr a chreideann tú ar cheannaigh Seán é*  
that the car aL believe you aN bought John it  
“That’s the car that you believe that John bought”

(45) (*aN*, *that*, *rp*)

*Sin an carr a gcreideann tú gur cheannaigh Seán é*  
that the car aN believe you that bought John it  
“That’s the car that you believe that John bought”

Note that if we follow McCloskey’s (2002) system, in (44), *aL* is in agreement with the operator base-generated in the SPEC of *aN*, and thus, the former attracts the latter, while in (45), an operator is simply base-generated in the SPEC of *aN*, and there is no agreement relation between *aN* and any element in the lower clause. If this is correct, the second option will not be correct, because by hypothesis, *aL* and *that* are in an agreement relation, and the former changes the latter to *aN* in its function.

Therefore, we propose that in (41), *aL* and *that* are in an agreement relation, and because of this, *that* functions as *aN*. To be more precise, we propose that given McCloskey’s claim that COMP whose specifier is not filled is realized as *that*, *that* may optionally have a feature that would reside in the operator base-generated in the SPEC of *aN*, and only when it agrees with *aL* in a local relation, does this feature force *that* to function as *aN*.

The claim that *that* functions as *aN* when it is in an agreement relation with *aL* makes a prediction. That is, whenever a chain containing (*aL*, *aN*) is allowed, a chain containing (*aL*, *that*) is also allowed. This prediction is borne out by the very examples with the chains in (39), reproduced as (46), and their counterparts with the sequence (*aL*, *aN*) in (47).

- (46) a. (*aL*, *aL*, *that*, *rp*) (= (22))  
 b. (*aL*, *that*, *aL*, *t*) (= (26))  
 c. (*aL*, *that*, *aN*, *rp*) (= (27))  
 d. (*aL*, *that*, *that*, *rp*) (= (28))  
 e. (*aN*, *aL*, *that*, *rp*) (= (31))
- (47) a. (*aL*, *aL*, *aN*, *rp*) (= (21))  
 b. (*aL*, *aN*, *aL*, *t*) (= (23))  
 c. (*aL*, *aN*, *aN*, *rp*) (= (24))  
 d. (*aL*, *aN*, *that*, *rp*) (= (25))  
 e. (*aN*, *aL*, *aN*, *rp*) (= (30))

The examples are repeated below in pairs.

### Pair 1

- (21) (*aL*, *aL*, *aN*, *rp*)

*Sin an carr a chreideann Seán a dúirt Máire ar cheannaigh Pól é*  
 that the car aL believe John aL said Mary aN bought Paul it  
 “That’s the car that John believes that Mary said that Paul bought it”

- (22) (*aL*, *aL*, *that*, *rp*)

*Sin an carr a mheasann tú a mheasann Seán gur cheart dúinn é a*  
 that the car aL think you aL think John that right for-us it to  
*cheannach*  
 buy  
 “That’s the car that you think that John thinks that we ought to buy it”

### Pair 2

- (23) (*aL*, *aN*, *aL*, *t*)

*Sin an carr a bhí súil agam a mbeadh súil acusan a*  
 that the car aL was hope at-me aN be (COND) hope at-them(emphatic) aL  
*cheannófá t*  
 buy (COND) (S2)  
 “That’s the car that I hoped that they would hope that you would buy”

- (26) (*aL*, *that*, *aL*, *t*)

*Sin an carr a bhí súil agam go mbeadh súil acusan a*

that the car aL was hope at-me that be (COND) hope at-them(emphatic) aL  
*cheannófá t*

buy (COND) (S2)

“That’s the car that I hoped that they would hope that you would buy”

### Pair 3

(24) (aL, aN, aN, rp)

*Sin an fear a chreid sé a raibh a fhios aige a raibh sé tinn*

that the man aL believed he aN was his knowledge at-him aN was he sick

“That’s the man that he believed that he knew that he was sick”

(27) (aL, that, aN, rp)

*Sin an rud a chreid sé gur dhúradh leis a bhfaigheadh sé ann é*

that the thing aL believed he that was-told with-him aN found he there it

“That’s the thing that he believed that he was told that he would find it there”

### Pair 4

(25) (aL, aN, that, rp)

*Sin an rud a smaoinigh sé ar dhúradh leis go bhfaigheadh sé*

that the thing aL remembered he aN was-told with-him that found he

*ann é*

there it

“That’s the thing that he remembered that he was told that he would find it

there”

(28) (aL, that, that, rp)

*Sin an carr a chreideann Seán gur chreid Máire gur cheannaigh Pól é .*

that the car aL believe John that believed Mary that bought Paul it

“That’s the car that John believes that Mary believed that Paul bought it”

### Pair 5

(30) (aN, aL, aN, rp)

*Sin an roilig ar mheas sé a ba chuimhneach leis a raibh siad*

that the graveyard aN thought he aL COP remembered with-him aN were they

*curtha inti*

buried in-it

“That’s the graveyard that he thought that he remembered that they were buried

in it”

(31) (aN, aL, that, rp)

*Sin an carr a gcreideann Seán a shamhlaigh Máire gur cheannaigh Pól é*

that the car aN believe John aL imagined Mary that bought Paul it

“That’s the car that John believes that Mary imagined that Paul bought it”

The two examples in each of the 5 pairs are both grammatical. They only differ in either the second COMP or the third COMP. The upper example in each pair contains the sequence (aL, aN), and the lower example in each pair the sequence (aL, that). Therefore, in the lower example in each pair, *that* functions just like *aN*.

#### 4 Implications

In the above discussion, we proposed that given McCloskey’s claim that COMP whose specifier is not filled is realized as *that*, *that* may optionally have a feature that would reside in the operator base-generated in the SPEC of *aN*, and only when it agrees with *aL* in a local relation, does this feature force *that* to function as *aN*. If this proposal is correct, it has two interesting implications for the theory of (Ulster Irish) syntax.

First, the claim that *aL* may agree with *that* in the lower clause suggests that the locality of Move and Agree is actually different, supporting Bošković’s (2007) view. Under the phase-based model in Chomsky (2000, 2001), CP and *vP* are phases, and the relation between *aL* in an upper clause and *go* in a lower clause would be in violation of the Phase-Impenetrability Condition in (48).

(48) *Phase-Impenetrability Condition* (PIC)

In phase  $\alpha$  with head H, the domain of H is not accessible to operations outside  $\alpha$ , only H and its edge are accessible to such operations.

(Chomsky (2000: 108))

Given (48), the relation between C1 and C2 in (49) is blocked, when C1 agrees with C2.

(49) [<sub>CP1</sub> C1 [... [<sub>vP</sub> *v* [... [<sub>CP2</sub> C2

In the present case, (49) is represented as (50).

(50) [<sub>CP1</sub> *aL* [... [<sub>vP</sub> *v* [... [<sub>CP2</sub> *go*

In (50), when *aL* tries to agree with *go* after the *vP* phase has been completed, this agreement operation would violate the PIC, since the complement of *v*, which contains *go*, is not accessible to any operation outside of *vP*, given (48). One might argue that *go* may first agree with *v*, which in turn may agree with *aL*, without violating the PIC in each application of Agree. However, there arises a problem of “look-ahead.”<sup>3</sup> That is, the question arises why *go*, after agreeing with *v*, can predict that *aL* would appear in the upper clause with which it would ultimately like to agree. In order to avoid the

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<sup>3</sup> Fumikazu Niinuma (personal communication) brought this issue to our attention.

problem of “look-ahead,” it should be assumed that *go* will agree with *aL*, right after the latter is introduced to the phrase structure. Therefore, under the phase-based theory, the proposed claim poses a serious problem, that is, a problem of a PIC violation in (50).

However, this apparent problem constitutes evidence for Bošković (2007), who argues, contra Chomsky (2000, 2001), that the locality of Move and Agree is radically different in the sense that Agree is free from mechanisms constraining Move, such as the PIC in (48). Therefore, the fact that *aL* may agree with *that* in the lower clause supports Bošković’s (2007) idea that Agree is not constrained by the PIC, unlike Move.

Second, given the fact that the pattern (*aL*, *that*, *rp*) is legitimate, the direct relative marker *aL* may appear without an operator in its SPEC, because *that* does not have an operator in its SPEC, but it has a feature that will agree with *aL*. Therefore, (16a) will be restated as in (51).

(51) C is realized as *aL* if it locally agrees with an operator feature.

If (51) is correct, it poses a question to McCloskey’s (2002) claim regarding (16) that *aL* and *aN*, but not *that*, have an EPP feature that requires an operator to be in their SPECs. This is because in the pattern (*aL*, *that*, *rp*), the topmost *aL* does not have an operator in its SPEC.

## 5. A Remaining Issue

The existence of the pattern (*aL*, *that*, *rp*) raises an interesting issue about whether *aN* must have an operator in its SPEC. Given (16c), in the chain (*aL*, *that*, *rp*), *that* in the intermediate COMP cannot have an operator in its SPEC, and given the fact that the chain (*aL*, *aN*, *rp*) is licit, we need to say that *that* may have a feature that would reside in the operator base-generated in the SPEC of *aN*. However, if we say so, it is not clear whether *aN* must have a base-generated operator in its SPEC, and this operator must move to the SPEC of *aL*, since, as stated in (51), C is realized as *aL* if it locally agrees with an operator feature. Therefore, it may be the case that *aN* itself has a relevant feature which would reside in the operator base-generated in its SPEC, and does not actually have an operator in its SPEC, so that the relevant feature in *aN* simply agrees with *aL* without any movement operation.

One may argue that in the resumptive construction, the resumptive pronoun must be bound by an operator. However, this is not always the case. Japanese allows a null resumptive pronoun in the relative clause construction, which is evidenced by the fact

that the head noun may be separated from the null pronoun by an island. This is shown in (52).

- (52) [<sub>NP</sub> [<sub>IP</sub> [<sub>NP</sub> [<sub>IP</sub> *e<sub>i</sub> kiteiru*] *huku*]-*ga* *yogoreteiru*] *sinsi<sub>i</sub>*]  
wearing suit-nom dirty gentleman  
“the gentleman [the suit (he) is wearing] is dirty”

In (52) an element in a complex NP is relativized, and the example is grammatical. This suggests that there is no complex NP Constraint effect for relativization. Based on this, Kuno (1973) argues that relativization in Japanese does not involve movement, but rather involves a base-generated empty pronoun. If Murasugi’s (1991) claim is correct that Japanese relative clauses are bare IPs and do not contain an operator, it is not always the case that in the resumptive construction, the resumptive pronoun must be bound by an operator. Therefore, we cannot say that *aN* must have a base-generated operator in its SPEC in Ulster Irish. Whether it does or does not is an open issue, which we leave for future research.

## 6. Conclusion

In this paper, we presented the hitherto unreported patterns of COMP alternation in Ulster Irish with the sequence (*aL*, *that*), and proposed that these patterns suggest that *aL* and *that* are in an agreement relation, forcing *that* to function as *aN*. Then, based on this, we argued that this would imply that *C* is realized as *aL* if it locally agrees with an operator feature.

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# A usage-based account of verbal reduplication in Taiwan Southern Min

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## Abstract

Verbal reduplicative construction (VRC) in Taiwan Southern Min (TSM) is highly productive and is manifested in its own fashion in prosodic/phonology, syntax, semantics and pragmatics. Under the framework of construction grammar, we propose that TSM VRC forms a family of constructions, comprising various subtypes of VRCs, which are linked up by inheritance relations. Further, we claim that the  $XX\ le^0$  VRC is the most prototypical construction, and others inherit the schema from it. Finally, building on a usage-based account, we show some evidences that  $XX\ le^0$  VRC occurs the most frequently and, thus, the most entrenched among other TSM VRCs.

**Keywords:** verbal reduplicative construction, Taiwan Southern Min, construction grammar, a usage-based account

## 1. Introduction

Reduplication is a commonly seen linguistic phenomenon across different language families, such as Sino-Tibetan, Indo-European, Australasian families and many others. As a morphological process, reduplication operates cross-linguistically on nouns, verbs, adjectives, adverbs, and classifiers. The worldwide distribution of reduplication also shows diversity of meanings. Meanings expressed by the reduplicated forms, as suggested in previous studies (Haiman 1980, Moravcsik 1987, Tai 1993, Huang 1996, Regier 1998, and Zhang 1999), are enveloped in the meanings of “repetition” (e.g., Mongolian *bayn bayb* ‘often, constantly’ (Regier 1998)), “plurality” (e.g., Tagalog *araw<sup>c</sup> araw* ‘every day’ (Blake 1917)) (cite from Moravcsik 1987: 318), distributivity (Mandarin *renren* ‘everybody’ Tai (1993)), “intensity” (e.g., Thai *dīdīi* ‘to be extremely good’ (Haas1946)) (cite from Moravcsik 1987: 321), “attenuation” (e.g., Swahili *maji-maji* ‘somewhat wet’ (Ashton 1952)) (cite from Moravcsik 1987: 323), and so forth. Although the reduplications are varied in forms and meanings, they are, however, triggered by different iconicity motivations. (Haiman 1980).

The purpose of this paper is to identify different types of verbal reduplication

found in Southern Min (a Chinese dialect/language) as spoken in Taiwan. It will be shown that verbal reduplications in Taiwan Southern Min (TSM) correspond to different but related iconic motivations, and can be construed as related constructions. Furthermore, based on the frequency count of the five types of verbal reduplications in TSM, it is to be demonstrated that these verbal reduplication constructions also link up as a family.

## 2. Verbal reduplication in Taiwan southern Min

It is proposed by Tang (1992) that reduplication can be divided into two types. One type of the reduplication is called “morphological reduplication”, in which the reduplication is unproductive, irregular and unpredictable. The reduplication for this type is obligatory since the reduplicated part together with its non-repeated part can be taken as a lexical word. In TSM, some adjectives and verbs as well, fall under this category (e.g., *ang<sup>5</sup> ki<sup>3</sup> ki<sup>3</sup>* ‘very red’, *kik<sup>4</sup> thui<sup>5</sup> thui<sup>5</sup>* ‘pretend dull’). The other type of reduplication, on the contrary, is productive, regular and predictable. This type of reduplication is subject to syntactic regulation, also called “syntactic reduplication”, which will be dealt with in this paper. In TSM, verbs can be simply grouped in a general way by the number of syllables, monosyllabic and disyllabic. For monosyllabic verbal reduplications, five types of postverbal elements are taken after the reduplicated verbs, as shown below.

- |     |  |                                       |  |                        |
|-----|--|---------------------------------------|--|------------------------|
| (1) | <i>cau<sup>2</sup>cau<sup>2</sup></i>      | <b>le<sup>0</sup></b>                 | (final particle <i>le<sup>0</sup></i> )  |                        |
|     | run-run                                    | PTC                                   |  |                        |
|     | ‘to run for a little while’                |                                       |  |                        |
| (2) | <i>ciah<sup>8</sup>ciah<sup>8</sup></i>    | <b>tiau<sup>7</sup></b>               | (phase complement)                       |                        |
|     | eat-eat                                    | away                                  |  |                        |
|     | ‘to eat up (something)’                    |                                       |  |                        |
| (3) | <i>iong<sup>7</sup>iong<sup>7</sup></i>    | <b>hai<sup>7</sup>khi<sup>3</sup></b> | (resultative complement)                 |                        |
|     | use-use                                    | break-away                            |  |                        |
|     | ‘to be broken because of over use’         |                                       |  |                        |
| (4) | <i>se<sup>2</sup>se<sup>2</sup></i>        | <b>hoo<sup>7</sup></b>                | <b>ching<sup>1</sup>-khi<sup>3</sup></b> | (causative complement) |
|     | wash-wash                                  | CM                                    | clean                                    |                        |
|     | ‘cause (something) to be clean by washing’ |                                       |  |                        |

- (5) cu<sup>2</sup>cu<sup>2</sup>            cit<sup>8</sup>-tua<sup>7</sup>-tui<sup>1</sup>            (quantifier complement)  
 cook-cook    one-big-heap  
 ‘cook (something) overmuch’

As shown in (1)-(5) examples, monosyllabic verbs in TSM, can be followed by five types of postverbal elements: final particle *le*<sup>0</sup>, phase complement, resultative complement, causative complement and quantifier complement. There are four types of disyllabic verbal reduplications. They involve compound verbs, verb-object phrases, verb-complement phrases, and coordinate compound verbs, as illustrated in the following examples.

- |  |   |
|--|---|
| (6) a. siu <sup>1</sup> li <sup>2</sup>    | a'. siu <sup>1</sup> li <sup>2</sup> li <sup>2</sup> le <sup>0</sup>      |
| fix  | fix-fix    PTC  |
| ‘to fix’                                   | ‘to fix (something) a little’   |
| (7) a. lau <sup>5</sup> kuann <sup>7</sup> | a'. kuann <sup>7</sup> lau <sup>5</sup> lau <sup>5</sup> le <sup>0</sup>  |
| run-sweat                                  | sweat    run-run    PTC   |
| ‘to sweat’                                 | ‘make yourself sweat for a little while’                                  |
| (8) a. li <sup>3</sup> phua <sup>3</sup>   | a'. li <sup>3</sup> li <sup>3</sup> phua <sup>3</sup>                     |
| tear-break                                 | tear-tear    break  |
| ‘tear up’                                  | ‘to tear up thoroughly’   |
| (9) a. chut <sup>4</sup> jip <sup>8</sup>  | a'. chut <sup>4</sup> chut <sup>4</sup> jip <sup>8</sup> jip <sup>8</sup> |
| exit-enter                                 | exit-exit enter-enter   |
|  | ‘in and out’  |

These four types of verbal reduplication exhibit different reduplication patterns, such as *XYX* in (6a'), *YXX* in (7a'), *XXY* in (8a') and *XXYY* in (9a'). Although these four types of disyllabic verbal reduplications are regular, productive and predictable, they are, however, less productive than monosyllabic verbal reduplications. Hence, this paper will mainly focus on monosyllabic verbal reduplications, and more in-depth discussion will be presented in the following sections.

### 3. Verbal reduplication in TSM as construction

Verbal reduplication in TSM should not be treated simply as the formation of a lexical word under morphological processes. As pointed out by Cheng (1988), it also involves the semantic properties of aspect and phase. It can be taken as a construction

from the perspective of construction grammar (Goldberg 1995, 2006) since it has phonological, syntactic, semantic, and pragmatic characteristics which are absent in non-reduplicative counterpart. Below, we briefly discuss these characteristics of the verbal reduplicative construction (VRC) in TMS.

### 3.1 Phonological properties

Cheng (1988) maintains that in TSM, those reduplicative verbs that need to take postverbal elements (see section 2) are separated from their postverbal elements by pauses. Furthermore, the second syllable of the reduplicative verbs remains juncture tone while the first syllable shifts to context tone in terms of the Taiwanese tone sandhi rules.

### 3.2 Syntactic properties

The syntactic behaviors of VRCs in TSM are quite different from their non-reduplicative counterparts. The differences have to do with verbs, arguments and scope of negation. First, the direct object must be placed before the verb but not after the verb as illustrated below.

- (10) a. li<sup>2</sup>    ciah<sup>8</sup>    png<sup>7</sup>    liau<sup>2</sup>    chiah<sup>4</sup>    khi<sup>3</sup>  
           you    eat        rice        finished then    go  
           ‘You must finish the meal and then you can go (somewhere).’
- b. li<sup>2</sup>    png<sup>7</sup>    ciah<sup>8</sup>ciah<sup>8</sup>le<sup>0</sup>    ciah<sup>4</sup>    khi<sup>3</sup>  
           you    rice        eat-eat    PTC        then    go  
           ‘Finish eating your meal and then you can go (somewhere).’
- \*c. li<sup>2</sup>    ciah<sup>8</sup>ciah<sup>8</sup>    le<sup>0</sup>    png<sup>7</sup>    ciah<sup>4</sup>    khi<sup>3</sup>  
           you    eat-eat        PTC        rice        then    go
- \*d. li<sup>2</sup>    ciah<sup>8</sup>ciah<sup>8</sup>    png<sup>7</sup>    le<sup>0</sup>    ciah<sup>4</sup>    khi<sup>3</sup>  
           you    eat-eat        rice        PTC        then    go

In (10a), the direct object *png*<sup>7</sup> ‘rice’ follows the transitive verb *chiah*<sup>8</sup> ‘eat’. But (10b) shows that when the transitive verb reduplicates itself to be *chiah*<sup>8</sup>*chiah*<sup>8</sup> ‘eat-eat’, the direct object precedes the reduplicated verb. Moreover, the ungrammaticality of (10c) and (10d) shows that the direct object can only precede the reduplicative verb. Next, in terms of referentiality, the direct arguments of VRCs, can be either nonreferential, or definite referential, but not indefinite referential as shown below.

- (11) a. ka<sup>7</sup> png<sup>7</sup> ciah<sup>8</sup>ciah<sup>8</sup> le<sup>0</sup>  
 OM rice eat-eat PTC  
 ‘Finish eating your meal.’ (nonreferential)
- b. li<sup>2</sup> cit<sup>4</sup> uann<sup>2</sup> png<sup>7</sup> chiah<sup>8</sup>chiah<sup>8</sup> le<sup>0</sup>  
 2sg this CL rice eat-eat PTC  
 ‘Finish eating this bowl of rice.’ (definite referential)
- \*c. li<sup>2</sup> cit<sup>8</sup> uann<sup>2</sup> png<sup>7</sup> chiah<sup>8</sup>chiah<sup>8</sup> le<sup>0</sup>  
 2sg one CL rice eat-eat PTC  
 ‘Finish eating one bowl of rice.’ (indefinite referential)
- d. li<sup>2</sup> cit<sup>4</sup> nng<sup>7</sup> uann<sup>2</sup> png<sup>7</sup> chiah<sup>8</sup>chiah<sup>8</sup> le<sup>0</sup>  
 2sg this two CL rice eat-eat PTC  
 ‘Finish these two bowls of rice.’ (definite referential)

Last, the reduplicated verbs cannot be negated in TSM. This is evidenced by the ungrammaticality of (12b).

- (12) a. i<sup>1</sup> bo<sup>5</sup> kong<sup>3</sup>phua<sup>3</sup> pue<sup>1</sup>a<sup>2</sup>  
 3sg NEG strike-break cup  
 ‘He did not break the cup.’
- \*b. i<sup>1</sup> pue<sup>1</sup>a<sup>2</sup> bo<sup>5</sup> kong<sup>3</sup>kong<sup>3</sup>phua<sup>3</sup>  
 3sg cup NEG strike-strike-break

### 3.3 Semantic properties

Cheng (1988) categorizes two types of verbs to account for the semantic properties of the reduplicative verbs in TSM. The first type consists of semantic feature [+ volitional] and [+ durable], i.e., *ciah*<sup>8</sup> ‘eat’ and *kong*<sup>7</sup> ‘say’; the second type, of semantic features [𠵼| volitional] and [𠵼| durable], i.e., *si*<sup>2</sup> ‘die’ and *phua*<sup>3</sup> ‘broke’. However, verbs such as *ho*<sup>2</sup> ‘good’, *uai*<sup>1</sup> ‘crooked’, *oo*<sup>1</sup> ‘black’ and so forth, with the features [𠵼| volitional] and [+ durable] are unaccounted for by Cheng’s classification.

- (13) chiu<sup>2</sup> bong<sup>1</sup> liau<sup>2</sup> oo<sup>1</sup>oo<sup>1</sup> khi<sup>3</sup>  
 hand touch finish black-black away  
 ‘Hands are all dirty by touching (something).’

For a more comprehensive and systematic account, we adopt Van Valin’s (2005) classification of verb types to show the range of semantic properties exhibited in reduplicated verbs in TSM. Van Valin’s verb classes are state, activity, achievement,

semelfactive, accomplishment, active accomplishment verbs. As shown in Table 1 below, all five types of verbs can be reduplicated in TSM, yielding different but related meanings.

Table 1 Verb classes for TSM VRCs

Verb type	Reduplication	Meaning
Activity	<i>be<sup>2</sup> be<sup>2</sup> le<sup>0</sup></i>	'buy (something) for a little while'
Active accomplishment	<i>mia<sup>5</sup> chiam<sup>1</sup>chiam<sup>1</sup> le<sup>0</sup></i>	'Sign your name.'
State	<i>bai<sup>2</sup> bai<sup>2</sup> khi<sup>3</sup></i>	'cause to be ugly'
Achievement	<i>si<sup>2</sup> si<sup>2</sup> khi<sup>3</sup></i>	'cause to become dead'
Semelfactive	<i>sau<sup>3</sup>sau<sup>3</sup> le<sup>0</sup></i>	'cough for a little while'

### 3.4 Pragmatic properties

Verb reduplications in TSM are often used to soften the imperative speech act. (14a) is a blunt and direct command, but (14b) is a mild request or suggestion.

- (14) a. li<sup>2</sup>    chiu<sup>2</sup>    se<sup>2</sup>    liau<sup>2</sup>    chiah<sup>4</sup>    ciah<sup>8</sup>  
           you    hand    wash    finished    then    eat  
           'Before you eat (something), you must wash your hands.'
- b. li<sup>2</sup>    chiu<sup>2</sup>    se<sup>2</sup>se<sup>2</sup>    le<sup>0</sup>    ciah<sup>4</sup>    ciah<sup>8</sup>  
           you    hand    wash    PTC    then    eat  
           'Wash your hands before you eat (something).'

## 4 A usage-based account

A usage-based approach to linguistic analysis and explanation has been proposed by a number of cognitive linguists (Langacker 1987, 1988, Bybee 1995, Goldberg 1995, 2006, Croft 2001). The essential spirit of a usage-based account is that grammatical knowledge is not merely a structural representation in the mind of a speaker as assumed in the paradigm of structuralist-generative grammar, it also contains the knowledge of the use of utterances in communication. Thus, in a usage-based account, frequency of occurrence of particular grammatical constructions with their associated meanings also plays a central role. The account is largely experience-driven rather than given a priori in the mind of human beings. Frequency would, therefore, be a prime factor in examining the degree of entrenchment. Hence,

we propose a usage-based approach to account for how TSM VRCs are used. More specifically, we propose that they form a “construction family”. It is maintained by Goldberg and Jackendoff (2004) that the “family” of constructions is defined as that they co-exist important properties but can be differentiated from certain specifics, containing their degree of productivity (e.g., the English resultatives). In the following paragraphs, we will show that TSM VRCs form a “construction family” with a hierarchy of subconstructions.

As mentioned in section 2, TSM monosyllabic verbs can take five types of postverbal element when undergoing reduplicate process. As discussed in section 3, this type of VRCs is a highly productive construction, and exhibits its unique properties in phonology, syntax, semantics and pragmatics. Therefore, from the perspective of Construction Grammar, we consider TSM monosyllabic verbal reduplication as a schematic construction, and the schema can be generalized as [XX *postverbal element*]. In the schema [XX *postverbal element*], the *XX* represents the reduplicative verbs which is fixed, while the variant item *postverbal element* represents an open slot that any equivalent grammatical item can fit in this slot, (e.g., final particle *le<sup>0</sup>* ‘PTC’, *phase complements*, *resultative complements*, *hoo<sup>7</sup> complements or clauses*, and *quantifier complements*). The [XX *postverbal element*] schema can be divided into two subconstructions: [XX *le<sup>0</sup>*] and [XX *C*]. For the [XX *C*] VRC, it is further categorized into four different subtypes of complements that follow the reduplicative verb *XX*: [XX *PC*], [XX *CC*], [XX *RC*] and [XX *QC*].

Goldberg (1995:67) indicates that “constructions form a network and are linked up by inheritance relations, which motivate many of the properties of particular constructions”. She proposes four inheritance links: polysemy links, metaphorical extension links, subpart links, and instance links. The motivation of inheritance links is described by Goldberg (1995: 72) as that “construction A motivates construction B iff B inherits from A”. Accordingly, we would propose that in the [XX *postverbal element*] VRC, there exists an inheritance relation among the subconstructions: *XXle<sup>0</sup>* and *XXC*.

Croft and Cruse (2004) also propose that every time a word or a construction is employed, a node or pattern of nodes is activated in the mind, and frequency of activation affects the establishment of that information, which brings its ultimate storage as an idiomatic unit in grammar. The storage is referred to as “entrenched”. In terms of entrenchment, if a word form is frequently enough in use, it will be stored independently (Langacker 1987). Based on the usage-based model, we count the tokens that co-occur with the reduplicative verbs. The data source is from the Taiwanese Spoken Corpus directed by Jane Tsay and James Myers at National Chung Cheng University. From this corpus, two different live broadcasts, totally around 35

hours, are selected. The result of frequency count is shown in table 2.

Table 2 Token that co-occur with [XX *postverbal element*] VRC

Type of construction	Token
XX <i>le</i> <sup>0</sup>	86
XX <i>phase complement</i>	6
XX <i>resultative complement</i>	10
XX <i>causative complement</i>	8
XX <i>quantifier complement</i>	1

As the result shown above, the XX *le*<sup>0</sup> construction occurs most frequently and perhaps also most prototypical among the [XX *postverbal element*] VRCs. As addressed earlier, in a usage-based account, the more frequent or productive word token or construction tends to be more entrenched or to be listed as a grammatical unit. The XX *le*<sup>0</sup> construction has a high type frequency which is listed in the mental lexicon. Therefore, it is predicted to be applied or inherited by the subtypes of VRCs or other newly [XX *postverbal element*] VRCs. As pointed out (Goldberg 1995), “in a type of link that recurs often throughout the grammar can be said to have a high type frequency and is therefore predicted to be productively applied to new cases which share the relevant factors associated with the existing cases” (ibid: 77).

## 5 Conclusion

The VRCs examined in this paper are found only in TSM, but not in Mandarin. In this paper we have uncovered their characteristics in phonology, syntax, semantics, and pragmatics. We propose to account for their usages and occurrences in the framework of construction grammar. Built on a usage-based account (Langacker 1987, 1988), we provide some evidence that the XX *le*<sup>0</sup> construction among the family of TSM VRC is the most frequent and productive, thus, the most entrenched. Other less frequent and productive subconstructions inherit from it in terms of the concept of “link” proposed by Goldberg (1995).

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# Types of Double Nominative Constructions in Korean<sup>1</sup>

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## Abstract

It is possible in Korean that a clause includes two nominative case-marked noun phrases, which I call *Double Nominative Construction* (DNC) in this paper. Not all DNCs show the same grammatical behavior. The focus of this study is to present an appropriate classification of DNC in Korean. In order to do this, I will investigate argument structures of predicates, with which each type of DNC is formulated. If an NP is not a selected argument, I will figure out how it is introduced to the structure. Based on the argumenthood of the NPs and the structural relation between them, I categorize Korean DNC into four major types.

**Keywords:** nominative, argumenthood, word order, focus.

## 1. Introduction

*Double Nominative Construction* (henceforth DNC), which is also called *Double Subject Construction*, is one of the most remarkable and widely studied phenomena in Korean. It indicates a construction which includes two nominative case-marked nominals in a single clause. Here are some examples.

- (1) *Mary-ka ttal-i yeyppu-ta*  
Mary-NOM daughter-NOM pretty-DECL  
'Mary's daughter is pretty'
- (2) *John-i Mary-ka coh-ta*  
John-NOM Mary-NOM fond-DECL  
'John likes Mary'

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<sup>1</sup> The preliminary version of this paper was presented in the International Congress of Linguists (CIL) 18, held in July 2008 at Korea University, Seoul, ROK. I would like to thank the audience of my presentation for their interesting questions and valuable comments, which helped me to modify the analysis. The remaining errors are all mine.

- (3) *Haksayng-i yel-myeng-i hoyuy-ey chamsekhay-ss-ta*  
 Student-NOM ten-CL<sub>Person</sub>-NOM meeting-DAT attend-PAST-DECL  
 ‘Ten students attended the meeting’
- (4) *i siktang-i kalpi-ka masiss-ta*  
 This restaurant-NOM rib-NOM tasty-DECL  
 ‘At this restaurant, the rib is tasty’

The examples above apparently have the same format: N1-NOM N2-NOM V. For this reason, a lot of researches in the literature try to give them a unified analysis, which would account for all those cases. It would be fascinating that we could find a complete generalization about them, but it seems to be very hard to deal with that within formal grammar.

I argue that the constructions in (1-4) ought to be distinguished grammatically. There might be some common characteristics among them, as claimed by several researchers (Yoon 2007; and many others), but they hardly seem to have grammatical or logical implications.

## 2. Unified Approaches

In this section, I review some of the major lines of unified analyses on DNC, and figure out their shortcomings from a formal grammatical point of view.

### 2.1. Topic Analysis

Kuno (1973), dealing with DNC in Japanese, claims that *Aboutness* relation holds between the initial NP and the rest of the sentence in DNC. The definition of the notion is as follows.

- (5) *Aboutness* (Kuno 1973)  
 : The topic is the expression that denotes the thing that the sentence is about.

*Aboutness* appears to give a plausible generalization over all the cases in (1-4). However, regarding the general concept of *topic*, any sentence can be analyzed as ‘Topic-Comment’ structure. In other words, there is nothing special about DNC in the sense that the first phrase of the sentence is the topic. I don’t think that *Topic* provides a good ground for DNC analysis, since it is a pragmatic notion, rather than a grammatical

notion.

Alternatively, one might assume that Kuno's (1973) *Aboutness* is not correspondent to the general pragmatic/informational notion of topic, but restricted to Korean/Japanese-specific dislocated topic via *Topicalization*. In Korean and Japanese, the subject of the main clause is usually topicalized in the canonical word order and bears so-called topic marker: '(n)un' in Korean and 'wa' in Japanese. However, this pattern casts a little doubt on Kuno's analysis too. Although, for some speakers, the sentences in (1), (2) and (4) may sound a little less natural than the ones in (1'), (2') and (4') below, they are still grammatical<sup>2</sup>.

- (1') *Mary-nun ttal-i yeyppu-ta*  
 Mary-TOP daughter-NOM pretty-DECL  
 'Mary's daughter is pretty'
- (2') *John-un Mary-ka coh-ta*  
 John-TOP Mary-NOM fond-DECL  
 'John likes Mary'
- (4') *i siktang-un kalpi-ka masiss-ta*  
 This restaurant-TOP rib-NOM tasty-DECL  
 'At this restaurant, the rib is tasty'

We can confirm their grammaticality by putting DNC in an embedded clause. In the following examples, which are almost identical to (1), (2) and (4) except that the whole DNC is embedded in a relative clause, the slight oddity goes away.

- (1'') [*Mary-ka ttal-i yeyppu-ta*]-*nun sasil*  
 Mary-NOM daughter-NOM pretty-DECL-COMP fact  
 'The fact that Mary's daughter is pretty'
- (2'') [*John-i Mary-ka coh-ta*]-*nun sasil*  
 John-NOM Mary-NOM fond-DECL-COMP fact  
 'The fact that John likes Mary'
- (4'') [*i siktang-i kalpi-ka masiss-ta*]-*nun sasil*  
 This restaurant-NOM rib-NOM tasty-DECL-COMP fact  
 'The fact that the rib is tasty in this restaurant'

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<sup>2</sup> I think that the slight degradation of (1-4) is due to the tendency such that the canonical subject usually bears topic marker in Korean and Japanese, unless it is focused.

The first NPs in (1''), (2'') and (4'') do not seem to be dislocated topics. Moreover, it's not clear why, especially in DNC, the topics are marked with nominative case marker, rather than topic marker as usual.

Another example potentially against topic analysis on DNC is given in (3'), which is identical to (3) except for the topic marker being attached to the first NP. Following topic analysis, there is no clear reason why the canonical topic marker makes the sentence even worse.

(3') \*?*Haksayng-un yel-myeng-i hoyuy-ey chamsekhay-ss-ta*  
 Student-TOP ten-CL<sub>Person</sub>-NOM meeting-DAT attend-PAST-DECL  
 'Ten students attended the meeting'

The ungrammaticality of (3'), comparing to (1'), (2') and (4'), also shows the example in (3) can be grammatically distinct from (1), (2) and (4), despite their apparent similarity. I will talk about this in detail in section 3.

## 2.2. Sentential Predicate Analysis

Yoon (2007) analyzes DNC based on the concepts of *Major Subject* (MS) and *Grammatical Subject* (GS). The former is the first occurrence of nominative case-marked nominal, which is not lexically selected by the predicate; and the latter is the second occurrence, which is actually in the predicate's argument structure. According to Yoon, the grammatical subject and the predicate form a new predicative unit, namely a *Sentential Predicate*, and the major subject is introduced to the construction as what is predicated of the sentential predicate.

One thing unclear in Yoon's analysis is how and by what the major subject is selected. It becomes more obscure, when there is one more NP<sup>3</sup>.

(6) *Mary-ka [x ttal-i [y nwun-i yeyppu-ta]]*  
 M-NOM daughter-NOM eye-NOM pretty-DECL  
 'Mary's daughter's eyes are pretty'

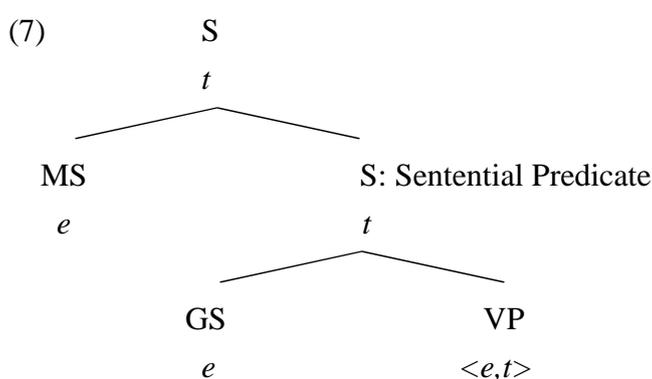
In the example in (6), 'daughter' can be either major subject or grammatical

<sup>3</sup> In Yoon's (2007) *Multiple Subject* analysis, this kind of predication relationship can be recursively created. In other words, the major subject and the newly created sentential predicate could form another bigger sentential predicate, when an extra NP is introduced.

i.e. NP1-NOM [<sub>SENTENTIAL PRED2</sub> NP2-NOM [<sub>SENTENTIAL PRED1</sub> NP3-NOM V]]  
 Major Subject Grammatical Subject

subject, depending on which of the two sentential predicates is considered (X or Y): As for Y, ‘daughter’ is the major subject which is predicated of it. However, at the same time it should be analyzed as the grammatical subject of the ‘predicate’ Y. Recall that he says the grammatical subject is in the argument structure of the predicate, which I interpret that ‘daughter’ is selected by Y in (6). Recursive introduction of new major subjects would create more of this kind of ambiguous identity. Although ambiguity itself is not a big problem, it still needs to be clarified what mechanism introduces extra arguments in the construction.

Another issue the sentential predicate analysis draws our attention to is the semantic interpretation of DNC. According to the usual definition in Type Theory, the sentential predicate is of type  $t$ , because its value will be truth or falsity. Following Yoon’s (2007) way of structuring DNC, the major subject is a separate argument by itself, which is of type  $e$ . As shown in the semantic structure of (7) below, there arises type mismatching between the major subject and the sentential predicate. There should be some fancy way of putting  $e$  and  $t$  together and producing another  $t$  or switching  $t$  to  $\langle e,t \rangle$ . However, there is no semantic motivation to do that.



Vermeulen (2005) tries to justify the type shifting in this case by assuming a free variable inside the grammatical subject: If there is a variable, Lambda Abstraction would give rise to the type shifting to find a way for the variable to be bound. But since Vermeulen, along with Yoon, doesn’t admit a syntactic movement, it is not clear how the presence of the variable is justified. Based on ‘no movement’, the only option left would be lexical selection. Since Yoon (2007) explicitly mentions that a major subject is not an argument of the main predicate, we should say it is selected by the sentential predicate. However, it is not clear how this obviously non-lexical but structurally composed chunk selects an argument.

Last of all, the claim itself fails to cover all the cases in (1-4) that the first

occurrence of nominative NP is not an argument of the predicate.

- (8) (*Mary-ka*)     *ttal-i*             *yeyppu-ta*             (=1)  
       Mary-NOM    daughter-NOM    pretty-DECL
- (9) \*(*John-i*)    *Mary-ka*     *coh-ta*             (=2)  
       John-NOM    Mary-NOM    fond-DECL
- (10) #(*Haksayng-i*)    *yel-myeng-i*     *hoyuy-ey*     *chamsekhay-ss-ta*    (=3)  
       Student-NOM    ten-CL<sub>Person</sub>-NOM    meeting-DAT    attend-PAST-DECL
- (11) (*i siktang-i*)             *kalpi-ka*    *masiss-ta*             (=4)  
       This restaurant-NOM    rib-NOM    tasty-DECL

In (9), deletion of the first NP makes the sentence ungrammatical<sup>4</sup>, whereas in (8) and (11) the deletion doesn't affect the grammaticality. In (10), the first NP can be deleted only when it is settled what category of people are specified by the quantifying expression marked as nominative. Even if the category is really general or random, we can still notice that the participant is at least a person, due to the presence of the classifier *-myeng* which is used only for a person. This contrast can also be a piece of evidence that the apparent DNCs above have different grammatical characteristics. In the following section, I will show some more grammatical differences among those types, and try to distinguish them.

### 3. Asymmetries

In this section, I am performing diagnostics, based on which the apparent DNCs in (1-4) are categorized into several types<sup>5</sup>.

#### 3.1. Argumenthood

We saw, in section 2.2, that the first NP is not selected by the predicate in (1) and (4), while it is in (2) and (3). In other words, the first NPs are arguments of the main predicate in (2) and (3), whereas they are not in (1) and (4). What about the second NPs

<sup>4</sup> Korean is arguably a *pro*-drop language. The example in (9) could be acceptable, when the deleted argument is contextually given. But it is still obvious that the first NP is an argument of the predicate.

<sup>5</sup> This paper focuses on the differences over their basic syntactic behavior. If some other semantic or pragmatic criteria are considered, each type could potentially be subcategorized further.

then? The following examples show if the second NP in each type is deletable or not.

- (12) *Mary-ka* (*ttal-i*) *yeyppu-ta* (=1)  
 Mary-NOM daughter-NOM pretty-DECL
- (13) *John-i* \*(*Mary-ka*) *coh-ta* (=2)  
 John-NOM Mary-NOM fond-DECL
- (14) *Haksayng-i* (*yel-myeng-i*) *hoyuy-ey* *chamsekhay-ss-ta* (=3)  
 Student-NOM ten-CL<sub>Person</sub>-NOM meeting-DAT attend-PAST-DECL
- (15) *i siktang-i* (*kalpi-ka*) *masiss-ta* (=4)  
 This restaurant-NOM rib-NOM tasty-DECL

Regarding the predicates in those examples intuitively, *yeyppu*- ‘pretty’ in (1) and *masiss*- ‘tasty’ in (4) need only one (obligatory) argument, but *coh*- ‘fond’ in (2) obviously requires two; a person who is fond of somebody, and other person who is being fond of. In (3), *chamsekha*- ‘attend’ only requires a person who attends some meeting, and a dative NP argument which indicates the meeting. The first NP in this case also seems more like an obligatory argument (*attender*) of the verb. However, comparing (10) to (14), deletion of the second NP makes more natural outcome than deletion of the first NP. This gives us a little piece of diagnostics. From now on, I will tentatively call DNCs such as (1) through (4) Types 1, 2, 3 and 4 respectively.

The question here is where the extra NPs which are apparently nominative case-marked. Only in Type 2, both nominative NPs are arguments of the predicate. For the other three types, we can expect either that the two apparent nominative NPs are a constituent at some point of the derivation, or that one of them is just an adjunct. The four types of DNC could vary in this respect too. I will talk about this issue in the following section.

### 3.2. Word Order

Korean is relatively free in word order, most likely due to explicit case markings on NPs. In order to check out how the two nominative NPs in DNC are related syntactically, we can get to switch their surface order. The following examples are made from the sentences in (1-4) by switching the orders of the first two NPs.

- (16) \**ttal-i* *Mary-ka* *yeyppu-ta*  
 daughter-NOM Mary-NOM pretty-DECL

- (17) %*Mary-ka John-i coh-ta*  
 Mary-NOM John-NOM fond-DECL  
 ‘Mary likes John’
- (18) \**yel-myeng-i haksayng-i hoyuy-ey chamsekhay-ss-ta*  
 ten-CL<sub>Person</sub>-NOM student-NOM meeting-DAT attend-PAST-DECL
- (19) *kalpi-ka i siktang-i masiss-ta*  
 rib-NOM this restaurant-NOM tasty-DECL  
 ‘At this restaurant, the rib is tasty’

In Type 1 and Type 3 (16 and 18), switching the NP order makes the sentence ungrammatical. From this, we can expect that in these two types the two nominative NPs are tied-up more tightly than ones in the other two types and in other usual cases. I hypothesize that in types 1 and 3 the two nominative NPs would form a constituent at some point of the derivation. I will get back to this in detail later. The order switching in (17) change its truth condition, which I indicate with %: the *liker-liked* relation is reversed here, but the sentence is still perfectly grammatical. This corresponds to the finding in section 3.1 on argumenthood. Since the two NPs are independent arguments in this type of DNC, word order would be basically free just as usual. In (19), the flipped order neither degrades the grammaticality of the sentence, nor creates any serious meaning difference. In this case too, the two NPs seem to be independent elements, although one of them is not a selected argument of the predicate.

Based on the judgments in (16-19), comparing to them with (1-4), we can roughly divide Korean DNC into two classes: Types 1 and 3 in one class, and types 2 and 4 in the other class. But this classification is obviously not enough. The examples in (8-11) show that types 1 and 4 in the same class and types 2 and 3 in the other class. I will perform some more diagnostics to get a refined classification.

### 3.3. Structure of Nominative NP

In this subsection, I will look more into the nominative NPs of each type, expecting that they have different internal structures. This expectation comes from the observations about the argument structures of the predicates from each type of DNC. Let us compare Type 1 and 2 first. As shown in (20-21) below, Type 1 DNC has corresponding possessive construction, Type 2 does not.

- (20) a. *Mary-ka ttal-i yeypu-ta* (=1)  
 Mary-NOM daughter-NOM pretty-DECL  
 b. *Mary-uy ttal-i yeypu-ta*  
 Mary-POSS daughter-NOM pretty-DECL
- (21) a. *John-i Mary-ka coh-ta* (=2)  
 John-NOM Mary-NOM fond-DECL  
 b. *\*John-uy Mary-ka coh-ta*  
 John-POSS Mary-NOM fond-DECL

There are two major lines of analyses on Type 1 DNC in the literature: (i) *Possessor Raising* analysis (Seo 1971), in which DNC as in (21a) is derived from possessive construction as in (21b), and (ii) *Non-derivational* analysis (Yoon 2007; Vermeulen), in which the possessor is independently merged by some kind of extra argument introducing mechanism. The contrast in (20-21) is often used as evidence against the possessor raising approach by the non-derivationalists. According to them, assuming that all DNCs are fundamentally one, some DNCs do not have possessive counterparts, as (21) shows. However, as shown in the previous sub-sections, the four tentative types of DNCs are different enough to be classified.

There is another remarkable difference among nominative NPs in Type 1 and Type 2 DNCs. The second NP in Type 1 DNC behaves differently from the others in *Wh*-question formation.

- (22) a. *Nwu-ka ttal-i yeypu-ni?*  
 Who-NOM daughter-NOM pretty-Q  
 ‘Whose daughter is pretty?’  
 b. *\*Mary-ka nwu-ka yeypu-ni?*<sup>6</sup>

<sup>6</sup> cf) *Mary-ka eti-ka yeypu-ni?*

M-NOM where-NOM pretty-Q

i. ‘Which part of Mary is pretty?’

ii. (lit.) The speaker thinks that Mary is not pretty.

Above question can either mean (i) or (ii), although the second reading is preferred by many speakers. I think there is some difference between *eti* ‘where’ and other *Wh*-words in Korean. The following example cannot have the interpretation (i).

e.g) *Mary-ka mwe-ka yeypu-ni?*

M-NOM what-NOM pretty-Q

i. ‘\*Mary’s what/which part is pretty?’

ii. (lit.) The speaker thinks that Mary is not pretty.

This patterns with the non-DNC cases. Even in the non-DNC questions, where the possessor

Mary-NOM who-NOM pretty-Q  
 ‘\*Mary’s who is pretty?’

- (23) a. *Nwu-ka Mary-ka coh-ni?*  
 Who-NOM Mary-NOM fond-Q  
 ‘Who likes Mary?’  
 b. *?John-i nwu-ka coh-ni?*  
 John-NOM who-NOM fond-Q  
 ‘Who does John like?’

I argue that (22b) is ruled out, because the second NP in this type of DNC is not a fully saturated NP on its own. The ungrammaticality of (22b) supports the possessor raising approach. According to this analysis, the possessor is moved from inside the host NP (the possessee). Then, we can say there is something missing in the second NP, which, I claim, is the raised possessor. Therefore, it cannot be *Wh*-ed all by itself. Compare (22b) with the following sentence. The argument of the predicate *yeyppu*-‘pretty’ can freely be *Wh*-ed, when there is no raised possessor out of it.

- (24) *Nwu-ka yeyppu-ni?*  
 Who-NOM pretty-Q  
 ‘Who is pretty?’

### 3.4. Syntactic Position

In this subsection, I will illustrate the differences between Types 1 and 3. Earlier in the paper, I hypothesized that in these two types the two nominative NPs are constituent at some point of the derivation. Strict word order restriction in Type 1,

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and the possessee undoubtedly form a constituent.

- e.g) a. *\*Mary-ka nwu-ka yeyppu-ni?*  
 Mary-NOM who-NOM pretty-Q  
 b. *\*Mary-uy mwe-ka yeyppu-ni?*  
 M-POSS what-NOM pretty-Q  
 c. *Mary-uy eti-ka yeyppu-ni?*  
 M-POSS where-NOM pretty-Q

It is not clear what is the difference between *eti* ‘where’ and *mwue(s)* ‘what’/ *nwukwu* ‘who’. Maybe, *eti* ‘where’ has different syntactic status from other *Wh*-words. I don’t have a good answer for this question right now.

From this pattern, we can at least notice that N2 in DNC cannot be freely substituted by a *Wh*-word.

illustrated in section 3.2, supports this hypothesis. Some more pieces of supporting evidence are given below.

(25) Relativization

- a. [[  $t_i$  *ttal-i*]            *yeyppu-n*]    *Mary\_i*  
       daughter-NOM pretty-COMP Mary  
       ‘Mary whose daughter is pretty’
- b. \**[Mary\_i-ka t\_j yeyppu-n] [t\_i ttal]\_j*  
       Mary-NOM        pretty-COMP    daughter

(26) Subject-to-Object Raising

- a. *John-un Mary\_i-lul* [[  $t_i$  *ttal-i*]            *yeyppu-ta*]-*ko*        *sayngkakha-n-ta*  
       J-TOP    M-ACC        daughter-NOM pretty-DECL-COMP think-PRES-DECL  
       ‘John thinks that Mary’s daughter is pretty’
- b. \**John-un [t\_i ttal]\_j-ul [Mary\_i-ka t\_j yeyppu-ta]-ko sayngkakha-n-ta*  
       J-TOP    daughter-ACC    M-NOM        pretty-DECL-COMP think-PRES-DECL

I argue that the *b* sentences in (25-26) are ruled out, due to violating Proper Binding Condition (PBC).

(27) *Proper Binding Condition* (Fiengo 1977)

: A trace must be c-commanded by its antecedent.

In the *b* examples, the host NP, which is including the trace of the raised possessor, moves over the possessor (the antecedent). Then, the trace in the dislocated NP cannot be c-commanded by its antecedent, violating PBC. Interestingly, similar kind of word order restriction is observed in Type 3 too.

(28) Scrambling

- a. *Haksayng\_i-i [t\_i yel-myeng-i]            hoyuy-ey        chamsekhay-ss-ta* (=3)  
       Student-NOM        ten-CL<sub>Person</sub>-NOM    meeting-DAT    attend-PAST-DECL  
       ‘Ten students attended the meeting’
- b. \**[t\_i yel-myeng-i]\_j        haksayng\_i-t    t\_j hoyuy-ey        chamsekhay-ss-ta*  
       ten-CL<sub>Person</sub>-NOM    Student-NOM        meeting-DAT    attend-PAST-DECL

(29) Relativization

- a. [*Haksayng<sub>i</sub>-i* [*t<sub>i</sub> yel-myeng-i*] *chamsekha*]-*n hoyuy*  
 Student-NOM ten-CL<sub>Person</sub>-NOM attend-COMP meeting  
 ‘The meeting which ten students attended’
- b. \*[[*t<sub>i</sub> yel-myeng-i*]<sub>j</sub> *haksayng<sub>i</sub>-i* *t<sub>j</sub> chamsekha*]-*n hoyuy*  
 ten-CL<sub>Person</sub>-NOM student-NOM attend-COMP meeting
- (30) Subject-to-Object Raising
- a. ?*John-un haksayng<sub>i</sub>-ul* [*t<sub>i</sub> [t<sub>i</sub> yel-myeng-i] hoyuy-ey chamsekhay-ss-ta*]-*ko*  
 J-TOP student-ACC ten-CL<sub>Person</sub>-NOM meeting-DAT attend-PAST-DECL-COMP  
*sayngkakha-n-ta*  
 think-PRES-DECL  
 ‘John thinks that Mary’s daughter is pretty’
- b. \**John-un* [*t<sub>i</sub> yel-myeng-ul*] [*haksayng<sub>i</sub>-i t<sub>j</sub> hoyuy-ey chamsekhay-ss-ta*]-*ko*  
 J-TOP ten-CL<sub>Person</sub>-ACC student-NOM meeting-DAT attend-PAST-DECL-COMP  
*sayngkakha-n-ta*  
 think-PRES-DECL

So far, Types 1 and 3 show the same characteristics. However, there are also some asymmetries between them. First of all, the argument selected by the main predicate is the second NP in Type 1, whereas the first NP is the argument in Type 3. We can expect that the NPs in these types have different internal structure, in spite of their apparent similarities. Therefore, even in surface structure the NPs do not seem to take the same syntactic position.

- (31) a. *Tahayng<sub>hi</sub> Mary-ka ttal-i yeyp<sub>pu</sub>-ta*  
 Fortunately M-NOM daughter-NOM pretty-DECL  
 (i) It is fortunate that Mary’s daughter is pretty.  
 (ii) Fortunately, it is Mary whose daughter is pretty.
- b. *Mary-ka tahayng<sub>hi</sub> ttal-i yeyp<sub>pu</sub>-ta*  
 M-NOM fortunately daughter-NOM pretty-DECL  
 (i) It is fortunate that Mary’s daughter is pretty.  
 (ii) Fortunately, it’s her daughter who is the pretty one (among Mary’s kids).
- c. *Mary-ka ttal-i tahayng<sub>hi</sub> yeyp<sub>pu</sub>-ta*  
 M-NOM daughter-NOM fortunately pretty-DECL  
 (i) \*It is fortunate that Mary’s daughter is pretty.  
 (ii) It is fortunate that Mary’s daughter has at least the property of being pretty. (She doesn’t have any other positive property.)

- (32) a. *Tahayngghi haksayng-i yel-myeng-i hoyuy-ey chamsekhay-ss-ta*  
 Fortunately student-NOM ten-CL<sub>Person</sub>-NOM meeting-DAT attend-PAST-DECL  
 (i) It is fortunate that ten students attended the meeting.  
 (ii) Fortunately, it was students (not teachers) who attended the meeting.
- b. *Haksayng-i tahayngghi yel-myeng-i hoyuy-ey chamsekhay-ss-ta*  
 Student-NOM fortunately ten-CL<sub>Person</sub>-NOM meeting-DAT attend-PAST-DECL  
 (i) \*It is fortunate that ten students attended the meeting.  
 (ii) Fortunately, the number of students who attended the meeting was ten.
- c. *Haksayng-i yel-myeng-i tahayngghi hoyuy-ey chamsekhay-ss-ta*  
 Student-NOM ten-CL<sub>Person</sub>-NOM fortunately meeting-DAT attend-PAST-DECL  
 (i) \*It is fortunate that ten students attended the meeting.  
 (ii) Fortunately, it was the meeting which the ten students attended.

*Fortunately* is a sentential adverb, and adjoined to CP or TP, according to Alexiadou (2002). Here, I am targeting the readings in which *fortunately* scopes over the whole proposition, assuming that we would get the second reading (narrow scope reading), when a sentential adverb adjoined to an NP. Let's compare (31b) and (32b), in which *tahayngghi* 'fortunately' is placed between the first and the second NPs. (31b) has the wide-scope reading, while (32b) doesn't. This tells us that *ttal-i* 'daughter' in (31) takes higher position than *yel-myeng-i* 'ten (people)' does in (32).

### 3.5. Focus in DNC

Now, I turn to the last type. In section 3.2, we saw that in Type 4 the first occurrence of nominative NP is not a selected argument of the predicate. Then, we could expect that it is derived out of the other NP, but we also confirmed in 3.2 that there is no word order restriction between those two NPs. It doesn't directly exclude the possibility for derivation, but if we account for Type 4 derivationally, we would have to deal with the absence of word order restriction first. If it is not moved out of the argument NP, where does it come from? It seems to be quite appropriate to assume it is an adjunct. But then, how would an adjunct bear nominative case marking? I argue that this realization of nominative-looking particle is in fact a focus marker. In Korean, nominative and accusative case markers are sometimes used as focus markers<sup>7</sup>.

<sup>7</sup> Or we could say that case and focus markers happen to have the same morphological realization. It is not clear why there are two different forms of focus markers and how one of

- (33) a. yelum-i      Hawaii-ey kwankwangkayk-i ceyil manh-ta  
 summer-FOC Hawaii- in tourist-NOM      most many-DECL  
 ‘It is the summer when the largest number of tourists visit Hawaii’
- c. mwunmyengkukka-ka namca-ka phyengkyunswumyeng-i kil-ta  
 civilized.country-FOC male-NOM average.life.span-NOM long-DECL  
 ‘It is civilized countries where the average life span of man is long’
- (34) a. John-i      hakkyo-ey ka-ss-ta  
 John-NOM school-to go-PAST-DECL  
 ‘John went to school’
- a’. John-i      hakkyo-lul ka-ss-ta  
 John-NOM school-FOC go-PAST-DECL  
 ‘It is school where John went to’
- b. John-i      Mary-eykey chayk-ul cwu-ess-ta  
 John-NOM Mary-DAT book-ACC give-PAST-DECL  
 ‘John gave Mary a book’
- b’. John-i      Mary-lul chayk-ul cwu-ess-ta  
 John-NOM Mary-FOC book-ACC give-PAST-DECL  
 ‘It is Mary that John gave a book to’

The underlined NPs in (33-34) obviously don’t have the nominative or accusative property, and are (obligatorily) realized with high pitch accent. These examples at least show that *-i/ka* has a non-case-marking function. Now, the question is what supports the focus analysis on Type 4 DNC. Szabolcsi’s (1981) *exhaustivity* test gives a piece of evidence for that.

- (35) a. [*Burger King-kwa Wendy’s-ka*] hamburger-ka masiss-ta  
 BK-and Wendy’s-NOM hamburger-NOM tasty-DECL  
 ‘It is Burger King and Wendy’s where hamburger is tasty’
- b. [*Wendy’s-ka*] hamburger-ka masiss-ta  
 Wendy’s-NOM hamburger-NOM tasty-DECL  
 ‘It is Wendy’s where hamburger is tasty’
- : a ✗ b

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them is selected in a sentence. I don’t have good answers for those questions now.

According to Szabolcsi (1981), the fact that (35a) which includes two conjuncts, Burger King and Wendy's, does not entail (35b) with only one of them shows the sentence is exhaustive, since (exhaustive) focus excludes other possibility than 'Wendy's' being the place where delicious hamburger is served.

#### 4. Concluding Remarks

In this paper, I classified Double Nominative Constructions into four types, and showed the asymmetries among them. Argument structure distinguishes Type 2 from the other three, since the two nominative case-marked NPs are both arguments of the main predicate in this type. Flipping the relative order between two nominative NPs changes the grammaticality in Types 1 and 3, but not in Types 2 and 4. I argue that it is because the two nominative NPs in Types 1 and 3 form a constituent underlyingly, and the second NP includes the trace of the first NP. Therefore, the inversed order of the nominative NPs violates Proper Binding Condition. Type 4 DNC also includes a non-argumental nominative NP, but there is no word order restriction. I argue that this non-argumental occurrence is, in fact, not a nominative NP, but a focus.

The current study is more like a preliminary work on Double Nominative Construction. There are lots of theoretical details, which are not included in this version. Each type of DNC needs further investigation, and it would be possible that each type is divided into several subtypes.

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# A Movement Approach to Case Alternations in Korean\*

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## Abstract

This paper aims to capture the correlation of the Case form of the stranded subject of a lower clause with the availability of remnant clause scrambling in three constructions in Korean, Raising-to-Object (RTO), Obligatory Control (OC) and Periphrastic Causative (PC) constructions. Adopting a *movement* approach to Case alternations, I suggest that the asymmetry between RTO and OC regarding the availability of remnant scrambling is due to the relative height of the landing site of a Case-alternating DP, which is a crucial factor for determining whether the edge of a Phase is extended on a par with Cyclic Spell-Out. I then show that the proposed analysis makes a correct prediction for the three-way Case alternations in PC.

**Keywords:** Case Alternations, Cyclic Spell-Out, Obligatory Control Construction, Periphrastic Causative Construction, Phase, Raising-to-Object Construction.

## 1. Introduction

Korean allows a DP subject in the lower clause to take different Case forms without changing the truth-conditional meaning of a sentence in bi-clausal contexts. Although Case alternations are prevalent in mono-clausal contexts as well, this paper focuses on those found in the bi-clausal contexts, such as Raising-to-Object (RTO) construction in (1), Obligatory Object Control (OC) construction in (2), and Periphrastic

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Causative (PC) construction in (3).

- (1) Peter-ka Mary-**ka/lul** yeppu-ess-ta-ko sayngkakhay-ss-ta.  
P.-NOM M.-NOM/ACC be.pretty-PAST-DEC-COMP think-PAST-DEC  
“Peter thought that Mary was pretty”
- (2) Peter-ka Mary-**ka/lul** ttena-tolok seltukhay-ss-ta.  
P.-NOM M.-NOM/ACC leave-COMP persuade-PAST-DEC  
“Peter persuaded Mary to leave”
- (3) Peter-ka Mary-**ka/lul/ekey** chayk-ul ilk-key hay-ss-ta.  
P.-NOM M.-NOM/ACC/DAT book-ACC read-COMP do-PAST-DEC  
“Peter made Mary read”

Although the three constructions superficially look similar concerning Case alternations, however, they show different patterns when scrambling changes their original word orders. As shown in (4) through (6), scrambling applied to the complement clause brings about different results in the three constructions in question.

- (4) a. \*yeppu-ess-ta-ko<sub>i</sub> Peter-ka Mary-**ka** *t<sub>i</sub>* sayngkakhay-ss-ta.  
be.pretty-PAST-DEC-COMP P.-NOM M.-NOM think-PAST-DEC  
Lit: “[was pretty]<sub>i</sub> Peter thought Mary *t<sub>i</sub>*”
- b. \*yeppu-ess-ta-ko<sub>i</sub> Peter-ka Mary-**lul** *t<sub>i</sub>* sayngkakhay-ss-ta.  
be.pretty-PAST-DEC-COMP P.-NOM M.-ACC think-PAST-DEC
- (5) a. \*ttena-tolok<sub>i</sub> Peter-ka Mary-**ka** *t<sub>i</sub>* seltukhay-ss-ta.  
leave-COMP P.-NOM M.-NOM persuade-PAST-DEC  
Lit: “[to leave]<sub>i</sub> Peter persuaded Mary *t<sub>i</sub>*”
- b. ttena-tolok<sub>i</sub> Peter-ka Mary-**lul** *t<sub>i</sub>* seltukhay-ss-ta.  
leave-COMP P.-NOM M.-ACC persuade-PAST-DEC
- (6) a. \*chayk-ul ilk-key<sub>i</sub> Peter-ka Yenghi-**ka** *t<sub>i</sub>* hay-ss-ta.  
book-ACC read-COMP P.-NOM Y.-NOM do-PAST-DEC  
Lit: “[read books]<sub>i</sub>’ Peter made Mary *t<sub>i</sub>*”
- b. \*chayk-ul ilk-key<sub>i</sub> Peter-ka Yenghi-**lul** *t<sub>i</sub>* hay-ss-ta.  
book-ACC read-COMP P.-NOM Y.-ACC do-PAST-DEC
- c. ?chayk-ul ilk-key<sub>i</sub> Peter-ka Yenghi-**eykey** *t<sub>i</sub>* hay-ss-ta.  
book-ACC read-COMP P.-NOM Y.-DAT do-PAST-DEC

The primary goal of this paper is to explain why the three constructions exhibit

different patterns regarding the derived word order in (4) through (6). For this purpose, I adopt a movement approach, which claims that Case alternations are made possible only when a Case-alternating DP moves to a position high enough to get a relevant Case form (e.g., Kim (1985) and Hong (2005) for RTO; Monahan (2003) and Kwon and Polinsky (2006) for OC). Under the movement approach, this paper proposes that the availability of remnant clause scrambling is correlated with differences in the landing sites of Case-alternating DPs in the  $\nu$ P/VP area, since the accessibility of a lower CP to a further syntactic operation is determined by whether or not the CP is spelled-out.

The paper is organized as follows. Section 2 offers an account for the word order patterns in (4a) and (4b) under the movement approach to RTO. Section 3 then explains (5a) under the movement analysis of the OC construction in terms of the standard condition on movement, and points out that the Proper Binding Condition (cf. Fiengo (1977)) incorrectly rules out (5b). Section 4 shows how a strict derivational approach that I proposed in Park (2007, to appear) building on Hiraiwa's (2003) Cyclic Spell-Out captures the grammaticality of (5b), as opposed to (4b), under the assumption that the landing sites of the accusative Case-marked DPs are different in RTO and OC. Section 5 shows how the proposed analysis can be extended to the word order patterns in the PC construction, and section 6 concludes the paper.

## 2. Case Alternations and Remnant Scrambling in RTO

### 2.1. Movement Analysis of Case Alternations in RTO

This paper adopts a movement approach to Case alternations in RTO, which basically claims that the change of a Case form of a lower subject is possible by its movement (e.g., Kim (1985) and Hong (2005), *inter alia*; cf. Kuno (1976) and Tanaka (2002) for Japanese), and this approach is different from a non-movement approach, which argues that the lower subject does not move out of the embedded CP regardless of its Case form (e.g., Lee (1992)). Taking (1) for example, according to the movement approach, the lower subject marked with nominative Case stays put inside the embedded clause, as in (7a), while the same subject marked with accusative Case ends up in a position in an upper clause, as in (7b).

- (7) a. Peter-ka [CP Mary-**ka** yeppu-ess-ta-ko] sayngkakhay-ss-ta.  
       P.-NOM       M.-NOM   be.pretty-PAST-DEC-COMP   think-PAST-DEC

“Peter thought that Mary was pretty”

b. Peter-ka Mary-**lul**<sub>i</sub> [<sub>CP</sub> *t*<sub>i</sub> yeppu-ess-ta-ko] sayngkakhay-ss-ta.  
P.-NOM M.-ACC be.pretty-PAST-DEC-COMP think-PAST-DEC

“Peter thought of Mary that she was pretty”

I assume that the lower subject in (7b) raises to an outer Spec-*v*P of a higher clause in order to check accusative Case against a light verb *v* (cf. Hong (2005)), and that Korean allows for multiple Case checking, which is widely attested in many languages (e.g., Massam (1985) and Fujii (2005), among many others).<sup>1</sup>

The movement approach makes a correct prediction for a number of data. Due to space reason, I will provide one of the arguments in favor of the movement approach, which has to do with the fact that the speaker-oriented adverb *papokachi* ‘stupidly’ can follow the accusative Case-marked subject, but not the nominative Case-marked one, as shown in the contrast between (8a) and (8b) (data adapted from Hong (2005: 81) and Tanaka (2002: 637)).

(8) a. Peter-ka (papokachi) [Mary-**ka** (\*papokachi) chencayta-ko]  
P.-NOM stupidly M.-NOM stupidly be.genius-PAST-DEC-COMP  
sayngkakha-n-ta.  
think-PAST-DEC

Intended reading: “Peter stupidly thinks that Mary is a genius”

b. Peter-ka Mary-**lul**<sub>i</sub> papokachi [<sub>i</sub> chencayta-ko]  
P.-NOM M.-ACC stupidly be.genius-PAST-DEC-COMP  
sayngkakha-n-ta.  
think-PAST-DEC

Intended reading: “Peter thinks of Mary stupidly as a genius”

On the movement approach, since the nominative Case-marked subject *Mary-ka* ‘Mary-NOM’ remains inside the embedded CP, it fails to precede the adverb modifying the matrix verb. The accusative Case-marked subject *Mary-lul* ‘Mary-ACC,’ on the other, has already moved to the outer Spec-*v*P, which can be higher than the adverb.

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<sup>1</sup> There appear to be particular syntactic environments where Case alternations are possible in RTO. The most uncontroversial observation in the literature is that a DP may take different Case forms only when a selecting predicate is *stative*, which is dated back to Postal’s (1974) observation on the nature of ECM verbs in English.

Notice also that the movement approach can give us an account for (i) the syntactic distribution of an NPI relative to a lower subject; and (ii) the applicability of scrambling to the subject depending on its Case form RTO.<sup>2</sup>

## 2.2. Unavailability of the Derived Word Order in RTO

With the movement approach at hand, let us see how to explain the patterns of the derived word in RTO in (4a, b), repeated below.

- (4) a. \*yeppu-ess-ta-ko<sub>i</sub>                      Peter-ka    Mary-**ka**                      *t<sub>i</sub>*    sayngkakhay-ss-ta.  
           be.pretty-PAST-DEC-COMP    P.-NOM    M.-NOM                      think-PAST-DEC  
           Lit: “[was pretty]<sub>i</sub> Peter thought Mary *t<sub>i</sub>*”
- b. \*yeppu-ess-ta-ko<sub>i</sub>                      Peter-ka    Mary-**lul**                      *t<sub>i</sub>*    sayngkakhay-ss-ta.  
           be.pretty-PAST-DEC-COMP    P.-NOM    M.-ACC                      think-PAST-DEC

To begin with, if it is correct that the Case alternation in the RTO construction reflects the structural position of an embedded subject, the ungrammaticality of (4a) can be explained in terms of the standard condition on movement, which stipulates that only the constituent can be a target of movement (e.g., Radford (1988)). Notice that the fronted part in (4a) is neither a VP nor a TP, as a couple of verbal suffixes including the past morpheme *-ess*, the declarative ending *-ta*, and the complementizer *-ko* must be attached to the predicate before scrambling applies. Accordingly, if we pull out only part of the embedded CP, stranding the nominative Case-marked subject, the condition on movement will be violated, prohibiting the derived word order.

Turning to (4b), if we apply scrambling to the complement clause without pied-piping the accusative Case-marked subject, the sentence becomes ungrammatical as well. It seems that the traditional notion of the Proper Binding Condition (PBC) in (9) explains the unavailability of this pattern of the derived word order.

(9) *Proper Binding Condition*

Traces must be bound.

Fiengo (1977)

Given the claim that the accusative Case-marked subject is raised out of the complement clause, the trace of the displaced subject is supposed to be left behind

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<sup>2</sup> See Hong (2005) and Park (2007, to appear) for more pieces of evidence.

inside the complement clause. Thus, fronting of the remnant clause by scrambling prevents the trace inside it from being bound, which renders the PBC violated.

### 3. Case Alternations and Remnant Scrambling in OC

#### 3.1. Movement Analysis of Case Alternations in OC

There are at least two possible approaches to Case alternations in OC in Korean. One is a PRO theory of Control (e.g., Chomsky and Lasnik (1993) and Martin (1996), *inter alia*), and another one is a movement approach to Control (e.g., Hornstein (2001), Monahan (2003), and Kwon and Polinsky (2006), *inter alia*). This paper adopts the movement approach arguing that an obligatory referential dependency between a matrix object and a lower subject in (2), repeated below, can be maintained not because a PRO is controlled by the matrix object, but because *Mary*, a persuadee argument, starts out in the lower clause and creates an A-chain as a result of A-movement into an object position in the matrix clause later. Crucially, it is assumed that theta-roles are features, and movement of a lower argument in OC is driven for theta-feature checking. On the movement approach, the OC sentence in (5), repeated below, can be analyzed as two different structures depending on the Case form of *Mary*, as shown in (10a) and (10b).

- (2) Peter-ka Mary-**ka/lul** ttena-tolok seltukhay-ss-ta.  
 P.-NOM M.-NOM/ACC leave-COMP persuade-PAST-DEC  
 “Peter persuaded Mary to leave”
- (10) a. Peter-ka  $t_i$  [Mary-**ka**<sub>i</sub> ttena-tolok] seltukhay-ss-ta.  
 P.-NOM M.-NOM leave-COMP persuade-PAST-DEC  
 b. Peter-ka Mary-**lul**<sub>i</sub> [ $t_i$  ttena-tolok] seltukhay-ss-ta.  
 P.-NOM M.-ACC leave-COMP persuade-PAST-DEC

The OC construction with the nominative Case-marked persuadee can be obtained by deleting a higher copy of the A-chain, as illustrated in (10a). The OC construction with the accusative Case-marked persuadee, on the other, can be derived by deleting a lower copy of the same chain, as represented in (10b).<sup>3</sup>

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<sup>3</sup> I will not go into detail in this paper as to the way to determine which copy can be survived in which environment. See Hornstein (2001) for a relevant discussion.

Notice that it seems unclear how the PRO theory explains the OC construction with the nominative Case-marked persuadee in (10a). Given that the nominative Case in Korean is either assigned by the finite T, or realized as default Case, *Mary-ka* ‘Mary-NOM’ is supposed to remain inside the lower clause. Then, PRO that is referentially dependent on *Mary-ka* must be posited in the upper clause as a grammatical object of the matrix predicate, which leads to a fatal violation of the so-called PRO Theorem.<sup>4</sup>

In addition to this theoretical advantage, the movement approach makes a correct prediction for some empirical facts. Below in (11) and (12) are some of the data, which are naturally explained by the movement approach (data from Monahan (2003)).

- (11) Peter-ka    Mary-**\*ka/lul**    seltukhay-ess-ta.  
P.-NOM    M.-NOM/ACC    persuade-PAST-DEC  
“Peter persuaded Mary”
- (12) Peter-ka    Mary-**\*ka/lul**    kanghakey    kakey-ey    mayil    ka-tolok  
P.-NOM    M.-NOM/ACC    strongly    store-LOC    every.day    go-COMP  
seltukha-lke-ya.  
persuade-FUT-DEC  
“Peter will strongly persuade Mary to go to the store every day”

First, recall that the movement approach assumes that a DP may take more than one Case form only when it can appear in a canonical position for each type of Case: e.g., Spec of TP for nominative Case and outer Spec of vP for accusative Case. Therefore, it is predicted that if the predicate *seltukha-* ‘persuade’ takes only a DP argument, the Case form of the DP cannot alternate, and this prediction is borne out, as shown in (11). Secondly, the nominative Case-marked persuadee, as opposed to the accusative Case-marked one, cannot precede an adverb modifying the matrix verb, as in (12). Under the movement approach, the reason *Mary-ka* ‘Mary-NOM’ fails to be followed by the adverb is simply that it stays put inside the lower clause.

### 3.2. *Patterns of the Derived Word Order in OC*

In this section, let us see how the movement approach to the Case alternations in OC handles the patterns of the derived word order in OC. Consider first the word

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<sup>4</sup> See Monahan (2003) for diagnostics showing that the verb *seltukha-* ‘persuade’ in OC is a three-place predicate, which takes two internal arguments, a DP and a proposition.

order in (5a), repeated below.

- |        |   |          |                  |                      |                   |
|--------|---|----------|------------------|----------------------|-------------------|
| (5) a. | *ttena-tolok <sub>i</sub>   | Peter-ka | Mary- <b>ka</b>  | <i>t<sub>i</sub></i> | seltukhay-ss-ta.  |
|        | leave-COMP  | P.-NOM   | M.-NOM           |                      | persuade-PAST-DEC |
|        | Lit: “[to leave] <sub>i</sub> Peter persuaded Mary <i>t<sub>i</sub></i> ” |          |                  |                      |                   |
| b.     | ttena-tolok <sub>i</sub>  | Peter-ka | Mary- <b>lul</b> | <i>t<sub>i</sub></i> | seltukhay-ss-ta.  |
|        | leave-COMP  | P.-NOM   | M.-ACC           |                      | persuade-PAST-DEC |

As shown in (5a), scrambling applied to the complement clause makes the sentence ungrammatical if we strand the nominative Case-marked controller. If it is correct that Korean allows a control sentence in which the nominative Case-marked controller resides in the embedded clause, the ungrammaticality of (5a) can be naturally explained. Simply put, the illegitimacy of (5a) is due to a violation of the ban on movement of a non-constituent, which is analogous to the illegitimacy of the RTO sentence in (4a).

Secondly, let us consider the second word order pattern in (5b) in which the complement clause is fronted with the accusative controller stranded. Notice that if the obligatory control relation is a residue of A-movement, a question arises as to why the application of local scrambling to the remnant complement clause in (5b) does not give rise to PBC effects, as opposed to the RTO sentence in (4b). That is, the trace of *Mary-lul* ‘Mary-ACC’ is embedded inside the complement CP, which is apparently in a higher position than the potential antecedent of the trace. Therefore, we would expect that the Proper Binding Condition rules out (5b), which is not the case. The grammaticality of (5b) looks puzzling if we compare it with the ungrammaticality of (4b), and section 4 will discuss how I resolved this puzzle in Park (2007, to appear).

## 4. Word Order Asymmetry between OC and RTO Revisited

### 4.1. Phase and Cyclic Spell-Out

In order to resolve the word order puzzle between (4b) and (5b), I highlighted the different property between the raising and control predicates with respect to the landing sites of accusative Case-marked DPs, and connected this difference to a derivational model of grammar, which builds on Chomsky’s Phase-based theory. Chomsky (2000, 2001a,b) claims that Phase (e.g., CP and *v*P) is a syntactic unit by which a derivation proceeds, and also suggests the Phase Impenetrability Condition (PIC) to capture

locality effects in agreement and movement, which is defined in (13).

(13) *Phase Impenetrability Condition* (Chomsky (2000: p.108))

In phase  $\alpha$  with head H, the domain of H is not accessible to operations outside  $\alpha$ , only H and its edge are accessible to such operations.

Given this condition, we can easily rule out the impermissible long-distance *wh*-movement in (14b). Notice that *what* in (14b) is forced to stay put in the *domain* of the lower  $C^0$  due to the existence of another *wh*-phrase *when* in the specifier position of the lower CP, an edge position to which the matrix  $v^0$  can have access. As a result, the matrix  $C^0$  cannot have a local syntactic relation with *what*, rendering (14b) unacceptable.

- (14) a. What<sub>i</sub> does John [<sub>vP</sub> t<sub>i</sub> [<sub>vP</sub> think [<sub>CP</sub> t<sub>i</sub> that Bill [<sub>vP</sub> t<sub>i</sub> [<sub>vP</sub> bought t<sub>i</sub>]]]]]]?  
b. \*What<sub>i</sub> does John [<sub>vP</sub> t<sub>i</sub> [<sub>vP</sub> think [<sub>CP</sub> when Bill [<sub>vP</sub> t<sub>i</sub> [<sub>vP</sub> bought t<sub>i</sub>]]]]]]?

As pointed out in Park (2007, to appear), however, there seems to be a small glitch in Chomsky's theory of locality in terms of PIC. That is, although Chomsky's notion of Phase and PIC are correct in preventing an operation from applying to any element inside the *domain*, nothing is directly said about whether the *domain* itself is accessible to an operation outside the Phase. In order to fix this problem, I assumed with Hiraiwa (2003) that the *domain* of a Phase should be spelled-out as soon as its *edge* (i.e., a Phase head or its specifier position) is extended. Following Hiraiwa (2003), I defined this type of Spell-Out, labeled 'Cyclic Spell-Out,' in the following way.

(15) *Cyclic Spell-Out*

If the *edge* of a Phase ( $=\alpha$ ) is extended by Re-Merge/Move of  $\beta$  from inside the domain, the domain ( $=YP$ ) should be spelled-out immediately.

It will be shown in section 4.2 how Cyclic Spell-Out in (15), a stronger version of PIC, explains the asymmetry between (4b) and (5b).

#### 4.2. Solving the Word Order Puzzle between RTO and OC

Let's begin with the illegitimate word order in (4b), repeated below again.

- (4) b. \*yeppu-ess-ta-ko<sub>i</sub>                  Peter-ka    Mary-**lul**        *t<sub>i</sub>*    sayngkakhay-ss-ta.  
           be.pretty-PAST-DEC-COMP P.-NOM    M.-ACC                  think-PAST-DEC  
 Lit: “[was pretty]<sub>i</sub> Peter thought Mary *t<sub>i</sub>*”

As discussed in 2.1, the lower subject undergoes movement out of the embedded CP, which targets the outer Spec-*v*P for checking accusative Case against *v*. In particular, this movement ends up extending the *edge* of a Phase (i.e., Spec of *v*<sup>0</sup>). Consequently, the movement of the embedded subject makes the remnant clause inaccessible to a further operation (i.e., scrambling), as the clause is already transferred on a par with the Cyclic Spell-Out in (15).

Secondly, let us now consider the legitimacy of the derived word order in (5b), repeated below, which the PBC fails to explain.

- (5) b. ttena-tolok<sub>i</sub>                  Peter-ka    Mary-**lul**        *t<sub>i</sub>*        seltukhay-ss-ta.  
           leave-COMP    P.-NOM        M.-ACC                  persuade-PAST-DEC  
 Lit: “[to leave]<sub>i</sub> Peter persuaded Mary *t<sub>i</sub>*”

Recall that the raising of the persuadee in the OC construction in (5b), i.e., *Mary-lul* ‘Mary-ACC,’ is motivated for theta-feature checking, which targets the specifier position of the matrix VP. Crucially, this movement does not extend the edge of the Phase, which is contrastive with the RTO construction in (4b). Therefore, even after the raising of the controller out of the embedded clause, the remnant clause remains accessible to local scrambling in (5b).

Now, we are left with a question of why scrambling of the remnant clause in the PC construction gives rise to diverging results depending on the Case form of the causee argument. In section 5, it will be shown that the proposed analysis based on Cyclic Spell-Out can successfully explain them.

## 5. Extending the Analysis: Patterns of the Derived Word Order in PC

### 5.1. A Dual Analysis of PC

It has been proposed that the PC construction in Korean can be subdivided into two depending on the form of a causee argument (e.g., Kang (1988), Kim (1990) and Park (1994)). To be more specific, when a causee argument is marked with

nominative or accusative Case, the PC construction can be structurally reanalyzed as RTO. When the same argument is marked with dative Case, on the other, the construction can be characterized as OC (although the analysis advanced by the three works above posits PRO in the lower clause). One of the arguments in favor of this dual analysis comes from NPI licensing. As in (16) below, the use of an NPI in the PC sentence with a nominative or accusative Case-marked causee is judged more acceptable than in the PC sentence with a dative Case-marked causee.<sup>5</sup>

- (16) a. John-un aitul-i/?ul amwu-to Mary-lul ttalici  
 J.-TOP children-NOM/ACC anybody-also M.-ACC hit  
 ani-ha-key hay-ess-ta.  
 not-do-COMP do-PAST-DEC  
 “John did not make any of the children hit Mary”
- b. ?\*John-un amwu-eykey-to Mary-lul ttalici ani-ha-key hay-ess-ta.  
 J.-TOP anybody-DAT-also M.-ACC hit not-do-COMP do-PAST-DEC  
 “John did not make anybody hit Mary” Park (1994: 204)

As Park (1994: 204) mentions, given the claim that an NPI must appear in the same clause as negation in order to be licensed in Korean, the contrast between (16a) and (16b) suggests that there are two different types of PC in Korean.

At this point, however, an acute reader might ask why the NPI connected to the accusative Case-marked causee in (16a) still makes the sentence better than the NPI as a dative Case-marked causee in (16b). Note that according to the movement approach, they should be equally bad, as both causee arguments end up being in the upper clause. Although a more careful investigation of the structures of the two types of PC is still necessary, the fact that only the pronominal causee marked with nominative can be bound by the causer seems to support the movement approach (cf. Yeo (2006)).

- (17) a. Peter-ka<sub>i</sub> ku<sub>i</sub>-ka totpoi-key hay-ss-ta.  
 P.-NOM he-NOM look.better-COMP do-PAST-DEC  
 Intended reading: “Peter made himself look better”
- b. \*Peter-ka<sub>i</sub> ku<sub>i</sub>-lul totpoi-key hay-ss-ta.  
 P.-NOM he-ACC look.better-COMP do-PAST-DEC

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<sup>5</sup> Notice that Park’s (1994) original judgment on the sentence in (16a) is slightly modified, as the judgments made by my informants are different from his.

- b. \*Peter-ka<sub>i</sub> ku<sub>i</sub>-**eykey** totpoi-key hay-ss-ta.  
P.-NOM he-DAT look.better-COMP do-PAST-DEC

## 5.2. Explaining the Word Order Patterns of PC

If this dual analysis is correct, we could make an interesting prediction regarding the patterns of the derived word order in the PC construction. That is, in the PC construction with a nominative or accusative Case-marked causee, local scrambling of the remnant clause should be prohibited regardless of the Case form, and this prediction is borne out as in (6a) and (6b), repeated below.

- (6) a. \*chayk-ul ilk-key<sub>i</sub> Peter-ka Yenghi-**ka**  $t_i$  hay-ss-ta.  
book-ACC read-COMP P.-NOM Y.-NOM do-PAST-DEC  
Lit: “[read books]<sub>i</sub>’ Peter made Mary  $t_i$ ”
- b. \*chayk-ul ilk-key<sub>i</sub> Peter-ka Yenghi-**lul**  $t_i$  hay-ss-ta.  
book-ACC read-COMP P.-NOM Y.-ACC do-PAST-DEC
- c. ?chayk-ul ilk-key<sub>i</sub> Peter-ka Yenghi-**eykey**  $t_i$  hay-ss-ta.  
book-ACC read-COMP P.-NOM Y.-DAT do-PAST-DEC

First, since the PC construction with a nominative or accusative Case-marked causee falls under RTO, the fronting of the remnant clause stranding the nominative causee in (6a) would violate the ban on movement of a non-constituent. Second, the raising of the accusative causee in (6b) ends up extending the edge of a Phase (i.e., the higher  $vP$ ) because it targets the outer Spec- $vP$  for Case checking. As a result, the remnant CP, which is part of the complement *domain* of the Phase head  $v^0$ , becomes invisible to scrambling.

On the other hand, it is predicted that the PC construction with a dative causee allows for local scrambling of the remnant clause. Indeed, the sentence turns out to be acceptable, as in (6c) above, although the degree of acceptability seems to vary from speaker to speaker. According to the current analysis, the dative causee argument moves up to Spec-VP for theta-feature checking without extending the edge of a higher phase, keeping the remnant CP accessible to a further operation.

## 6. Conclusion

We have shown that the Case alternations in Korean RTO and OC constructions are reflections of the structural positions of Case-alternating DPs, which lends support for the movement approach. More importantly, the movement analysis of the RTO and OC constructions, coupled with a strict derivational model of grammar adopting Cyclic Spell-Out, enables us to explain the patterns of derived word order not only in RTO and OC. Taking one further step, we have also demonstrated that the proposed analysis can explain why the PC sentences are diverged into two with respect to the availability of remnant scrambling, under the assumption that they can be reanalyzed as RTO or OC depending on the Case form of a causee argument. Although we are left with many issues that still require careful examinations, the current work seems to open up the possibility that Case alternations in the RTO, OC and PC constructions that have been believed to have different syntactic structures can be explained in a uniform way.

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# A Unified Approach to the Peculiarities of Comparative Inversion

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## Abstract

This article endeavors to show that the peculiarities of Comparative Inversion are not construction-specific but they follow from a general theory of ellipsis. There are two different approaches to the elided constructions: the deletion approach and the zero-form approach. I propose a unified approach by claiming that both deletion and zero forms are utilized in English. First of all, I propose that zero forms are divided into two types: the zero pronominal and the zero operator type, which amounts to saying that there are three sources for silence. The main claim of this article is that the three different sources for silence are regulated by a different licensing condition, which can be summarized as follows: (i) deletion is licensed when the target for deletion and its antecedent are structurally symmetric. (ii) zero pronominals are licensed when there is an anti-c-commanding antecedent. (iii) zero operators are licensed when there is a c-commanding antecedent. This article further argues that the three different types of silence display a different syntactic behavior: (i) deletion gives neither Inversion Effects, nor MaxElide Effects, (ii) zero pronominals show MaxElide Effects, but not Inversion Effects, and (iii) zero operators produce both MaxElide Effects and Inversion Effects. This article shows that this unified approach enables us to provide a principled account for various peculiarities of Comparative Inversion and many other elliptical constructions.

## 1. Introduction

VP ellipsis is usually optional, but there is a context in which VP must be missing. Merchant (2003) observes that VP must not be present in comparatives when the subject is preceded by an auxiliary V.

- (1) a. Tom knows more languages than does his father.  
b. Tom can play more instruments than can his father.
- (2) a. \*Tom knows more languages than does his father know.  
b. \*Tom can play more instruments than can his father play.

Besides the co-occurrence restriction on Subject-Aux Inversion, Comparative Inversion has many other peculiar properties. First, Subject-Aux Inversion is optional in the comparative constructions.

- (3) a. Tom knows more languages than his father does.  
b. Tom can play more instruments than his father can.

Chomsky (1977) proposes that there is a parallelism between the comparative constructions and the *wh*-interrogatives in that A'-movement takes place in both constructions. Let us assume that there is further parallelism between them: Comparative Inversion, just like Subject Aux Inversion of *wh*-interrogatives, results from T-to-C movement. If so, it is puzzling that Subject Aux Inversion is optional in the comparative constructions, since it is obligatory in the matrix *wh*-interrogatives. Second,

more than one auxiliary verb can precede the subject in the inverted comparative constructions. Just one auxiliary verb precedes the subject in case Subject-Aux Inversion is caused by T-to-C movement, for just one verb can undergo head-movement. But a cluster of auxiliary verbs can precede the subject in the construction, as Culicover and Winkler (2008) observe.

- (4) Anna ran much faster than could have MANNY. (Culicover & Winkler 2008:1)

Third, Subject-Aux Inversion is not permitted when there is an overt *wh*-operator. An overt *wh*-phrase, in stead of a null operator, can appear in some dialects of English. Interestingly, Subject-Aux Inversion is not allowed when the overt *wh*-phrase is present.

- (5) a. Tom knows more languages than what his father knows.  
b. Tom knows more languages than his father does.  
c. \*Tom can play more instruments than what does his father.

Fourth, the MaxElide Effects appear in the inverted comparative deletion, while they do not in the non-inverted comparative deletion. The maximal constituent that can be recoverable must be elided in the inverted comparative constructions, whereas either partial deletion or no deletion is permitted in the non-inverted constructions.

- (6) a. John has been awarded more accolades than has Tom {(\*been), (\*been awarded)}.  
b. \*John has been awarded more accolades than has been Tom  
(7) a. John has been awarded more accolades than Tom has.  
b. John has been awarded more accolades than Tom has been.  
c. John has been awarded more accolades than Tom has been awarded.

The main purpose of this article is to provide a principled account for the above-mentioned peculiarities of Comparative Inversion. There are two competing approaches to ellipsis: the deletion approach and the zero form approach. In this article I take the position that neither the deletion approach nor the zero form approach can be a complete theory of silence, and the two approaches must be complemented by each other. This article shows that deletion and zero forms are subject to a different licensing condition and display their own distinct syntactic behavior, and various puzzling phenomena revolving around ellipsis, including the above-mentioned peculiarities of the comparative constructions, follow if we correctly identify the source of silence.

## 2. A Repair-by-Ellipsis Approach to Comparative Inversion

Merchant (2003) makes the following two assumptions in his attempt to explain the requirement that Comparative Inversion co-occur with VP-ellipsis.

- (8) a. The null operator movement proceeds via adjunction to the VP sister of I.  
b. The ECP operates at PF.

He goes on to define the ECP as follows:

- (9) At PF, a trace of A'-movement must either be head-governed, or antecedent-governed.
- (10) a. Only the link at which lexical insertion occurs can be a head governor:  
the trace cannot be a head governor.
- b. The unpronounceable constituent cannot be an antecedent governor.

With the above assumptions in mind, let us examine why (10a) is ungrammatical. In accordance with (8a) the null operator drops by the edge of VP: that is, it creates a trace in the VP-adjoined position.

- (11) a. \*Susie can play more instruments than can her father play.
- b. ... than [<sub>CP</sub> Op<sub>1</sub> can [<sub>TP</sub> her father<sub>1</sub> t<sub>can</sub> [<sub>VP</sub> t<sub>1</sub>' [<sub>VP</sub> t<sub>2</sub> play t<sub>1</sub>]]]]

This VP-adjoined trace, that is,  $t_1'$  is an offending trace. It cannot be head-governed by the trace of *can*, since (10a) stipulates that the trace cannot be a head governor. Nor can it be antecedent-governed by the null operator in compliance with (10b). Therefore, (11a) is ill-formed. However, the ECP problem is repaired if VP is deleted, for VP deletion removes the offending trace.

- (12) Susie can play more instruments than can her father ~~play~~.

To sum up, T-to-C movement must be accompanied by VP-deletion, because T-to-C movement creates an ECP problem and it can be repaired by VP-deletion.

The-ECP-as-PF-constraint-account nicely captures the co-relation between Sub-Aux Inversion and VP-ellipsis. However, there are several empirical problems with this approach. First of all, it has the problem of undergeneration. As exemplified by (4), repeated here as (13), more than one auxiliary can precede the subject in Comparative Inversion.

- (13) Anna ran much faster than could have MANNY. (Culicover & Winkler 2008:1)

T-to-C movement preposes just one auxiliary verb. Accordingly, it is impossible to generate the string in (13) under the T-to-C movement approach. This lends support to the claim that T-to-C movement is not responsible for Comparative Inversion. Another problem with Merchant's analysis comes from the fact that the ECP-based approach is incongruous with Belfast English. In Belfast English Sub-Aux Inversion can take place in the embedded clause when long distance A'-movement takes place.

- (14) a. Who did John hope would he see t?
  - b. What did Mary claim [did they steal t]?
  - c. I wonder what did John think would he get t?
  - d. What did John say did Mary claim had John feared would Bill attack t?
- (Pesetsky & Torrego 2001: 365)

Sentence (14a) would be represented as (15) under the assumption that the *wh*-

movement proceeds via adjunction to VP.

(15) who did John t' hope t' would he t' see t'?

In (15) the VP-adjoined trace is neither antecedent-governed, nor head-governed; T-to-C movement destroys the configuration for head-movement, and the trace, which is not pronounceable, cannot be an antecedent governor. In short, the trace t' violates the ECP, but the representation in (15) is well-formed, which throws doubt on the possibility that the PF version of the ECP is correct.

### 3. A Zero-Operator-Approach to Comparative Inversion

This section explores the possibility of providing a zero-form-based account for the correlation between Comparative Inversion and VP-ellipsis without recourse to T-to-C movement and the ECP. In the course of explaining the non-inverted comparative constructions I argue that the zero-form approach must be complemented by the deletion approach.

#### 3.1 *So-anaphora and Twisted Structure*

It is well-known that there is a difference in interpretation between the second utterance of (16) and the second conjunct of (17): *so I was* and *so was I* are interpreted as (18a-b), respectively. It is self-evident that the semantic difference comes from the difference in word order, but it is unclear how they are related.

(16) A: You were excited yesterday. B: **So I was.**

(17) You were excited yesterday, and **so was I.**

(18) a. It is true that I was excited.

b. It is I too that was excited.

I propose that T-to-C movement does not trigger Subject-Aux Inversion in (17), and rather, raising of *so* triggers the inverted word order. In (16-17) *so* is a pro-form that takes the AP *excited* as its antecedent. The pronominalized predicate and the subject *I* can form a small clause, and furthermore, the pro-form can be a topic or a focus, even though it is a predicate, as (19a-b) below illustrate.

(19) a. [T<sub>[+EPP]</sub> [was [small clause (sc) I<sub>[+comment]</sub> SO<sub>[+topic]</sub> ]]]

b. [T<sub>[+EPP]</sub> [was [small clause (sc) I SO<sub>[+focus]</sub> ]]]

I propose that the topic as well as the subject can undergo A-movement to satisfy the EPP of T, and on the other hand, the focus cannot undergo A-movement.

(20) The topic, as well as the subject, can satisfy the EPP of T.

The idea is that the function of the EPP is to make sentences have either the subject-predicate structure or the topic-comment structure. Just as the subject co-occurs with a

predicate, the topic co-occurs with a comment. If the predicative topic occurs with a subject, the subject serves as a comment. If the subject *I* is a comment and *so* is a topic in (19a), topic raising, rather than subject raising, takes place. Under this analysis Subject-Aux Inversion takes place not because T moves to C but because the subject remains inside VP. As (21a-b) below illustrate, the inverted string *so was I* is generated when the topic *so* undergoes raising to the SPEC-T and then, the raised topic makes further A'-movement.

- (21) a. [SO<sub>[+topic]</sub> T<sub>[+EPP]</sub> [was [<sub>small clause (sc)</sub> I<sub>[+comment]</sub> so<sub>[+topic]</sub> ]]]: merger of the head  
Topic & Topicalization  
b. [SO<sub>[+topic]</sub> Topic [so<sub>[+topic]</sub> T<sub>[+EPP]</sub> [was [<sub>small clause (sc)</sub> I<sub>[+comment]</sub> so<sub>[+topic]</sub> ]]]

By contrast, let us suppose that *so* is not a topic but it is a focus, as in (19b). Since the focused item cannot undergo A-movement, the subject *I* raises to the SPEC-T, and then, if *so* undergoes focus movement, *so I was* is generated.

- (22) a. [T [was [<sub>sc</sub> I so<sub>[+focus]</sub> ]]]: raising of *I* to the SPEC of T  
b. [I [T was [<sub>sc</sub> I so<sub>[+focus]</sub> ]]]: focalization of *so*  
c. [so<sub>[+focus]</sub> Focus [I [T was [<sub>sc</sub> I so ]]]

In (22c) the predicative phrase is focused. When the predicative phrase is focused, the whole sentence can be focused, which is supported by the fact that focus spreads to the whole sentence when VP-preposing takes place.

- (23) Excited Mary was.  
(24) a. was [<sub>sc</sub> Mary excited]: raising of *Mary* to the SPEC of T  
b. Mary was [<sub>sc</sub> **Mary** excited]: focalization of *excited*  
c. Excited Mary was [<sub>sc</sub> **Mary** excited]

Now we can straightforwardly explain the contrast in interpretation between *so I was* and *so was I*. In the former string the predicative phrase is focused. Therefore, it is interpreted as 'it is true that I was excited'. On the other hand, in the latter, *so* is a topic and *I* is focused. Therefore, it is interpreted as 'It is I too who was excited'.

This line of approach can be extended to Locative Inversion. Either the locative phrase or the theme can occupy the sentence-initial position in the locative constructions.

- (25) a. In the plaza was a statue.  
b. A statue was in the plaza.

The locative and the theme form a small clause, and furthermore, the locative phrase can be a topic, since it is referential. If the locative *in the plaza* is a topic and the theme is a comment, then the locative undergoes raising to the SPEC-T.

- (26) a. [T<sub>[EPP]</sub> [was [a statue in the plaza<sub>[+topic]</sub> ]]]: raising of *in the plaza*  
b. [in the plaza<sub>[+topic]</sub> T<sub>[EPP]</sub> [was [a statue ~~in the plaza~~<sub>[+topic]</sub> ]]]: topicalization  
c. [in the plaza<sub>[+topic]</sub> Top [in ~~the plaza~~<sub>[+topic]</sub> T<sub>[EPP]</sub> [was [a statue ~~in the plaza~~<sub>[+topic]</sub> ]]]

If, on the other hand, the locative and the theme do not form a topic-comment relation but a subject-predicate relation, the subject *a statue* undergoes raising.

- (27) a. [T<sub>[EPP]</sub> [was [a statue in the plaza]]]: subject raising  
 b. [a statue T<sub>[EPP]</sub> [was [~~a statue~~ in the plaza]]]

In short, the inverted word order is generated if the locative phrase is a topic. The following pair of sentences can be treated in an analogous way. I propose that *stand*, just like the copula, is used as a raising predicate in the locative constructions.

- (28) a. In the plaza stood a statue.  
 b. A statue stood in the plaza.

Let us first consider (28a-b). If we assume that *in need of help* and *grandmother to the child* are not arguments of *stand* but predicates in (29-30), *stand* must be classified as a raising predicate that takes a state-denoting small clause as its complement.

- (29) a. They stand [~~they~~ in need of help]  
 b. They are [~~they~~ in need of help]  
 (30) a. Will you be [~~you~~ grandmother to the child]?  
 b. Will you stand [~~you~~ grandmother to the child]?

Likewise, (28a-b) can be analyzed as raising constructions, in which *stand* takes as its complement a small clause that denotes a state.

- (31) T stand [a statue in the plaza]

The locative expression *in the plaza* can be a topic. If it is a topic, it undergoes raising, and if not, *a statue* moves to the SPEC-T.<sup>1</sup>

Let us recapitulate the claim made above. The small clause usually consists of a subject and a predicate and the subject undergoes raising. In some marked cases, however, the small clause is made up of a predicative topic and a nominative comment, which is usually focused. In that case, not the nominative comment but the predicative topic undergoes raising, which results in Subject-Aux Inversion.

- (32) a. [TP T [Subject Predicate]]: Subject Raising  
 b. [TP Subject T [~~Subject~~ Predicate]]  
 (33) a. [TP T [Subject<sub>[+comment]</sub> Predicate<sub>[+topic]</sub>]]: Topic Raising  
 b. [TP Predicate<sub>[+topic]</sub> T [Subject<sub>[+comment]</sub> ~~Predicate<sub>[+topic]</sub>]]: Topicalization  
 c. [TopP [Predicate<sub>[+topic]</sub> Top [TP [~~Predicate<sub>[+topic]</sub>~~ T [Subject<sub>[+comment]</sub> ~~Predicate<sub>[+topic]</sub>]]]]~~~~

In what follows I am going to argue that this perspective sheds light on Comparative Inversion.

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<sup>1</sup> The head of a small clause may be a predicative expression, as Stowell (1981) argues: that is, the grammatical category of the constituent [*a statue in the plaza*] may be a PP.

### 3.2 A Zero-Operator-Approach to Comparative Inversion

Under the approach advocated above, there are two sources for Subject-Aux Inversion: T-to-C movement and predicative topic raising. Subject-Aux Inversion is obligatory when it results from T-to-C movement. For instance, T-to-C movement in the matrix interrogative clauses is obligatory. By contrast, Subject-Aux Inversion is optional when it is generated via raising of the non-Subject, as we have seen from the *so*-constructions and the Locative Inversion. Comparative Inversion is not obligatory, which hints at the possibility that it is triggered not by T-to-C movement but by predicative topic raising.

- (34) a. John can speak more languages than his father can.  
b. John can speak more languages than can his father.

I assume that there is a zero form for DP, VP, or TP. This zero form is usually used as a zero pronoun, which behaves like an overt pronoun, but the zero form can be a zero operator, which, just like an overt *wh*-operator, undergoes movement. In short, there are two types of zero forms: the zero-pronominal type and the zero operator type. They have a different licensing condition. The zero pronominal is available when there is a non-c-commanding antecedent. In (35) the antecedent vP does not c-command the zero pronominal vP.

- (35) John [<sub>vP</sub> loves Mary], and Tom does  $\emptyset_{vP}$  too.

On the other hand, the zero operator is available in a context that it has a c-commanding antecedent. For instance, the zero operator in the relative clause has a c-commanding antecedent.

- (36) the girl [ $\emptyset_i$  [John loves  $\emptyset_i$ ]]

Briefly speaking, what the zero pronominal and the zero operator have in common is that they must have an antecedent, and their difference lies in whether or not there is a c-commanding antecedent.

- (37) a. The zero pronominal is licensed if there is a non-c-commanding antecedent for it.  
b. The zero operator is licensed if there is a c-commanding antecedent for it.

In comparative constructions, as in relative clauses, the c-commanding antecedent is available, so that the zero operator can be licensed. It is well-known that there is a zero operator movement in comparative constructions. The typical category for the zero operator is DP. I claim that the zero operator can be vP/VP or AP, just as a relative pronoun can take vP/VP or AP as its antecedent. If we assume that *than*-phrase is adjoined to vP/VP, the zero vP is c-commanded by its antecedent vP.

- (38) a. Tom can play more instruments than can his father.

- b. [ Tom can [<sub>VP</sub> [<sub>VP</sub> play more instruments ] [than  $\emptyset_{VP}$  can his father  $\emptyset_{VP}$ ... ]]

If the zero form is DP, it cannot find its c-commanding antecedent at the surface structure. However, I propose that *more*-phrase undergoes QR, taking scope over the whole sentence, as (39-40) illustrate.

- (39) Tom can play more instruments than his father can play.  
 (40) a. [<sub>TP</sub> Tom can [<sub>VP</sub> [<sub>VP</sub> play [<sub>DP</sub> more instruments]] [ than  $\emptyset_{DP}$  his father can play  $\emptyset_{DP}$ ... ]]: QRing of *more*-phrase to the edge of vP and then to the edge of TP  
 b. [<sub>TP</sub> [<sub>DP</sub> more instruments] [<sub>TP</sub> Tom can [~~[<sub>DP</sub> more instruments]~~ [<sub>VP</sub> [<sub>VP</sub> play [<sub>DP</sub> more instruments]] [ than  $\emptyset_{DP}$  his father can play  $\emptyset_{DP}$ ... ]]]]]]

In (40b) the zero DP is c-commanded by its antecedent.

We are now in a position to explain the puzzle raised at the outset of the article: why does Comparative Inversion require VP to be absent? In (41a) the zero VP-operator merges with the subject *his father*. The zero VP-operator, just like *so*, can be a topic. If so, the zero VP-operator, not Subject, moves to the SPEC of T, and as a consequence, the subject is preceded by an auxiliary verb.

- (41) a. [<sub>TP</sub> T [<sub>sc</sub> his father<sub>[+focus]</sub>  $\emptyset_{VP[+topic]}$ ]]: raising of the zero VP-operator  
 b. [<sub>TP</sub>  $\emptyset_{VP[+topic]}$  T [<sub>sc</sub> his father<sub>[+focus]</sub>  $\emptyset_{VP[+topic]}$ ]]: topicalization  
 c. [<sub>TopicP</sub>  $\emptyset_{VP[+topic]}$  Top [<sub>TP</sub>  $\emptyset_{VP[+topic]}$  T [<sub>sc</sub> his father<sub>[+focus]</sub>  $\emptyset_{VP[+topic]}$ ]]]]]

Under this analysis the zero vP/VP-operator is responsible not only for the silence of vP/VP but also for Subject-Aux Inversion, requiring the co-presence of the elided vP/VP and Subject-Aux Inversion. Hence, (42a-b) are ungrammatical.

- (42) a. \*John knows more languages than does his father know.  
 b. \*John can play more instruments than can his father play.

Subject-Aux Inversion cannot take place in the embedded clause without merger of a zero predicative topic. In (42a-b), however, there is an overt predicative phrase. Therefore, those sentences are not grammatical.

Thus far, I have availed myself of a zero vP/VP-operator. It does not mean that deletion is not available in English. Both merger of a zero form and deletion are permitted.<sup>2</sup> In fact, deletion is the only way of generating (43a). Comparative Deletion cannot be generated via merger of a zero vP-pronominal. The zero pronominal must have a non-c-commanding antecedent, but it is c-commanded by the antecedent vP in the comparative constructions. Therefore, the zero vP-pronominal cannot be licensed in the comparative constructions.

- (43) a. John knows more languages than his father thinks he does.  
 b. \*John [<sub>VP</sub> [<sub>VP</sub> knows more languages] [than his father thinks he does  $\emptyset_{VP}$ -pronominal]]

<sup>2</sup> Deletion is subject to the Symmetry Condition, which will be discussed in Section 4.

The zero vP-operator cannot be licensed either. Let us attempt to generate (44) while assuming that the zero vP-operator is available.

(44) \*John knows more languages than his father thinks does he.

Suppose that the zero vP-operator merges with *his father* and it undergoes raising. Raising to the SPEC-T and further A'-movement to the SPEC-C are permitted. However, the vP-operator cannot move out of the matrix vP.

(45) his father [<sub>vP</sub> thinks [<sub>CP</sub>  $\emptyset_{vP[+topic]}$  [<sub>TP</sub>  $\emptyset_{vP[+topic]}$  T [<sub>sc</sub> he<sub>[+focus]</sub>  $\emptyset_{vP[+topic]}$ ]]]]

\_\_\_\_\_||\_\_\_\_\_||\_\_\_\_\_||

\*

The matrix vP contains the vP-operator, so that it is a violation of A-over-A Condition to move the vP-operator out of the matrix vP. Therefore, (44) is not grammatical. Generally speaking, the zero vP-operator is bound to violate a locality condition if it is deeply embedded, and the zero vP pronominal cannot be licensed in every comparative construction. This consideration leads us to a conclusion that the only way of generating (44a) is to make use of vP-deletion. (43a) can be generated via deletion as follows:

(46) a. than  $\emptyset_{DP}$  his father  $\emptyset_{DP}$  thinks  $\emptyset_{DP}$  he T [ $\emptyset_{DP}$  [know  $\emptyset_{DP}$ ]]: vP-deletion  
 b. than  $\emptyset_{DP}$  his father  $\emptyset_{DP}$  thinks  $\emptyset_{DP}$  he T [ $\emptyset_{DP}$  [~~know  $\emptyset_{DP}$~~ ]]: *do*-insertion  
 c. than his father thinks he does

First of all, the zero DP-operator merges with *know* and it undergoes A'-movement after the whole clause is generated, as illustrated by (46a). If the optional operation vP-deletion is applied to the string in (46a), (43a) is generated, and if not, the full sentence is generated.

The zero-vP-based account can be carried over to the non-restrictive relative clause. The *as*-constructions display the same pattern as comparative constructions: inversion is permitted under the condition that vP/VP must not be pronounced.

(47) a. Dulles suspected Philby, as did Angelton.  
 b. Dulles suspected Philby, as Angelton did.  
 c. Dulles suspected Philby, as Angelton suspected.  
 d. \*Dulles suspected Philby, as did Angelton suspect.

If the zero vP topic operator merges with the subject *Angelson*, it must undergo raising, which gives rise to Subject-Aux Inversion.

(48) a. [<sub>TP</sub> T [<sub>sc</sub> Angelton  $\emptyset_{vP}$ ]]: raising of  $\emptyset_{vP}$  to the SPEC of T  
 b. [<sub>TP</sub>  $\emptyset_{vP}$  T [Angelson  $\emptyset_{vP}$ ]]: topicalization  
 c. [<sub>TopicP</sub>  $\emptyset_{vP[+topic]}$  Top [<sub>TP</sub>  $\emptyset_{vP[+topic]}$  T [Angelson  $\emptyset_{vP}$ ]]]: merge of *as*  
 d. [than [<sub>TopicP</sub>  $\emptyset_{vP[+topic]}$  Top [<sub>TP</sub>  $\emptyset_{vP[+topic]}$  T [Angelson  $\emptyset_{vP}$ ]]]]

On the other hand, (47b) is generated via deletion of vP. First of all, the string in (49a) is generated after a series of merger and null DP-operator movement. Deletion is optional.

If it takes place, (47b) is generated, and if not, (47c) is generated.

- (49) a. as  $\emptyset_{DP}$  Angelton T [ $\emptyset_{DP}$  [suspect  $\emptyset_{DP}$ ]]: VP-deletion  
 b. as  $\emptyset_{DP}$  Angelton T [ $\emptyset_{DP}$  [suspect  $\emptyset_{DP}$ ]]: *do*-insertion  
 c. as Angelton did

(47d) is not grammatical for the same reason that (42a-b) are not. T-to-C movement does not take place in the embedded clause and so predicative topic raising is the only source for Subject-Aux Inversion in *as*-constructions, but the predicate is not a topic in (47d). Therefore, it is not grammatical.

As mentioned above, some dialects of English make use of an overt *wh*-operator in the course of generating comparatives and Comparative Inversion is not permitted in those constructions.

- (50) a. John speaks more foreign languages than what Mary does.  
 b. \*John speaks more foreign languages than what does Mary

This does not come as a surprise. Subject-Aux Inversion takes place when the zero vP/VP-operator undergoes movement. When vP/VP-operator movement takes place, DP-operator movement cannot take place, and vice versa. (50b) can be generated if both overt DP-operator movement and covert vP/VP-operator take place, but the two movements are not compatible. Therefore, the sentence is not grammatical.<sup>3</sup>

Let us recall the peculiarities of Comparative Inversion mentioned in section 1. First, Comparative Inversion requires VP ellipsis, second, it is optional, third, more than one auxiliary verb can precede the subject, fourth, it is not allowed when there is an overt *wh*-operator, and finally, Comparative Inversion displays the MaxElide Effects, while the non-inverted VP-elided comparatives do not. This section has shown that the first four characteristics straightforwardly follow from the claim that the zero vP topic operator triggers Subject Aux Inversion. Let us reiterate the gist of the claim. If the zero vP operator is a topic, it can undergo raising, which bleeds raising of *his father*. Since merger of the zero vP topic results in Subject-Aux Inversion, Comparative Inversion must be co-present with the elided vP/VP.

- (51) than [<sub>TopicP</sub>  $\emptyset_{vP[+topic]}$  Top [<sub>TP</sub>  $\emptyset_{vP[+topic]}$  T [<sub>sc</sub> his father<sub>[+focus]</sub>  $\emptyset_{vP[+topic]}$ ]]]

The zero vP operator, like the pro-form *so*, is optionally given the topic feature. It may or may not undergo raising, depending on whether it has the topic feature. Therefore, Comparative Inversion is optional.

- (52) than [<sub>CP</sub>  $\emptyset_{vP}$  [<sub>TP</sub> his father T [<sub>sc</sub> ~~his father~~  $\emptyset_{vP}$ ]]]

In this analysis it is quite natural that the subject can be preceded by a cluster of verbs. In (4), rewritten as (53), the maximally recoverable constituent is *run t*. If the zero operator, which takes *run t* as its antecedent, undergoes raising, the subject *Manny*

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<sup>3</sup> The word *what* is a DP and its antecedent must be a DP. Even if it can take vP as its antecedent, it cannot undergo topicalization, since the *wh*-word cannot be a topic.

comes to be preceded by two auxiliary verbs.

(53) Anna ran much faster than could have MANNY.

(54) than [<sub>TopP</sub>  $\emptyset_{vP[+topic]}$  [<sub>TP</sub>  $\emptyset_{vP[+topic]}$  could have [<sub>sc</sub> Manny  $\emptyset_{vP[+topic]}$ ]]]

Now the remaining issue is the (anti)-MaxElide Effects. In (55a) the VP *been awarded* is the largest constituent that can be deleted and if the smaller constituent is deleted, an ungrammatical sentence is generated. By contrast, this MaxElide Effects do not appear in the non-inverted comparative constructions.

(55) a. John has been awarded more accolades than has his brother ({\*been, \*been awarded}).

b. John has been awarded more accolades than his brother has ({been, been awarded}).

I have claimed that Comparative Inversion results from raising of the zero vP/VP-operator and the non-inverted vP/VP-elided comparative constructions is generated via vP/VP-deletion. The next section shows that this claim provides a clue to the puzzle posed by the contrast in (55a-b).

#### 4. (Anti)-MaxElide Effects

We have seen that the inverted comparative constructions display the MaxElide Effects. The inverted comparatives are not alone with regard to the MaxElide Effects (Sag 1976, Williams 1977, Fox and Lasnik 2003, Merchant 2008, among many others). In (56) it is possible to delete TP in the second conjunct, since it is recoverable from the first conjunct. In this context the smaller constituent VP cannot be deleted.

(56) I believed the claim that he hit someone, but they don't know who (\*I did).

Fox and Lasnik (2003), Lasnik (2007), Merchant (2003), and Merchant (2008) present the MaxElide Effects as major empirical evidence in support of the repair-by-ellipsis. This section argues that the MaxElide Effects cannot be properly handled by the repair-by-ellipsis approach, and rather, they turn out to be supporting evidence for the claim that both merger of a zero form and deletion are possible. I am going to claim that the MaxElide Effects follow from the Principle of Economy, according to which the largest possible constituent must be pronominalized. This claim makes a prediction that if the unpronounced part is generated via merger of a zero form, then the MaxElide Effects show up, and if it is generated via deletion, there are no MaxElide Effects. This section shows that this prediction is borne out.

##### 4.1 Repair-by-Ellipsis and MaxElide Effects

This sub-section introduces two representative island-repair-by-ellipsis approaches to MaxElide Effects: Fox and Lasnik's (2003) approach and Merchant's (2008) approach. Let us first examine Fox and Lasnik's approach. According to the

repair-by-ellipsis approach, a well-formed sentence is generated if all the offending traces are deleted. In many cases, however, it is not enough to delete all the offending traces. For illustration, let us consider (56). Fox and Lasnik (2003) and Lasnik (2007) assume that A'-movement proceeds via adjunction to the TP-adjoined position. If so, the second conjunct of (56) would be represented as (57).

(57) they don't know who [<sub>TP</sub> t'''' [<sub>TP</sub> I [<sub>vP</sub> t'''' believed the claim that t'' he t' hit t]]

In (57) the offending trace is *t''*; there are two bounding nodes between *t''* and *t''''*. If we simply delete the vP that contains the offending trace, however, a grammatical sentence cannot be generated. In an attempt to resolve this problem, Fox and Lasnik (2003) and Lasnik (2007) claim that all the traces in the second conjunct, whether or not they are offending traces, must be deleted unless there is a corresponding trace in the first conjunct. In the first conjunct of (56) there is no trace that corresponds to *t''''*. Therefore, TP, not vP, must be deleted. What is crucial in this approach is that *wh*-movement drops by the TP-adjoined position; without this assumption, there would be no reason that TP must be deleted. However, this assumption leads us to a wrong prediction about the grammaticality of (58a). In the second conjunct of (58a) there is a trace in the TP-adjoined position. By contrast, there is no corresponding trace in the first conjunct of the sentence; even though the focused phrase undergoes a covert movement, it does not move to the SPEC of C but to the TP-adjoined position, which is supported by the fact that focalization can take place inside *that*-clauses. If so, it is incorrectly predicted that (58a) is ill-formed.

(58) a. ABBY took GREEK, but I don't know what language BEN did.  
 b. [<sub>TP</sub> GREEK [<sub>TP</sub> ABBY took ~~GREEK~~]], but I don't know [<sub>CP</sub> what language [<sub>TP</sub> t'' [<sub>TP</sub> Ben t' took t]]]

In short, Fox and Lasnik (2003) and Lasnik (2007) make use a TP-adjoined trace with a view to explaining the MaxElide Effects in (56), but the TP-adjoined trace causes a problem in (58a).

Merchant (2008) takes a little different approach to the MaxElide Effects. He proposes a condition called the MaxElide Condition, which requires that the largest possible constituent must be deleted. The MaxElide Condition correctly predicts that in (56) TP must be deleted, since it is the largest deletable constituent, and that *been awarded t* must be deleted in (55a), since it is the largest recoverable constituents. However, this approach runs into immediate counterexamples. Sentences (59a-b) do not conform to the MaxElide Condition.

(59) a. Ben knows that she invited Klaus, but her father doesn't.  
 b. Ben knows that she invited Klaus, but her father doesn't know that she did.  
 (Merchant 2008: 142)

Merchant resolves this problem by stipulating that the MaxElide Condition applies only to XPs that contain a *wh*-trace. He argues that there is no MaxElide Effect in (59a-b), since there is no *wh*-movement in the second conjunct. However, comparative constructions run counter to Merchant's stipulation. In (60) partial deletion is possible

even if A'-movement takes place.

- (60) a. Abby has been awarded more accolades than what her father has been.  
 b. Abby has been awarded more accolades than what her father has.

These examples pose a serious problem to the MaxElide Condition approach.

Merchant (2008) proposes one more condition, which is also problematic: once an offending trace is made, all the traces generated via further movement are offending traces. Let us first consider the examples that motivate this proposal. In (61) the possible largest target for deletion is the elided VP, so that the MaxElide Condition is satisfied. Furthermore, the offending trace is removed if vP is deleted. However, the sentence is ungrammatical.

- (61) \*Abby DOES want to hire someone who speaks GREEK/a certain Balkan language,  
 but I don't remember what kind of language  $t''''$  she DOESN'T [~~vP  $t''''$  want to  $t''$  hire someone who  $t''$  speaks  $t$~~ ]. (Merchant 2008: 148)

In (61) the offending trace is  $t''$ . As mentioned above, however, Merchant assumes that once an offending trace is generated, all the traces that are generated via further movements are offending traces: that is,  $t''''$ ,  $t''''$  and  $t''$  as well as  $t''$  are offending traces. He argues that (61) is ill-formed, since the offending trace  $t''''$  still remains even after vP-deletion. This account manages to explain why (61) is unacceptable. However, it conflicts with his analysis of the comparative constructions. Let us recall that according to Merchant (2003), in (62)  $t'$  is an offending trace that violates the ECP; it cannot be antecedent-governed, nor can it be head-governed. Merchant (2008) assumes with Fox and Lasnik (2003) that *wh*-movement proceeds by adjunction to intervening maximal projections, including TP: the trace  $t''$  is created via the null operator movement. Since  $t'$  is an offending trace,  $t''$  is also an offending trace. The string in (62) contains an offending trace, but it is well-formed.

- (62) Mary has been awarded more accolades than has [<sub>TP</sub>  $t'$  Tom [<sub>VP</sub>  $t'$  [<sub>VP</sub> been awarded  $t$ ]]]

To recapitulate, the MaxElide Effects appear to be supporting evidence for the repair-by-ellipsis account, but we have seen that neither Fox and Lasnik's (2003) approach nor Merchant's (2008) approach is descriptively adequate.

#### 4.2 Pronominalization Economy

Thus far, we have seen that it is almost impossible to make a generalization about when the MaxElide Effects appear, to say nothing of providing a principled account for it. In what follows I am going to argue that if the unpronounced constituent is generated via merger of a zero form, the MaxElide Effects show up, and otherwise, they do not. There is a striking similarity between the comparative construction in (55a) and the *so*-constructions in (63) in that the repeated part must be minimal.

- (63) John has been awarded many accolades.  
a. So have I.  
b. \*So have I been.  
c. ??So have been I.

So can pronominalize VP or AP, so that it can pronominalize either *been awarded many accolades* or *awarded many accolades*. However, sentence (63) shows that the maximal constituent must be pronominalized. I propose that pronominalization is subject to the Principle of Economy, according to which it is more economical to pronominalize the bigger constituent.

(64) Pronominalization Economy

If there is a choice between pronominalizing a bigger constituent and a smaller one, the bigger one is pronominalized on account of the Principle of Economy.

It is possible to pronominalize either *awarded* or *been awarded* in (63), but the Pronominalization Economy in (64) requires that the bigger constituent be pronominalized. Therefore, (63b-c) are ill-formed.

In this article I have assumed that there are three sources for silence: deletion, zero pronominals, and zero operators. The Pronominalization Economy applies only to the zero forms: a zero pronominal or a zero operator, for the zero pronominal is an unbound pronominal, while the zero operator is a bound pronominal, and they are subject to the Pronominalization Economy. Therefore, it is predicted that the MaxElide Effects appear only when the source of the silence is merger of a zero pronominal or a zero operator. Before examining whether this prediction is correct, let us consider the licensing condition on deletion.<sup>4</sup> I propose that deletion is subject to the Symmetry Condition outlined below.

(65) Symmetry Condition

The target for deletion and its antecedent are symmetric with regard to A'-movement.<sup>5</sup>

Deletion takes place on the basis of structural identity as well as semantic identity. Accordingly, it is not unexpected that it is subject to the Symmetry Condition. On the other hand, pronominalization does not comply with the Condition, since it does not care about the internal structure of the antecedent, as long as a well-formed LF is generated. There are three cases with regard to the movement of the elided constituent and its antecedent if we exclude the case in which there is movement in the antecedent

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<sup>4</sup> The licensing condition for zero-forms is specified in (37).

<sup>5</sup> This is reminiscent of Fox and Lasnik's (2003) Principle of Parallelism, but there are important differences between them. First, the Symmetry Condition requires the elided constituent and its antecedent to be symmetric, while the Principle of Parallelism requires the first conjunct and the second conjunct to be in parallel: it cares about the whole structure, not just the elided constituent and its antecedent. Second, violation of the Symmetry Condition, unlike that of the Principle of Parallelism, cannot be repaired under ellipsis.

but there is no movement in the target for deletion.

(66)

	Antecedent	Target for Deletion
Asymmetric 1. No deletion 2. MaxElide Effect	There is no A <sup>2</sup> -trace	There is A <sup>2</sup> -trace
Symmetric 1. Deletion 2. No MaxElide Effect	There is no A <sup>2</sup> -trace	There is no A <sup>2</sup> -trace
	There are A <sup>2</sup> -traces.	There are corresponding A <sup>2</sup> -traces.

If the target for deletion and its antecedent are asymmetric, deletion cannot take place. In this case, the elided constituent in the second conjunct is generated via merger of a zero form, which conforms to the Pronominalization Economy. If they are symmetric, deletion is permitted, and it is not governed by the Principle of Economy; at PF it is possible not to delete at all, and it is even possible to insert some constituent in order to satisfy a PF constraint. Under this analysis the MaxElide Effects show up only when the elided constituent and its antecedent are asymmetric. Sentence (56), repeated here as (67), belongs to the asymmetric case; the second conjunct contains A<sup>2</sup>-movement, but the first conjunct does not.

(67) I believed the claim that he hit someone, but they don't know who (\*I did).

This means that the sentence is generated only via merger of a pronominalized zero form, which obeys the Pronominalization Economy in (64). Therefore, (67) is ungrammatical if the elided constituent is vP. Sentence (55a), rewritten as (68), is also subject to the Pronominalization Economy, since Subject-Aux Inversion is triggered by a predicative zero topic.

(68) John has been awarded more accolades than has his brother ({\*been, \*been awarded}).

Comparative Inversion results from raising of a zero VP topic, and the zero form conforms to the Pronominalization Economy. Therefore, the MaxElide Effects appear in the inverted comparative constructions.

Let us now turn to the symmetric case. In the non-inverted comparative constructions the MaxElide Effects disappear, as we have seen from (55b)—(69).

(69) John has been awarded more accolades than his brother has ({been, been awarded}).

As mentioned in the preceding section, *more* has a sentential scope when the whole clause is compared and so, the *more*-phrase undergoes a covert movement to the TP-adjoined position. On the other hand, the null operator undergoes A<sup>2</sup>-movement in *than*-clauses. This means that the antecedent vP and the target for deletion are symmetric.

(70) [more accolades Abby has [t' [been awarded t]]] than [∅ her father has t' been awarded t]

The representation (70) shows that the first conjunct and the second conjunct are symmetric with regard to the bigger vP *t''been awarded t* and the smaller vP *awared t*. Therefore, both vPs can be deleted and both (69a-b) are grammatical. Let us now consider another symmetric case—(59a-b), repeated here as (71a-b). These sentences are symmetric in that there is no A'-movement in both conjuncts.

- (71) a. Ben knows that she invited Klaus, but her father doesn't.  
 b. Ben knows that she invited Klaus, but her father doesn't know that she did.  
 (Merchant 2008: 147)

So it is possible to apply the operation 'deletion', which does not require the maximal constituent to be deleted. Therefore, both (71a) and (71b) are grammatical.<sup>6</sup>

If the embedded clause of the second conjunct is a *wh*-interrogative, the correlate of the *wh*-operator is usually an indefinite. But other kinds of correlates are possible (see Chung *et al.* 1995 for relevant discussion). For instance, names can be associates if they are focused. The constructions with a name as a correlate do not display MaxElide effects.

- (72) a. Abby speaks GREEK, but I don't remember what OTHER languages.  
 b. ABBY took GREEK, but I don't know what language BEN did. (Merchant 2008: 147)

This can be explained if we assume that the focused phrase undergoes movement.

- (73) a. [GREEK [Abby speaks t]], but I don't remember what OTHER languages  
~~{Abby speaks t}~~  
 b. [GREEK [ABBY [took t]]] but I don't know what language BEN ~~{took t}~~

In the first conjunct *GREEK* undergoes A'-movement and in the second conjunct *what language* undergoes A'-movement. As a consequence, (73a) is symmetric with regard to TP, and (73b) is symmetric with regard to vP-symmetric. Therefore, both (72a) and (72b) are grammatical.<sup>7,8</sup>

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<sup>6</sup> Merchant (2008) observes that both (ia) and (ib) are grammatical.

- (i) Some student solved the problem, but I'm not sure  
 a. who  
 b. who did (Merchant 2008: 143)

It is not surprising that (ia) is grammatical, since the zero pronominal can be licensed in (ia). Sentence (ib) is an interesting case. In the sentence the antecedent vP and the elided vP are symmetric in that there is no A'-movement inside vP.

- (ii) [TP some student T [vP t solve the problem]], but I am not sure [TP who [TP t T [vP t solve the problem]]]

Therefore, vP-deletion is permitted.

<sup>7</sup> In (72a-b) the variable in the first conjunct and the one in the second conjunct denote a different referent. The pro-form is not available if (i) the two variables do not share the same referent and (ii) the antecedent variable is presupposed. (72a-b) satisfy these two conditions, since the variable introduced by a focused phrase is presupposed. Therefore, the pro-form cannot be used in these constructions. With this

Besides indefinites and focused names, the correlate can be a quantified phrase.

(74) Abby met most applicants, but I can't remember exactly which ones.<sup>9</sup>

Merchant (2008) makes an interesting observation about the interaction between quantifiers and focus. If the subject is focused, partial deletion is permitted, and if not, it is not permitted.

(75) a. ABBY interviewed exactly two thirds of the applicants, but I don't remember how many of them BEN did.  
b. ??Abby met most applicants, but I can't remember exactly which ones she did.

(Merchant 2008: 152)

I propose that this contrast follows from the asymmetry in QR between the two sentences. Fox proposes that QR takes place only if it affects a scope relation. Names are not scope-bearing constituents. If they are focused, however, they turn into scope-bearing ones: that is, there is a scope interaction between a focused phrase and a quantified phrase.<sup>10</sup>

(76) a. ABBY interviewed exactly two thirds of the applicants.

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in mind, let us reconsider sentence (61), repeated here as (i), where the variable in the two conjuncts have a different referent and the antecedent variable is presupposed. First of all, the zero pro-form is not available here. Furthermore, the sentence cannot be generated via deletion either, for an island condition is violated in course of deriving the second conjunct and the island violation cannot be repaired by ellipsis.

(i) \*Abby DOES want to hire someone who speaks GREEK/a certain Balkan language, but I don't remember what kind of language t<sup>1</sup> she DOESN'T [<sub>vP</sub> t<sup>2</sup> want to t<sup>2</sup> hire someone who t<sup>2</sup> t<sup>2</sup> speaks t].

Therefore, there is no way to generate sentence (i).

<sup>8</sup> Another possibility is that (72b) is an instance of pseudo-gapping, as (i) illustrates.

(i) ABBY took GREEK, but I don't know what language BEN did ~~take~~ t

<sup>9</sup> In (74) sluicing is possible since the quantifier *most* is vague. The following sentence is anomalous, since *every* is not vague.

(i) #Abby met every applicant, but I can't remember exactly which ones.

<sup>10</sup> In (i) type-shifting QR can take place: that is, raising to the SPEC of vP is possible, but in compliance with the scope economy *most applicants* cannot undergo raising to the TP-adjoined position.

(i) Abby met most applicants.  
(ii) a. [Abby [most applicants [met t]]]  
b. \*[most applicants [Abby [meet t]]]

However, (iia) may be interpreted as (iiib) if *Abby* undergoes  $\lambda$ -operation.

(iii) a. Abby  $\lambda y$  [most x [applicants(x)] [y met x]]  
b. Most x [applicants(x)] Abby met x

b. Abby met most applicants.

If *Abby* is focused, the pair-list reading is available. According to the reading, there is a name list, and *Abby* pairs with *two thirds of the applicants* and implies that someone else pairs with another proportion. The pair-list reading is available when a presupposed set of QPs takes scope over the variable introduced by the focused subject. Put differently, if QR takes place, the pair-list reading is available, and otherwise, it is not. In accordance with the scope economy QR can take place in this context.

- (77) a. [exactly two thirds of the applicants [ABBY T [interview t]]  
b. \*[most applicants [Abby met t]]

On the other hand, QR cannot be applied in (76b), since it does not give rise to semantic effects. In short, in (75a) the two conjuncts are symmetric with respect to vP, but in (75b) they are not.

- (78) a. [exactly two thirds of the applicants [ABBY T [t' [interview t]]] but I don't remember how many of them BEN did [t' [interview t]]  
b. [Abby [most applicants [met t]]] but I don't remember how many of them BEN did [t [interview t]]

Therefore, vP-deletion is possible in (75a), but not in (75b), and there is a contrast in acceptability between them.<sup>11</sup>

We started this section with the following puzzle: why the inverted comparatives display the MaxElide Effects, while the non-inverted comparatives do not. This section has shown that their difference follows from a general theory of ellipsis: merger of zero forms, not deletion, conforms to the Pronominalization Economy, which gives rise to the MaxElide Effects, and deletion is subject to the Symmetry Condition, which requires the target for deletion and its antecedent to be structurally identical.

## 5. Summary and Conclusion

This article has endeavored to show that the peculiarities of Comparative

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<sup>11</sup> In (ia-b) *wh*-movement takes place in both conjuncts: they are symmetric, and as expected, partial deletion is permitted.

- (i) a. I know which book John said that Mary read, but **you** don't know which one.  
b. ?I know which book John said that Mary read, but **you** don't know which one he did.  
(Lasnik 2007: 151)

It is worthwhile to note that the embedded subject must be focused when partial deletion is applied. If the subject is focused, the *wh*-expression can have scope associated with the focused subject. In this context, partial deletion is possible. Which constituent is to be deleted is dependent on which constituent is to be contrasted. If the pair {<I, which book>, <you, which one>} is to be contrasted, then partial deletion takes place, and if what is contrasted is the truth of the first and the second conjuncts, the maximal vP is deleted.

- (ii) I know which book John said that Mary read, but you don't.

Inversion are not construction-specific but they follow from a general theory of ellipsis. There are two different approaches to the elided constructions: the deletion approach and the zero-form approach. I have proposed a unified approach by claiming that both deletion and zero forms are utilized in English.<sup>12</sup> The major claim made in this article is that zero forms are divided into two types: the zero pronominal and the zero operator type, and the three sources for silence are regulated by a different licensing condition, which can be summarized as follows:

- (79) a. Deletion is licensed when the target for deletion and its antecedent are structurally symmetric.  
 b. Zero pronominals are licensed when there is an anti-c-commanding antecedent.  
 c. Zero operators are licensed when there is a c-commanding antecedent.

Deletion, zero pronominals, zero operators display a different syntactic behavior: (i) deletion gives neither Inversion Effects, nor MaxElide Effects, (ii) zero pronominals show MaxElide Effects, but not Inversion Effects, and (iii) zero operators produce both MaxElide Effects and Inversion Effects.

(80)

	Inversion Effects	MaxElide Effects
Deletion	X	X
Zero Pronominals	X	O
Zero Operators	O	O

This article has shown that the unified approach outlined in (79-80) enables us to provide a principled account for various peculiarities of Comparative Inversion and many other elliptical constructions.

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<sup>12</sup> If both deletion and zero forms are available, we do not have to assume that ellipsis repairs island violation; the island constraints are vacuously satisfied if the elided part can be generated via merger of a zero form.

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# Resumptives in Mandarin: Syntactic versus Processing Accounts

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## Abstract

This study adopts on-line self-paced reading tasks in order to investigate how untrained language users process resumptives in Chinese relative clauses and to shed light on the debate as to whether resumptives exist to facilitate processing. The on-line reading times show that optional resumptives were dispreferred because of a garden-path effect. However, optional resumptives were preferred when the gap relative clauses led to a garden path, thus increasing the difficulty of reconstruction. There was no preference one way or the other when the relative clauses involved complex structures or complicated processing domains. These results suggest that the use of resumptives in Chinese is not only constrained by grammaticality requirements but also conditioned by a processability effect (i.e., the garden-path effect).

**Keywords:** resumption, processability, garden-path effect

## 1. Introduction

A number of studies have demonstrated that resumptives may be regarded as a last resort rescuing the violations such as island constraints or ECP (Alexopoulou & Keller, 2007; Aoun, 2000; Chao & Sells, 1983; Chomsky, 1982; Meral, 2004; Sells, 1984; Shlonsky, 1992). Some researches (Alexopoulou & Keller, 2007; McCloskey, 2006) further point out that generally there are three kinds of resumption:

- (i) **Movement resumptives** behave like a syntactic variable that is A'-bound by an Operator. They, as *wh*-traces, are subject to islands and crossover effects. In addition, movement resumptives should allow reconstruction and be able to license parasitic gaps, which are the properties of *wh*-traces as well.
- (ii) **Base-generated resumptives**, on the contrary, lack the properties that the movement resumptives possess.
- (iii) **Intrusive/processing resumptives** appear to remove the parsing load caused by the longer distance between the filler and the gap.

In Ning, Her, & Lin (2008), it is asserted that Chinese resumptives are base-generated elements since they do not possess the properties of movement resumptives. Chinese resumptives are further divided into two categories, obligatory and optional. In order to support this claim, three grammaticality judgments on a 7-point scale were conducted. The results of the rating suggest that Chinese employs resumptives as a grammatical device to save ungrammaticality (that is, resumptives are obligatory when the gaps result in ungrammaticality). On the other hand, the acceptability of the optional resumptives may be affected by processability. In other words, resumptives could be optional but dispreferred due to the fact that they induce a main-clause illusion, which makes relative clauses less processable. The goal of this paper is thus to investigate what kind of factors would contribute to processability by making use of on-line self-paced reading comprehension tasks.

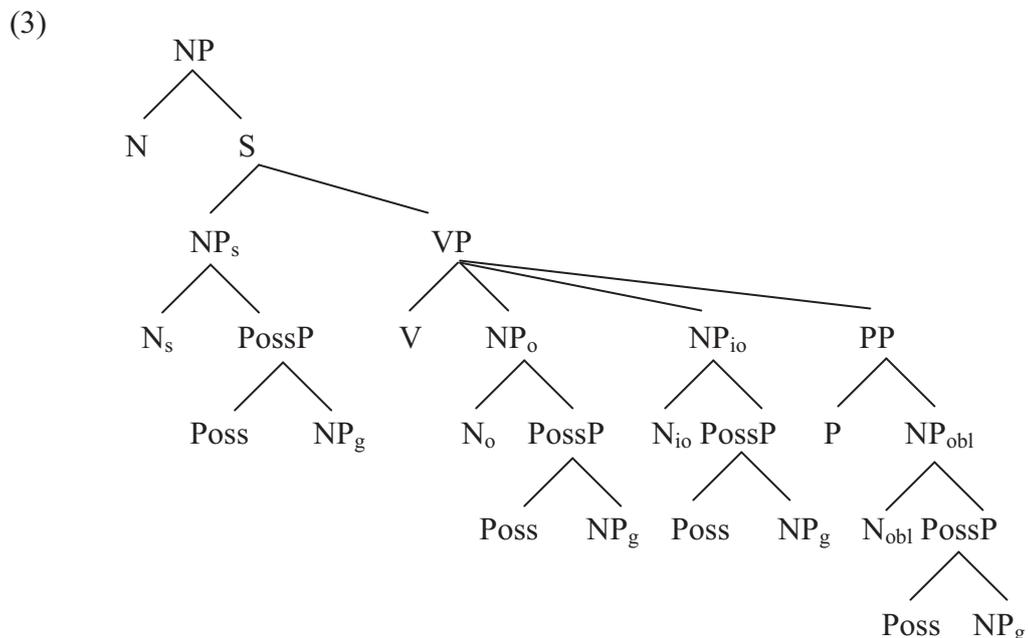
In processing studies, resumptives in head-initial relative clauses are claimed to facilitate processing when the distance between a filler and a gap is quite far (distance

effect) or when the filler is extracted from a hierarchically lower position (embedding effect) (Alexopoulou & Keller, 2007; McKee & McDaniel, 2001). The use of resumptives is advantageous in these conditions because they specify the extraction sites so as to make the association with the fillers easier. This lightens the memory load as well (Dickey, 1996).

To predict under what conditions resumptives turn out to be advantageous, Hawkins (1999) proposes a Filler-Gap Domain [FGD] and the principle of Minimize FGDs to define the minimal domain for long-distance dependency.

- (1) a. Filler-Gap Domain [FGD]: An FGD consists of the smallest set of terminal and nonterminal nodes dominated by the mother of a filler and on a connected path that must be accessed for gap identification and processing.
- b. Minimize FGDs: The human processor prefers FGDs to be as small as possible.
- (2) Noun Phrase Accessibility Hierarchy (AH)  
 SUBJ > OBJ > INDIRECT OBJ > OBL > GEN > OBJECT OF COMPARISON  
 (Keenan & Comrie, 1977)

To illustrate this, let us calculate the minimal FGD sizes for relativizations on each of the AH positions. Assume that there is an SVO language whose relative clauses are head-initial such as (3). As counted in (4), the number of nodes increases down the AH. When nodes increase, morphosyntactic or semantic computations also multiply. This has been corroborated by a number of studies showing that object relative clauses are more difficult to process than subject relative clauses (Keenan & Hawkins, 1987; King & Just, 1991).<sup>1</sup>



<sup>1</sup> There is still a controversy over the issue of whether subject relative clauses or object relative clauses are easier to process in head-final relativization. For discussion, see Hsiao & Gibson (2003) and Lin & Bever (2006) for Chinese, Kwon (2004) for Korean, Miyamoto & Nakamura (2003) for Japanese.

(4) Minimal FGDs for relativization on (Hawkins, 1999: 255):

- SU = 5 [N, NP, V, VP, S]
- DO = 7 [N, NP, N<sub>s</sub>, NP<sub>s</sub>, S, V, VP]
- IO = 9 [N, NP, N<sub>s</sub>, NP<sub>s</sub>, S, V, VP, N<sub>o</sub>, NP<sub>o</sub>]
- OBL = 9 [N, NP, N<sub>s</sub>, NP<sub>s</sub>, S, V, VP, P, PP]
- GEN-SU = 9 [N, NP, N<sub>s</sub>, NP<sub>s</sub>, S, Poss, PossP, V, VP]
- GEN-DO = 11 [N, NP, N<sub>s</sub>, NP<sub>s</sub>, S, V, VP, N<sub>o</sub>, NP<sub>o</sub>, Poss, PossP]
- GEN-IO = 13 [N, NP, N<sub>s</sub>, NP<sub>s</sub>, S, V, VP, N<sub>o</sub>, NP<sub>o</sub>, N<sub>io</sub>, NP<sub>io</sub>, Poss, PossP]
- GEN-OBL = 13 [N, NP, N<sub>s</sub>, NP<sub>s</sub>, S, V, VP, P, PP, N<sub>obl</sub>, NP<sub>obl</sub>, Poss, PossP]

Based on this observation, Hawkins (1999) suggests a Gap Avoidance Hypothesis: gaps are avoided when processing becomes complicated and difficult.

(5) Gap Avoidance Hypothesis: If a (potential) FGD of complexity  $n$  on a hierarchy  $H$  is avoided by employing a semantically equivalent alternative structure, then gaps in all more complex environments on  $H$  ( $n+1$ ) will be avoided as well.

As indicated in (4), processing genitive gaps involves a larger processing domain which in turn places a greater burden on a parser's load. Resumptives, on the other hand, can illuminate the extracted environment and improve the recognition of the role of the head in relative clauses. Thus, when a filler-gap dependency exists in a complex environment, resumptives surface as a method of rescue to remove the difficulty of associating the filler with a gap in large FGD domains. It seems that, in the higher positions of AH where the processing complexity is relatively low, resumptives never win over gaps. This could be explained by the advantage of economy (Haiman, 1983; Hawkins, 1999). Gaps under most conditions entail fewer computations than lexical arguments (resumptives) but can also create well-constructed interpretation. After the competition, gaps win over resumptives when the extracted positions are recoverable and accessible.

Another line of research on the processing of relative clauses is concerned with structural differences (that is, head-initial versus head-final relative clauses). Unlike head-initial relative clauses, head-final relative clauses such as those in Chinese manifest a garden-path effect. The parser does not notice a gap initially and has to trace back to search for an appropriate position when the filler is encountered. That is to say, the parser has to reanalyze the syntactic structure of the parsed words (Lin, 2008a, 2008b; Lin & Bever, 2007).

Take a subject relative clause (6) and an object relative clause (7) for example.

(6) <u>trace</u>	<u>Verb</u>	<u>Object</u>	<u>de</u>	<u>Head</u>	<u>Noun</u>
<i>(pro)/t<sub>i</sub></i>	<i>kan-dao</i>	<i>wo</i>	<i>de</i>	<i>na-ge</i>	<i>ren<sub>i</sub></i>
	see-PERF	me	REL	that-CL	man <sub>i</sub>

----->

(Main-clause illusion with *pro*-drop)

----->

(Recognize the relative clause  
and reanalyze the initial analysis)

'the man who saw me'

(7)	<u>Subject</u>	<u>Verb</u>	<u>trace</u>	<u>de</u>	<u>Head Noun</u>	
	<i>wo</i>	<i>kan-dao</i>	<i>t<sub>i</sub></i>	<i>de</i>	<i>na-ge</i>	<i>ren<sub>i</sub></i>
	I	see-PERF	<i>t<sub>i</sub></i>	REL	that-CL	man <sub>i</sub>
	----->					
	(Main-clause illusion)					
	----->					
	(Recognize the relative clause and reanalyze the initial analysis)					
	'the man whom I saw'					

Prior to the relativizer *de*, the initial parse of (6) could be a main clause with a *pro*-drop. *Pro*-drop is available in Chinese (C. N. Li & Thompson, 1981). Thus, when the parser reads the relativizer *de* and head noun, it has to revise the main-clause analysis and regress to search for an appropriate position for the filler (head noun).

Consider relative clauses with resumptive pronouns in Chinese (8–9). The main-clause illusion still remains when resumptives occupy the extracted positions, because they create a complete NVN pattern.

(8)	<u>RP</u>	<u>Verb</u>	<u>Object</u>	<u>de</u>	<u>Head Noun</u>	
	<i>ta<sub>i</sub></i>	<i>kan-dao</i>	<i>wo</i>	<i>de</i>	<i>na-ge</i>	<i>ren<sub>i</sub></i>
	he	see-PERF	me	REL	that-CL	man <sub>i</sub>
	----->					
	(Main-clause illusion)					
	'the man who (*he) saw me'					
(9)	<u>Subject</u>	<u>Verb</u>	<u>RP</u>	<u>de</u>	<u>Head Noun</u>	
	<i>wo</i>	<i>kan-dao</i>	<i>ta<sub>i</sub></i>	<i>de</i>	<i>na-ge</i>	<i>ren<sub>i</sub></i>
	I	see-PERF	him <sub>i</sub>	REL	that-CL	man <sub>i</sub>
	----->					
	(Main-clause illusion)					
	'the man whom I saw (*him)'					

Under this circumstance, processing does not seem to be filling a gap any more. It is clearly indicated that, in Chinese grammar, reconstruction fails (no empty positions can be filled) when resumptives occur (Aoun & Li, 2003; Y.-H. A. Li, 2007). This failure may affect the way that processing is performed. Thus, in addition to the garden-path effect which arises due to the main-clause illusion, resumptives suffer from a higher degree of difficulty in processing than gaps because fillers under this condition (resumptive relative clauses) fail to find an empty position for themselves. The interpretation of resumptives, instead, needs to depend on a referential coindexation. This low processability resulting from the garden-path effect and the failure of reconstruction may influence the preference for resumptives in relative clauses.

In this paper, two on-line self-paced reading experiments were conducted to examine whether the dispreference for optional resumptives in Chinese would result from the garden-path effect. The materials involved the same conditions investigated in Ning, Her, & Lin (2008) but excluded oblique object relative clauses and control object relative clauses whose resumptives are obligatory. Experiment 1 involved subject relative clauses, long-distance subject relative clauses, object relative clauses, and genitive relative clauses while in Experiment 2, they involved indirect object

relative clauses with the ‘Give’ verbs, indirect object relative clauses with the ‘Take’ verbs, embedded subject relative clauses, and object relative clauses with adverbials. Throughout these experiments, it is assumed that the parser was likely to briefly adopt a main-clause analysis, prior to being garden-pathed by the relative clause analysis. Also, it is predicted that the garden-path effect would be much more severe in the case of resumptive relative clauses than in the case of gap relative clauses due to the failure in reconstruction.

## 2. Experiment 1

The critical conditions in Experiment 1 involved subject relative clauses, long-distance subject relative clauses, object relative clauses, and genitive relative clauses. Example sentences are presented in (10).

(10) a. Subject relative clauses

*(ta)souji yuliao de na-wei xuezhe fabiao-guo*  
 he collect corpus DE that-CL scholar publish-PERF  
*ji-pian wenzhang.*  
 several-CL article

‘That scholar who collected a corpus published several articles.’

b. Long-distance subject relative clauses

*(ta)xinkudi zai yanjiushi zuanyan jibing*  
 he hardily at research.office delve.intodisease  
*wenti de na-wei yisheng chenzui zai yanjiu lequ*  
 problem DE that-CL doctor indulge in research pleasure  
*zhong.*  
 in

‘That doctor who delved into the problem of disease threw himself deeply into the pleasure of doing research.’

c. Object relative clauses

*xuexiao yaoqing (ta) de na-wei zuojia ceng huode*  
 school invite him DE that-CL author ever obtain  
*yiwendajiang.*  
 literary.award

‘The author whom the school invited has obtained a literary award.’

d. Genitive relative clauses

*(ta)nuer fabiao xinshu de na-wei fuqin*  
 his daughter publish new.book DE that-CL father  
*zao chengwei zhongshi de duzhe.*  
 already become faithful DE reader

‘That father whose daughter published a new book has already become a faithful reader.’

The question that this experiment was meant to address was whether the main-clause illusion in processing is related to the fact that resumptives are not as favorable as gaps in the judgment tasks (Ning, Her, & Lin, 2008). To answer the question, Experiment 1 compared the reading times of the resumptive relative clauses and of the gap relative clauses, and compared these results with the grammaticality judgments in Ning, Her, & Lin (2008).

## **2.1 Methods**

### **2.1.1 Participants**

Sixteen native speakers of Chinese studying at National Taiwan Normal University were paid NT 100 dollars each to participate in the experiment. All were naïve as to the purpose of the experiment. No participants who participated in this experiment took part in the questionnaire tasks of Ning, Her, & Lin (2008).

### **2.1.2 Materials**

In order to investigate where the garden-path effect takes place, each sentence was divided into several regions based on the phrasal boundaries. Verbs and objects were separated in this experiment. The divisions are shown with a slash between regions in Appendix A.

Two lists were created from the total of 64 (8 sentences x 2 strategies x 4 conditions) sets of experimental sentences, so that each list contained eight sentences of each type of relativization type, and one version of each set. The experimental sentences were mixed with 68 fillers, resulting in a total of 100 items. The sentences were presented in an individually randomized order created by Linger.

### **2.1.3 Procedure**

Participants were tested individually. The program used was Linger written by Doug Rohde. Participants were required to press the spacebar to reveal each block of words in a moving-window self-paced reading task. Hidden words were masked by dashes and there were small gaps between characters. The parsed words became dashes again when participants moved on to the next region. After the participants had read the whole sentence, one comprehension question appeared. Comprehension was checked in all trials by presenting a yes-no question. Feedback was given only when the response was not correct; a pop-up screen would show *dacuo-le o* 'It's wrong'. Participants were encouraged to achieve high accuracy and to respond as quickly as possible if they knew the answer.

Before the formal experiment, there were 12 practice items. In the experimental phase, the 100 items were randomly distributed into four blocks by Linger. After every 25 items, there was a short break. Participants could press any key to continue. Reaction time was calculated for each block of words and also for the response to the comprehension questions. The entire experiment lasted approximately 20 minutes.

## **2.2 Results**

In this experiment, the average accuracy for the comprehension questions was 91%, with no participant scoring below 78%. The reading times of head nouns and the following verb phrases were analyzed for each condition. These regions were chosen because they are referred to as disambiguating regions. A longer reading time (i.e., a garden-path effect) was expected for such disambiguating regions. Comparisons of interest involved relative clauses with gaps which enable the head nouns to reconstruct to the extracted empty positions, and the relative clauses with resumptives that require the head nouns to anaphorically link with pronouns.

Reading time values beyond 2 SDs away from the condition mean for the head noun regions were replaced by the mean since the mean is the most unbiased estimated value. This excluded 5% of the data in by-participant analysis and 4% of the data in by-item analysis.

For the reading times on the head nouns and the following verb phrases, two repeated measures ANOVAs were performed, treating participants ( $F_1$ ) and items ( $F_2$ ) as random effect variables. The use of a strategy (a gap or a resumptive pronoun) was treated as within-participants or within-items factors. The results of the disambiguating regions for each condition are reported in Table 1. Participant means are presented in tables along with standard errors. The results of  $F$  tests are presented beneath the means. Results are reported as significant if the participant and item analyses rejected the null hypothesis at the .05 level.

Table 1. Participant mean reading times in milliseconds and  $F$  tests in Experiment 1

	Head Noun	Main Verb	Object
<b>Subject relative clauses</b>			
Gap	692 (39.19)	649 (50.17)	865 (65.50)
RP	910 (90.45)	744 (67.42)	905 (75.23)
	$F_1 = 3.815, p = .07$ $F_2 = 2.322, p = .171$	$F_1 = 2.154, p = .163$ $F_2 = .561, p = .478$	$F_1 = .094, p = .763$ $F_2 = .150, p = .710$
<b>Long-distance Subject relative clauses</b>			
Gap	674 (60.17)	538 (30.53)	703 (32.84)
RP	813 (61.76)	689 (48.62)	901 (71.77)
	$F_1 = 2.330, p = .148$ $F_2 = 6.118, p < .05$	$F_1 = 5.289, p < .05$ $F_2 = 6.571, p < .05$	$F_1 = 8.427, p < .05$ $F_2 = 11.535, p < .05$
<b>Object relative clauses</b>			
Gap	741 (50.48)	699 (58.90)	896 (72.54)
RP	1021 (86.66)	805 (75.47)	1071 (92.71)
	$F_1 = 6.560, p < .05$ $F_2 = 10.386, p < .05$	$F_1 = 1.629, p = .221$ $F_2 = 1.198, p = .31$	$F_1 = 2.536, p = .132$ $F_2 = 1.840, p = .217$
<b>Genitive relative clauses</b>			
Gap	900 (85.79)	853 (81.26)	967 (85.53)
RP	867 (65.64)	832 (75.92)	972 (92.65)
	$F_1 = .154, p = .700$ $F_2 = 2.122, p = .189$	$F_1 = .060, p = .809$ $F_2 = .078, p = .788$	$F_1 = .001, p = .978$ $F_2 = .004, p = .950$

Note: Standard error of the mean is in the parentheses.

### 2.2.1 Subject relative clauses

In the case of the subject relative clauses with resumptives, it took longer to read the head noun (692 vs. 910ms;  $F_1(1, 15) = 3.815, p = .07$ ;  $F_2(1, 7) = 2.322, p = .171$ ) and the following verb phrase positions (verb: 649 vs. 744ms;  $F_1(1, 15) = 2.154, p = .163$ ;  $F_2(1, 7) = .561, p = .478$ ; object: 865 vs. 905ms;  $F_1(1, 15) = .094, p = .763$ ;  $F_2(1, 7) = .150, p = .710$ ) than those positions in the case of the subject gap relative clauses. The readers may have suffered from a greater garden-path effect when subject resumptives appeared in the relative clauses. However, this effect was only near significant by participants in the head noun regions. No other regions reached significance.

### 2.2.2 Long-distance subject relative clauses

In the case of the resumptives, it significantly took longer to read the

long-distance subject relative clauses after the head nouns were parsed. This garden-path effect was significant, both by participants and by items, for the main verb (538 vs. 689 ms;  $F_1(1, 15) = 5.289, p < .05$ ;  $F_2(1, 7) = 6.571, p < .05$ ) and the following objects (703 vs. 901 ms;  $F_1(1, 15) = 8.427, p < .05$ ;  $F_2(1, 7) = 11.535, p < .05$ ). On the head nouns, the effect was only significant by items (674 vs. 813 ms;  $F_1(1, 15) = 2.330, p = .148$ ;  $F_2(1, 7) = 6.118, p < .05$ ).

### 2.2.3 Object relative clauses

In the case of the object relative clauses, it took the parser significantly longer to read the resumptive relative clauses in the head noun positions (741 vs. 1021 ms;  $F_1(1, 15) = 6.560, p < .05$ ;  $F_2(1, 7) = 10.386, p < .05$ ). The effect of this long reading time exercised an influence in the main verb and the object regions, but it did not approach significance (main verb: 699 vs. 805 ms;  $F_1(1, 15) = 1.629, p = .221$ ;  $F_2(1, 7) = 1.198, p = .31$ ; object: 896 vs. 1071 ms;  $F_1(1, 15) = 2.536, p = .132$ ;  $F_2(1, 7) = 1.840, p = .217$ ).

### 2.2.4 Genitive relative clauses

In the case of the genitive relative clauses, the reading times for the resumptive sentences were quite similar to those of the gap relative clauses. No significant effect was found for the head noun (900 vs. 867 ms;  $F_1(1, 15) = .154, p = .700$ ;  $F_2(1, 7) = 2.122, p = .189$ ), the main verb (853 vs. 832 ms;  $F_1(1, 15) = .060, p = .809$ ;  $F_2(1, 7) = .078, p = .788$ ) or the object regions (967 vs. 972 ms;  $F_1(1, 15) = .001, p = .978$ ;  $F_2(1, 7) = .004, p = .950$ ). An inspection of the mean reading times in relation to the genitive gap relative clauses and the subject/object gap relative clauses reveals that there could be a relative difficulty in processing the genitive gaps. As a result, no significant difference between the genitive gaps and the genitive resumptives was found. A plausible account for this result is offered in the discussion below.

## 2.3 Discussion

Overall, due to the main-clause illusion prior to the head nouns, the relative clauses which appeared with resumptives suffered from the garden-path effect. The effect was revealed by the longer reading times in the head noun positions or the following regions. In addition, the structural complexity predicted whether the gaps would suffer from the garden-path effect as the resumptives and whether the gaps would be significantly preferred over the resumptives. For the sake of comparison, the grammaticality judgment results in Ning, Her, & Lin (2008) are presented in Table 2.

In the subject relative clauses, the garden-path effect was only nearly significant in the resumptive versions ( $p = .07$ ). However, when the distance between the subject resumptives and the head nouns was lengthened by two adjuncts, the parser was garden-pathed. The garden-path effect was salient in the long-distance subject conditions. Comparison of the results of the on-line reading task and of the grammaticality judgments revealed that the resumptives in the subject or long-distance subject relative clauses were not preferred in the judgments because they involved processing difficulty resulting from the reanalyses of the initial main clause readings.

In the object relative clauses, as is predicted, a significant garden-path effect appeared in the head noun positions where the possessive readings crashed. It seems that this processing difficulty would make the resumptives dispreferred in the grammaticality judgments.

Finally, in the genitive relative clauses, it appears that the possessors (the head nouns) were not easy to be placed back to the extracted positions since they involve a larger filler-gap dependency domain as Hawkins (1999) suggests. The reading times of the head nouns in the genitive gap versions were longer than those in the subject or object gap relative clauses. It is plausible that this processing difficulty (resulting from the structural complexity) removed the preference for the gap strategy of the genitive relative clauses in the grammaticality judgments.

To summarize, the fact that the resumptives were dispreferred may be due to the garden-path effect aroused by the main-clause illusion. This validates our results and assumption in the grammaticality judgments of Ning, Her, & Lin (2008) that the resumptives in the subject relative clauses, the long-distance subject relative clauses, the object relative clauses and the genitive relative clauses were ‘less processable’. It becomes clear that processability is related to the garden-path effect. The ‘less processable’ is defined as ‘garden-pathed’ presented in Table 2. On the other hand, when the structural complexity increased, the gaps might have garden path and fail to show an advantage in the relativization. In this experiment, it is corroborated in the genitive relative clauses.

Table 2. Predictions and results of gap/resumptive occurrences in Experiment 1

RC Types/ Strategy		Grammaticality	Processability	Predictions	Judgment results	Reading time results
		Grammatical: + Ungrammatical: -	Processable: + Garden-pathed: -			
SRC	Gap	+	+	Preferred	Better* (6.34)	quicker* (Head:692)
	RP	+	-	Dispreferred	Worse (4.3)	slower (Head:910)
Long- distance SRC	Gap	+	+	Preferred	Better* (5.68)	quicker* (Head:674)
	RP	+	-	Dispreferred	Worse (3.52)	slower (Head:813)
ORC	Gap	+	+	Preferred	Better* (6.1)	quicker* (Head:741)
	RP	+	-	Dispreferred	Worse (4.34)	slower (Head:1021)
Genitive RC	Gap	+	-	No preference	No difference (4.32)	slow (Head:900)
	RP	+	-	Dispreferred	No difference (4.08)	slow (Head:867)

*Note.* The judgment results are adopted from the experiments conducted in Ning, Her, & Lin (2008). A single asterisk (\*) denotes that the effect reaches significance. Means are presented in the parentheses.

### 3. Experiment 2

In Experiment 2, a self-paced reading comprehension task was conducted. The critical conditions involved the indirect object relative clauses with the ‘Give’ verbs, the indirect object relative clauses with the ‘Take’ verbs, the embedded subject relative clauses, and the object relative clauses with adverbials. Exemplary sentences

are repeated in (11).

(11) a. Indirect object relative clauses with the ‘Give’ verbs

*nanyou song-le (ta) shengriliwu de na-wei nuhai*  
boy.friend give.PERF her birthday.gift DE that-CL girl  
*louchu-le xiyue de xiaorong.*  
show-PERF happy DE smile  
‘That girl whom her boy friend gave a birthday gift showed a happy smile.’

b. Indirect object relative clauses with the ‘Take’ verbs

*qiezei tou-le (ta) yi-lian jiche de na-wei*  
thief steal-PERF her one-CL motorcycle DE that-CL  
*xiaojie xiang qingqiu jingcha de xiezhu.*  
lady want ask police DE help  
‘That lady whom the thief stole a motorcycle from wanted to ask the police for help.’

c. Embedded subject relative clauses

*mishu lianluo-shang huizhang xiwang (ta) chuxi*  
secretary contact-PERF president hope he attend  
*shenghui de na-wei huiyuan.*  
grand.meeting DE that-CL associator  
‘The secretary contacted the associator whom the president hoped that he can attend the grand meeting.’

d. Object relative clauses with adverbials

*zongtong jiejian (ta) liang-ci de na-wei xuezhe*  
President receive him two-times DE that-CL scholar  
*jiang jingxing yi-zhou de fangcha.*  
will begin one-week DE inspection  
‘That scholar whom the President received twice is going to inspect for one week.’

As Experiment 1 suggests, the main-clause illusion affected the processing of the resumptive relative clauses, and the ease of reconstruction determines the preference of the gap relative clauses. It is assumed in this experiment that the main-clause illusion in the resumptive versions of each condition takes place as well. Hence, the longer reading times in the positions posterior to the relativizer are predicted.

As for the gap versions, let us first consider the indirect object relative clauses. As is mentioned in Ning, Her, & Lin (2008), the base argument structure of the ‘Give’ verbs is different from that of the ‘Take’ verbs.<sup>2</sup>

- (12) a. Base argument structure of the ‘Give’ verbs: <x, y, z>, where x is an Agent, y is an Experiencer, and z is a Theme. Derived forms can be <x, z, y>, <x, y> or <x, z>.  
b. Base argument structure of the ‘Take’ verbs: <x, z>, where x is an Agent

<sup>2</sup> This assumption is made based on the data from Sinica Corpus Version 4.0. It is revealed that within the declarative and non-idiomatic sentences, the ‘Take’ verbs such as *tou* ‘steal’ are surfaced as <Agent, Theme> (100%) while the ‘Give’ verbs such as *song* ‘send’ can be realized as <Agent, Experiencer, Theme> (38%), <Agent, Theme, Experiencer> (12%), <Agent, Theme> (44%) or <Agent, Experiencer> (16%).

and z is a Theme. Derived forms can be <x, y, z> or <x, y>, where y is an Affectee.

If this is on the right track, the indirect object gaps (i.e. Affectee—y) of the ‘Take’ verbs should be processed without ease since the reconstruction becomes more difficult. It is not easy for the parser to predict an Affectee in the ‘Take’ verbs whose base structure is <x, z>. However, the reconstruction might be easier for the indirect object gaps of the ‘Give’ verbs since the parser might assume an indirect object (Experiencer) in the processing even though the role does not always appear.

Second, in the embedded subject relative clauses,<sup>3</sup> consider the example in (13) and the illustration of processing steps in Table 3.

- (13) *mishu* *lianluo-shang* [<sub>NP/RC</sub> *huizhang* *xiwang* [<sub>CP</sub> *t/ta* ***chuxi***  
 secretary contact-PERF president hope t/he attend  
*shenghui*] *de* *na-wei* *huiyuan*].  
 grand.meeting DE that-CL associator  
 ‘The secretary contacted the associator whom the president hoped that he  
 can attend the grand meeting.’

Table 3. Processing steps in the embedded subject relative clauses

Regions	0:S	1: V of main clause	2:S of RC	3: complement V of RC	4: gap/RP
<b><i>Pingying</i></b>	<i>mishu</i>	<i>lianluo-shang</i>	<i>huizhang</i>	<i>xiwang</i>	<i>t/ta</i>
<b>Gloss</b>	secretary	contact-PER	president	hope	t/RP
<b>How to process</b>					
<b>Step 1</b>	Main-clause reading .....				
<b>Step 2</b>				Reanalyze the previous noun <i>huizhang</i> as a subject of this complement verb.....	
<b>Step 3</b>					Complement clause starts. ....

Table 3 (Continued). Processing steps in the embedded subject relative clauses

Regions	5:V of Complement clause	6: O of Complement clause	7: De	8: Head N	
<b><i>Pingying</i></b>	<b><i>chuxi</i></b>	<i>shenghui</i>	<i>de</i>	<i>na-wei huiyuan</i> .	
<b>Gloss</b>	attend	grand.meeting	DE	that-CL associator	
<b>How to process</b>					
<b>Step 4</b>	Complement clause continues. ....				
<b>Step 5</b>				Reanalyze the complement clause (from region 4 to	

<sup>3</sup> The embedded subject relative clauses were all placed in the objects of the matrix sentences rather than in the sentential subject positions. This manipulation was to ensure that only the embedded subject relativization reading is appropriate.

The embedded subject gaps may become less processable in comparison with other gap relative clause conditions since the parser assumes that a subject of the complement clause, instead of a verb *chuxi* ‘attend’, would appear after the verb *xiwang* ‘hope’. Therefore, the resumptive pronoun which is masked as the beginning a complement clause could be easier to process than the gap.

Finally, notice the object relative clauses with adverbials.<sup>4</sup> The gaps in this condition should be processable since the structures they involve are not as complex as those in the indirect object relative clauses or the genitive relative clauses. Therefore, the gaps in the object relative clauses with adverbials should still be preferred.

### **3.1 Methods**

#### *3.1.1 Participants*

Sixteen native speakers of Chinese in National Taiwan Normal University were paid NT 100 dollars to participate in the experiment. All were naïve to the purpose of the experiment. No participants who participated in this experiment took part in the Experiment 1 and the questionnaire tasks of Ning, Her, & Lin (2008).

#### *3.1.2 Materials*

In order to investigate where the garden path takes place, each sentence was divided into several regions based on the phrasal boundaries. Verbs and objects were separated in this experiment. The divisions are shown with a slash between regions in Appendix B.

Two lists were created from the total 64 (8 sentences x 2 strategies x 4 conditions) sets of experimental sentences, so that each list contained eight sentences of each relativization type, and one version of each set. The experimental sentences were mixed with 68 fillers, resulting in a total of 100 items. The sentences were presented in an individually randomized order created by Linger.

#### *3.1.3 Procedure*

The procedure was identical to Experiment 1. As in Experiment 1, the entire experiment lasted about 20 minutes.

### **3.2 Results**

In this experiment, average accuracy for the comprehension questions was 92%, with no participant scoring below 84%. The same statistical analyses of reading times on the head noun and the verb phrase regions were carried out as in Experiment 1. Reading time values beyond 2 SDs away from the condition mean for the head noun regions were replaced by the mean. This excluded 6% of the data in by-subject analysis and 4% of the data in by-item analysis. The results of the disambiguating

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<sup>4</sup> Some researchers (Houng, 1986; Huang, Li, & Li, 2006) point out that object resumptives turn out to be acceptable when adverbials appear following the relativized object positions. However, no significance was found within the resumptive strategies of the two conditions in the grammaticality judgments of Ning, Her, & Lin (2008).

regions for each condition are reported in Table 4.

Table 4. Participant mean reading times in milliseconds and *F* tests in Experiment 2

	Head Noun	Main Verb	Object
<b><i>Indirect object relative clauses of the ‘Give’ verbs</i></b>			
Gap	1031 (100.06)	686 (58.16)	997 (94.16)
RP	1231 (126.45)	638 (60.96)	869 (72.54)
	$F_1 = 4.319, p = .055$ $F_2 = 1.129, p = .323$	$F_1 = .406, p = .534$ $F_2 = .270, p = .619$	$F_1 = 1.848, p = .194$ $F_2 = 3.461, p = .105$
<b><i>Indirect object relative clauses of the ‘Take’ verbs</i></b>			
Gap	1234 (104.54)	836 (94.50)	1000 (98.19)
RP	1319 (113.04)	644 (44.28)	855 (62.54)
	$F_1 = .617, p = .444$ $F_2 = .271, p = .655$	$F_1 = 4.629, p < .05$ $F_2 = 5.081, p = .059$	$F_1 = 4.741, p < .05$ $F_2 = 2.335, p = .170$
<b><i>Embedded subject relative clauses</i></b>			
Gap	1331 (113.27)	NA	NA
RP	1392 (132.97)	NA	NA
	$F_1 = .142, p = .712$ $F_2 = .196, p = .671$		
<b><i>Object relative clauses with adverbials</i></b>			
Gap	909 (116.11)	533 (43.86)	1006 (111.80)
RP	1207 (145.36)	619 (47.76)	806 (59.49)
	$F_1 = 5.892, p < .05$ $F_2 = 22.870, p < .01$	$F_1 = 2.619, p = .126$ $F_2 = 1.273, p = .296$	$F_1 = 2.044, p = .173$ $F_2 = 2.443, p = .126$

Note: Standard error of the mean is in the parentheses.

### 3.2.1 Indirect object relative clauses of the ‘Give’ verbs

The indirect object relative clauses with resumptives were read slightly longer than those with gaps in the head noun positions (1031 vs. 1231 ms;  $F_1(1, 15) = 4.319, p = .055$ ;  $F_2(1, 7) = 1.129, p = .323$ ). This effect only reached near significance. The head nouns of these gap relative clauses (1031 ms) were also read remarkably longer than those of the subject (692 ms) or object (741 ms) gap relative clauses in Experiment 1. It is possible that processing difficulty increased in the indirect object gap relative clauses of the ‘Give’ verbs.

### 3.2.2 Indirect object relative clauses of the ‘Take’ verbs

In the head noun positions, the resumptive relative clauses exhibited the similar reading times to the gap relative clauses (1234 vs. 1319 ms;  $F_1(1, 15) = .617, p = .444$ ;  $F_2(1, 7) = .271, p = .655$ ). However, the resumptive relative clauses were read slower than the gap relative clauses in the main verbs, which was significant in the participants analysis and approximately significant in the items analysis (836 vs. 644 ms;  $F_1(1, 15) = 4.629, p < .05$ ;  $F_2(1, 7) = 5.081, p = .059$ ). In the final object region, the resumptive relative clauses were still parsed slower than the gap relative clauses, but this effect was only significant by participants (1000 vs. 855 ms;  $F_1(1, 15) = 4.741, p < .05$ ;  $F_2(1, 7) = 2.335, p = .170$ ). This significant difference in the verb phrase positions (main verb plus object) was not discovered in the previous indirect object

relative clauses of the ‘Give’ verbs.

### 3.2.3 Embedded subject relative clauses

Consider Figure 1. The reading times of the resumptive relative clauses were similar to those of the gap relative clauses. There was an increase in the reading times in the final head noun regions of both strategies. No significant difference was found in any regions.

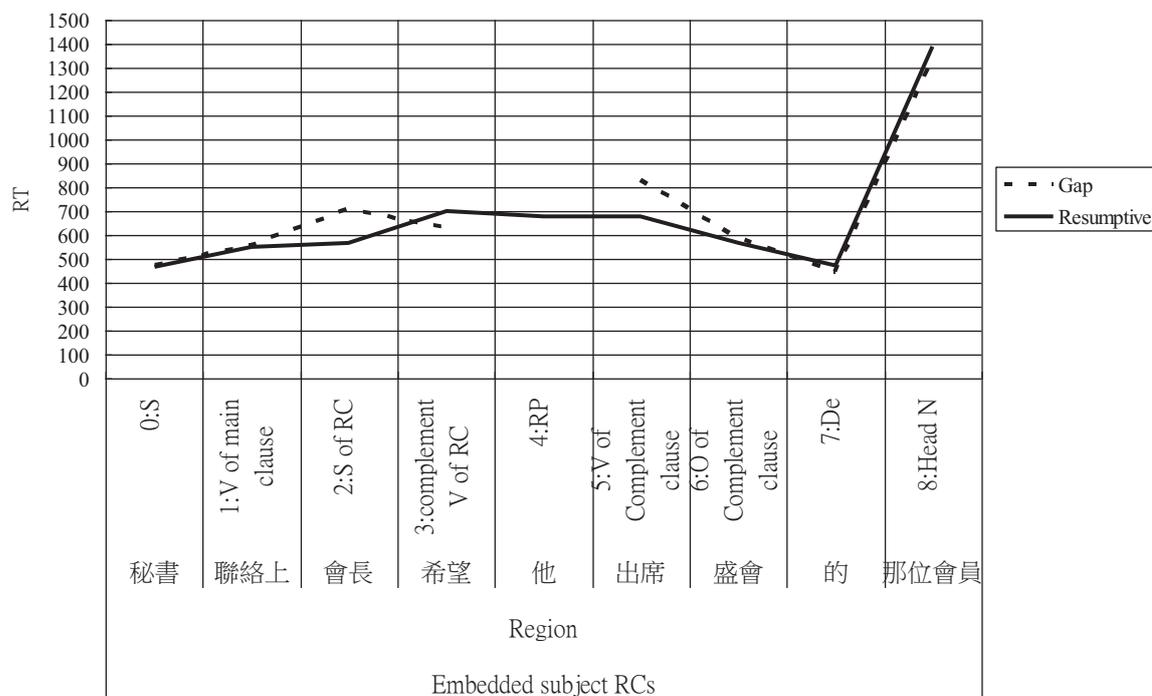


Figure 1. Participant mean reading times for regions in the embedded subject relative clauses

### 3.2.4 Object relative clauses with adverbials

In the object relative clauses with adverbials, significant difference was only found in the head noun positions both by participants and by items analyses (909 vs. 1207 ms;  $F_1(1, 15) = 5.892, p < .05$ ;  $F_2(1, 7) = 22.870, p < .01$ ). This effect was also presented in the object relative clauses in Experiment 1.

## 3.3 Discussion

As mentioned in the Experiment 1, both resumptives and gaps could suffer from the garden-path effect. While resumptives may trigger a main-clause reading initially, gaps could turn out to be difficult to process when the structural complexity interferes with the processing. The pattern of results from this experiment is remarkably similar to the pattern from Experiment 1. Results of the two experiments are presented in

Table 5.

Table 5. Summary of the predictions and results of gap/resumptive occurrences in Experiment 1 and 2

RC Types/ Strategy		Grammaticality	Processability	Predictions	Judgment results	Reading time results
		Grammatical: + Ungrammatical: -	Processable: + Garden-pathed: -			
SRC	Gap	+	+	Preferred	Better* (6.34)	quicker* (Head:692)
	RP	+	-	Dispreferred	Worse (4.3)	Slower (Head:910)
Long- distance SRC	Gap	+	+	Preferred	Better* (5.68)	quicker* (Head:674)
	RP	+	-	Dispreferred	Worse (3.52)	Slower (Head:813)
Embedded SRC	Gap	+	-	No preference	No difference (4.06)	Slow (Head:1331)
	RP	+	-	Dispreferred	No difference (3.76)	Slow (Head:1064)
ORC	Gap	+	+	Preferred	Better* (6.1)	quicker* (Head:741)
	RP	+	-	Dispreferred	Worse (4.34)	Slower (Head:1021)
ORC with adverbials	Gap	+	+	Preferred	Better* (4.70)	quicker* (Head:909)
	RP	+	-	Dispreferred	Worse (3.91)	Slower (Head:1207)
IORC of the 'Give' verbs	Gap	+	-	No preference	No difference (4.00)	Slow (Head:1031)
	RP	+	-	Dispreferred	No difference (3.94)	Slower (Head:1012)
IORC of the 'Take' verbs	Gap	+	-	Dispreferred	Worse (3.56)	slow in Head:1234; slower in V: 836
	RP	+	+	Preferred	Better* (3.93)	quicker in V:644*
Genitive RC	Gap	+	-	No preference	No difference (4.32)	Slow (Head:900)
	RP	+	-	Dispreferred	No difference (4.08)	Slow (Head:867)

*Note.* The judgment results are adopted from the experiments conducted in Ning, Her, & Lin (2008). Shaded tables refer to the conditions in Experiment 2. A single asterisk (\*) denotes that the effect reaches significance. Means are presented in the parentheses.

In the 'Give' verb conditions, there was a small garden-path effect in the resumptive relative clauses. More importantly, the reading times of the gaps in the 'Give' verbs also increased, compared to the gaps in the subject or the object relative clauses. This longer reading time suggests that the indirect object gaps of the 'Give' verbs became less processable, which was consistent to the predictions and the results of the judgments. The structural complexity of the indirect object relative clauses made the reconstruction comparatively complicated. It became relatively hard to quickly identify a position for the head noun to fill in, though this reconstruction process could be done finally. Therefore, the preference for gaps was eliminated in the grammaticality judgments of the indirect object relative clauses of the 'Give' verbs because the gaps were less processable, to be specific, were garden-pathed with the intricate reconstruction. This kind of effect, structural complexity, is also revealed in the genitive gap relative clauses in Experiment 1.

As can be seen from the reading times, the resumptives in the indirect object relative clauses of the ‘Take’ verbs were easier to process than the gaps. This advantage was found in the grammaticality judgments as well (Ning, Her, & Lin 2008). As is mentioned above (see (14) repeated from (12)), it is claimed that the basic argument structure of the ‘Take’ verbs involves <Agent, Affectee>, which is quite distinct from that of the ‘Give’ verbs, <Agent, Experiencer, Theme>.

- (14) a. Base argument structure of the ‘Give’ verbs: <x, y, z>, where x is an Agent, y is an Experiencer, and z is a Theme. Derived forms can be <x, z, y>, <x, y> or <x, z>.  
 b. Base argument structure of the ‘Take’ verbs: <x, z>, where x is an Agent and z is a Theme. Derived forms can be <x, y, z> or <x, y>, where y is an Affectee.

Therefore, one plausible account for the preference for the resumptives would be that the indirect object gaps (i.e. Affectee—y) of the ‘Take’ verbs were processed without ease when they are relativized since the parser had a difficulty in creating a position for the Affectee (difficult reconstruction) within the <x,z> sequence (see (15)). The <x,z> sequence prior to the relativizer *de* would be masked as an argument-complete clause. Hence, the reconstruction of the head noun y would become difficult.

- (15) Relativization of the indirect objects (y) of the ‘Take’ verbs  
 $x\ y\ z \rightarrow x\ z\ DE\ y$

As for the embedded subject relative clauses, the gaps had long reading times as the resumptives since the parser was garden-pathed in both conditions. In the gap relative clauses, the traces in the embedded subjects violated the parser’s expectation for CP argument structure. In the resumptive relative clauses, again, the main-clause illusion misled the parser. Due to these processing difficulties, there was no preference in the strategy, as is shown in the results of the grammaticality judgments. In the object relative clauses with adverbials, the resumptives had the garden-path effect of the main-clause illusion so that the gaps which were more processable were preferred.

#### 4. Conclusion

Overall, it could be concluded with some confidence that although the grammar provides two options to form a relative clause (Ning, Her, & Lin 2008), the garden-path effect plays an important role in determining which strategy will be chosen in the end. In addition to the obligatory resumptives in the oblique object resumptives and the control object relative clauses constrained by Chinese grammar, optional gaps and resumptives concern about three kinds of results with regard to the garden path—gaps preferred, resumptives preferred, and no preference. It is the processability as well as the grammaticality that dominates the productivity of the resumptives. They appear obligatorily only when the gap sentences are ungrammatical. Otherwise, they are optional in the construction of the relative clauses. Resumptives are optional or not so common due to the fact that they suffer from the garden-path effect. However, optional resumptives could demonstrate a processing advantage over gaps when the gaps suffer from the difficulty of reconstruction in

processing.

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## Appendix

### A. Experimental items and comprehension questions in Experiment 1

Conditions	No	Items	Yes-no questions
Subject RC	1a	參訪醫院的那位官員 感受到 健保的重要。	官員認為健保不重要。 N
	1b	他 參訪醫院的 那位官員 感受到 健保的重要。	
	2a	成立協會的那位女士 很關懷 弱勢族群。	關懷弱勢族群的人是協會創始人。 Y
	2b	她 成立協會的 那位女士 很關懷 弱勢族群。	
	3a	蒐集語料的那位學者 發表過 幾篇文章。	學者有蒐集語料。 Y
	3b	他 蒐集語料的 那位學者 發表過 幾篇文章。	
	4a	研究經濟的那位院士 提出了 改革宣言。	院士認為經濟不需要改革。 N
	4b	她 研究經濟的 那位院士 提出了 改革宣言。	
	5a	尋求幫忙的那位母親 收到了 一筆善款。	母親沒有拿到善

	5b	她尋求幫忙的那位母親收到了 一筆善款。	款。 N
	6a	調查真相的那位警探找到了蛛絲馬跡。	警探找到了有關真相的線索。 Y
	6b	他調查真相的那位警探找到了蛛絲馬跡。	
	7a	榮獲大獎的那位經理分享了成功的秘訣。	經理有獲得大獎。 Y
	7b	他榮獲大獎的那位經理分享了成功的秘訣。	
	8a	堅持理想的那位考生得到了家人的肯定。	考生得不到肯定。 N
	8b	他堅持理想的那位考生得到了家人的肯定。	
Long-distance subject RC	1a	辛苦地在研究室鑽研疾病問題的那位醫生沈醉在研究樂趣中。	醫生常因為不能休息而感到痛苦。 N
	1b	他辛苦地在研究室鑽研疾病問題的那位醫生沈醉在研究樂趣中。	
	2a	不停地 在各鄉鎮 推展 資源回收 的那位婦女 參與了 環保的 宣導。	婦女在推廣資源回收。 Y
	2b	她不停地 在各鄉鎮 推展 資源回收 的那位婦女 參與了 環保的 宣導。	
	3a	大聲地在會議上 追問 經費流向 的那位監委 表達了 強烈的 不滿。	監委不滿經費的使用。 Y
	3b	她大聲地在會議上 追問 經費流向 的那位監委 表達了 強烈的 不滿。	
	4a	特意地在選舉間 推動 反貪污案 的那位部長 卻傳出 受賄的 醜聞。	部長沒有收受賄賂。 N
	4b	他特意地在選舉間 推動 反貪污案 的那位部長 卻傳出 受賄的 醜聞。	
	5a	近日來 在台各地 拜會 地方首長 的那位立委 想角逐 主席的 寶座。	立委拜會了主席。 N
	5b	他近日來 在台各地 拜會 地方首長 的那位立委 想角逐 主席的 寶座。	
	6a	默默地 在屋簷下 承受 異樣眼光 的那位傭人 意識到 自己的 權利。	傭人受到異樣的眼光。 Y
	6b	她默默地 在屋簷下 承受 異樣眼光 的那位傭人 意識到 自己的 權利。	
	7a	偷偷地 在校園裡 販賣 走私毒品 的那位學長 坦承了 自己的 錯誤。	學長坦承自己販賣毒品。 Y
	7b	他偷偷地 在校園裡 販賣 走私毒品 的那位學長 坦承了 自己的 錯誤。	
	8a	近年來 在街頭旁 仰賴 社會救助 的那位老翁 習慣了 落魄的 生活。	老翁自己賺錢過活。 N
	8b	他近年來 在街頭旁 仰賴 社會救助 的那位老翁 習慣了 落魄的 生活。	
Object RC	1a	學校邀請的那位作家曾獲得藝文大獎。	學校榮獲大獎。 N
	1b	學校邀請他的那位作家曾獲得藝文大獎。	
	2a	公司續聘的那位廠長將拓展貿易版圖。	廠長打算拓展版圖。 Y
	2b	公司續聘他的那位廠長決定拓展貿易版圖。	
	3a	菲傭照顧的那位畫家進行過多次化療。	畫家已經接受過好幾次的治療。 Y
	3b	菲傭照顧他的那位畫家進行過多次化療。	
	4a	秘書聯絡的那位新人正進行密集的訓練。	秘書正接受密集的訓練。 N
	4b	秘書聯絡他的那位新人正進行密集的訓練。	
	5a	歹徒恐嚇的那位藝人雇用了強悍的保鏢。	歹徒雇用了保鏢。 N
	5b	歹徒恐嚇他的那位藝人雇用了強悍的保鏢。	
	6a	流氓毆打的那位男子正接受警方的偵訊。	接受偵訊的是中年男子。 Y
	6b	流氓毆打他的那位男子正接受警方的偵訊。	
	7a	會長稱讚的那位學生得到了比賽冠軍。	會長稱讚了學生。 Y
	7b	會長稱讚他的那位學生得到了比賽冠軍。	
	8a	神父告發的那位歹徒遭到了法院的起訴。	神父遭到了起訴。 N
	8b	神父告發他的那位歹徒遭到了法院的起訴。	
Genitive RC	1a	女兒發表新書的那位父親早成為忠實的讀者。	父親發表了新書。 N
	1b	他女兒發表新書的那位父親早成為忠實的讀者。	
	2a	兒子偷藏刀槍的那位母親不瞭解孩子的情況。	那位母親的兒子偷藏刀槍。 Y
	2b	她兒子偷藏刀槍的那位母親不瞭解孩子的情況。	
	3a	外甥盜用公款的那位董事將辭去管理職位。	董事的外甥盜用公款。 Y
	3b	他外甥盜用公款的那位董事將辭去管理職位。	
	4a	妻子喜歡美食的那位律師常光顧新的餐廳。	律師常常到一樣的地方用餐。 N
	4b	他妻子喜歡美食的那位律師常光顧新的餐廳。	
	5a	弟弟洩漏秘密的那位學生否認了翹課的行為。	學生洩漏了秘密。 N
	5b	他弟弟洩漏秘密的那位學生否認了翹課的行為。	
	6a	孩子受到表揚的那位家長流下了歡喜的淚水。	那位家長的孩子受到了表揚。 Y
	6b	她孩子受到表揚的那位家長流下了歡喜的淚水。	
	7a	孫女就讀小學的那位奶奶準備了豐盛的早餐。	奶奶為她的孫女準備早餐。 Y
	7b	她孫女就讀小學的那位奶奶準備了豐盛的早餐。	
	8a	婆婆罹患癌症的那位婦人辭掉了工廠的工作。	婦人罹患了癌症。 N
	8b	她婆婆罹患癌症的那位婦人辭掉了工廠的工作。	

## B. Experimental items and comprehension questions in Experiment 2

Conditions	No	Items	Yes-no questions
Indirect object relative clauses of the 'Give' verbs	1a	男友送了生日禮物的那位女孩露出了喜悅的笑容。	男友露出了笑容。 N
	1b	男友送了她生日禮物的那位女孩露出了喜悅的笑容。	
	2a	市長賞了一塊匾額的那位局長炫耀著自己的功勞。	局長炫耀自己的功勞。 Y
	2b	市長賞了他一塊匾額的那位局長炫耀著自己的功勞。	
	3a	師傅教了一個秘訣的那位學徒做出了法式蛋糕。	

	3b	師傅教了他一個秘訣的 那位學徒 做出了 法式蛋糕。	
	4a	廠長 加了 一成紅利的 那位技師 正計畫 出國的行程。	廠長計畫出國。 N
	4b	廠長 加了 他 一成紅利的 那位技師 正計畫 出國的行程。	
	5a	對方 輸了 三十幾分的 那位隊長 心想著 穩定勝出。	贏了三十幾分的那位隊長覺得自己得到了勝利。 Y
	5b	對方 輸了 他 三十幾分的 那位隊長 心想著 穩定勝出。	
	6a	騎士 賠了 上千萬元的 那位老人 難平復 喪子之痛。	老人賠了上千萬。 N
	6b	騎士 賠了 他 上千萬元的 那位老人 難平復 喪子之痛。	
	7a	學校 付了 兩倍費用的 那位舞者 將會有 盛大的演出。	舞者拿到兩倍的演出費用。 Y
	7b	學校 付了 他 兩倍費用的 那位舞者 將會有 盛大的演出。	
	8a	鄰居 還了 國文課本的 那位同學 瞥見了 塗鴉的痕跡。	那位同學的課本被亂畫了。 Y
	8b	鄰居 還了 他 國文課本的 那位同學 瞥見了 塗鴉的痕跡。	
Indirect object relative clauses of the 'Take' verbs	1a	竊賊 偷了 一輛機車的 那位小姐 想請求 警察的協助。	小姐偷了機車。 N
	1b	竊賊 偷了 他 一輛機車的 那位小姐 想請求 警察的協助。	
	2a	男子 搶了 手提背包的 那位太太 發出了 求救的聲音。	男子搶了那位太太。 Y
	2b	男子 搶了 他 手提背包的 那位太太 發出了 求救的聲音。	
	3a	對手 贏了 將近十分的 那位選手 讚美著 對方的技巧。	對手贏了那位選手將近十分。 Y
	3b	對手 贏了 他 將近十分的 那位選手 讚美著 對方的技巧。	
	4a	朋友 騙了 一大筆錢的 那位女子 不接受 和解的訴求。	那位女子去騙錢。 N
	4b	朋友 騙了 她 一大筆錢的 那位女子 不接受 和解的訴求。	
	5a	老闆 欠了 多次薪水的 那位員工 放棄了 這項職務。	老闆離開了公司。 N
	5b	老闆 欠了 他 多次薪水的 那位員工 放棄了 這項職務。	
	6a	銀行 賺了 百萬利息的 那位卡奴 將號召 聲援的活動。	卡奴號召聲援活動。 Y
	6b	銀行 賺了 他 百萬利息的 那位卡奴 將號召 聲援的活動。	
	7a	顧客 吃了 一頓大餐的 那位台商 成交了 這筆生意。	台商請顧客吃飯。 Y
	7b	顧客 吃了 他 一頓大餐的 那位台商 成交了 這筆生意。	
8a	情人 花了 好幾百萬的 那位商人 隱瞞著 這件事情。	情人瞞著花大錢的事情。 N	
8b	情人 花了 他 好幾百萬的 那位商人 隱瞞著 這件事情。		
Embedded subject relative clauses	1a	里長 碰見了 大家 以為 遇到 山難的 那位耆老。	里長碰見了大家。 N
	1b	里長 碰見了 他 以為 他 遇到 山難的 那位耆老。	
	2a	秘書 聯絡上 會長 希望 出席 盛宴的 那位會員。	秘書聯絡上那位會員。 Y
	2b	秘書 聯絡上 他 希望 他 出席 盛宴的 那位會員。	
	3a	縣長 獎勵了 家屬 覺得 幫了 大忙的 那位隊員。	縣長獎勵了那位隊員。 Y
	3b	縣長 獎勵了 他 覺得 他 幫了 大忙的 那位隊員。	
	4a	讀者 很鄙棄 報社 懷疑 抄襲 文章的 那位作家。	讀者鄙棄報社。 N
	4b	讀者 很鄙棄 他 報社 懷疑 他 抄襲 文章的 那位作家。	
	5a	主播 正介紹 球迷 期待 現身 球場的 那位主將。	主播正在介紹現場的球迷。 N
	5b	主播 正介紹 他 期待 他 現身 球場的 那位主將。	
	6a	校長 鼓勵著 導師 擔心 放棄 升學的 那個孩子。	校長鼓勵那個孩子。 Y
	6b	校長 鼓勵著 他 導師 擔心 他 放棄 升學的 那個孩子。	
	7a	媒體 想採訪 檢方 認為 涉嫌 貪污的 那位總理。	媒體想採訪的是那位總理。 Y
	7b	媒體 想採訪 他 檢方 認為 他 涉嫌 貪污的 那位總理。	
8a	影迷 很看好 導演 期望 拿下 寶座的 那位主角。	影迷看好導演會得獎。 N	
8b	影迷 很看好 他 導演 期望 他 拿下 寶座的 那位主角。		
Object relative clauses with adverbials	1a	總統 接見 兩次 的 那位學者 將進行 一週的 訪察。	總統將進行訪察。 N
	1b	總統 接見 他 兩次 的 那位學者 將進行 一週的 訪察。	
	2a	專家 晤談 三次 的 那位家屬 放不下 心中的 陰霾。	專家跟家屬晤談了三次。 Y
	2b	專家 晤談 他 三次 的 那位家屬 放不下 心中的 陰霾。	
	3a	議員 質問 三遍 的 那位局長 作出了 敷衍的 回應。	局長隨便地回應問題。 Y
	3b	議員 質問 他 三遍 的 那位局長 作出了 敷衍的 回應。	
	4a	主任 痛罵 多次 的 那位員工 改不掉 遲到的 習慣。	主任改不掉遲到的習慣。 N
	4b	主任 痛罵 他 多次 的 那位員工 改不掉 遲到的 習慣。	
	5a	老師 教訓 一頓 的 那位學生 修改了 提交的 論文。	老師修改了提交的論文。 N
	5b	老師 教訓 他 一頓 的 那位學生 修改了 提交的 論文。	
	6a	警衛 痛打 一頓 的 那位囚犯 爬回去 自己的 房間。	警衛打到囚犯用爬的回去。 Y
	6b	警衛 痛打 他 一頓 的 那位囚犯 爬回去 自己的 房間。	
	7a	男孩 刺了 一下 的 那個嬰兒 沒發出 任何的 聲音。	嬰兒被刺了也沒哭。 Y
	7b	男孩 刺了 他 一下 的 那個嬰兒 沒發出 任何的 聲音。	
8a	老人 踩了 一下 的 那位少年 大罵了 好幾句 髒話。	罵髒話的是老人。 N	
8b	老人 踩了 他 一下 的 那位少年 大罵了 好幾句 髒話。		

# A Uniform Hypothesis of Count/Mass Expressions New Syntactic Evidence

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## Abstract

The grammar of Count/Mass nouns is reassessed as interface derivations of syntactic expressions. The analysis is in light of new typological evidence from languages, like Marsican, which do not exhibit complementarity (Chierchia 1998, Borer 2005). It is argued that a uniform syntactic DP(NP) hypothesis optimally meets interface conditions under a derivational mechanism operating on a Count/Non-Count category of grammar.

**Keywords:** Marsican, Determiner, count, mass, derivations, interface.

## 1. The Problem

The essential issue this paper addresses is the unacceptability of nominal expressions like (1b)ii) in the paradigm (1), where (1b)ii) is ungrammatical on two apparently separate accounts (2).

- (1) (a)(i) The latest poem was read by every poet
- (ii) The latest poetry was read by every poet
- (b)(i) The latest two poems were read by every poet
- (ii) The latest two \*poetry/( \*poetries) were read by every poet

- (2) (a) Mass expressions don't take quantifiers
- (b) Mass nouns don't take plural inflection

### 1.1 Previous Work

There are at least two conflicting semantic assessments in linguistics and philosophy of the extensional properties of mass nouns: (a) they denote singular terms (Quine 1960) vs. they denote pluralities (Chierchia 1996).

“Grammatically they [mass nouns] are like singular terms in resisting pluralization and articles. Semantically they are like singular terms in not dividing their reference.” Quine 1960:91

“...mass nouns come out of the lexicon with plurality already built in and that is the (only) way that they differ from count nouns. [The Inherent Plurality Hypothesis]”(Chierchia 1998:53) ...“The reason why mass nouns cannot take plural morphology is obvious: they are already plurals.” (Chierchia 1998:70)

“The fundamental assumption which standardly underlies the supposed dichotomy CN and MN is that there is a specific and more or less determinate category of concrete nouns which answers to the no-RD [reference division] criterion—the putative category of MNs, to be precise. The reality however is that insofar as the use of ‘MN’ rests on this criterion, no such category exists”. (Laycock 2004:4)

Other recent proposals doubt the necessity of the mass/count lexical distinction all together on cross-linguistic considerations.

“...nouns are not classified into rigid categories, but rather that they be allowed to appear as either mass or count, depending on the syntactic structure that accompanies them.” (Castillo 2001: 102)

“Not only is the case that classifier languages do not (appear to) have plural inflection, but languages which mark plural do not appear to have classifier inflection. In other words it would appear that classifier inflection and plural inflection are in complementary distribution, as already observed by T’sou [(1976)].” (Borer 2005: 92)...”all nouns in all languages are mass and are in need of being portioned out...in Chinese-like languages through the projection of classifiers...in languages like English by the plural inflection. (Borer 2005: 93)

*Outline of the paper:*

- 1.2 Claims and Proposal
2. The Marsican Data: Beyond Classifiers and Plurals
3. The Syntactic Account
- 3.1 Hypothesis and Derivations
4. Implications beyond Marsican: Extended Typology
5. Conclusions: Count or Mass?

*1.2 Claims and Proposal*

It’s my assessment from the debate (1.1) that the opposition Count/Non-Count is a more precise category regarding the grammar of (1) at the lexical-conceptual interface. Accordingly it’s proposed that Count expression are Determiner Phrases (DP) and Non-Count (including Mass) are Nominal Phrases (NP).

- (3) (a) Count expressions are syntactic DPs,
- (b) Non-Count (née Mass) expressions are syntactic NPs.

## 2. The Marsican Data

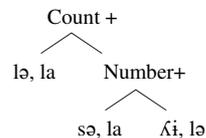
Comparative data was elicited in 30 Marsican communities (Cianciusi, 1998). The examples I will be discussing are strictly from the vernacular of Pescasseroli (L'Aquila, Abruzzo), an endangered Italo-Romance language.

### 2.1 The Determiner system

(4) DETERMINER (DEF.)	Singular	Plural
a. Masculine (i) Count	[sə]/[a]*	[ʎi]
(ii) nonC	[lə]	-----
b. Feminine (i) Count	[la]	[lə]
(ii) nonC	[la]	-----

- (4) (a)(i) [sə-<sup>1</sup>kanə]/ [ʎi-<sup>1</sup>kanə] 'the dog/dogs'  
theM-dog theMPl dog  
(ii) [lə-<sup>1</sup>vinə]/ \*Plur. 'wine/\*plur.'  
theM-wine  
(b)(i) [la-<sup>1</sup>kasa]/ [lə-<sup>1</sup>kasə] 'the house/houses'  
theF-houseF/theFPl-house  
(ii) [la<sup>1</sup>ssɔŋa]/ \*Plur. 'pork fat/\*plur.'  
theF-fatF

(4') Count < Number



Marsican languages distinguish Count/Non-Count Nouns (N) by selecting etymologically distinct forms of the Determiner (D): (4ai/ii).

The distribution of the D (4) is exhaustively described in (4'). Number (Sing and Plur) implies Count+ (A coerced reading is possible). Non-Count Nouns are inert as to Number (Laycock 2004). From the implicational hierarchy Count<Number (4'), the property (2b) follows descriptively. (See 3. for its derivational consequences). It is important to observe that unlike English, Marsican does not allow bare nouns as arguments. Moreover, unlike Italian and English, a generic reading is not available for singular expression (4ai) [sə<sup>1</sup>kanə]. All other forms allow both generic and existential readings. (Note, incidentally, that women/men select distinct morphs [sə] / [a] for D.)

### 2.2 Demonstratives (Dem) and (deictic) question words: Proximate (Prox), Distal (Dist), Remote (Rem)

The D-driven system (4) is robustly confirmed with Demonstratives with both Count (5ai) and Non-Count Nouns (5aii), as well as with Question words (5b).

(5)(a)(i) Demonstrative+Count noun :

*Qui-ste cane ecche* "this dog here"

Dem-Prox dog hereProx

[<sup>1</sup>kwistə]

*Qui-sse cane esse* "that dog there"

Dem-Dist dog thereDist

[<sup>1</sup>kwissə]

*Qui-se/a cane loche* "that dog over there"

Dem-Det dog thereRem

[<sup>1</sup>kwɪsə/<sup>1</sup>kwɪa]

(ii) Demonstrative+ non-Count noun: *que*-Deictic

*Que-ste pane ecche* "this bread here (near me)"

Dem-Prox bread here-Prox

[<sup>1</sup>kwestə]

*Que-sse pane esse* "that bread there (near you)"

Dem-Dist bread there-Dist

[<sup>1</sup>kwessə]

*Que-le pane loche* "that bread over there"

Dem-Det(-C) bread there-Rem

[<sup>1</sup>kwelə]

(5)(b) Question-(deictic) word + Count/non-Count noun: *qua*-Det

Q: *qua-se cane?* "which dog?"

wh-Det(+C) dog

*qua-le pane?* "which bread?"

wh-Det(-C) bread

A: *qui-se!* "that one!"

Dem-Det(+C)

*que-le!* "that one!"

Dem-Det(-C)

Demonstratives (Dem) morphologically incorporate the D in its contrastive Count/Non-Count forms. Semantically, Demonstratives override the functional property of the D: [<sub>Dem</sub> Dem<D...]. Hence, Demonstrative expressions do not admit generic readings. Observe the extension to question words (5b).

### 2.3 Presentational deixis *ecche* 'here', *esse* 'there', *elle* 'yonder'

Marsican uses the same form for Determiners and unstressed pro/en-clitic pronouns.

(5)(c)(i) Pronominal presentatives with Count nouns (ex. 'dog')

(The same form is used for Determiners and unstressed Pronouns)

*ecche-se/ecchi-a vi* "here-it (is), see" *se* = Count

hereProx-Pro(+C)  
 ['ɛkkəsə/'ɛkkia]  
*esse-se/essi-a vi* “there (it is), see”  
 thereDist-Pro(+C)  
 ['ɛssəsə/'ɛssia]  
*elle-se/elli-a vi* “over there (it is), see”  
 thereRem-Pro(+C)  
 ['ɛlləsə/'ɛllia]

- (ii) Pronominal presentatives with non-Count nouns (ex. ‘bread’)  
*ecche-le vi* “same English glosses as above (i)” *le* = Non-Count  
 thereProx-Pro(-C)  
 ['ɛkkələ]  
*esse-le vi*  
 thereDist-Pro(-C)  
 ['ɛssələ]  
 ?*elle-le vi*  
 thereRem-Pro(-C)  
 ['ɛllələ]

Presentatives are like Demonstratives in their deictic specification. Presentatives clitically annex the same Count morphs: [sə]/[a], [lə]. In presentative expressions Count morphs are referential and case marked object pronominals. Hence, presentative expressions do not admit generic interpretation.

#### 2.4. Unstressed object pronouns and the definite article

Recall that D is realized with the same morph as Pronouns in Marsican.

- (6)(a)(i) hai visto **il** fratello di Francesco (It.) ‘Did you see Francesco’s brother?’  
 Have2ps seen **theMs(+C)** brother of ...  
 (i') *si viste se frate Frangisc* (Mars.) (*se* with +C nouns in Pescasseroli)  
 Be2ps seen **theMs(+C)** brother of ...  
 [si 'vvistə sə 'fratə fran'gisk]
- (ii) *sì, l'ho visto* (It.) “Yes, I saw him”  
 Yes, **him**-have1ps seen-Ms
- (ii') *scine, se so viste* (Mars.) (*se* as pro- and –enclitic)  
 Yes, **him(+C)** Be1ps seen  
 [ 'ʃinə sə sso 'vvistə ]
- (iii) ora che l'-hai visto, chiama-**lo!** (It.) “Now that you saw him call him!”  
 now that **him(+C)**-Have2ps, call-**him(+C)**
- (iii') *mo che se si viste, chiama-se!* (Mars.)  
 now that **him(+C)** Be2ps,call-**him(+C)**

[mo kkə ssə si 'vvistə 'kjaməsə]

- (b)(i) hai visto **il** pane di Francesco? (It.) “Did you see Francesco’s bread?”  
 Have-2ps seen **the(-C)** bread of Frank
- (i') *si viste **le** pane de Frangisc* (Mars.) (*le* with mass nouns)  
 Be2ps seen **the(-C)** bread of F.  
 [si 'vvistə lə 'panə fran'gisk]
- (ii) *sì l'ho visto* (It.) ‘Yes, I saw it’  
 yes, **it(-C)**-have1ps seenMs
- (ii') *scine, **le** so viste* (Mars.)  
 yes, **it(-C)**-Be1ps seen  
 [ʃinə lə so 'vvistə ]
- (iii) ora che l'hai visto, prepara-**lo** (It.) “Now that you saw it, prepare it”  
 now that **it(-C)**-Have2ps seen, fix-**it(-C)**
- (iii') *mo che **le** si viste, accongiale* (Mars.) (*le* with pro- and -enclitics)  
 now that **it(-C)** Be2ps seen, fix-**it(-C)**  
 [mo klə llə si 'vvistə ak'k:ondzələ]

We have observed that the Count contrast is morphologically encoded via the same morphs ([sə]/[lə]) across the categories of Determiners (articles) in (4), Demonstratives (5a), Question words (5b), Presentatives (5c) and now the object clitic system (6).

Moreover, the cross-category encoding of the morphemic system presented in (4) reclaims the functional prominence of the category Count and its derivational mapping across the morphological, syntactic and semantic interface in the grammar of this language type. Incidentally, the cross-category realization of Count/Non-Count may also suggest transparent learnability implications.

Finally, the descriptive statement (4) also invites the question as to the role of the lexicon and the derivational architecture of the syntax.

## 2.5 De-adjectival (headless) nominals: determiner+ adjective

### *The semantic role of the D morpheme*

Like Italian (but unlike English), Marsican allows headless adjectival phrases with referential readings (7a). Unlike Italian, however, the singular reading is unambiguously Count or non-Count depending on the choice of Determiners. This description of Marsican suggests that the Count/non-Count semantic reading is morphologically derived, since there is no obvious lexical source.

- (7)(a) [ DP se [D' e [ NP [ N' e [ AP nire ] ] ] ] ]  
 (a') *se nire* ‘the black (one (suit, car, etc.))’  
**theMs(+C)** black  
 [sə 'nɪrə]
- (b) [ NP le [ N' e [ AP ] ] ]  
 (b') *le nire* ‘the black (one: color)’

**theMs(-C) black**

[lə 'nɪrə]

- (c)(i) *sse presutte m'è custate care* “that(Dist) ham cost me dearly”  
**thatMsDist(+C)** ham meBe3ps cost dear  
[<sub>DP</sub> sse [<sub>D'</sub> presutte [<sub>NP</sub> [<sub>N'</sub> presutte ]]]] ....
- (ii) *le presutte nen ge piace* “s/he doesn't like ham”  
**theMs(-C)** ham ...  
[<sub>NP</sub> le [<sub>N</sub> presutte ]] ...

Crucially, the semantic reading alternation of Count/non-Count expressions in (7c) needs not be lexically defined, since it is in strict correlation with the contrastive and obligatory determiner system.

Provisionally, the data suggests that Marsican instantiates a language type where the Count value of the semantic reading is morphologically encoded through a D morpheme opposition.

## 2.6 De-verbal (headless) nominalization: determiner+infinitive = non-count

With de-verbal expressions (8) only the non-Count realization (*le*) of the D is found, as expected.

- (8)(a) (\*il) mangiare troppo tardi fa male (It) “eating too late is bad for you”  
the eatINF ...
- (b) \*(il) mangiare non è buono qui (It.) “food in not good here”  
the eatINF
- (c) *le/\*se magnà n'è bune ecche* (Mars.) (generic reading only)  
**theMs(-C)** eatINF  
[lə ma'ɲɲa nɛ 'bbunə 'ɛkkə]
- (c') [<sub>NP</sub> [<sub>N'</sub> e [<sub>VP</sub> *magnà* ]]] ...

As in the case of de-adjectival headless nominals (7), de-verbal NPs project a phonetically empty head, with the exception that an existential reading of the expression seems is precluded. It seem reasonable to assume, along with de-adjectivals, that the unrealized head of de-verbal nominal is also a variable, akin to arbitrary PRO. It's suspected that the restriction to non-count morphology and parallel interpretation may be attributed to the non-argument status of the VP.

## 3. The Syntactic Analysis

The typologically new evidence from Marsican reclaims the following syntactic hypothesis (9a-c) as a uniform characterization of Count/Non-Count expressions.

### 3.1 Hypothesis

- (9) (a) DP (count), NP  
 (b) D(count) selects NP: if D(count), then DP(NP)  
 (c) Number selects DP: if Num, then NumP (DP(NP)).

As assumed in 1.2, the hypothesis (9a) rests on a Count/(non-Count) reassessment of the Count/Mass category (Laycock 2004). Accordingly, (9b,c) syntactically articulate the descriptive hierarchy (4'): Count<Number.

### 3.2 Derivations

The derivational syntax of the grammar (9) is illustrated in (10)

- (10) Derivations:  
 i. [<sub>NumP</sub>  $\lambda$ i [<sub>Num</sub> kanə [<sub>DP</sub> [<sub>D</sub> ~~kanə~~ [<sub>NP</sub> [<sub>N</sub> ~~kanə~~]]]]]]] *gli cane* 'the dogs' Count,Pl  
 ii. [<sub>DP</sub> sə [<sub>D</sub> kanə [<sub>NP</sub> [<sub>N</sub> ~~kanə~~]]]]] *se cane* 'the dog' Count, Sg  
 iii. [<sub>NP</sub> lə] [<sub>N'</sub> panə]]] *le pane* 'bread' Non-C,Sg  
 (iv. -----\*Non-Count(Mass)Pl

In (10ii), in accordance with (9b) D (the count [sə] morpheme) is functional (a probe) selecting NP. Computationally N (the goal) merges in D, the expression derived as DP with appropriate denotation. Num selects DP (9c) deriving (10i) a NumP expression, with appropriate interface denotation. In (10iii) D (non-count [lə]) is functionally inert, hence, as a goal it merges in N the expression derived as NP, as Non-Count. Note that (10iv) is un-derived by the grammar (9), hence accounting for the paradigmatic ungrammaticality of (10ii) and the observation (2b)

## 4. Beyond the Marsican Determiner

Rohlf's (1968:108) reports the use of the dual determiner system north of La Marsica to areas of Umbria and Le Marche, west to Lazio and south to Campania, Lucania and Apulia. A remarkable variant encodes the contrast in the duality of the Determiner prosodically (11).

- (11)(i) o kafè 'coffee ground' (non-count)  
 Det(-C) coffee  
 [o.kə.'fe]  
 (ii) o kafè '(a cup of) coffee' (count)  
 Det(+C) coffee  
 [ok.kə.'fe] (prosodic contrast)

### 4.1 Asturian: Phonemic contrast (F1) in the inflectional affix

- |          |   |  |
|----------|---|--|
| (12)     | Ye fierr-o machaca-o<br>is iron-m.s. hammered-m.s.<br>“It’s hammered iron”                          | iron (metal)   |
| (13)     | Isti fierr-u ta machaca-u<br>This iron is hammared<br>“This (piece of) iron is hammered”            | a piece (of iron)<br><br>(Castillo 2001:82; Neira 1978:262)      |
| (14) (a) | el camín ta enllenu fueya seco<br>the road is full leaf-f dry-*f<br>“the road is full of dry leaf “ | ‘leaf’ (mass)<br>‘dry’ does not agree in gender                  |
| (b)      | cuelle una fueya seca<br>picks up a dry-f leaf-f<br>“she picks up a dry leaf”                       | ‘leaf’ (count)<br>‘dry’ agrees in gender<br>(Cano González 1992) |

The Count value of the category opposition has been described as metaphony of the citation form, namely the phonetic raising of the inflectional vowel [o] to [u]. Note, moreover, that an effect the effect gender agreement is suspended (14a).

#### 4.3 Typology of count realization (so far)

- (16)(a)(i) Determiner: Morpheme *se/le* contrast: Marsican-like languages
- (ii) Determiner: Morpheme *the/0* (bare N) contrast: English-like languages
- (iii) Determiner: prosodic duration *o#C/o#CC* contrast: Neapolitan-like languages
- (b) Inflection: -affix phonological (F1) contrast: Asturian-like languages
- (c) Classifiers: Classifier contrast: Chinese-like languages

### 5. Summary and Conclusions

The Count/Mass dichotomy reassessment as Count/Non-Count (Laycock 2004) is supported as a satisfactory account for the grammatical issue raised in the paradigm (1). The analysis of the Marsican D-driven system (4) is uniformly described by the Count<Number hierarchy (4’). Accordingly the hypothesis is proposed that DP denotes Count, NP Non-count (9a). In formalizing the descriptive hierarchy (4’), the syntax (9b,c) derives DPs (10ii) and NPs (10iii).

In general the analysis offers a principled reason for the incompatibility of (1bii) and the related statement (2b). Typologically, the analysis of Marsican (9), instantiates a additional system in the realization of the category Count/Non-Count (née Mass) based on the contrastive morphological determiner system (4’). The results, if substantiated, invite a reconsideration of the Inherent Plurality Hypothesis (IPH) (pace Chierchia 1998) as well as a re-elaboration of the complementary hypothesis limited to Classifiers and Inflection (Borer 2005).

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# **Clause patterns and the semantics-syntax interface.**

## **Towards a sender's grammar of Estonian**

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### **Abstract**

This paper discusses some crucial issues of a communicative grammar of Estonian. The approach is based on the conviction that a human language should be considered both as a process and as a system, where different layers and levels are partly conflated. The rich morphology of Estonian as a Finnic language makes the semantics-syntax interface even more multidimensional compared with Indo-European ones. The paper presents some examples of how sender's grammar processes the perceived situations into Estonian clauses through the different levels of semantic, syntactic and morphological layers. The most active actant (participant) of the situation, e.g. AGENT etc., is not always marked as a subject of the clause, but may become an indirect subject – like a targetted actant of the situation, e.g. EXPERIENCER, may be formed as an indirect object. The sender's grammar, some fragments of which are discussed here, aims to describe the functioning of the Estonian language system as it is used for communication from the sender's viewpoint.

**Keywords:** semantics-syntax interface, morphosyntax, Estonian clause patterns, phrase order

## **1. Introduction**

The structure of the language system contains three layers: semantic, syntactic and morphological. Within every layer, different levels can be distinguished. In the semantic layer, lexeme, notional and situational levels can be distinguished; the syntactic layer comprises word level, phrase level, clause/sentence level and text level; the morphological layer covers morpheme level and word form level, partly also phoneme level. All these different layers and levels of the system are partly conflated and simultaneous

y processed by the sender in order to communicate the message.

The communicative functions of language are essential to the analysis of its structure (cf. Van Valin & Lapolla 1997). As communication is bidirectional, the system of a language seems to some extent different when seen through the eyes of the sender or the receiver. Both of them have the pragmatic knowledge and cognition as a support and underlying setting (cf. Larjavaara 2007). When describing the structure of the language, it is possible to choose between a semantic-centred (the sender's) or a (morpho)syntactic-centred (the receiver's) point of view. Here the first-mentioned is chosen. The sender of the message (the speaker) departs from the extralinguistic situation (often termed *state of affairs*) he is about to describe with a sentence, i.e. moves in language processing from the semantic layer to the syntactic layer. The interplay of the layers and levels in the structure of Estonian has been described in Nemvalts 2005. I do share many convictions of functional grammar:

Dik concentrates on speakers' competence, seeing his grammar as (1980, p. 47) 'a theory of the grammatical component of communicative competence'. The notion of communicative competence derives from Hymes (1971a). It consists of grammatical competence, the speaker's ability to form and interpret sentences, and pragmatic competence, the ability to use expressions to achieve a desired communicative effect. Dik shares, in some measure, Chomsky's view of grammar as a part of cognitive psychology. Halliday makes no separation of grammatical and pragmatic competence; he sees grammar as a meaning potential shared by a language and its speakers. (Malmkjær 1996: 142)

## **2. The main pragmasemantic types of situations and clause patterns**

One and the same message can be conveyed in many ways, with the help of diverse types of sentences /clauses (and other syntactic constructions). The interaction of semantics and syntax takes various shapes, and can result in a number of morphological forms in sentence processing. One of the central questions has been, how many and what kind of sentence types and/or clause patterns there are in a particular language. Or, to p

ut it more specifically: what kind of clauses/sentences should be distinguished in a communicative sender's grammar?

Erelt (2003: 93) argues for the “two basic syntactic patterns of clauses in Estonian: normal (or non-inverted) and inverted types of clauses”. The “normal sentences” are subdivided into 4 sub-patterns of intransitive clauses and 4 sub-patterns of transitive clauses, while the “inverted clauses” are subdivided into 6 sub-patterns. Morphosyntactically, and considering some semantic information, Rätsep (1978) has accounted for 380 elementary sentences (clause/sentence patterns) in Estonian. So, are there 2, 14 or 380 clause patterns? How basic or elementary are these?

As I have shown earlier (Nemvalts 2001), three general types of clauses/sentences can be postulated, according to the main pragmasemantic types of situations. In the sender's grammar, the clause is defined as a linguistic sign for a situation, used for conveying information in the communication process. These situations are determined by the ontology of situation nuclei. The most essential kinds of situation nuclei can be distinguished at the notional level with the help of two main semantic features: dynamic vs. static and agentive vs. non-agentive. (Nemvalts 2001, 2005: 251-254)

Primarily, a situation with dynamic nucleus will be denoted by an operative clause which has the underlying structure [ACT] + [OP] (+ [ACT2]), like in (1)-(3).

If the nucleus has semantic features [+dynamic, +agentive], it is notionally *an action*. Which sort of action it is, will be determined by the situation as perceived by the sender, but primarily it results in an operative clause with minimum one actant [ACT] (also termed *participant*) denoted by NP (SbP). If there are two actants, it may be a transitive situation like in (2). Observe that transitivity is primarily, from the sender's viewpoint, a feature of just situation, not of verb (cf. Nemvalts 1996). Verb can be understood as a transitive one only from the viewpoint of receiver.

If the nucleus has semantic features [+dynamic, -agentive], it is notionally *a process*, yielding mostly to another kind of operative situation, as in (3).

- (1) *Poiss mängib*  
boy[NOM.SG] play:PRS.3SG  
[ACT] [OP]  
“The boy plays ~ is playing”

- (2) *Poiss mängib korvpalli*  
 boy[NOM.SG] play:PRS.3SG basketball[PART.SG]  
 [ACT] [OP] [ACT2]  
 “The boy plays ~ is playing basketball”

- (3) *Pall veereb*  
 ball[NOM.SG] roll:PRS.3SG  
 [ACT] [OP]  
 “The ball rolls ~ is rolling”

If the nucleus has semantic features [-dynamic, -agentive], it is notionally *a state* and the situation may be described by the sender with a stative clause which has the underlying structure [ACT] + [ST], like (4). Syntactically, the [ST] nucleus is often marked with a predicative VP, which includes a copula plus an adjective or an “adverb of state”.

A situation with semantically [-dynamic, -agentive] nucleus can be perceived pragmatically as existential, with the underlying structure ([CIRC] +) [EX] + [ACT], where a locative circumstance [CIRC] usually plays an essential role, as in (5). The neutral phrase order (Nemvalts 1996: 121-125, 142-143; 2003: 184-185) of Estonian existential sentences is (X)PS, i.e. Adverbial–Predicate–Subject, where subject-NP is coded morphologically as nominative or partitive, like in (5). The most basic characteristics of some central levels are summarised in Table 1.

- (4) *Poisid olid pikad*  
 boy:NOM.PL be:IMPF;3PL long:NOM.PL  
 [ACT] [ST]  
 “The boys were long”

- (5) a. *Väljakul lebasid pallid*  
 court:ADE;SG lie:IMPF;3PL ball:NOM.PL  
 b. *Väljakul lebas palle*

court:ADE;SG lie:IMPF;3SG ball:PART.PL

[CIRC] [EX] [ACT]

“There were balls lying on the court”

layer	level			
morpho- nological	morpheme	stems, derivational affixes, inflectional morphemes		
syntactic	clause	operative	stative	existential
semantic	situational	[ACT] + [OP] + ([ACT2])		[ACT] + [ST]
		notional	nucleus	[OP]
	action [+dyn, +ag]			process [+dyn, -ag]
				state [-dyn, -ag]

Table 1. Essentials of some central levels in the layered structure of language.

### 3. Coding actants in interaction of the different layers and levels

Here follow some examples of how sender’s grammar processes actants of the perceived situations into Estonian clauses all the way through the different levels of semantic, syntactic and morphonological layers.

I fully agree with Hudson (2007: 182) in that “language structure is very similar to the structure found in the other parts of our cognitive network. But of course syntax has a particular subject-matter – how words combine in sentences in such a way as to express complex meanings – so it does use some entities and relations which are not found elsewhere; but the list is very short.”

*Sentence/clause level* syntactic functions relate particular constituent phrases to the sentence nucleus, i.e. VP. In the framework of communicative sender’s grammar I would emphasize, that a syntactic function of an immediate constituent phrase combines the semantic information of the actant [ACT] or circumstantial [CIRC] entity denoted by this phrase with morphological coding, making it possible to understand the sentence as a whole – as a sign of a situation.

In operative sentences the subject-NP (SbP) is coded as nominative, cf. (*pikk poiss* in (1)-(2), (6). The object-NP (SbP) is case-marked primarily as partitive, like (*nauditavat korvpalli* in (2), but depending on the art of the situation and semantic features both of the verb and object noun (substantive), the partitive is replaced by genitive or nominative, as in (6) and (7), cf. Table 2.

layer	level		
morpho- nological	morpheme	<b>nominative,</b> partitive	<b>partitive,</b> genitive, nominative
syntactic	clause	SUBJECT SbP (NP)	OBJECT SbP (NP)
semantic	notional	The active actant of the situation: AGENT, (LAUNCHER, ACTUATOR etc.) or PATIENT	The (directly) targetted actant of the situation: EXPERIENCER (PATIENT, UNDERGOER etc.)

Table 2. Subject and object phrases within interacting levels in the layered structure of Estonian.

- (2) b. [*Poiss*]<sub>SUBJ</sub>                      [*mängib*]<sub>PRED</sub> [*korvpalli*]<sub>OBJ</sub>  
 c. [*Väga pikk poiss*]<sub>SUBJ</sub>    [*mängib*]<sub>PRED</sub> [*nauditavat korvpalli*]<sub>OBJ</sub>  
 very tall boy[NOM.SG]    play:PRS.3SG    enjoyable basketball[PART.SG]  
 [ACT]                                      [OP]                      [ACT2]  
 “The very tall boy plays ~ is playing enjoyable basketball”

The indirect object-NP (SbP) is an item, which has caused many disputes among Estonian linguists. Most of them had taken the axiomatic viewpoint that there is no such function in Estonian, preferring to see phrases like *sõbrale* in (6) as adverbials. In the Estonian translation of the textbook of general linguistics by Fred Karlsson, the translators/editors have added examples from Estonian and made several comments. One of these is:

*Eesti keeles ei ole kaudobjekti. Vastavat tähendust väljendatakse allatiivi (-le) kasutades. Allatiivis olev saajat tähendav NP ei erine morfosüntaktiliselt millegi*

*poolest adverbiaalidest, milles esineb sageli samuti kohakääne.* (Karlsson 2002:179)

‘Estonian has no indirect object. Respective meaning is indicated by using allative (-le). The allative NP denoting recipient does not differ in any way from adverbials, which are likewise often represented by some locative.’

The problem is that adverbial as a syntactic category has become so diffuse, that the lack of explanatory power in using this is obvious. There are too many sorts and sub-sorts of adverbials, and a lot of exceptions in definitions of those. Some of colleagues have confessed that adverbial as a category is defined negatively:

*Määrust ehk adverbiaali määratletakse negatiivselt: see on verbi laiend, mis pole sihitis ega öeldistäide, samuti igasugune omadus- ja määrsõna laiend. [---] Määrusel ... puudub selgepiiriline süntaktiline funktsioon lauses, jääkliikmena saab teda pidada üheks lauseliikmeks vaid tinglikult.* (EKG II 1993:60)

‘The adverbial is defined negatively: it is a verb modifier, which is not object nor predicative, likewise every modifier of adjectives and adverbs. [---] Adverbial has no clearcut syntactic function in a sentence, as a waste part [of a sentence] it can only conditionally be considered as one constituent category of a sentence’

What does this mean? Purely that it is a waste category – and a large one, including some 25 +/-3 types of adverbials. But, if we take the consequent viewpoint of the sender, we can greatly diminish the volume and diffuseness of this trash. Acknowledging that actants and circumstances are two principally different kinds of participants of a situation signified by the sentence, also principally different syntactic functions are needed to codify these. Thus, adverbials are needed for explaining how circumstances of the situation are signified. Phrases like *sõbrale* in (6), however, are clearly used for actants, and differ only slightly from those functioning as object phrases. Semantically, indirectly targeted actants are signified with SbP (NP) marked as allative or relative, or with some substitutional AdpP and are naturally sinking in the system of

sender's grammar, when described as indirect objects by their syntactic function (cf. Kure 1963, Klaas 1988, Nemvalts 1980, 2001). The place of indirect object phrases in the language system is exemplified in the Table 3.

(6) [Poiss]<sub>SUBJ</sub> [annab]<sub>PRED</sub> [raamatu(d)]<sub>OBJ</sub> [sõbrale]<sub>I-OBJ</sub>  
 boy[NOM.SG] give:PRS.3SG book[GEN.SG](NOM.PL) friend:ALL.SG  
 [ACT] [OP] [ACT2] [ACT3]  
 “The boy gives the book (books) to a friend”

layer	level	
morpho- nological	morpheme	allative (-le), substitutional AdpP elative (-st)
syntactic	clause	INDIRECT OBJECT SbP (NP), AdpP
semantic	notional	The indirectly targetted actant of the situation: INTENT, EXPERIENCER (BENEFICIENT, etc.)

Table 3. Indirect object phrases within interacting levels in the layered structure of Estonian.

Recently, also some linguists who earlier denied the usefulness of the indirect object concept in describing Estonian, have started to move in the same direction:

In POSSESSIVE CLAUSES the oblique object expresses the possessor and is in the adessive case. The possessor is typically animate, as *Jaani* [Ade] *on* [is] *vend* [N] ‘Jaan has a brother’, but sometimes it may be inanimate as well, as in *Autol* [Ade] *on neli ratast* ‘The car has four wheels’. (Erelt 2003: 94)

Still, this “oblique object” is not defined properly. Moreover, what we find here, is another diffuse category often referred to as simply “oblique”:

The modal verbs *tulema* ‘have to’, *tarvitsema* ‘need’, *maksma* ‘be worth (doing)’, *pruukima* ‘use’, *tasuma* ‘be worth (doing)’, *vaja olema/minema* ‘be needed’, *tarvis*

*olema/minema* ‘be needed’ are less grammaticalized because they require a pattern with the adessive **oblique**, cf. *Ta võtab rohtu* ‘He takes medicine’ - *Tal* [Ade] *tuleb/tasub rohtu võtta* ‘He has to take medicine / he will benefit from taking medicine’. (Erelt 2003:106)

Such instances are clearly related to the subject phrases like those in (2) or (6). There is no difference at semantic layer, only adding of certain modal verbs to the clause nucleus causes change at morphological layer: the sender is led to use adessive marking of the NP (SbP). Therefore, I have earlier (Nemvalts 2001) proposed *indirect subject* as the syntactic function of such phrases, like *poisil* in (7). The position of indirect subject phrases in the language system is exemplified in the Table 4.

- (7) [*Poisil*]<sub>I-SUBJ</sub> [*tuleb anda*]<sub>PRED</sub> [*raamat*]<sub>OBJ</sub> [*sõbrale*]<sub>I-OBJ</sub>  
 boy:ADE;SG have-to give:INF book[NOM.SG] friend:ALL.SG  
 “The boy must ~ has to give the book to a friend”

layer	level	
morpho- nological	morpheme	adessive (-/), allative (-le),
syntactic	clause	INDIRECT SUBJECT SbP (NP)
semantic	notional	The active actant of the situation: AGENT, (LAUNCHER, ACTUATOR etc.) PATIENT, EXPERIENCER (in a state sentence)

Table 4. Indirect subject phrases within interacting levels in the layered structure of Estonian.

However, one cannot say that modality *per se* triggers the adessive marking of the SbP referring to the most active actant. If the sender chooses modal verb *pidama* for conveying exactly the same message of necessive modality as in (8a), it results in (8b) with nominative subject phrase.

- (8) a. [*Meil*]<sub>I-SUBJ</sub> [*on vaja mõelda*]<sub>PRED</sub>

we:ADE be-need think:INF

“We need ~ have to think”

b. [*Meie*]<sub>SUBJ</sub> [*peame mōtlema*]<sub>PRED</sub>

we:NOM must:PRS.1PL think:SUP

“We must think”

Rather, the adessive-marked phrase in (7) and (8a) indicates closeness to possessive constructions (*Meil on pall* “We have a ball”), which is also true about (9a). But sentences like (9a) can not be possessive sentences. They are (existential) state sentences with adessive indirect subject. The same stative situation can be expressed also by (9b), and even by (9c), though the latter has different connotation: somebody else, e.g. mother felt the boy was cold. The indirect subject can be also marked morphologically with allative, depending on which predicate verb is chosen by the sender, as in (10).

(9) a. [*Lumise l poisil*]<sub>I-SUBJ</sub> [*oli külm*]<sub>PRED</sub>  
snowy:ADE;SG boy:ADE;SG be:IMPF.3SG cold[NOM.SG]  
“The snowy boy felt cold”

b. [*Lumine poiss*]<sub>SUBJ</sub> [*külmetas*]<sub>PRED</sub>.  
snowy[NOM.SG] boy[NOM.SG] freeze:IMPF.3SG  
“The snowy boy froze”

c. [*Lumine poiss*]<sub>SUBJ</sub> [*oli külm*]<sub>PRED</sub>  
snowy[NOM.SG] boy[NOM.SG] be:IMPF.3SG cold[NOM.SG]  
“The snowy boy was frozen/cold”

(10) [*Pikale poisile*]<sub>I-SUBJ</sub> [*meeldib*]<sub>PRED</sub> [*korvpall*]<sub>SUBJ</sub>  
long:ALL.SG boy:ALL.SG like:PRS.3SG basketball:NOM.SG  
“The long boy likes basketball”

Accordingly to Erelt (2003) clauses like (5), (9a) and (10) are not normal clauses,

but inverted ones. Among Erelt's 14 sub-patterns there is none which corresponds to clauses like (7), (8a). However, all the clauses (1)-(10) are completely normal, neutral structures in Estonian. Invertedness is meaningful only when used for description of information structure, where shift in the phrase order of a neutral syntactic structure is contextually/pragmatically caused. All six Erelt's sub-patterns of what he calls "inverted clauses" are, in fact, syntactically normal neutral clauses, and reducible to one and the same basic phrase order pattern (X)PS. Existential sentences can certainly also be inverted, if it is needed because of contextual conditions in communication.

#### **4. Conclusion**

The sender has freedom to choose, how he wants to put forward a message about the situation he has perceived. It can be done in many ways, with the help of diverse types of clauses/sentences. In the sender's grammar, the clause is defined as a complex linguistic sign for a situation. It seems most appropriate to distinct three general patterns of clauses, according to the main pragmasemantic types of situations: operative, stative and existential. In describing operative clauses, indirect object is a useful syntactic function, in addition to the subject and object. In sender's grammar, also indirect subject is needed, when accounting for, first of all, some state clauses, but also operative clauses with certain modal verbs.

The interaction of semantics and syntax takes various shapes, and can result in a number of morphological forms in sentence processing even within the same basic sentence pattern. All three general patterns, inclusive existential sentences, are inevitably used by sender for constructing normal clauses and all of them may be used with inverted phrase order, if context imposes.

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## **Abbreviations**

ACT actant participant of the situation  
ADE adessive  
AdpP adpositional phrase  
ALL allative  
CIRC circumstantial participant of the situation  
EX existential nucleus of the situation  
GEN genitive  
INF infinitive  
IMPF imperfect  
I-OBJ indirect object  
I-SUBJ indirect subject  
NOM nominative  
OBJ object  
OP operative nucleus of the situation  
PART partitive  
PL plural  
PRED predicate  
PRS present  
SbP substantive phrase  
SG singular  
ST stative nucleus of the situation  
SUBJ subject  
SUP supinum

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# Talmy's Typological Generalization Revisited: A Morphosyntactic Account\*

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## Abstract

This paper provides a morphosyntactic account of three spatial postpositional phrases in Japanese: the *-ni*, *-e* and *-eto* phrases. It shows that the incompatibility between the *-ni* phrase and a manner-of-motion verb, which appears to follow Talmy's descriptive generalizations for verb-framed languages (VFLs) such as Japanese, is rooted in failing to satisfy a locality condition for secondary predication, and that it is the degraded grammaticality of the *-e* phrase with a manner-of-motion verb that follows the generalizations at issue. It further shows that the *-eto* phrase is compatible with a manner-of-motion verb because *-eto* consists of the directional postposition *-e* and the indeterminate aspectual head *-to* that rescues an aspectual mismatch between the *e*-phrase and a co-occurring manner-of-motion verb.

**Keywords:** Talmy's typology, morphosyntactic properties of spatial PPs, aspect, Japanese

## 1. Introduction

Talmy (1985, 1991) has shown that languages differ with respect to how semantic features such as Manner, Motion and Direction (Path in Talmy's terminology) are mapped onto Vs and PPs, and that differences in lexicalization patterns can surface in various ways. In Romance languages and Japanese, which are classified as verb-framed languages (VFLs), unergative verbs of manner-of-motion cannot appear with a directional PP because Direction is expressed in a verb not in a satellite. On the other hand, in Germanic languages such as Dutch and English, which are called satellite-framed languages (SFLs), the same type of verbs can appear with a directional PP because Direction is expressed in a satellite. Consider the contrast between VFLs and SFLs, as shown in (1)-(5):

**Verb-framed languages (VFLs):** Japanese French and Spanish

- (1) \**Taroo-ga kooen-ni arui-ta.* [Japanese]  
Taroo-Nom park-NI walk-Past  
"Taroo walked to the park."
- (2) \**J'ai marché au parc.* [French]  
I have walked to.the park  
"I walked to the park."
- (3) ??*Juan caminó a la puerta.* [Spanish]  
Juan walked to the door  
"Juan walked to the door."

**Satellite-framed languages (SFLs): Dutch and English**

(4) *Hij is naar huis gelopen.* [Dutch]

He is to house run  
“He ran home.”

(5) I walked **to** the park. [English]

However, there seem to be counterexamples to the typological descriptions. Consider (6):

- (6) a. *??Taroo-ga kooen-e arui-ta.*  
Taroo-Nom park-E walk-Past  
“Taroo walked to the park.”  
b. *Taroo-ga kooen-eto arui-ta.*  
Taroo-Nom park-ETO walk-Past  
“Taroo walked to the park.”

(6a) shows that when *-ni* in (1) is replaced by *-e*, the improved grammaticality results. Further, with *-eto* as in (6b), the sentence becomes perfectly grammatical.

(7), (8) and (9) summarize the observations so far. The *-ni* phrase cannot appear with unergative verbs of manner of motion, while the *-e* phrase can with degraded grammaticality. Further, the *-eto* phrase is perfectly compatible with unergative verbs of manner of motion.

- (7) \* $V_{\text{MOTION\&MANNER}} + -ni$  phrase [ungrammatical]  
(8)  $??V_{\text{MOTION\&MANNER}} + -e$  phrase [degraded but not ungrammatical]  
(9)  $V_{\text{MOTION\&MANNER}} + -eto$  phrase [grammatical]

This paper is organized as follows. Section 2 will observe how the three types of PPs behave morphosyntactically. In Section 3, I will present my proposals for the morphosyntactic properties of the *-ni*, *-e* and *-eto* phrases. Section 4 will show that the proposals can receive empirical support. Section 5 will present implications of my proposed analysis of the *-ni* phrase. Finally, Section 6 will conclude this paper.

## 2. Morphosyntactic behavior of *-ni*, *-e* and *-eto*

It should be noted first that the three types of PPs are all compatible with unaccusative verbs of directed motion. The facts in (10) and (11) illustrate that.

- (10) *Taroo-ga Pari-ni/-e/-eto it-ta.*  
Taroo-Nom Paris-NI/-E/-ETO go-Past  
“Taroo went to Paris.”  
(11) *Taroo-ga Pari-ni/-e/-eto tui-ta.*  
Taroo-Nom Paris-NI/-E/-ETO arrive-Past  
“Taroo arrived at Paris.”

However, there is a crucial difference with respect to whether they are permitted

in existential sentences. As shown in (12) and (13), only the *-ni* phrase can appear in the existential sentences and express Location, not the *-e* and *-eto* phrases.

- (12) *Kooen-ni/\*-e/\*-eto hunsui-ga ar-u*  
 park-NI/-E/-ETO fountain be-Pres  
 “There is a fountain in the park.”
- (13) *Uraniwa-ni/\*-e/\*-eto risu-ga ir-u*  
 backyard-NI/-E/-ETO squirrels be-Pres  
 “There are squirrels in the backyard.”

Third, *-eto* can be decomposed into the postposition *-e* and the suffix *-to*. This decomposition analysis receives support from the fact that a gap can intervene between *-e* and *-to*, as in (14) and (15):

- (14) *Taroo-ga kooen-e, -to arui-ta.*  
 Taroo-Nom park-E, -TO walk-Past  
 “Taroo walked to the park.”
- (15) *John-ga mukoo-gisi-e, -to oyo-da.*  
 John-Nom other-shore-E, -TO swim-Past  
 “John swam to the other side (e.g., the other side of the lake).”

Of the three phrases, the *-ni* phrase exhibits behavior that the other two do not. Takezawa (1993, 2000) shows that *-ni* can be used as a suffix for secondary predicates. Consider the facts in (16), (17) and (18).

- (16) *Aisukuriimu-ga katikati-ni koot-ta.*  
 ice cream-NOM solid-NI freeze-PAST  
 “The ice cream froze solid.”
- (17) *\*Aisukuriimu-ga katikati-e koot-ta.*  
 ice cream-NOM solid-E freeze-PAST  
 “The ice cream froze solid.”
- (18) *\*Aisukuriimu-ga katikati-e-to koot-ta.*  
 ice cream-NOM solid-E-TO freeze-PAST  
 “The ice cream froze solid.”

The *-ni* resultative secondary predicate can only be predicated of the unaccusative Subj and the direct Obj. (19) and (20) show that the Subj of the unaccusative sentence and the direct Obj of the transitive sentence can be the antecedents of the respective resultative secondary predicates, while (21) and (22) show that the subject of the transitive sentence and that of the unergative sentence cannot.

- (19) *Aisukuriimu-ga katikati-ni koot-ta.*  
 ice cream-Nom solid-NI freeze-Past  
 “The ice cream froze solid.”
- (20) *John-ga aisukuriimu-o katikati-ni koorase-ta.*  
 John-Nom ice cream-Acc solid-NI freeze-Past  
 “John froze the ice cream solid.”

- (21) \**John-ga kuruma-o hetoheto-ni migai-ta.*  
 John-Nom car-Acc tired-NI polish-Past  
 “John polished the car tired.”
- (22) \**John-ga kutakuta-ni odot-ta.*  
 John-Nom exhausted-DE/-NI dance-Past  
 “John danced (when he was) exhausted.”

In this section, I have provided an overview of the morphosyntactic behavior of the three types of spatial PPs in Japanese. The summary of their behavior is given in table (23). All of the three PPs are compatible with unaccusative verbs, but only the *-ni* phrase can co-occur with stative verbs and can be used as a secondary predicate. Finally, the *-ni* phrase is incompatible with unergative verbs of manner of motion, but replacing it with the *-e* phrase and *-e-to* phrases results in improved and perfect grammaticality, respectively.

(23) Summary of the behavior of the *-ni*, *-e* and *-e-to* phrases:

	unaccusative	stative	secondary predicate	unergative
<i>-ni</i>	OK	OK	OK	*
<i>-e</i>	OK	*	*	?/??
<i>-e-to</i>	OK	*	*	OK

### 3. Proposed analysis for the three types of spatial PPs in Japanese

On the basis of the observations provided in Section 2, I will propose the following. First, the spatial PPs in (1) and (6) can involve up to three heads: locational P, directional *p* and an aspectual head (van Riemsdijk 1990, Hasegawa 1998, Koopman 2000, Ramchand & Svenonius 2002, Svenonius 2004, Asbury, Gehrke & Hegedus 2006, among others).

(24)  $[_{AspP} [_{pP} DP_{Figure} [_{p'} [_{PP} DP_{Ground} [_{locationalP} -ni]]] [_{directionalP} -e]]] [_{Asp} -to]]$

Note that in (24), *-ni* and *-e* do not morphologically co-occur due to a ban on postposition stacking in Japanese.

Second, the postposition *-ni* is a locational P, not a directional *p* as its compatibility with stative predicates indicates. The *-ni* locational phrase constitutes a single layered structure, with the Ground argument in the complement position of locational P.

(25)  $[_{PP} DP_{Ground} [_{locationalP} -ni]]$

Third, the *-e* directional phrase has a double layered structure, containing a null locational P, directional *p*, Ground DP and Figure DP.

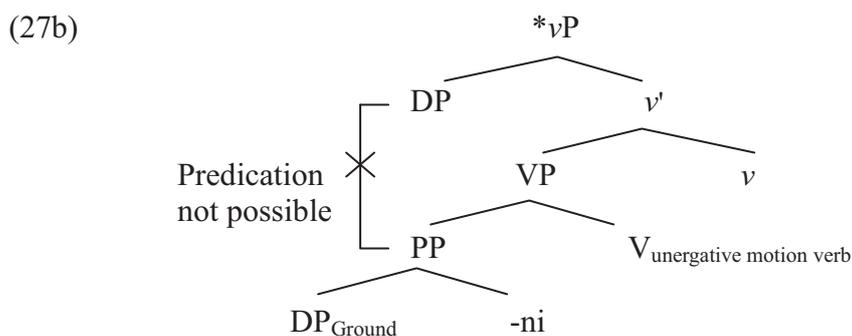
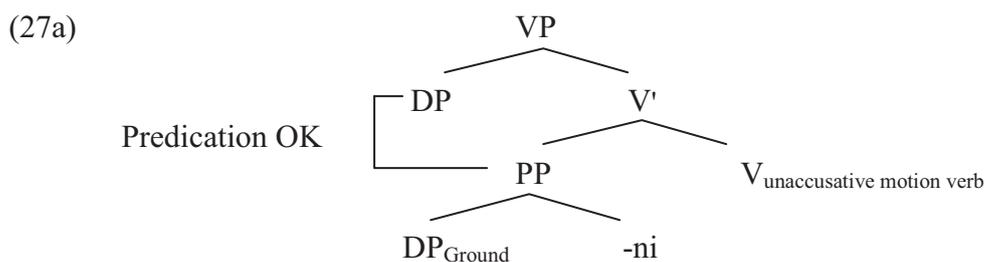
(26)  $[_{pP} DP_{Figure} [_{p'} [_{PP} DP_{Ground} [_{locationalP} \emptyset]]] [_{directionalP} -e]]]$

In what follows, I will provide a more detailed analysis of the three types of

spatial PPs at issue. First, the relevant facts concerning the *-ni* phrase are given in (1) and (10) repeated below:

- (1) \**Taroo-ga kooen-ni arui-ta.*  
 Taroo-Nom park-NI walk-PAST  
 “Taroo walked to the park.”  
 (10) *Taroo-ga Pari-ni it-ta.*  
 Taroo-Nom Paris-NI go-Past  
 “Taroo went to Paris.”

Following Takezawa (1993, 2000), the *-ni* locational phrase, which exhibits parallel behavior to resultative secondary predicates, is base-generated under VP as well as its antecedent. This configuration satisfies the locality requirement imposed on resultative secondary predication, as in (27a).<sup>1,2</sup> On the other hand, in unergative sentences, the antecedent (i.e., Subj in unergative sentences) is base-generated in [Spec, v], while the *-ni* phrase is under VP, which violates the locality condition as shown in (27b), hence the incompatibility of the *-ni* phrase with unergative verbs of manner of motion. Note that directional (Goal) meaning in (10) is derived from the secondary predication relationship between the *-ni* phrase and its antecedent.<sup>3</sup>

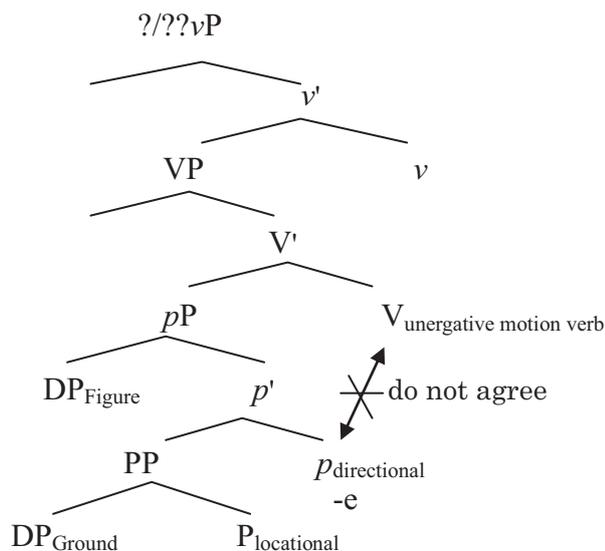


Second, turning to the *-e* phrase, the relevant facts are repeated below:

- (6a) *???Taroo-ga kooen-e arui-ta.*  
 Taroo-Nom park-E walk-Past  
 “Taroo walked to the park.”  
 (10) *Taroo-ga Pari-e it-ta.*  
 Taroo-Nom Paris-E go-Past  
 “Taroo went to Paris.”

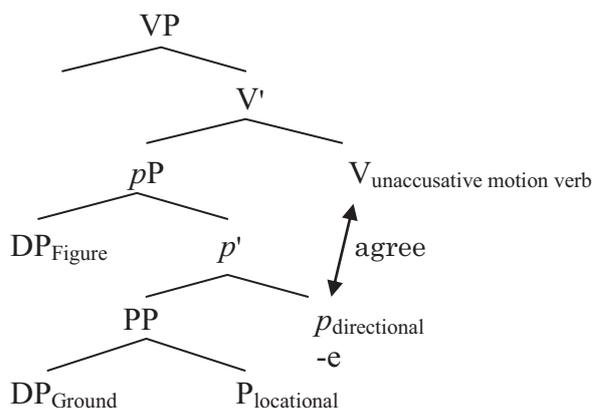
The degraded grammaticality of (6a) follows from Talmy's typological generalization: verb framed languages do not allow unergative verbs of manner of motion to co-occur with a directional (Goal) phrase. I claim that this typological description can be recaptured as an aspectual mismatch between the unergative verb (atelic) and the directional (Goal) PP (telic), as illustrated in (28a). This analysis is based on the assumption that the morphosyntactic properties of a P and those of a co-occurring V are fixed when they are selected from the lexicon.

(28a)



In contrast to (6a), (10) shows a match between the unaccusative verb (telic) and the directional PP (telic), as in (28b).

(28b)



Note that the mismatch as in (6a) is absent, for example, in Dutch since manner-of-motion verbs can alternate between unergative verbs of manner of motion and unaccusative verbs of directed motion. This alternation allows the aspect of verbs such as *walk* to match with the aspect of a directional PP. The following Dutch examples illustrate the alternation at issue. With the prepositional phrase expressing Location, the auxiliary verb selected is *hebben* 'have,' but with the directional postposition, the auxiliary verb is *zijn* 'be.' Consider (29):

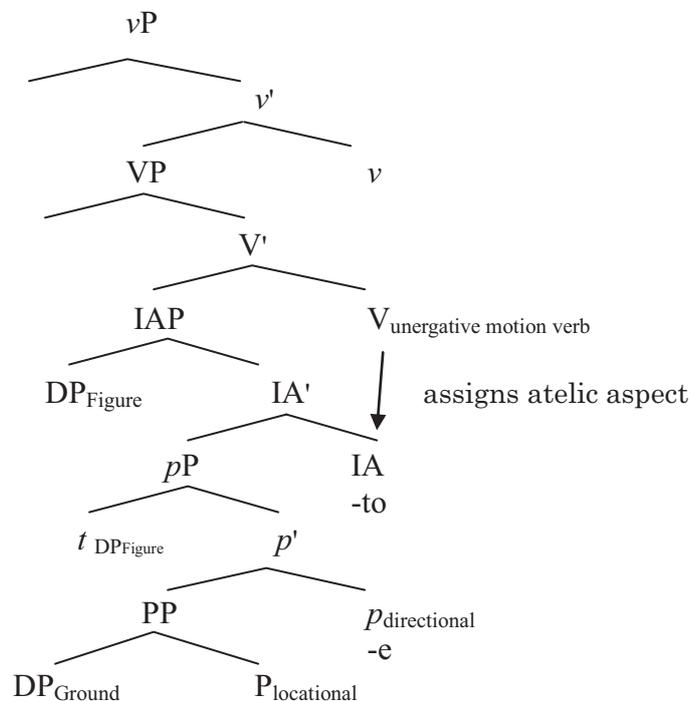
- (29) a. *dat Jan [op de berg] heeft gereden* [locational]  
 that Jan on the mountain has driven  
 “that Jan drove on the mountain top”  
 b. *dat Jan [de berg op] is gereden* [directional]  
 that Jan the mountain up is driven  
 “that Jan drove up the mountain”

Turning to the *-e-to* phrase, recall that it is compatible with unaccusative verbs of directed motion and unergative verbs of manner of motion. The relevant facts are in (6) and (10) repeated below:

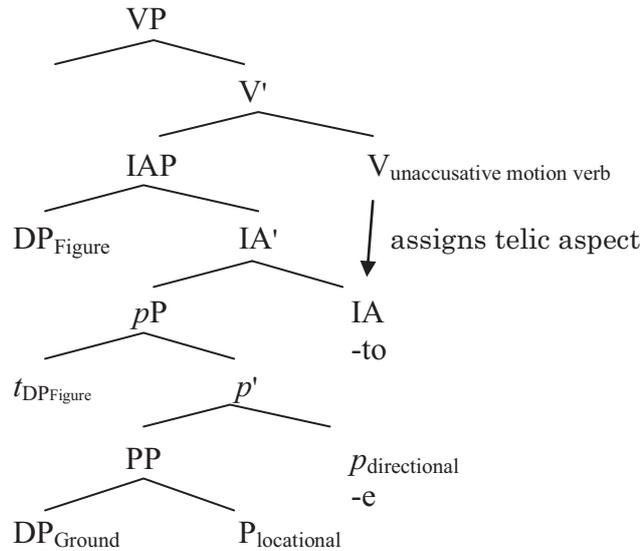
- (6b) *Taroo-ga kooen-e-to arui-ta.*  
 Taroo-Nom park-E-TO walk-Past  
 “Taroo walked to the park.”  
 (10) *Taroo-ga Pari-e-to it-ta.*  
 Taroo-Nom Paris-E-TO go-Past  
 “Taroo went to Paris.”

The proposed structure of the *-e-to* phrase is as follows. It consists of three heads: the morphologically covert locational P, the directional *-e*, and the indeterminate aspectual head (IA) *-to*.<sup>4</sup> This three-layered structure contains both Figure and Ground DPs. The value of this indeterminate head is assigned by the verb that selects the IA phrase, as illustrated in (30a) and (30b):

(30a)



(30b)



The kind of mismatch observed between the *-e* phrase and unergative manner of motion verbs does not occur in (30b) since the IA mediates between the directional head and the unergative verb as shown in (30a).

#### 4. Empirical support for the proposed analysis

The above proposals receive empirical support. In what follows, I will first show that the *-ni*, *-e* and *-e-to* phrases are base-generated under VP and have argument properties. As I have already mentioned, the *-ni* locational phrase exhibits behavior parallel to the resultative secondary predicate, and thus is considered a complement under VP. Further, both *-e* and *-e-to* phrases should be arguments under VP, for the Figure DP to raise out of *pP*. Second, I will provide evidence for the indeterminate nature of *-to* with respect to its aspectual properties and show that its aspect is assigned by the verbs that select the *-e-to* phrase. Finally, I will show evidence that the *-e* postposition is inherently directional as opposed to *-ni* and *-to* whose aspectual properties are externally determined.

##### 4.1. VP constituency for *-ni*, *-e* and *-e-to* phrases: Pseudo-clefting and VP-fronting

It can be empirically supported that the *-ni*, *-e* and *-e-to* phrases have argument properties and are base-generated under VP.

First of all, two VP-constituency diagnostics, namely, pseudo-clefting and VP-fronting, show that another spatial phrase, the *-de* locational phrase, is not under VP.<sup>5,6</sup> Consider (31):

- (31) a. *Gakusee-ga kooen-de si-ta-no-wa aruku-koto da-ta.*  
student-Nom park-DE do-Past-Nml-Top walk-Nml Cop-Past  
“What the students did in the park was to walk.”

- b. *Aruki-sae gakusee-ga kooen-de si-ta.*  
 walk-even student-Nom park-DE do-Past  
 “Even walked, the student did in the park.”

In contrast to the *-de* phrase, the same VP-constituency diagnostics show that *-ni*, *-e* and *-e-to* phrases are under VP, as in (32):

- (32) a. \**Gakusee-ga kooen-ni/-e/-e-to si-ta-no-wa iku-koto*  
 student-Nom park-NI/-E/-E-TO do-Past-Nml-Top go-Nml  
*da-ta.*  
 Cop-Past  
 “What the students did to the park was to go.”  
 b. \**iki-sae gakusee-ga kooen-ni/-e/-e-to si-ta.*  
 go-even student-Nom park-NI/-E/-E-TO do-Past  
 “Even went, the student did to the park.”

Second, the *soo-suru* diagnostic confirms that the *-de* locational phrase is outside the domain of *soo-suru* “do so,” hence the grammaticality of the examples in (33):

- (33) a. *Hanako-ga kyoositu-de ohirugohan-o tabe-ta.*  
 Hanako-Nom classroom-DE lunch-Acc eat-Past  
*Taroo-mo gakusyoku-de soo-s-ita.*  
 Taroo-also cafeteria-DE so-do-Past  
 “Hanako ate lunch in the classroom. Taroo did so in the classroom.”  
 b. *Taroo-ga eki-de kippu-o kat-ta.*  
 Taroo-Nom station-DE ticket-Acc buy-Past  
*Hanako-mo intaanetto-de soo-s-ita.*  
 Hanako-also internet-DE so-do-Past  
 “Taroo bought a ticket at the station. Hanako did so on the internet.”

On the other hand, the *-ni*, *-e* and *-e-to* phrases are inside the domain of *soo-suru* “do so,” hence the ungrammaticality of the examples in (34):

- (34) a. *Hanako-ga Tokyo-eki-ni/-e/-e-to tui-ta.*  
 Hanako-Nom Tokyo-station-NI/-E/-E-TO arrive-Past  
 (*Onazi-koro*) \**Taroo-mo Osaka-eki-ni/-e/-e-to*  
 same-time Taroo-also Osaka-station-NI/-E/-E-TO  
*soo-s-ita.*  
 so-do-Past  
 “Hanako arrived at Tokyo Station. (At about the same time) Taroo did so at Osaka Station.”

- b. *Taroo-ga Tokyo-ni/-e/-eto syuttyoo-s-ita.*  
 Taroo-Nom Tokyo-NI/-E/-E-TO business.trip-do-Past  
 \**Hanako-mo Kyoto-ni/-e/- e-to soo-s-ita.*  
 Hanako-also Kyoto-NI/-E/-E-TO so-do-Past  
 “Taroo went to Tokyo on business. Hanako did so to Kyoto.”

#### 4.2. Evidence for *-to* as an indeterminate aspectual head

Turning to the proposed analysis of *-to* in *-e-to*, indeterminate aspectual properties of the affix in question receives support from *-teiru* facts. As illustrated in (35), when suffixed by *-teiru*, Japanese verbs express either progressive or perfective, depending on the types of verbs.

(35) The *teiru* diagnostic in Japanese (Kindaichi 1950):

- |  |               |                      |
|--|---------------|----------------------|
| $V_{\text{transitive/unergative}} + teiru$ | $\Rightarrow$ | atelic (progressive) |
| $V_{\text{unaccusative}} + teiru$          | $\Rightarrow$ | telic (perfective)   |

The sentences with the *-e-to* phrases in (36) and (37) show that they can co-occur with the unergative verbs of manner of motion and the unaccusative verbs of directed motion, respectively, which does not affect the aspect of the entire VPs. The facts in (36) and (37) can be taken to show that *-to* is indeterminate with respect to aspect.

(36) Atelic (progressive):

- a. *Taroo-wa eki-e-to arui-teiru.*  
 Taroo-Nom station-E-TO walk-teiru  
 “Taro is walking to the station.”
- b. *Hanako-wa mukoo-gisi-e-to oyoideiru.*  
 Hanako-Nom opposite-shore-E-TO swim-teiru  
 “Hanako is swimming to the opposite side (e.g, the opposite side of a lake).”

(37) Telic (perfective):

- a. *Honsya-wa koogai-e-to itens-iteiru.*  
 main.office-Top suburb-E-TO move-teiru  
 “The main office has now moved to the suburb.”
- b. *Hanako-wa humoto-e-to ori-teiru.*  
 Hanako-Top mountain.foot-E-TO descend-teiru  
 “Hanako has descended to the foot of a mountain.”

It should be pointed out again here that as far as unergative sentences are concerned, without *-to*, the sentences in (36) become degraded for the reason I have already discussed.

- (38) a. *??Taroo-ga eki-e arui-teiru.*  
 Taroo-Nom station-E walk-teiru  
 “Taro is walking to the station.”
- b. *??Hanako-ga mukoo-gisi-e oyoideiru.*  
 Hanako-Nom opposite-shore-E swim-teiru

“Hanako is swimming to the opposite side (e.g., the opposite side of a lake).”

Interestingly, *-to* can be used in non-spatial contexts as well, expressing either resultative or depictive (Kageyama 1996). Again, the choice between the two depends on the aspectual properties of selecting verbs.

(39) Resultative:

- a. *Tempura-ga karat-to agat-ta.*  
tempura-Nom crisp-TO fry-Past  
“Tempura fried crisp.”
- b. *Gohan-ga hukkura-to take-ta.*  
rice-Nom soft-TO boil-PAST  
“Rice cooked soft.”

(40) Depictive:

- a. *Kawa-ga yuttari-to nagare-teiru.*  
river-Nom slow-TO flow-teiru  
“The river is flowing slow.”
- b. *Taroo-ga kyuuuka-o nonbiri-to sugosi-ta.*  
Taroo-Nom holiday-Acc leisure-TO pass-Past  
“Taroo spent his holiday leisurely.”

From a crosslinguistic perspective, the IA head *-to* is equivalent to the result head R proposed in Ramchand and Svenonius (2002), which occupies an intermediate position between PP and VP. For example, in English, this position can be occupied by particles such as *out* in (41b):

- (41) a. Throw the dead rat out.  
b. Throw out the dead rat.

According to Ramchand and Svenonius (2002), (41) has the structure that contains four different heads, *v*, V, a result head R and a particle head PRT: [<sub>VP</sub> *v* [<sub>VP</sub> V [<sub>RP</sub> R [<sub>PRT</sub> PRT]]]]. In (41b), the object DP occupies the Spec of the particle head PRT and the particle *out* moves up to adjoin to the R head (Ramchand and Svenonius 2002). In contrast to the particles in (41), which undergo telic interpretation, (42) shows that particles can be atelic (Ramchand and Svenonius 2002), which gives support to our proposed analysis that *-to* in Japanese can be either telic or atelic. Note that in (42b), the particle *around* can also move to adjoin to a depictive head D (Irimia 2005).

- (42) a. John moved the rat poison around (for hours).  
b. John moved around the rat poison (for hours).

Having provided empirical support for *-to* as an IA head, let us now turn to the *-e* postposition.

#### 4.3. The postposition *-e* as an inherent directional p

The contrast in (43) between the *-e* phrase on the one hand, and the *-ni* and *-e-to* phrases on the other provides support for my proposal.

- (43) *Tokyoo-e-no/\*-ni-no/\*-e-to-no*      *kippu*  
Tokyo-E-Gen/\*-NI-Gen/\*-E-TO-Gen ticket  
“a ticket to Tokyo”

The *-e* phrase can express Direction even in the NP-internal position, without the presence of unaccusative verbs of directed motion. On the other hand, the *-ni* and *-e-to* phrases are not allowed in the NP-internal position since their values are externally determined by co-occurring verbs. Given the absence of such verbs in (43), *-ni* and *-e-to* cannot undergo interpretation, hence the ungrammaticality.

Note that the unaccusative verbal noun (VN) in Japanese cannot license *-ni* nor *-e-to* in the NP-internal domain.

- (44) *Taroo-no Tokyo-e-no/\*-ni-no/\*-e-to-no*      *tootyaku-ga*  
Taroo-Gen Tokyo-TO-Gen/-NI-Gen/-TO-IA-Gen arrival-Nom  
*okure-ta.*  
be.delayed-Past  
“Taroo’s arrival at Tokyo was delayed.”

It is interesting to notice, however, that with aspectual suffixes such as *-go* ‘after’ and *-tyuu* ‘during,’ which allow VNs to behave just like verbs, the *-ni* and *-e-to* phrases can be licensed as well as the *-e* phrase.

- (45) *Taroo-ga Tokyo-e/-ni/-e-to tootyaku-go, ....*  
Taroo-Nom Tokyo-E/-NI/-E-TO arrival-after  
“After Taroo’s arrival at Tokyo, ....”

Given that the VN in (45) behaves like an unaccusative verb, the facts in (45) can be considered parallel to the facts in (10) and (11).

## 5. Implications of the present study: A note on resultative secondary predication in Japanese

In this section, I will show that the proposed analysis of the spatial *-ni* phrase has implications for Japanese resultative secondary predication. Following Takezawa (1993, 2000), I have proposed (i) that a result head is involved neither in the *-ni* locational phrase nor in the *-ni* secondary predicate and (ii) that given a certain configuration between the predicate and the antecedent, a resultative or a directional reading is derived. Provided that the proposed analysis is on the right track, it can be predicted that there should be a difference between languages that have recourse to a result head and those do not.

It has been pointed out in the literature that there is a contrast between English on the one hand and Japanese on the other with respect to the types of resultative secondary predication permitted in the respective languages (Kageyama 1996, Washio 1997,

Hasegawa 1998).

First, Japanese resultative secondary predication patterns with that of English, as in (46) and (47).

- (46) a. John polished the glasses shiny.  
b. Mary wiped the table clean.
- (47) a. *John-ga megane-o pikapika-ni migai-ta.*  
John-Nom glasses-Acc shiny-NI polish-Past  
“John polished the glasses shiny.”  
b. *Mary-ga teeburu-o kiree-ni hui-ta.*  
Mary-Nom table-Acc clean-NI wipe-Past  
“Mary wiped the table clean.”

However, there are cases where English secondary predication and that of Japanese exhibit different behavior.

- (48) a. John pounded the metal flat.  
b. Mary raced the horse sweaty.
- (49) a. \**John-ga kinzoku-o taira-ni tatai-ta.*  
John-Nom metal-Acc flat-NI pounded  
“John pounded the metal flat.”  
b. \**Mary-ga uma-o asedaku-ni hasirase-ta.*  
Mary-Nom horse-Acc sweaty race-Past  
“Mary raced the horse sweaty.”

The contrast between the examples in (46) and (47) and those of (48) and (49) has been analyzed as a difference between weak resultatives and strong resultatives, respectively (Washio 1997). That is, Japanese does not allow strong resultatives, in which the meaning of a verb and that of a secondary predicate are independent of each other. On the basis of the proposed analysis of the *-ni* secondary predicate, the unavailability of strong resultatives in Japanese seems to suggest that it is rooted in the absence of an independent head such as a result head R (Hasegawa 1998, Takamine 2007) that licenses secondary resultative predication (see Neelman & Van de Koot (2002) for a different approach to the phenomenon at issue here). In contrast, English makes use of such head in order to license strong resultatives. Although it is an interesting topic to pursue, I will leave an in-depth analysis for future research.

## 6. Conclusions

I have shown in this paper that a contrast observed between the *-ni* phrase and the *-e* phrase with respect to their compatibility with unergative verbs of manner of motion can be accounted for as the violation of a locality condition for secondary predication for the former and an aspectual mismatch for the latter. Further, the *-e-to* phrase is compatible with unergative verbs of manner of motion because the suffix *-to* is an indeterminate aspectual head, which serves to rescue the aspectual mismatch between the directional postposition *-e* and an unergative verb of manner of motion. I have

provided the empirical support for my proposal analysis for the three types of spatial PPs. Furthermore, I have suggested that the proposed analysis for the *-ni* phrase has implications for the contrast between secondary predication in Japanese and that in English.

### Notes

\* This paper is based on my earlier work presented at the 31st Berkeley Linguistics Society meeting, which dealt with the *-made* “until/as far as” phrase that contradicts Talmy’s typological descriptions and concluded that the *-made* phrase is an adjunct rather than an argument. However, that paper left unanswered the question as to what exactly the *-e-to* phrase was, which is yet another counterexample to the typology. I would like to thank Yuuka Tsuji for having challenged me in one of my class lectures on this topic. Also, my BLS paper overlooked the contrast in grammaticality between the *-ni* and *-e* phrases with respect to the compatibility with unergative verbs of manner of motion. The research for this paper is supported in part by a Grant-in-Aid for Scientific Research (B) from the Japan Society for the Promotion of Science (#20320058).

<sup>1</sup> Secondary predication is subject to a locality condition (Rothstein 1983, among others). Consider the contrast between (i) and (ii):

- (i) a. John loaded *the wagon full* with hay.
- b. John loaded *the hay* into the wagon *green*.
- (ii) a. \*John loaded the wagon [<sub>PP</sub> with *hay*] *green*.
- b. \*John loaded the hay [<sub>PP</sub> into *the wagon*] *full*.

<sup>2</sup> Takezawa (2000) argues that the *-ni* locational phrase is base-generated in a higher position within VP in comparison with the *-ni* secondary predicate, based on floating numeral quantifier diagnostics. Since the alleged difference is irrelevant to the present study, I simply assume that both of them are in the complement position of V.

<sup>3</sup> As Takezawa (2000) suggests, it may be that the postposition *-ni* is indeterminate concerning its spatial meaning (namely, between Location and Direction (Goal)), which is determined by the aspectual property of the verb that selects it. One possibility is that the directional interpretation of the *-ni* phrase is licensed by the presence of an morphologically covert directional *p*, but I leave this question open for further research. In this paper, I assume that *-ni* is inherently locational and that directional (Goal) interpretation is derived from the secondary predicative relationship established between the *-ni* phrase and the subject of an unaccusative sentence.

<sup>4</sup> A question naturally arises as to why *-to* does not co-occur with other directional (Path and Source) phrases in Japanese. Path (i.e., “through” in English) is covert and obligatorily incorporated into Vs, hence its incompatibility with *-to*. As to the Source P *-kara* “from,” it is not clear why it cannot appear with *-to*, but it may have something to do with its incorporability into V (Takezawa 2000, Ayano 2002).

<sup>5</sup> The *-made* phrase exhibits behavior that contradicts Talmy’s typological description, in that the *-made* phrase, which appears to express Direction (Goal), can co-occur with unergative verbs of manner of motion. I have shown in my earlier work (Ayano 2007) that it behaves like an adjunct.

<sup>6</sup> Secondary depictive predicates are suffixed by *-de*. In contrast to secondary resultative predicates, they can be predicated of transitive (including unergative)

subjects (subject oriented) as well as of transitive objects and unaccusative subjects (object oriented). Koizumi (1994) has shown that the object-oriented secondary depictive predicates are base-generated in the complement position of a verb whereas the subject-oriented ones are base-generated outside VP by using numeral-quantifier, VP-preposing, pseudo-clefting, *soo-suru* 'do so' and bound variable diagnostics. That is to say, the *-de* spatial phrase behaves like subject-oriented secondary depictive predicates, and object-oriented secondary depictive predicates are base-generated in the same position as secondary resultative predicates.

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# On the Subject of the Japanese Middle and *Tough* Constructions\*

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## Abstract

One of the defining properties of the Japanese middles and *tough* constructions is that the internal argument must be marked as nominative or topicalized, and the external argument remains non-overt. Given this property, it appears plausible that the internal argument is the subject of the sentence. In this paper, however, we discuss what the nature of the subject in these constructions is, and claim that the syntactic subject is the non-overt external argument, which bears an inherent dative Case, and that the internal argument remains as an object throughout the derivation. We demonstrate that our claim is supported by the data showing that the non-overt external argument passes three subjecthood tests and that the internal argument passes an objecthood test.

**Keywords:** middle constructions, *tough* constructions, internal/external argument, subjecthood/objecthood tests

## 1. Introduction

One of the defining properties of middles and *tough* constructions is that the internal argument must be marked as nominative, and the external argument remains non-overt, as shown in (1)a and (1)b:

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- (1) a. This floor washes nicely.  
 b. This floor is nice to wash.

In Japanese middles and *tough* constructions, on the other hand, the internal argument must be either marked as nominative or topicalized, and the external argument remains non-overt as shown in (2)a and (2)b, respectively (cf. Nakau 1991):

- (2) a. *Kono hon-ga/wa kantanni yom-e-ru.*  
 this book-nom/top easily read-MS-pres  
 ‘This book can be read easily.’  
 b. *Kono hon-ga/wa yomi-yasu-i.*  
 this book-nom/top read-easy.to-pres  
 ‘This book is easy to read.’

Given this property, it appears plausible that the internal argument is the subject of the sentence, as in the English middle and *tough* constructions (1). In this paper, however, we discuss what the nature of the subject in (2) is, and put forth two proposals. One is that the syntactic subject is the non-overt external argument, which bears an inherent dative Case, and the other is that the internal argument remains as an object throughout the derivation. We demonstrate that our claim is supported by the data showing that the non-overt external argument passes three subjecthood tests and that the internal argument passes an objecthood test.

## 2. Preliminaries: Syntactic vs. Lexical Middle Languages

To begin with, let us assume that languages are classified into syntactic and lexical middle languages, following Marelj (2004). In particular, we show that Japanese is a syntactic middle language, and propose a syntactic analysis of Japanese middles, which has rarely been attempted so far.

Marelj points out differences between syntactic and lexical middle languages. We are concerned here with only two of them. Specifically, Marelj argues that English is a lexical middle language on the grounds that the English middle formation does not involve morphological marking on verbs and imposes selectional restrictions on verbs. This observation is exemplified by (3) and (4). (3) shows that English middles are not marked by a construction-specific morpheme, and (4) shows that perception and psych

verbs cannot participate in the English middle formation:

(3) These books read poorly.

(4) a. Perception Verbs

\*The mountains see best after rain.

b. Psych Verbs

\*Anniversaries forget easily.

Turning to Japanese middles such as (5) and (6), however, we find that they involve construction-specific morphological marking on verbs.<sup>1</sup> Also, it should be noted that the selectional restrictions on verbs such as those observed in English middles are absent in Japanese middles.

(5) *Korerano kinoko-ga/wa taber-are-ru.*

these mushroom-nom/top eat-MS-pres

‘This mushroom can be eaten (by anyone).’

(6) a. Perception Verbs

*Yugamine-ga/wa santyoo-kara yoku mi-e-ru.*

Mt. Yugamine-nom/top top.of.mountain-from well see-MS-pres

‘Mt. Yugamine can be seen from the top of the mountain.’

b. Psych Verbs

*Iyana koto-ga/wa kantanni wasurer-are-ru.*

bad thing-nom/top easily forget-MS-pres

‘Bad things can be forgotten easily.’

Assuming that Marelj’s diagnostic tests are reliable for classifying languages into lexical or syntactic middle languages, we conclude that Japanese is a syntactic middle language (cf. Taguchi to appear).

### 3. Proposal

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<sup>1</sup> The middle suffix (*are*), glossed as MS in the examples, is homophonous with the potential suffix (and the passive suffix in some cases), which is glossed as PS in the examples below.

In this section, we put forward two proposals regarding the syntactic properties of Japanese middles and *tough* constructions. One is that the syntactic subject of these constructions is the external argument which is not realized overtly, reinforced by the claim that the nominative or topicalized argument stays as the object throughout the derivation (cf. Taguchi to appear), and the other is that the non-overt external argument bears an inherent dative Case.

Before elaborating upon this proposal, we claim that analyzing *tough* constructions in parallel with middles is well motivated. In fact, the analyses along the same line have been proposed for the English data like (1) (e.g. Oosten 1977, Fellbaum 1986, Massam 1988, and Hoekstra and Roberts 1993), based on the observation that both are generic sentences describing the facility of the action denoted by the verb. We would like to claim that the Japanese middle and *tough* constructions like (2) should be analyzed in parallel as well, in the sense that they are also generic sentences describing facility. Although the semantic properties of middles mentioned above are intriguing issues to pursue further, we do not discuss them any further in this paper and leave them to further research.

Given the parallelism between middles and *tough* constructions in Japanese, we propose that the subject in these constructions is an external argument syntactically realized as a non-overt pronominal *pro*. In order to show that our proposal is on the right track, let us consider three diagnostic tests for subjecthood that have been proposed in the previous literature on Japanese syntax. First, as is widely discussed (e.g. Kuno 1973, Katada 1991, etc.), a reflexive anaphor *zibun* ‘self’ in Japanese must be licensed by a [+human] subject antecedent. The grammaticality of (7), where *zibun* is properly licensed, shows that middles and *tough* constructions have such a subject, even though it is not overtly realized:<sup>2</sup>

- (7) a. *Zibun-no hon-ga/wa kantanni yom-e-ru.*  
 self-gen book-nom/top easily read-MS-pres  
 (lit.) ‘Self’s book can be read easily.’
- b. *Zibun-no hon-ga/wa yomi-yasu-i.*  
 self-gen book-nom/top read-easy.to-pres  
 (lit.) ‘Self’s book is easy to read.’

Second, Ura (1999, 2000) claims that the missing subject of an adjunct clause headed by

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<sup>2</sup> See, however, Ackema and Schoonermer (1995) and Marelj (2004) for the claim that the syntactic presence of a subject (more precisely, an agent) in middles cannot be evidenced by anaphor binding, if Reinhart and Reuland’s (1993) approach to the Binding Condition A is adopted (cf. Zribi-Hertz 1993).

*nagara* ‘while’ must be controlled by the matrix subject. The grammaticality of (8), where the missing subject of the adjunct clause is properly licensed, shows that middles and *tough* constructions have a subject that controls the missing subject.

- (8) a. [ *tanosimi-nagara (demo)* ], *kono hon-ga/wa kantanni yom-e-ru.*  
 enjoying-while (even) this book-nom/top easily read-MS-pres  
 (lit.) ‘(Even) while enjoying, this book can be read easily.’
- b. [ *tanosimi-nagara (demo)* ], *kono hon-ga/wa yomi-yasu-i.*  
 enjoying-while (even) this book-nom/top read-easy.to-pres  
 (lit.) ‘(Even) while enjoying, this book is easy to read.’

Third, subject honorification (SH) requires a syntactic subject, which is an SSS, as defined by Harada (1976) as (9) (see also Shibatani 1977, 1978, and others). The grammaticality of (10), where readers in general are taken to be honorified, shows that middles and *tough* constructions have a subject that triggers SH.

(9) Subject Honorific Marking:

Mark the predicate as [Subject Honorific] if its subject is an SSS (a person who is socially superior to the speaker).

- (10) a. *Kono hon-ga/wa kantanni o-yomi-ninar-e-ru.*  
 this book-nom/top easily SH-read-SH-MS-pres  
 ‘This book can be read easily.’
- b. *Kono hon-ga/wa o-yomi-ninari-yasu-i.*  
 this book-nom/top SH-read-SH-easy.to-pres  
 ‘This book is easy to read.’

We thus conclude that middles and *tough* constructions in Japanese involve a syntactic subject that is not overtly realized.

Now, let us turn to our second claim that the non-overt subject of the Japanese middle and *tough* constructions bears an inherent dative Case. We would like to consider two pieces of evidence for this claim. For one thing, Ura (1999, 2000) shows that the above diagnostic tests for subjecthood apply not only to nominative subjects, but also to dative subjects. In this respect, we are arguing that Japanese middles and *tough* constructions are variations of the dative subject construction, as will be discussed below. For another, let us consider the unacceptability of (11) under the middle reading. (11) is

acceptable only under the interpretation that the non-overt subject is recovered from the context (i.e., the subject does not have the arbitrary interpretation, but is interpreted as the non-overt counterpart of a nominative pronoun like *he*, *she*, and *they*).

- (11) #*Kono hon-o kantanni yom-e-ru.*  
this book-acc easily read-MS-pres  
'This book can be read easily.'

We account for the unacceptability of (11) as a middle sentence, with recourse to Shibatani's (1977: 802) filter, which is defined as (12).

- (12) A non-embedded clause of Japanese may have more than one nominative NP, but it requires at least one such NP.

Specifically, if the non-overt subject is indeed marked as nominative in (11), it is predicted that the sentence should be acceptable as a middle sentence, because (12) is satisfied by that subject. However, the prediction is incorrect. On the basis of the unacceptability of (11) under the middle interpretation, we conclude that the non-overt subject in Japanese middles is unable to satisfy Shibatani's filter (12), because it is assigned a Case other than nominative. We thus claim that the subject receives an inherent dative Case. It therefore follows that (2)a, repeated here as (13), is fully acceptable as a middle sentence because (12) is satisfied by the internal argument marked as nominative.

- (13) *Kono hon-ga/wa kantanni yom-e-ru.*  
this book-nom/top easily read-MS-pres  
'This book can be read easily.'

So far, we have been mainly concerned with subjecthood of the non-overt external argument. Now, we would like to turn to the question of what the nature of the internal argument is. Given a well-known fact that Japanese is a multiple subject language, one may wonder if the Japanese middle and *tough* constructions are also instances of multiple subject constructions. However, we follow Taguchi (to appear) in assuming that the internal argument in these constructions does not become the subject, but stays as the object throughout the derivation; for, it does not pass the three diagnostic tests for subjecthood. First, let us compare (14) and (15). Notice that *kono hito-ga/wa* 'this

person-nom/top’ in these examples has the [+human] feature, but it cannot be interpreted to be coreferential with the reflexive pronoun *zibun* in (15). This shows that *kono hito-ga/wa* cannot be taken as the antecedent of *zibun*, because it is not a subject but an object.

(14) a. *Kono hito<sub>i</sub>-ga/wa kantanni damas-e-ru.*  
 this person-nom/top easily deceive-MS-pres  
 ‘This person can be deceived easily.’

b. *Kono hito<sub>i</sub>-ga/wa damasi-yasu-i.*  
 this person-nom/top deceive-easy.to-pres  
 ‘This person is easy to deceive.’

(15) a. \**Kono hito<sub>i</sub>-ga/wa zibun<sub>i</sub>-nitotte kantanni damas-e-ru.*  
 this person-nom/top self-for easily deceive-MS-pres  
 (lit.) ‘This person can be deceived easily for self.’

b. \**Kono hito<sub>i</sub>-ga/wa zibun<sub>i</sub>-nitotte damasi-yasu-i.*  
 this person-nom/top self-for deceive-easy.to-pres  
 (lit.) ‘This person is easy to deceive for self.’

Next, the examples in (16) show that they do not allow the interpretation that *kono hito-ga/wa* controls the missing subject in the embedded *nagara*-clause. These examples are fine if the non-overt external argument in the matrix clause is interpreted as the controller. This means that the non-overt external argument is, but *kono hito-ga/wa* is not a subject.

(16) a. #[ *Warai-nagara (demo)* ], *kono hito-ga/wa kantanni damas-e-ru.*  
 smile-while (even) this person-nom/top easily deceive-MS-pres  
 (lit.) ‘(Even) while smiling, this person can be deceived easily.’

b. #[ *Warai-nagara (demo)* ], *kono hito-ga/wa damasi-yasu-i.*  
 smile-while (even) this person-nom/top use-easy.to-pres  
 (lit.) ‘(Even) while smiling, this person is easy to deceive.’

Finally, let us consider (17), in which *kono hito-ga/wa* triggers SH. Again, these sentences are unacceptable as such, and become fully acceptable middle and *tough* sentences only if the non-overt external argument is interpreted as the trigger of SH. This should be taken as another piece of evidence that the non-overt external argument is, but

*kono hito-ga/wa* is not a subject.

- (17) a. #*Kono hito-ga/wa kantanni o-damasi-ninar-e-ru.*  
this person-nom/top easily SH-deceive-SH-MS-pres  
'This person can be deceived easily.'
- b. #*Kono hito-ga/wa o-damasi-ninari-yasu-i.*  
this person-nom/top SH-deceive-SH-easy.to-pres  
'This person is easy to deceive.'

Before concluding this section, let us have a look at some important data showing that the nominative or topicalized argument in the Japanese middle and *tough* constructions is an object rather than a subject, and that these constructions should be treated on a par with the dative subject construction, as discussed above. First, the examples in (18) show that the nominative or topicalized argument *kono ryoori-ga/wa* in the dative subject construction cannot trigger SH, but it is capable of triggering object honorification (OH), which requires that an SSS must be included in the object, as defined by Harada (1976) as (19):

- (18) a. *Taroo-ni-wa kono ryoori-ga/wa oisiku taber-are-ru.*  
Taroo-dat-top this cuisine-nom/top deliciously eat-can-present  
'This cuisine can be eaten deliciously for Taro.'
- b. #*Taroo-ni-wa sensee-no ryoori-ga/wa oisiku mesia-g-are-ru.*  
Taroo-dat-top teacher-gen cuisine-nom deliciously eat.SH-PS-present  
'The teacher's cuisine can be eaten deliciously for Taro.' (SH)
- c. *Taroo-ni-wa sensee-no ryoori-ga oisiku itadak-e-ru.*  
Taroo-dat-top teacher's cuisine-nom deliciously eat.OH-PS-present  
'The teacher's cuisine can be eaten deliciously for Taro.' (OH)

(19) Object Honorific Marking:

Mark the predicate as [Object Honorification] when an SSS is included in

- (a) the indirect object, if the predicate is ditransitive, or  
(b) the direct object, if the predicate is transitive.

The examples in (20) and (21) show the same pattern; namely, *kono ryoori-ga/wa* in these middle and *tough* sentences cannot trigger SH, but it can trigger OH:

- (20) a. *Kono ryoori-ga/wa oisiku taber-are-ru.*  
 this cuisine-nom/top deliciously eat-middle-present  
 ‘This cuisine can be eaten deliciously.’
- b. #*Sensee-no ryoori-ga/wa oisiku mesiag-are-ru.*  
 teacher-gen cuisine-nom/top deliciously eat.SH-middle-present  
 ‘The teacher’s cuisine can be eaten deliciously.’ (SH)
- c. *Sensee-no ryoori-ga/wa oisiku itadak-e-ru.*  
 teacher-gen cuisine-nom/top deliciously eat.OH-middle-present  
 ‘The teacher’s cuisine can be eaten deliciously.’ (OH)
- (21) a. *Kono ryoori-ga/wa (ano ryoori yorimo) tabe-yasu-i.*  
 this cuisine-nom/top (that cuisine than) eat-easy.to-present  
 ‘This cuisine is easier to eat than that cuisine.’
- b. #*Sensee-no ryoori-ga/wa (senpai-no ryoori yorimo) mesiagari-yasu-i.*  
 teacher-gen cuisine-nom/top (senior’s cuisine than) eat.SH-easy.to-present  
 ‘The teacher’s cuisine is easier to eat than the senior’s cuisine.’ (SH)
- c. *Sensee-no ryoori-ga/wa (senpai-no ryoori yorimo) itadaki-yasu-i.*  
 teacher-gen cuisine-nom/top (senior’s cuisine than) eat.OH-easy.to-present  
 ‘The teacher’s cuisine is easier to eat than the senior’s cuisine.’ (OH)

In this section, we claimed that the syntactic subject of the Japanese middle and *tough* constructions is the external argument which is not realized overtly and bears an inherent dative Case. The nominative or topicalized argument of these constructions, on the other hand, stays as the object throughout the derivation.

#### 4. Conclusion, Consequences, and Further Discussion

In this paper, we have argued that in the Japanese middle and *tough* constructions, the non-overt external argument is the subject realized as a dative *pro*, whereas the internal argument is the object. This argument is evidenced by the observation that the non-overt external argument has the ability of triggering SH, and that OH can, but SH cannot be triggered by the internal argument. In addition, we have shown that the Japanese middle and *tough* constructions pattern with the dative subject construction in these respects.

One of the consequences of our proposal is that Marelj’s account of syntactic

middle languages needs to be reconsidered (cf. Taguchi to appear). Her claim on the [+human] feature is summarized in (22):

(22) In syntactic middle languages, the [+human] feature that is responsible for agentivity of middles, is introduced only in LF.

However, there are two observations that argue against Marelj's claim. First, given Belletti and Rizzi's (1988) observation that Condition A of the Binding Theory may apply in overt syntax, it is hard to account for the successful binding relation in (7), repeated as (23). More specifically, given the claim by Kuno (1973), Katada (1991), and others that a reflexive anaphor *zibun* in Japanese must be licensed by a [+human] subject antecedent, it should follow that the [+human] feature must have been introduced in overt syntax.

- (23) a. *Zibun-no hon-ga/wa kantanni yom-e-ru.*  
 self-gen book-nom/top easily read-MS-pres  
 (lit.) 'Self's book can be read easily.'
- b. *Zibun-no hon-ga/wa yomi-yasu-i.*  
 self-gen book-nom/top read-easy.to-pres  
 (lit.) 'Self's book is easy to read.'

Second, let us turn to another consequence by taking seriously Niinuma's (2003) claim that honorification is a syntactic Agree operation with respect to the [+human] feature. Crucially, Boeckx and Niinuma (2004) and Boeckx (2006) explicitly claim that honorification must apply prior to short scrambling of the object that triggers object honorification. This is shown by the examples in (24), where the Defective Intervention Condition on Agree is still at work after short scrambling of the object:

- (24) a. *#Taroo-ga Mary-ni Tanaka sensee-o go-syookai-si-ta.*  
 Taroo-nom Mary-dat Tanaka teacher-acc OH-introduce-OH-past
- b. *#Taroo-ga Tanaka sensee-o Mary-ni go-syookai-si-ta.*  
 Taroo-nom Tanaka teacher-acc Mary-dat OH-introduce-OH-past  
 'Taro introduced Prof. Tanaka to Mary.'

If honorification must take place prior to purely syntactic operations such as scrambling, the [+human] feature must be introduced in overt syntax, rather than in LF.

Finally, we would like to touch slightly on the difference between English and Japanese regarding the licensing of the internal argument in middles and *tough* constructions. We suspect that the difference may be due to either of the following two reasons. One is that in Japanese, the internal argument can have its nominative Case checked off by AgrO/v (cf. Saito and Hoshi 1999, Tada 1992, 1993, Yatsuhiko 1999, Wurmbbrand 2001, etc.). In English, on the other hand, the internal argument must move to SpecTP. The other is that in Japanese, *pro* moves to SpecTP and thus the internal argument remains as the object (contra Takahashi 2001). In English, on the other hand, *pro* is unavailable and thus the internal argument moves to SpecTP.

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## Another Middle Construction in Taiwanese Southern Min: *buebai+V*\*

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### Abstract

This paper introduces a Middle Construction in Taiwanese Southern Min<sup>1</sup>: *buebai+V*, e.g., *Tsit khuan tsinn buebai than* ‘This kind of money is quite easy to earn.’ It is argued that *buebai+V* is categorized as Middles because it fits the following general properties of Middles: (i) the logical object is expressed as the grammatical subject, (ii) no syntactically-expressed logical subject allowed, (iii) no intentional adverbs/ purposive clauses allowed, (iv) no imperative mood and progressive aspect allowed, and (v) no long-distance binding allowed.

A new perspective on the controversial Agent expression *tui gua lai kong* ‘for me/ as far as I am concerned’ is solved in this paper, and it also claims that *buebai* is a prefix rather than a free morpheme by (i) independence test and (ii) constituent insertion between *buebai* and its following V. Besides, it is noticed that in TSM Middles, there are no adverbials. It’s not an adverbial but a prefix that triggers dethematicization in TSM Middles.

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<sup>1</sup> Taiwanese Southern Min= TSM

Different from what had been claimed by Fagan (1992) “Adverbials in Middles are used to convey certain properties of their subjects...”, this paper then argues that those Middle prefixes in TSM, such as *ho* ‘good’, *bai* ‘bad’, *u* ‘have’, *bo* ‘have no’ (Lien, 2005), and *buebai* ‘not bad’, and Middle adverbs in English/German, such as *easily* and *well*, all modify the repeatability, easiness or difficulty of the action itself, rather than the properties of the grammatical subject. For example, in *Tsit khuan tsinn buebai than* ‘This kind of money is quite easy to earn,’ the prefix *buebai* ‘not bad’ modifies the verb *than* ‘earn’ rather than the subject *tsit khuan tsinn* ‘this kind of money’ because the easiness/difficulty of earning money has nothing to do with the goodness or badness of the money.

At last, I observed a contact-induced Middle occurring between TSM and Mandarin used by youngsters in Taiwan: *bucuo* + V. *Bucuo* + V becomes rather productive after it is borrowed from TSM into Mandarin in recent years and becomes part of Mandarin. However, it is not as productive as *buebai*+V in TSM, and there are still certain differences in its c-selection.

## **1. Introduction**

Middle Construction is a heterogeneous construction, which lies between active voice and passive voice. Toughs and Middles in Chinese are usually mentioned together because their similar semantic and syntax representation. However, there are still some crucial

characteristics for us to tell between them: Toughs allow overt presentation of Agent and non-local subject which is embedded, while Middles can only bear implicit Agent and no non-local subject.

In this paper, I discuss the syntactic structure of ‘*buebai* + V’ in TSM, by first arguing that the syntactic behaviors of ‘*buebai* + V’ is Middles in that it bears implicit Agent and no non-local subject, which are the main differences between Toughs and Middles. Then I tried to argue Agent in Middles is syntactic covert but semantically overt. Besides, that the adverbials in Middles are to present the properties of the subject is proved incorrect, but I claim that it presents actually the difficulty or easiness of the action itself.

In Section 2, I review those earlier analyses about Middles in English, German, and French to conclude that Middles are heterogeneous. Section 3 encloses the behavior of *buebai* + V construction, and Section 4 claims that *buebai* + V is Middles but it also behaves “untypically” in certain aspects. Section 5 is the structure of *buebai*+V, and finally, in Section 6 is the conclusion.

## **2. Previous Analysis on Middle Construction**

A two-place predicate is a predicate that features internal argument and external argument in terms of argument structure. Middle construction is a voice system between agentive voice and passive voice. The typical properties of Middles are as follows: (i)

Middles are generic statements that do not describe particular events; (ii) intentional adverbs, purposive phrases, and small clauses are not allowed in Middles; (iii) Middles are also not allowed in imperative or progressive constructions; (iv) Agent in Middles is syntactic implicit; (v) the grammatical subject of the Middles is its notional or logical object; (vi) Middles do not allow non-local subject.

## 2.1 Generic/ Non-eventive Reading

Middles convey generic /non-eventive reading (Keyser and Roeper, 1984) and not to refer to actual events, which refers to single or repeated actual performances of the action expressed. Meanwhile, generic reading is the crucial difference between English ergatives and Middles, as in (1). Ergatives describe particular events in time while Middles don't.

- (1) a. \*The truck handled smoothly *yesterday*. (Middles)  
b. The ice melted *yesterday*. (Ergatives)

Although Middles sometimes occur in progressive construction, as in (2), they are not considered as eventive in that this progressive focuses on the change over time; that is, this middle progressive actually focuses on the differences in degree between *sets of related states/a succession of states* rather than change of a single event (Bland, 1988).

- (2) a. The truck *is handling* smoothly.

What is “generic/non-eventive” about Middles is not always the action itself but the

expression that any potential Agent can perform, or could have performed, the action with the result, or in the manner, indicated. Thus, it is not the action but Agent that is nonspecific or generic.

## 2.2 Forbiddance of Intentional Adverbs, Purposive Phrases, and Small Clauses

Intentional adverbs, purposive phrases, and small clauses are not allowed in Middles, as shown in (3).

- (3) a. \*Bureaucrats bribe easily *intentionally*. (Intentional adv)  
b. \*The book sells *to secure government contracts* easily. (Purposive Clause)  
c. \*The floor waxes more easily *naked*. (Small clause)

Middles are said to posit a generic reading and describes the qualities of the Patient-subject (Fellbaum, 1986). Therefore, that *intentionally* posits an eventive reading and a subject-oriented agentivity leads the ungrammaticality of (3). The ungrammaticality of (3) is in that Patient controls a subsequent purposive clause, while Agent implicit in Middles (PRO) can never exercise control, shown as in (4). The small clause *naked* in (3) posits an eventive reading, but Middles can only have a generic reading, which triggers the ungrammaticality.

- (4) \*The book<sub>i</sub> sells [to [PRO secure government contracts t<sub>i</sub>] easily]

## 2.3 Forbiddance of Imperative or Progressive Forms

Middles don't form in an imperative mood. The "addressee" of an imperative mood based on the active form of a verb is always the Agent of the action referred to, and progressive aspect describes an ongoing event. However, Middles tend to make certain properties of the Patient/Instrument/Location outstand and suppress the role of Agent. It is generic and descriptive, but does not "command" someone to have certain properties in certain time, as in (5).

- (5) a. \*Bribe easily, bureaucrats!
- b. \*Bureaucrats are bribing easily.

Vendler (1967) distinguishes four classes of verbs: activities, accomplishments, achievements, and states. Among them, only activities and accomplishments are valid in Middles.

- (6) a. *Activity*: This ball plays easily.
- b. *Accomplishment*: This book reads easily.
- c. *Achievement*: \*The blackbird recognizes easily.
- d. *State*: \*The fact knows easily.

In addition, corresponding to Middles, progressives treat activities and accomplishments valid to but achievements and states invalid.

- (7) a. *Activity*: This boy is playing the ball.

- b. *Accomplishment*: This boy is reading the book.
- c. *Achievement*: \*I am recognizing the blackbird.
- d. *State*: \*He is knowing the fact.

Note that the progressive test does not always functions well in that it can't account for the contrast between *buy* and *sell* (Fagan, 1992) as in (8), cf. (9). It looks that aside from aspectual characteristics and thematic characteristics of the verbs, we need a more accurate standard--*Agentivity*.

- (8) a. \*This book buys well.
- b. This book sells well.
- (9) a. John is buying the book.
- b. John is selling the book.

## 2.4 Agentivity

In Ackema and Schoorlemmer (1995), Condoravdi (1989), Fagan (1992), Fellbaum (1986), Stroik (1992), Hoekstra and Roberts (1993), the Agent of Middles has been argued either to be present at certain semantic level or to be syntactically realized. They assume the presentation of Agent as the main characteristic of Middles.

The present of the Agent in Middles is a controversial issue. Many linguists claim that the Agent in Middles can be overtly present as a *for*-phrase, shown as in (10).

- (10) a. No Latin text translates easily *for Bill*.
- b. French books read easily *for educated people*.

But this assumption is too weak because identical *for*-phrases can also occur in the non-middle sentences without any implicit argument, as in (11). It is just a semantic requirement of Middles to identify the one who expresses his/her opinion with the Agent of the Middles. Therefore, A&S (1995) argue that *for*-phrases don't present the Agent but the experiencer of Middles. There is no evidence showing that Agent phrases in Middles are syntactically present. In (11), *Mary* or *Bill* is just the experiencer but the Agent. Fagan (1992) and H&R (1993) adopt "Affectedness Constraint" to limit the Agent range in Middles. But this claim is much weaker in that there are so many Middle verbs triggering no effect on their Patient, as in (12).

- (11) a. That book is too thick **for Mary**.
- b. As far as translation is concerned, no Latin text poses a problem **for Bill**.

- (12) This book reads easily.

Fellbaum (1986) claims the subject of Middles has some syntactic features of both Agent and Patient; both roles seem to merge in one NP tolerated by this construction. French, German, and Russian do not have syntactically distinct Middles, in order to express the equivalent meaning, they employ constructions where Agent and Patient have the same

referent.

On the other hand, Stroik (1992) used anaphor binding to argue that Agent in Middles can actually license an anaphor in DS. Nevertheless, no matter which side we take, either that the Agent is base-generated as *pro*, as in (13), or that there is a PRO in DS as the antecedent of the anaphor, shown as in (13) and Binding Principle A is applied everywhere, the claim that no NP-movement takes place in Middle will crash. Thus, I tend to say that Agent in Middles is syntactically suppressed, and that the reflexive pronoun in (13) is in fact a logophoric expression, SELF, which do not need a syntactic antecedent, rather than an anaphor.

(13) a. [IP[Books [about oneself]]<sub>i</sub> [I' I [VP *pro* [V' write t<sub>i</sub> poorly.]]]]

b. [IP[Letters [to oneself]]<sub>i</sub> [I' I [VP [VP [V' compose t<sub>i</sub> quickly.]]PRO]]]

Given that Agent in Middles can never be present overtly, Middles are syntactically agentless constructions. However, they do not exclude Agent semantically, and it is clearly implied as volitional instigators of the action referred to (Fellbaum, 1986).

Roberts (1987) takes intentional adverbs (*deliberately/intentionally*) and purposive phrases (*in order to*) as tests for agentivity to support his claim that only activities and accomplishments semantically have external Agents, as in (14).

(14) a. *Activity*: John deliberate ran to keep fit. (Fagan, 1992)

- b. *Accomplishment*: John intentionally built the house to show off his expertise.
- c. *Achievement*: ?John voluntarily noticed Mary in order to incriminate her.
- d. *State*: ?John deliberately believed Mary in order to annoy other people.

There're still other tests for agentivity in Fagan's (1992) work yielding similar results. For example, (i) a sentence contains Agent if it can occur as the complement of a control verb (*persuade, force, command, ask...*), (ii) a verb exhibits Agent argument if it can form imperative sentences. However, in order to account for the *buy/sell* puzzle, she takes *Responsibility*<sup>2</sup> and *an aspectual approach* as the standard constraints on English Middles in the end.

It looks that crucial restrictions in Middles are language-specific. In English/German Middles, they are *Responsibility* and *an aspectual approach*; in French, it's *transitivity*. Besides, different from English/German Middles, French Middles can be used to describe events, and aspectual properties in French Middles play no important role.

## 2.5 No non-local subject in Middles

Middles do not allow non-local subject, as shown in (15). *The bureaucrats* is no longer the legitimate object of *bribe* and turns into the matrix subject of *tries*, which causes a semantic change that violates the expression that the one who is bribed is the bureaucrat. The

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<sup>2</sup> The concept "responsibility" proposed by Van Oosten (1977,1986) means that the object of a verb can be used as the subject of a middle if it is understood to be responsible for the action of the verb.

ungrammaticality of (15) is the same as the reason why Middles do not allow purposive clause: the Patient controls a subsequent purpose clause, while Agent can never exercise control.

(15) \*The bureaucrats<sub>i</sub> try [<sub>CP</sub> to [<sub>IP</sub> PRO [bribe t<sub>i</sub> easily]].

There are many papers talking about the NP-movement of the grammatical subject (the logical object) and arguing that the middle verb's logical object moves from the complement of the verb to [Spec, IP]. The verb's subject theta-role is assigned to pro in VP-internal subject position (H&M, 1990), as in (16), or to PRO adjoined to VP (Stroik, 1992), as in (16).

(16) a. [<sub>IP</sub> The walls<sub>i</sub> [<sub>I'</sub> I [<sub>VP</sub> pro [<sub>V'</sub> paint t<sub>i</sub> easily]]]]

b. [<sub>IP</sub> The walls<sub>i</sub> [<sub>VP</sub> [<sub>VP</sub> [<sub>V'</sub> paint t<sub>i</sub> easily]]PRO]]]

However, A&S (1995) and K&R (1984) claim that the grammatical subject in Middles undergoes no movement. If Middles are derived from NP-movement, just like passive construction, it should have allowed preposition stranding as in (17).

(17) a. John<sub>i</sub> was laughed at t<sub>i</sub>.

b. \*John<sub>i</sub> laughs at t<sub>i</sub> easily.

Here, the subject of Middles is argued to be base-generated in [Spec, IP]. The dethematization of the verb in Middles are triggered by an operator moving from the complement of the verb to [Spec, VP], and the subject coindexes with the operator, illustrated

in (18).

(18) [IP The walls<sub>i</sub> [VP OP<sub>i</sub> [VP PRO [v' paint t<sub>i</sub> easily]]]]

## 2.6 Adverbs in Middles

The adverbs in English Middles convey the most important information in the sentences. Middles can only make oblique reference to Agent through the adverb (Fellbaum, 1986). It has a part of the meaning implicating that it is the subject's property that causes Agent to perform the action with ease. The adverb rescues the construction by licensing the generic in habitual reading, a reading in which the speaker is not talking about a specific set of metal, but a specific set of events of the same type metal (Hale & Keyser, 1993, 2002). The meaning is that every time an event of this type is performed, the event is performed easily, as in (19).

(19) a. The book sells easily

b. \*The book sells.

While passives allow adverbs of all kinds, Middles admit only a limited group of adverb, one of which is called "facility adverb" (Vendler, 1984), such as *fast*, *quickly*, *in a jiffy*, *beautiful*, which refer to the degree of facility and speed with which any Agent can perform the action expressed in the sentences. It is the Patient that governs the choice of the adverb, and it's also the reason why Agent is suppressed rather than Patient. Those adverbs allowed in Middles refer not to qualities of individual Agents, but to Agent-Patient features pertaining to

the performability of the action (Fellbaum, 1986). As we can see that the following three sentences in (20) refer the same.

- (20) a. This flashlight plugs in easily.
- b. *Anybody* can easily plug in this flashlight.
- c. This flashlight can be plugged in easily *by anybody*.

That the implicit Agent of Middles can be translated into *anybody* is due to Middles conveying generic reading and it does not refer to specific Agent. The action in Middles is performable by any Agent but only the Patient's properties are reflected in the adverbs.

## 2.7 Verbs in Middles

Verbs in English Middles change the argument structure, making the Patient as the subject and dethematizing Agent, shown as (21). It is *the bureaucrat* that is bribed; *the bureaucrat* is the notional object of *bribe*.

- (21) The bureaucrat bribes easily.

Fagan (1992) demonstrate that Middle verbs must (i) not be achievements or states, (ii) must be agentive, and (iii) must not be ditransitive. Besides, Fellbaum (1986) also claims that verbs in English Middles must contain a transitive form of a transitive/intransitive pair as (22). If Middles were intransitive, it ought to be able to form verbal compounds the way like (23), c.f. (24). If Middles were ditransitive, the dethematization would cause a conflict in focus.

K&R (1984) agree with that a very large number of verbs which requires volitional cooperation or involvement of Patient cannot appear in Middles, like verbs of perception, doubting, understanding, emotion, etc, as in (25). These verbs seem to require Agent with specific mental properties/states of mind; such properties cannot be attributed to the nonspecific Agent implied in Middles.

(22) a. The engine lifts/ \*rises out easily.

b. The mosquitoes kill/\*die only with a special spray.

(23) a. The river *runs* slowly. (intransitive)

b. This is a slow-running river.

(24) a. She *makes* peace easily. (transitive)

b. \*She is an easy-making person.

(25) a. \*The employee doubts easily.

b. \*This kind of storybooks understands easily.

Another evidence for that the verbs in Middles are transitive is that, only intransitive, but not transitive verbs, can form gerundive adjectives, as in (26) and (27). And we found that Middle verbs cannot, either, as illustrated in (28). The unacceptability of (28) is actually due to that the gerundive adjectives do not refer to permanent properties of the modifée. Gerundive adjectives are eventive (Fagan, 1988), and thus convey no generic reading, which

is one of the characteristic of Middles.

- (26) a. The rapidly revolving gears  
b. The endlessly babbling senators

- (27) a. \*The reading book  
b. \*The hitting balls

- (28) a. \*The bribing officer  
b. \*The selling book

### 3. Syntax of *buebai*+V

The first obvious characteristic of *buebai*+V is that *buebai*+V has the logical object realized as the grammatical subject, and when *buebai* is added in this construction, Agent is suppressed. In (30), the *gua* 'I' in the PP *dui gua lai kong* 'as far as I am concerned' appears to be Agent of Middles. But from the above discussions, we know that it is just an Experiencer but Agent. We may take certain tests to see if there's also Agent in TSM Middles, shown as in (31).

- (29) a. *gua khuann tsit pun tshe*  
I read this CL book  
'I read this book.'

b. tsit pun tshe buebai khuann

this CL book not bad read

‘This book reads easily.’

c. \*gua buebai khuann tsit pun tshe

I not bad read this CL book

(30) **dui gua lai kong** tsit pun tshe buebai khuann

as far as I am concerned this CL book not bad read

‘As far as I am concerned, this book reads easily.’

(31) a. *Intentional Adv Test*

\*tsit pun tshe **tiaokang** buebai khuann

this CL book intentionally not bad read

‘\*This book intentionally reads easily.’

b. *Purposive Phrases Test*

\*tsit pun tshe **uitio** **be be** **tshutkhi** buebai khuann

this CL book in order to want sell out not bad read

‘\*In order to be sold, this book reads easily.’

c. *Long-distance Binding Test*

\*tsit pun tshe **iaokiu** buebai khuann

this CL book command not bad read

‘\*This book commands to read easily.’

d. *Imperative Sentence Test*

\*tshe, buebai khuann!

book not bad read

‘\*Book! Read easily!’

Since passive form *hoo paklang* (‘by others’), unaccusative, locative-existential predicates, transitive sentient verbs, and unergative sentient verbs are all agentivity-oriented (Tsai, 2008). When taking them as tests of agentivity, it’s obvious that Agent is syntactically suppressed.

(32) a. \*tsit pun tshe buebai **hoo paklang** khuann (Passive)

this CL book not bad by others read

‘\*This book reads easily by others.’

b. \*tsit tiunn pisai buebai su (Unaccusative)

this CL contest not bad lose

‘This contest loses easily.’

c. \*intao buebai lai tsit e shiochia (Locative-existential)

their house not bad come one CL lady

‘\*A lady comes easily.’

d. \*tsit chiong hue buebai kayi (Transitive sentient verbs)

this CL flower not bad like

‘\*This kind of flowers like easily.’

e. \*ato buebai hao (Unergative sentient verbs)

Ato not bad cry

‘Ato cries easily.’

The second characteristic of *buebai*+V is that it denotes a generic reading, as in (33).

The generic reading is said to come from the properties of the subject. However, along with other TSM Middles in (34), we can see that the properties of the subject have nothing to do with the degree of easiness or difficulty of the action. For example, in (34), the goodness/badness has nothing to do with the easiness of buying. Furthermore, (34) also shows us that not only adjectives but also verbs would affix onto Middle verbs. When using *u* ‘have’ or *bo* ‘have no’ as the Middle prefix, it is much harder to say they are the properties of the subject. Therefore, I may say that at least in TSM, the generic reading in Middles does not come from the Patient<sup>3</sup>.

(33) a. tsit ki pit buebai sia

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<sup>3</sup> This characteristic is semantically similar to that of the adjective in Tough Construction, and this might be why Middles and Toughs in Chinese usually look similar.

this CL pen not bad write

‘This pen writes well.’

b. \*tsit ki pit tsang buebai sia

this CL pen yesterday not bad write

‘\*This pen wrote well yesterday.’

c. \*tsit ki pit tsimma buebai sia

this CL pen PROGRESSIVE not bad write

‘\*This pen is writing well now.’

(34) a. tsit ki pit **ho** be

this CL pen good buy

‘This pen buys easily.’

b. tsit ki pit chin **bo** sia

this CL pen very have no write

‘This pen is not durable.’

c. tsit ki pit chin **u** sia

this CL pen very have write

‘This pen is durable.’

Third, it seems that grammatical objects are all possible in Middles, but Middles reveal a



(39) \***tsit tsia tsiaoa** buebai pue  
 this CL bird not bad fly  
 ‘This bird flies easily.’ <Agent>

(40) \***tsit tiao kua** buebai thianntio  
 this CL song not bad hear  
 ‘\*This song hears easily.’ <Experiencer, Patient >

What’s worth noticing is that when *buebai* takes transitive V with locative arguments (as (36)), it is Location rather than Patient that goes to be the subject. When *buebai* takes verb with instrumental arguments as (37), Instrument rather than Patient would be the subject. However, not all three-place predicates result in the same construction; that is, to leave Patient aside and take the rest argument as its subject. When *buebai* takes verb with Goal, it is Patient but not Goal that comes out to be the subject.

(41) There seems to have a ranking:  
 Location, Instrument > Patient > Goal

Fifth, *buebai+V* construction doesn’t go with progressive sentences, shown as in (31), repeated here as (43).

(42) \***tsit ki pit tsimma** buebai sia  
 this CL pen PROGRESSIVE not bad write

‘\*This pen is writing well now.’

Finally, the subject of *buebai*+V is base-generated rather than moved. If Middles are derived from NP-movement, just like passive construction, it should have allowed reconstruction (43)<sup>5</sup>.

(43) a. **tsit ki pit** buebai sia  
this CL pen not bad write  
‘This pen writes easily.’

b. \*gua buebai sia **tsit ki pit**  
I not bad write this CL pen

#### 4. *Buebai*+V Construction as Middles

From the above syntactic behaviors, we may clearly define *buebai*+V construction as Middles because it fits the following general properties of Middles: (i) the logical object is expressed as the grammatical subject, (ii) no syntactically-expressed logical subject allowed, (iii) no intentional adverbs/ purposive clauses allowed, (iv) no imperative mood and progressive aspect allowed, and (v) no long-distance binding allowed.

However, in addition to the above properties, *buebai*+V construction contains some other special behaviors which are a little different from ‘typical’ Middles.

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<sup>5</sup> Since prepositions in Chinese (including TSM) is hard to define, I would not take preposition stranding as a test.

First of all, typical Middles seem to be infelicitous without an adverb of manner, like *easily, well...* etc, but TSM Middles are observed to contain only prefixes and no manner adverbials. Moreover, making Middle sentences with postverbal adverbials is only possible when we use a Middle aspect morpheme *qilai*<sup>6</sup> (in Mandarin Chinese) or *khitlai* (in TSM); otherwise, it results in ungrammaticality, as in (44). Notice when we use *khitlai*, various adverbials are valid; when we use Middle prefix *buebai* 'not bad', *ho* 'good', *bai* 'bad' or 'have' or *bo* 'have no', no postverbal adverbials are allowed, as in (45). (Due to that there's no adverbial forms for *buebai*, we take another Middle prefix *ho* 'good' as an example.)

(44) a. tsit ki pit sia-khitlai chin **sun**  
 this CL pen write-KHITLAI very smoothly  
 'This pen writes quite smoothly.'

b. \*tsit ki pit **sun**-sia  
 this CL pen smooth-write

(45) a. tsit ki pit **ho** sia  
 this CL pen good write  
 'This pen writes smoothly.'

b. \*tsit ki pit sia **ho**

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<sup>6</sup> Please refer to Wang Yu-yun (2004) for further information.

this CL pen write well

This may raise two questions: Why are manner adverbials necessary in English Middles but not in TSM Middles? Without Middle morphemes like *khitlai*, how do *ho/bai/u/bo/buebai*+V form a Middle voice? After getting to know Middles in other languages, we know that Middles without adverbials are also natural. In Fagan's (1992) work, although French Middles often occur with an adverbial expression, an adverbial is by no means obligatory, as in (46). Besides, although German and English Middles "typically" require the presence of adverbials; with pragmatic consideration, not all Middles involve overt adverbials, as in (47).

(46) *French Middles without Adverbials*

a. Ce papier se lave.

'This paper is washable.'

b. Cette racine se mange.

'This root is eadible.'

(47) *German Middles without Adverbials*

dieses Kleid knopft sich zu

this dress botton be to

'This dress buttons.'

Then, how Middles without adverbials are triggered? As to TSM, it seems reasonable to say that *buebai* plays the role. The same as modifiers like adverbials, *buebai* morphologically (but not syntactically) modifies the difficulty or easiness of the action. In this sense, sentence (46) logically means “in general, events in which someone x write words with this pen are not bad for x.” It may be written as:

(48)  $G^7[\text{write}(x, \text{words}, e)](\text{not bad}(e, \text{for } x))$

On the other hand, that *buebai* is a prefix rather than a free morpheme is attested through (i) independence test, (ii) constituent insertion between *buebai* and its following V, and (iii) attachment of phase markers.

If what we called as prefixes in Middles (*buebai* ‘not bad’, *ho* ‘good’, *bai* ‘bad’ *u* ‘have’ and *bo* ‘have no’) are all free morphemes in Middles, showing up independently should be possible. However, in (49), although it is possible, the semantic entailment of its free form is different from that of its prefix form. Besides, when in free forms, they act quite differently. Among them, *buebai* ‘not bad’, *ho* ‘good’, and *bai* ‘bad’ represent the properties of the subject, but *u* ‘have’ and *bo* ‘have no’ are not possible for this construction. The most plausible explanation would be that *buebai* ‘not bad’, *ho* ‘good’, and *bai* ‘bad’ are originally adjectives (or adjective verbs in some people’s sense), which are used to modify objectives,

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<sup>7</sup> G is a generic operator.

while *u* ‘have’ and *bo* ‘have no’ are possessive verbs, which cannot present pluraction/duration in their free forms<sup>8</sup>. Therefore, since the semantic entailment of the free forms of *buebai* ‘not bad’, *ho* ‘good’, and *bai* ‘bad’ differs from that in Middles, I believe in Middles they are prefixes rather than free morphemes.

(49) *Independence Test*

a. tsit ki pit **buebai/ho/bai**  
 this CL pen not bad/good/bad  
 ‘This pen is quite good.’

b. \*tsit ki pit **u/bo**  
 this CL pen have/have no

Similarly, if what we called as prefixes in Middles are actually free morphemes, inserting a constituent between it and the verb would also be possible. In (50), we see that it’s not possible for *buebai*+V to be inserted by an adjunct *ti-toa-ting* ‘on the table.’ From the above discussion, *buebai* is concluded as a prefix and *buebai*+V is a complex predicate.

(50) *Constituent Insertion*

tsit ki pit buebai (**\*ti toa ting**) sia  
 this CL pen not bad be table upon write

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<sup>8</sup> Obviously, *u* ‘have’ and *bo* ‘have no’ underwent grammaticalization to be the prefix of Middle verbs.

‘\*This pen writes smoothly on the table.’

## 5. Location of Middle Verbs

As to the placement of Middle verbs, I adopted A&S (1995), K&R (1984) and Tsai’s (2007) analysis on two types of light verbs in Mandarin Chinese and correspondent examples in TSM to locate Middle verbs in the “inner” light verb. In (51), *tsit ki pit* ‘this pen’ base-generates in [Spec, vP] as a causer, and the verb *sia* ‘write’ moves from V to v [CAUSE]. Therefore, I may analogize to say that in (51), *tsit ki pit* ‘this pen’ also base-generates in [Spec, vP], and the verb *sia* ‘write’ moves from V to v [BE]. (That I assume the entailment of this light verb as BE is because semantically, the subject has the property of being used smoothly. Note that the whole predicate represents the properties of the subject, but the adverbial itself represent only the difficulty/easiness of the action.)

(51) a. *tsit ki pit [sia-ka]<sub>k</sub>+CAUSE Abingt<sub>k</sub> jiošhiungkhi*

this CL pen write-Res Abing furious

‘This pen made Abing write such that he became furious.’

b. *tsit ki pit [buebai-sia]<sub>k</sub>+BE t<sub>k</sub>*

this CL pen not bad-write

‘This pen writes smoothly.’

c.  $[_{IP} \text{tsit-ki-pit}_i [_{VP} [_{v'} \text{buebai-sia}_k [_{VP} \text{OP}_i [_{VP} \text{PRO} [_{V'} t_k t_i]]]]]]]$

At last, I observed a contact-induced Middle occurring between TSM and Mandarin used in Taiwan: *bucuo* + V in Mandarin. *bucuo* + V becomes rather productive after it is borrowed from Taiwanese into Mandarin in recent years and becomes part of Mandarin. However, it is not so productive as *buebai*+V in Taiwanese Southern Min, and there are certain differences in their c-selection.

## 6. Conclusion

In this study, we have argued that the *buebai* + V in Mandarin is Middle because of the following properties of *buebai* + V: (i) the Patient in *buebai*+V construction is realized as the matrix subject, (ii) verbs in *buebai*+V construction suppress the appearance of its Agent, (iii) *buebai*+V construction doesn't allow intentional adverb, and it would not be in purposive clauses or small clauses, (iv) *buebai*+V denotes a generic property of the subject, (v) *buebai*+V does not have imperative or progressive constructions, and (vi) *buebai*+V does not allow non-local subject. Among those characteristics, that the implicit Agent in *buebai*+V construction and the required local subject are the crucial points for us to categorize *buebai*+V construction as Middle.

The controversial Agent expression *tui gua lai kong* 對我來說 'for me/ as far as I am concerned' in Mandarin and TSM is proved not to be an agentive expression. Besides, it is noticed that in TSM Middle, there are no adverbials. It's not adverbials but prefixes that

trigger dethematicization in TSM Middles. I also proved that *buebai* in Middles is a prefix rather than a free morpheme because it doesn't fit (i) independence test, (ii) constituent insertion between *buebai* and its following V and (iii) attachment of phase markers.

Different from what had been claimed by Fagan (1992), this paper argues that those Middle prefixes in TSM, and Middle adverbs in English/German, all modify the repeatability, easiness or difficulties of the action itself, rather than the properties of the grammatical subject.

At last, a contact-induced Middle occurring between TSM and Mandarin used by youngsters in Taiwan is introduced for further study: *bucuo* + V. *Bucuo* + V becomes rather productive after it is borrowed from Taiwanese into Mandarin in recent years and becomes part of Mandarin. However, it is not as productive as *buebai*+V in TSM, and there are still certain differences in their c-selection.

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# A Lexical Analysis of Korean Relative and Topic Constructions: Gaps, Island Constraints, and Resumptive Pronouns

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## Abstract

In Korean, relativization and topicalization license similar unbounded dependencies between a filler and a gap. Relative clauses (RCs) and topic constructions (TCs) also each divide into two subcategories: gapped constructions vs. gapless constructions, depending on the presence or absence of a gap. In addition, gapped relative clauses and gapped topic constructions show similar behaviors in terms of island constraint violations and strong crossover phenomena, as well as in terms of semantic and pragmatic constraints. The current analysis focuses on gapped constructions and investigates various semantic and syntactic constraints on these constructions. It provides a lexical analysis for representing filler-gap dependencies in gapped RCs and TCs, while accounting for similarities in their grammatical behaviors with respect to islands and resumptive pronouns.

**Keywords:** relative clauses, topic constructions, long-distance dependency, trace, island constraints, strong crossover

## 1. Introduction

Korean Relative Clause Constructions (hereafter RCs) differ from English counterparts in two ways. There are no overt relative pronouns, and the presence of an RC is marked by verbal suffixes such as *-nun*, *-ul*, *-un*, and *-ten*, as in example (1).

- (1) Mira-ka             $e_i$             mek-nun/un/ten            sakwa  
Mira-Nom                            eat-REL                            apple  
'the apple that Mira eats/ate/had eaten'

Whereas a relativized head noun appears in the rightmost position of a clause a topicalized element appears in the leftmost sentence-initial position, as in (2).

- (2) sakwa-nun            Mira-ka             $e_i$             mek-nun/-essta  
 Apple-Top            Mira-Nom                            eat-REL  
 ‘As for the apples, Mira eats/ate/had eaten them.’

In both constructions, an extracted element has an interpretation of semantic uniqueness or exclusiveness. In an RC, the relative clause adds a restriction to the set (or individual) specified by the head noun. Topicalization provides a restriction that the comment that follows is attributed to the topic element but not to others.

Gapped RCs and Topic Constructions (hereafter TCs) are different in that only TCs hold a strong dependency between a gapped element and its filler by maintaining syntactic connectivity; the topicalized element can be accompanied by the morphosyntactic case marker that originated from the gapped position. Korean RCs do not show strong dependency because they lack overt relative pronouns. However, RCs do show semantic connectivity between a gap and the following head noun.

Previous research on both constructions has focused on how to account for syntactic structure licensing an unbounded dependency between a gap and its filler. This approach seems logical given that gapped Korean RCs and TCs have very similar patterns with respect to island constraints of the complex noun phrase constraint (CNPC), the sentential subject constraint, and the adjunct constraint. The current analysis includes a new structural mechanism that licenses unbounded dependencies of both gapped RCs and TCs in Korean within the framework of Head-Driven Phrase Structure Grammar. In contrast to previous work, this paper also provides data demonstrating that island constraints are not dependent on syntactic structure, but on semantic, pragmatic, and processing factors. The analysis supports the argument that gapped RCs and TCs show similar long-distance relationships based upon similar semantic predication between the head noun and its modifying relative clause and between the topic and the comment.

## 2. Gapless Constructions

Both Korean RCs and TCs can be divided into gapless constructions and gapped constructions. However, the subclassification will be different. This section examines

gapless RC and TC constructions before turning to gapped constructions with unbounded dependencies.

### 2.1. Gapless Relative Constructions

There are three kinds of gapless RCs: pseudo RCs, noun complement RCs, and bound noun complement RCs. These three types of RCs are considered to be non-canonical due to low frequency. These RCs lack a gap and thus lack binding between a gap and its head noun. This is shown in the following examples.

#### (3) [Pseudo RCs]

- a. [RC sayngsen-i tha-nun] naymsay  
 fish-Nom burn-Rel smell  
 ‘the smell of fish burning’
- b. [RC mwul-i hulu-nun] soli  
 water-Nom flow-Rel sound  
 ‘the sound of water flowing’

#### (4) [Noun Complement RCs]

- a. [RC John-i Mary-lul manna-n] sasil  
 John-Nom Mary-Acc meet-Rel fact  
 ‘the fact that John met Mary’
- b. [RC Mira-ka aphuta-nun] somwun  
 Mira-Nom sick-Rel rumor  
 ‘the rumor that Mira is sick’

#### (5) [Bound Noun RCs]

- a. Min-i [[RC totwuk-i tomangka-nun] kes]-ul capassta.  
 Min-Nom thief-Nom run away-Rel thing-Acc caught  
 ‘Min saw -a thief running away.’
- b. Jiyong-i [[RC Min-i norayha-nun] kes]-ul sihehanta.  
 Jiyong-Nom Min-Nom sing-Rel thing-Acc dislike  
 ‘Jiyong dislikes Min’s singing.’

The semantic and pragmatic properties of head nouns in these RCs are different from those in canonical RCs. As mentioned in Nam (1996) and Kim (1998b), the head nouns of pseudo RCs belong to a certain semantic class of perception nouns, which are related to vision, hearing, or taste, or to nouns such as feeling, scene, etc. The words in the

following list can appear as head nouns of pseudo RCs.

(6) *naymsay* ‘smell’, *solli* ‘sound’, *mas* ‘taste’, *mosup* ‘figure’, *casay* ‘posture’, *nukkim* ‘feeling’, *huncek* ‘trace’, *kwangkyeng* ‘scene/sight’, *phwungkyeng* ‘scenery’, etc.

A similar kind of restriction exists in noun complement RCs. Head nouns are restricted to a certain type of noun, exemplified in (7), which includes events, thought, ideas, rumors, facts, etc.

(7) *sasil* ‘fact’, *somwun* ‘rumor’, *cwucang* ‘claim’, *cwungke* ‘evidence’, *kiek* ‘memory’, *il* ‘happening’, *kyenghem* ‘experience’, etc.

Head nouns of non-canonical RCs do not appear alone in out of the blue contexts unless the previous context provides enough information related to the head noun. As pointed out by Kim (1998), non-canonical RCs have different morpho-syntactic properties than canonical RCs. First, relativizers in non-canonical RCs are more restricted. Whereas canonical RCs take various relativizers representing different tense and aspect information, relativizers in non-canonical RCs depend on properties of the following head noun. For example, the head noun *solli* and *naymsay* follow a verb ending with the present tense relativizer *-nun*, but not with the past tense relativizer *-un* or future tense relativizer *-ul*. In parallel, head nouns of noun complement RCs combine with predicates containing certain relativizers. For instance, *kiek* ‘memory’ only combines with predicates ending with the past tense relativizer *un*, but not with present *-nun* and future *-ul*.

Second, coordination and stacking facts support the idea that non-canonical RCs are distinct from canonical RCs. Canonical RCs cannot be coordinated together with non-canonical RCs, as shown in (9), whereas canonical RCs and non-canonical RCs can combine with the same types of RCs as in (8)

- (8) a. [RC 존-이  $e_i$  읽-은] 그리고 [RC 메리-가 기억하-는] 책<sub>i</sub>  
 [RC John-i  $e_i$  ilk-un] kuliko [RC Mary-ka kiekha-nun] chayk<sub>i</sub>  
 John-Nom read-Rel and Mary-Nom remember-Rel book  
 ‘the book that John read and Mary remembers’
- b. [RC 생선-이 타-는 ] 그리고 [고기-가 썩-는] 냄새  
 [RC sayngsen-i tha-nun ] kuliko [koki-ka ssek-nun] naymsay  
 fish-Nom burn-Rel and meat-Nom rot-Rel smell

- ‘the smell of the fish burning and the meat rotting’
- (9) a. \*<sub>RC</sub> 존-이 <sub>e<sub>i</sub></sub> 좋아하-는] 그리고 [생선-이 타-는] 냄새  
 \*<sub>RC</sub> John-i <sub>e<sub>i</sub></sub> cohaha-nun] kuliko [syangsen-i tha-nun] naymsay  
 John-Nom like-Rel and fish-Nom burn-Rel smell  
 ‘the smell that John likes and the fish burning’
- b. \*<sub>RC</sub> 존-이 <sub>e<sub>i</sub></sub> 알고 있-는] 그리고 [<sub>RC</sub> 메리-가 결혼하-는] 사실  
 \*<sub>RC</sub> John-i <sub>e<sub>i</sub></sub> alko iss-nun] kuliko [<sub>RC</sub> Mary-ka kyelhonha-nun] sasil  
 John-Nom know being-Rel and Mary-Nom marry-Rel fact  
 ‘the fact that John knows and Mary marries’

## 2.2. Gapless Topic Constructions

Like RCs, TCs also have gapless constructions as in (10), where there is no gap in the comment phrase.

- (10) a. kkoch-un cangmi-ka yepputa  
 flower-Top roses-Nom beautiful  
 ‘Speaking of flowers, roses are beautiful.’
- b. sayngsen-un kwange-ka masissta.  
 fish-Top catfish tasty  
 ‘Speaking of fish, catfish is tasty.’

In (10), the NPs marked with the marker *-un* do not have corresponding gaps elsewhere in the sentences. This gapless topicalization is only licensed when a semantic taxonomic relation holds between the topic NP and the subject NP of the comment phrase. The topic-comment interpretation is allowed through the semantic predication based upon the taxonomic hierarchy between the topic and the NP in the comment phrase. Similar to taxonomic relations in gapless TCs, pseudo RCs are based upon semantic and pragmatic dependencies between the subject in a relative clause and the head noun. For example, in (3) the head noun and the subject have close morphosemantic combinations by forming a composite NP such as 생선 냄새 *sayngsen-namsay* ‘fish smell’, 물소리 *mwul-soli* ‘water sound’. In addition, the relative clause specifies the meaning of the head noun by narrowing down its reference in pseudo RCs, while predication of the topic element is narrowed down through the taxonomic relation between the topic and the following subject noun.

In addition to the semantic restriction based upon taxonomic hierarchy, gapped

and gapless topicalization show different grammatical properties. First, they are different with respect to relativization. Whereas the topics of a gapped topic construction can be the head noun of a relative clause as in (11), the topic in a gapless construction cannot as in (12).

- (11) a. 선생님<sub>i</sub>-은 [지우-가  $e_i$  선물-을 드렸다].  
sensayngnim<sub>i</sub>-un [Jiwoo-ka  $e_i$  senmwul-ul tulyessta].  
 teacher-Top Jiwoo-Nom present-Acc gave  
 ‘As for the teacher, Jiwoo gave (her/him) a present.’
- b. [지우-가  $e_i$  선물-을 드리-ㄴ ] 선생님  
 [ Jiwoo-ka  $e_i$  senmwul-ul tuli-n ] sensayngnim  
 Jiwoo-Nom present-Acc give-Rel teacher  
 ‘the teacher whom Jiwoo gave a present’
- (12) a. \*[장미-가 예쁘-ㄴ ] 꽃  
 \*[cangmi-ka yeppu-un ] kkoch  
 Roses-Nom pretty-Rel flower
- b. \*[광어-가 맛있-는] 생선  
 \*[kwange-ka masiss-nun] sayngsen  
 Catfish-Nom tasty fish

Second, topics of gapless TCs can be realized as parts of adverbial phrases as in (13). This is not allowed in the canonical gapped TC in (14b).

- (13) 꽃-으로 말하자면, [장미-가 예쁘다].  
 kkoch-ulo malhacamyeon, [cangmi-ka yepputa].  
 flower-as talk about roses-Nom pretty  
 ‘If we speak about flowers, roses are pretty.’
- (14) a. 장미-는 [미라-가  $e_i$  좋아한다].  
 cangmi-nun [Mira-ka  $e_i$  chohahanta].  
 Flower-Top Mira-Nom like  
 ‘Speaking of roses, Mira likes them.’
- b. \*장미로 말하자면 [미라가  $e_i$  좋아한다].  
 \*cangmi-lo malhacamyeon [Mira-ka  $e_i$  cohahanta].

Third, coordination and stacking facts support the idea that non-canonical TCs are distinct from canonical TCs, just as in RCs. In the following examples, a gapped TC can

be coordinated with another gapped TC as in (15), whereas a gapped TC cannot be coordinated with a gapless TC as in (16).

- (15) 연극-은      존-이       $e_i$       좋아하-고      메리-도       $e_i$       좋아한다.  
 yenkuk-un    John-i     $e_i$     chohaha-ko    Mary-to     $e_i$     cohahanta<sub>i</sub>  
 play-Top      J-Nom            like-and            Mary-also            likes  
 ‘the play that John likes and Mary likes’
- (16) \*연극<sub>i</sub>-은      존-이       $e_i$       좋아하-고      셰익스피어-가      유명하다.  
 \*yenkuk<sub>i</sub>-un    John-i     $e_i$     chohaha-ko    Shakespeare-ka    yumyenghata  
 play-Top          J-Nom            like-and            Shakespeare-Nom famous  
 ‘As for the play, John likes it and Shakespeare is famous for it.’

### 3. Similar Grammatical Properties of RCs and TCs

Unbounded dependencies in gapped RCs and TCs show similar grammatical properties in terms of semantics, island constraints, and strong crossover facts. This chapter discusses the similarity of the grammatical facts of RCs and TCs in detail.

#### 3.1. Semantic Relations

RCs and TCs show similar semantic relations; a relative clause provides a restriction on the set (or individual) specified by the head noun. In terms of topicalization, the comment phrase adds a restriction to the topicalized element, but not to others. Ever since Kuno (1973), an aboutness relation has been used to account for semantic and pragmatic dependencies between a topic and a comment in much of the literature. Kuno (1976) also defines a semantic restriction on the interpretation of relative clauses as the ‘aboutness condition,’ which derives from a condition on TCs. It requires that a relative clause be a statement about its head noun. A similar condition for RCs has also been provided by Yoon (1995) as follows.

(17) Condition for R-relation in Korean:

R-relation must be familiar and maximally salient

Na and Huck (1993) examine additional details of the aboutness condition and argue that it is a necessary condition of both RCs and TCs, but a sufficient condition only of

TCs given that the formation of an RC is restricted to a taxonomic relation as in (12). Furthermore, Kang (1988) and O’Grady (1991) have used an aboutness relation in order to capture the semantic relations in double nominative constructions (DNCs) in Korean. Lee (2004) argues that DNCs also license unbounded dependencies as TCs do; the aboutness relation holds between a salient subject and the following predicate in DNCs as well as between the topic and the comment phrase. Semantic and pragmatic properties between a relative clause and the head noun in RCs can also be captured by the aboutness condition.

### 3.2. Island Constraints

Now, let us consider island constraints for RCs and TCs. In the previous literature, it has been argued that island constraints are observed in Korean long-distance dependency constructions. The following examples seem to support this claim, where an element inside of an island cannot refer to the head noun in RCs and cannot appear in the topic positions in RCs.

#### [Complex Noun Phrase Constraint (CNPC)]

- (18) \* [지호-가 [NP [RC e<sub>i</sub> e<sub>j</sub> 기르-는 ] 개<sub>j</sub>]-를 좋아하-는 (그) 여자.  
 \* [Jiho-ka [NP [RC e<sub>i</sub> e<sub>j</sub> kilu-nun] kay<sub>j</sub>]-lul coaha-nun (ku) yeca  
 Jiho-Nom raise-REL dog-Acc like that woman  
 ‘the woman who Jiho likes the dog that (she<sub>i</sub>) raises e<sub>j</sub>’
- (19) \* 그 여자-는 [S 지호-가 [NP [REL e<sub>i</sub> e<sub>j</sub> 기르-는 ] 개<sub>j</sub>]-를 좋아한다].  
 \* ku yeja-nun [S Jiho-ka [NP [REL e<sub>i</sub> e<sub>j</sub> kilu-nun] kay<sub>j</sub>]-lul choahanta].  
 that woman-Top Jiho-Nom raise-REL dog-Acc like  
 ‘As for Mira<sub>i</sub>, Jiho likes the dog that (she<sub>i</sub>) raises e<sub>j</sub>’

#### [Sentential Subject Constraint]

- (20) \*? [S 유미-가 e<sub>i</sub> 살고있-는 것/음]-이 놀라운 현대 아파트  
 \*? [S Yumi-ka e<sub>i</sub> salkoiss-nun kes/um]-i nolaw-un Hyundai aphath  
 Y-Nom live-Rel thing/NML- Nom surprising-Rel Hyundai apartment  
 ‘Hyundai apartment where it is surprising that Yumi lives (there).’
- (21) \*? 현대 아파트- 는 [S 유미가 e<sub>i</sub> 살고 있-는 것/음]-이 놀랍다.  
 \*? Hyundai aphath-nun [S Yumi-ka salko iss-nun kes/um]-i nollapta.  
 Hyundai apartment-Top Yumi-Nom live-thing/NML-Nom surprising  
 ‘In terms of the Hyundai apartment, it is surprising that Yumi lives.’

[Adjunct Constraint]

- (22) <sup>?</sup>\* [s [s 선생님-이 e<sub>i</sub> 야단쳤-을 때 ] 모두 조용해지-ㄴ ] 학생<sub>i</sub>  
<sup>?</sup>\* [s [s sensayngnim-i e<sub>i</sub> yatanchyess-ul ttay] motwu coyonghayci-n] haksayng<sub>i</sub>  
 teacher-Nom scold-REL when everyone become-quiet-REL student  
 ‘the student<sub>i</sub> who everyone became quiet when the teacher scolded (him)’
- (23) <sup>?</sup>\* 그 학생<sub>i</sub>-은 [s [s 선생님-이 e<sub>i</sub> 야단쳤-을 때 ] 모두 조용해졌다.  
<sup>?</sup>\* kuhaksayng<sub>i</sub>-un [s [s sensayngnim-i e<sub>i</sub> yatanchyess-ul] ttay] motwu coyonghaycyessta.  
 that student<sub>i</sub>-Top teacher-Nom scold-REL when everyone become-quiet  
 ‘As for the student<sub>i</sub> everyone became quiet when the teacher scolded (him)’

However, there are counterexamples against the above island constraint facts. First, consider examples (24) and (25), which violate the Complex Noun Phrase Constraint. In contrast with (18) and (19), the following examples are grammatical even though a gap occurs inside of a complex noun phrase that refers to the head noun in (24) and even though the topicalized element refers to the gap inside of a complex noun phrase in (25).

- (24) [내-가 [NP [ e<sub>i</sub> 최근 e<sub>i</sub> 발표하-ㄴ ] 소설<sub>j</sub>]-을 잘 알고 있-는] 작가<sub>i</sub>  
 [nay-ka [NP [ e<sub>i</sub> choykun e<sub>i</sub> palphyoha-n] sosel<sub>j</sub>-ul cal al-ko iss-nun] cakka<sub>i</sub>  
 I-Nom recently publish-Rel novel-Acc well know-REL writer  
 ‘The writer who I know well the novel<sub>i</sub> which (he<sub>i</sub>) published e<sub>j</sub>’
- (25) 그 작가<sub>i</sub>-는 [s 내-가 [[ e<sub>i</sub> 최근 e<sub>i</sub> 발표하-ㄴ ] 소설<sub>j</sub>]-을 잘 알고 있다].  
 ku cakka<sub>i</sub>-nun [s nay-ka [ e<sub>i</sub> choykun e<sub>i</sub> palphyoha-n] sosel<sub>j</sub>-ul cal alko issta ].  
 that writer-Top I-Nom recently publish-Rel novel-Acc well know  
 ‘As for that writer<sub>i</sub> I know well the novel<sub>i</sub> which (he<sub>i</sub>) published e<sub>j</sub>’

There are numerous acceptable CNPC violations in Korean as in (26), as already noted in Na and Huck (1993).

- (26) [RC1 [RC2 e<sub>i</sub> e<sub>j</sub> 입고 있-는] 옷<sub>j</sub>-이 멋지-ㄴ ] 신사<sub>i</sub>  
 [RC1 [RC2 e<sub>i</sub> e<sub>j</sub> ipko iss-n ] os<sub>j</sub>-i mesci-n] sinsa<sub>i</sub>  
 wear-REL clothes<sub>j</sub>-Nom stylish-REL man<sub>i</sub>  
 (lit.) ‘the man<sub>i</sub> who the clothes that e<sub>i</sub> is wearing are stylish’
- (27) [RC1 [RC2 e<sub>i</sub> e<sub>j</sub> 발표하-ㄴ ] 소설-이 인기-가 있-는 ] 작가<sub>i</sub>  
 [RC1 [RC2 e<sub>i</sub> e<sub>j</sub> palphyo-n ] sosel<sub>j</sub>-i inki-ka iss-nun ] cakka<sub>i</sub>  
 publish-REL novel-Nom popularity-Nom have-RE writer<sub>i</sub>

(lit.) ‘the writer<sub>i</sub> who the novel that *e<sub>i</sub>* wrote *e<sub>j</sub>* is popular’

According to Na and Huck (1993), examples (26) and (27) are formed based upon the relationship between the referent of the head noun of the uppermost relative and that of the head noun of the lower relative; each relation of these RCs is conventional in terms of the information supplied by the lower relative. For example, the lower clause in (26) specifies the relationship that holds between the clothes denoted by the lower head and the member in question of the set denoted by the upper clause.

With respect to the above CNPC violation, Han and Kim (2004) claims that there is no violation. This is because the relativized element originated from relativising the subject of a double nominative construction. For example, the highest verb of the RC in (27) allows a double nominative construction in (28). Because no complex noun phrase intervenes, (27) does not violate CNPC.

(28) [S<sub>1</sub> 그 작가<sub>i</sub>-가 [ [S<sub>2</sub> *e<sub>i</sub>* *e<sub>j</sub>* 발표하-ㄴ ] 소설<sub>j</sub>]-이 인기-가 있다]  
 [S<sub>1</sub> ku cakka<sub>i</sub>-ka [ [S<sub>2</sub> *e<sub>i</sub>* *e<sub>j</sub>* palpyoha-n ] sosel<sub>j</sub>]-i inki-ka issta]  
 that writer<sub>i</sub> -Nom publish-REL novel<sub>j</sub>-Nom popularity have  
 ‘Speaking of the writer, the novel that he<sub>i</sub> wrote is popular.’

However, there are counterexamples against Han and Kim’s (2004) argument for relativization based upon double subject constructions. Consider the following examples.

(29) [RC<sub>1</sub> 내-가 [RC<sub>2</sub> *e<sub>i</sub>* *e<sub>j</sub>* 자주 다니-는] 카페<sub>j</sub>-를 알고 있-는 작가<sub>i</sub>  
 [RC<sub>1</sub> nay-ka [RC<sub>2</sub> *e<sub>i</sub>* *e<sub>j</sub>* cacwu tani-nun ] khapey<sub>j</sub>-lul al-ko iss-nun ] cakka<sub>i</sub>  
 I-Nom often go-REL cafe-Acc know-REL writer<sub>i</sub>  
 (lit.) ‘the writer<sub>i</sub> who I knows the cafe that he<sub>i</sub> goes to often’

(30) [S<sub>1</sub> 그 작가<sub>i</sub>-는 [[S<sub>2</sub> 내-가 [RC<sub>2</sub> *e<sub>i</sub>* *e<sub>j</sub>* 자주 다니-는] 카페-를 알고있어].  
 [S<sub>1</sub> ku cakka<sub>i</sub>-nun [ [S<sub>2</sub> nay-ka [RC<sub>2</sub> *e<sub>i</sub>* *e<sub>j</sub>* cacwu tani-nun ] khapey<sub>j</sub>-lul alkoisse]  
 that writer-Nom I-Nom often go-REL cafe-Acc know  
 (lit.) ‘Speaking of the writer<sub>i</sub>, I know the café that he<sub>i</sub> goes often.’

The examples (29) and (30) do not form a double nominative construction as in (31). Thus, relativization and topicalization out of a complex noun phrase cannot be based upon the double nominative constructions as claimed in Han and Kim (2004).

- (31) <sup>\*2</sup>[<sub>S1</sub> 그 작가가 [<sub>S</sub> 내-가 [<sub>RC2</sub>  $e_i$   $e_j$  자주 다니-는 ] 카페-를 알-고있어].  
<sup>\*2</sup>[<sub>S1</sub> ku cakka<sub>j</sub>.ka [<sub>S2</sub> nay-ka [<sub>RC2</sub>  $e_i$   $e_j$  cacwu tani-nun] khapeyj-lul al-ko isse]  
that writer-Nom I-Nom often go-REL cafe -Acc know

Furthermore, counterexamples violating the other island constraints including sentential subject constraint and adjunct constraint exist.

[Sentential Subject Violation]

- (32) [<sub>RC</sub> [<sub>S</sub> 메리가  $e_i$  전달했다-는 것/했음]-이 드러나-ㄴ] 선물  
[<sub>RC</sub> [<sub>S</sub> Mary-ka centalhayssta-nun kes/hayssum]-i tulna-n] senmwul  
Mary-Nom delivered-Rel thing/-did-NML-Nom exposed-Rel gift

‘The gift that it has been exposed that Mary delivered (it).’

- (33) 그 선물<sub>i</sub>-은 [<sub>S1</sub> [<sub>S2</sub> 메리가  $e_i$  전달했다-는 것/했음]-이 드러났다].  
ku senmul-un [<sub>S1</sub> [<sub>S2</sub> Mary-ka  $e_i$  centalhayssta-nun kes/hayssum]-i tulenassta.  
that gift-Top Mary-Nom delivered-Rel thing/-did-NML-Nom revealed

‘As for the gift, it has been revealed that Mary delivered it.’

[Adjunct Constraint Violation]

- (34) [<sub>RC</sub>[<sub>S</sub> 미라-가  $e_i$  연주하-면] [<sub>S</sub> 모두-가 기뻐하-는]] 곡  
[<sub>RC</sub>[<sub>S</sub> Mira-ka yencwuha-myeon] [<sub>S</sub> motwu-ka kippeha-nun]] kok  
Mira-Nom play-when everyone-Nom please-Rel song

‘the song<sub>i</sub>, that everyone becomes pleased when Mira plays (it<sub>i</sub>)’

- (35) 그 곡<sub>i</sub>-은 [<sub>S</sub>[<sub>S</sub> 미라-가  $e_i$  연주하-면] [<sub>S</sub> 모두-가 기뻐한다]].  
ku kok<sub>i</sub>-un [<sub>S</sub>[<sub>S</sub> Mira-ka yencwuha-myeon] [<sub>S</sub> motwu-ka kippehanta]].  
that song-Acc Mira-Nom play-when everyone-Nom please

‘As for that song<sub>i</sub>, everyone becomes pleased when Mira plays (it<sub>i</sub>)’

Szabolcsi and den Dikken (1999) argue that some island constraint effects are relevant to the semantic scope that an expression takes over certain operators. Also, Kluender (1998) takes a processing point of view with respect to CNPC violations and argues that semantic and pragmatic factors trigger island constraint violations.

### 3.3. Strong Crossover

RCs and TCs show similarity in terms of strong crossover. As discussed in Postal (1971), Wasow (1972), Hukari and Levine (1995) *inter alia*, strong crossover refers to a



that appear in the gap position are interpreted as overt traces with the nonlocal SLASH feature. The typological categories of gaps, pronouns, and reflexives in unbounded dependency constructions vs. other constructions are summarized in the following table.

Forms	[+ SLASH ] Trace (Gaps)	[-SLASH] Non-trace
Phonological Zero Forms	Trace ( <i>nonpro</i> )	<i>pro</i> ( <i>ppro</i> )
Phonologically Overt Pronouns	Resumptive Pronoun (Overt Trace)	(ordinary) Pronoun
Reflexive <i>caki</i>	Resumptive Reflexive (Overt Trace)	(ordinary) Reflexive

Table 1. Classification of UDC Trace vs. non-UDC Correspondents of Trace

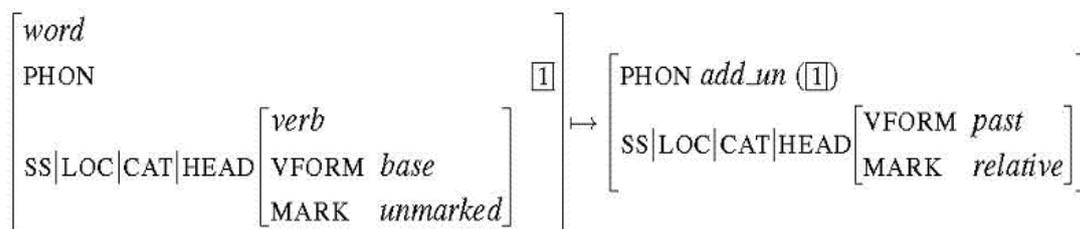
As shown in Table 1, resumptive pronouns (or reflexives) are overt traces corresponding to traces in unbounded dependency constructions, while they share lexical similarities with the corresponding ordinary pronouns (or reflexives). Lee (2004) also argues that logophoricity and contrastiveness are associated with interpretations of resumptive pronouns and resumptive reflexives in Korean UDCs as well as with their correspondents in non-UDCs.

#### 4. A Structural Representation of Korean RCs and TCs

Within the framework of Head-Driven Phrase Structure Grammar, a lexical analysis following Pollard and Sag (1994) properly captures the formation of RCs and TCs. Unbounded dependency between a gap and its antecedent can be simply handled by SLASH percolation.

In order to explain the formation of an RC, it is necessary to explain how a relativizing element combines with its stem. The formation of relativized predicates is a highly productive morphological process. A lexical rule analysis can properly capture this fact.

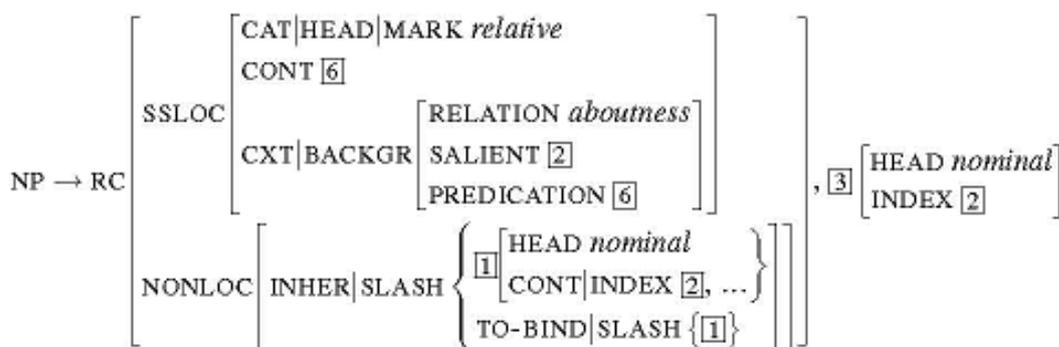
(41)



Korean has different relativizing complementizers including *-nun*, *-un*, *-ul* and *-ten* that add specific tense information to the stems, while representing sentence boundaries of RCs. The MARK(ING) feature has been added to the Head feature of a predicate. This is because in Korean the markedness of a sentence is represented by the predicate that is formed in combination with a complementizing suffix. This percolates up to the highest phrasal level.

The following schema is based on the lexical rule that forms the relative form of a predicate, and it provides the representation of the syntactic combination of a relative clause and the head noun.

(42) Schema for the Gapped Relative Clause-Head Noun

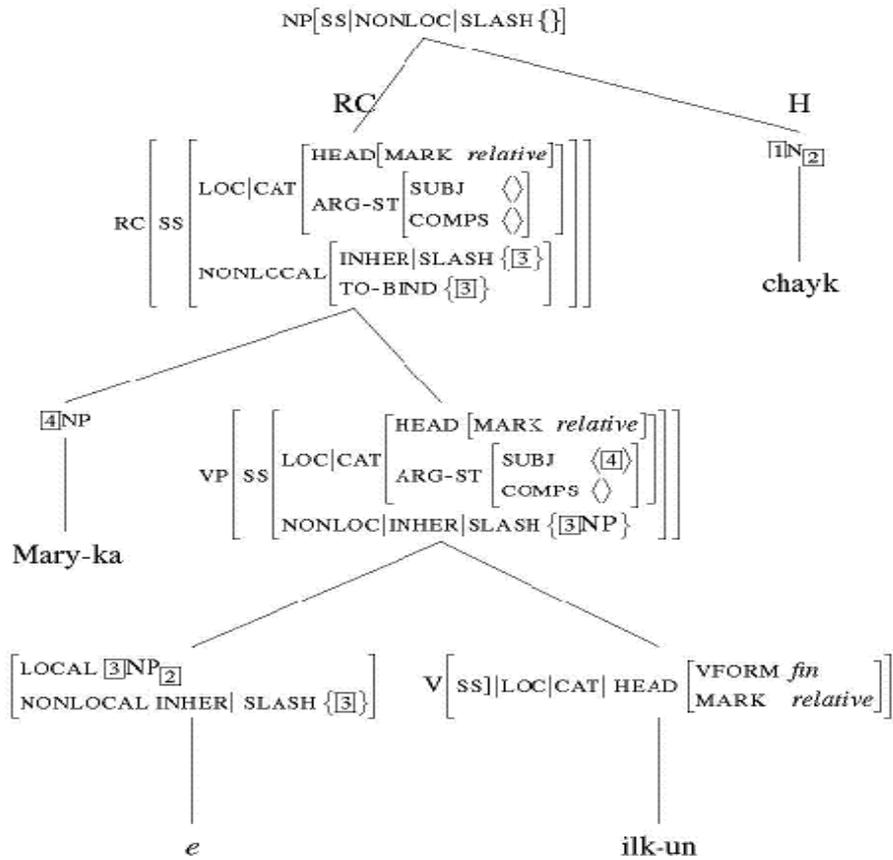


As we see in the given schema, the nonlocal SLASH feature of an RC is bound off when it meets the head noun. Unlike English, there is no overt filler for the inherited SLASH feature in Korean. Instead, coreference exists between the head noun and the trace of an RC. The TO\_BIND SLASH feature is introduced when an RC combines with a head noun, but there is only semantic coreference between a head noun and the SLASH value. In addition, the aboutness condition has been specified as the aboutness relation in the CONTEXT feature, which represents semantic and pragmatic relation between a relative clause and the following head noun. The head noun refers to a salient element in the context and the preceding relative clause provides predication for the

element. With the given schema and SLASH inheritance mechanism, the structure of an RC is shown in (43).

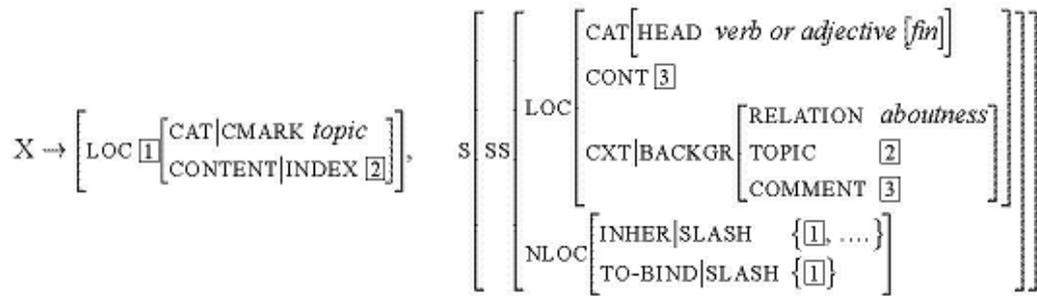
- (43) 메리-가 e<sub>i</sub> 읽-은 책<sub>i</sub>  
 Mary-ka e<sub>i</sub> ilk-un chayk<sub>i</sub>  
 ‘the book Mary read’

(44)



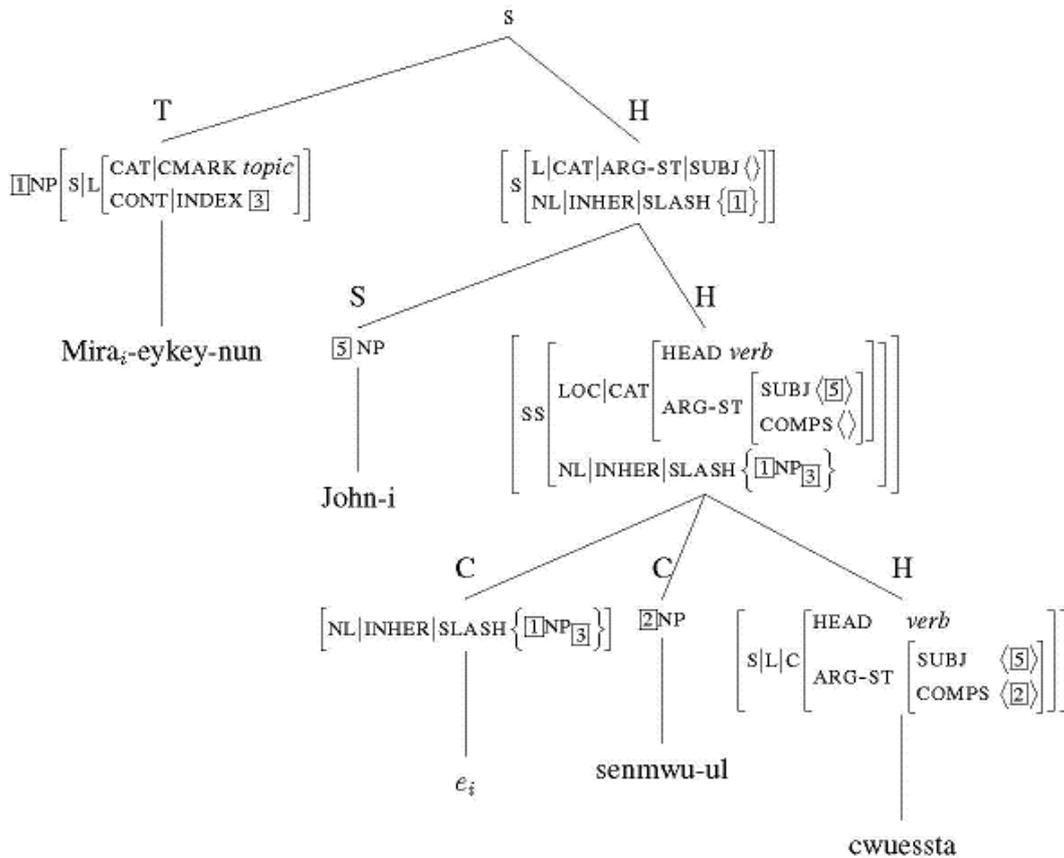
With respect to the gapped TCs, the schema in (45) captures unbounded dependency and can be provided with specification of the aboutness relation. Also in the given schema, a topic has the CASEMARKING (CMARK) value of *topic*. The CMARK feature is introduced when the nominal head combines morphosyntactically with a marker. The context feature provides the aboutness semantic relation with topic-comment roles. Furthermore, the structure of a TC in (46) can be represented as in (47). The semantic and syntactic dependency between a topic and the gap is properly captured in the given representation.

(45) Topic-Head Schema for Gapped Topicalization



- (46)  $\text{Mira}_j\text{-eykey-nun John-i } e_j \text{ senmul-ul cwuessta.}$   
 Mira-to-Top John-Nom present-Acc gave  
 ‘As for Mira, John gave a present.’

(47)



## 5. Conclusion

This paper examined similarities between gapped relative clauses and topic constructions in Korean by focusing on semantic and syntactic properties. Facts from island constraint violations for Korean RCs and TCs suggest that structure-based accounts of island constraints are less preferred to other accounts based upon pragmatic and semantic conditions. In line with this, the paper included a discussion of the aboutness conditions between a filler and a gap and strong crossover phenomenon in unbounded dependency constructions of RCs and TCs. The structure of these constructions and the relevant lexical representation were presented with the framework of HPSG. Finally, semantic and pragmatic conditions may serve as major factors licensing non-local linkage along the lines of processing cost according to the depth of embedding in these constructions, as suggested by Kluender (1998).

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# The Light Verb Construction in Japanese and PF-LF Mismatch in Argument Linking\*

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## Abstract

This paper proposes a non-simultaneous Transfer analysis of the light verb construction in Japanese, arguing that the nominal phrase complement of a light verb functions only as an LF-phase but not as a PF-phase. It is shown that our non-simultaneous Transfer analysis accounts for a paradoxical PF-LF mismatch in argument linking which the light verb construction exhibits. Our proposed analysis receives further support from the fact that it accommodates various properties of the light verb construction. This paper presents evidence for the view of non-simultaneous Transfers, where a syntactic object can be transferred to a single interface during a derivation.

**Keywords:** Light Verb, Transfer, Phase, Argument Linking, PF-LF Mismatch.

## 1. Introduction

Since Grimshaw and Mester's (1988) seminal work, the light verb constructions in Japanese like (1) have drawn much attention in generative literature mainly due to a paradoxical PF-LF mismatch in argument linking they exhibit (see, among others, Hasegawa 1991, Kageyama 1991, 1993, Uchida and Nakayama 1993, Matsumoto 1996, and Saito and Hoshi 2000):

- (1) John-ga Bill-to aiseki-o site-iru  
John-Nom Bill-with table-sharing doing-be  
'John is sharing a table with Bill.'

In (1), the light verb *site-iru* 'doing-be', the present progressive form of *suru* 'do', is combined with the verbal noun *aiseki* 'table-sharing', which is marked by the accusative case particle *-o*. The term "light verb" refers to a verb which is semantically empty. Since the light verb is semantically empty, the arguments *John* and *Bill* are assigned  $\theta$ -roles, *i.e.* Agent and Theme, by the nominal head, *i.e.* the verbal noun *aiseki* 'table-

sharing'. These  $\theta$ -markings take place within the nominal phrase given the locality condition of  $\theta$ -marking proposed by Chomsky (1981). This suggests that the arguments *John* and *Bill* in (1) should be inside the nominal phrase as shown in (2a). Neither *John* nor *Bill*, however, is marked by the genitive case particle *-no*, *i.e.* the case marking of the nominal system. This suggests that *John* and *Bill* should be outside the nominal phrase as shown in (2b):

(2) PF-LF Mismatch in Argument Linking

- a. [NomP *John-ga Bill-to aiseki*]-o site-iru  
*John-Nom Bill-with table-sharing-Acc doing-be*  
 (Agent, Theme)
- 
- b. *John-ga Bill-to* [NomP *aiseki*]-o site-iru  
*John-Nom Bill-with table-sharing-Acc doing-be*

It has been widely assumed that  $\theta$ -marking is an LF-phenomenon. Case marking, on the other hand, is a PF-phenomenon, since Case features are irrelevant for LF, but only read and morphologically realized in the PF-component. The light verb construction exhibits a PF-LF mismatch in argument linking.

This paper proposes a non-simultaneous Transfer analysis of the light verb construction. The organization of this paper is as follows. Section 2 reviews previous analyses of the light verb construction. Section 3 proposes a non-simultaneous Transfer analysis, arguing that the nominal phrase complement of a light verb functions only as an LF-phase but not as a PF-phase. It is shown that our non-simultaneous Transfer analysis accounts for the PF-LF mismatch. Section 4 presents further arguments for our analysis. Section 5 makes concluding remarks.

## 2. Previous Analyses

Grimshaw and Mester (1988) propose an operation called Argument Transfer, which transfers the  $\theta$ -roles of a verbal noun to the light verb. Let us consider (1) again as an example. Under their analysis, the light verb *suru* 'do' and the verbal noun *aiseki* 'table-sharing' would originally have the argument structures in (3). In (3a), the parentheses are used to indicate that *suru* 'do' has a skeletal argument structure, and the notation <acc> indicates that *suru* 'do' assigns accusative case to the verbal noun *aiseki* 'table-sharing'. Argument Transfer applies to the arguments of the verbal noun *aiseki* 'table-sharing' in (3b). This operation produces the argument structure of the combination of the verbal noun and the light verb (4):

- (3) a. *suru* 'do' ( ) <acc>  
 b. *aiseki* 'table-sharing' (Agent, Theme)  
 (4) *aiseki* 'table-sharing' ( ) + *suru* 'do' (Agent, Theme) <acc>
- 
- Argument Transfer

The light verb *suru* assigns the transferred  $\theta$ -roles to *John* and *Bill*:

- (5) John-ga Bill-to [<sub>NomP</sub> aiseki-o] site-iru  
 John-Nom Bill-with table-sharing-Acc do-being  
 ( ) (Agent, Theme) <acc>
- 

Since *John* and *Bill* are outside the nominal phrase, they are not assigned the genitive case particle *-no*; this accounts for the PF-LF mismatch in argument linking. Although Grimshaw and Meter's analysis describes the PF-LF mismatch, Argument Transfer is a special additional mechanism only for the light verb construction, which is theoretically undesirable.

More recently, Hasegawa (1991), Kageyama (1991, 1993), and Saito and Hoshi (2000) analyze the light verb construction by making use of Incorporation, which is an independently motivated operation (see, among others, Baker 1988). Let us look at Saito and Hoshi's analysis as an illustration. Saito and Hoshi assume the minimalist program and propose an LF incorporation analysis, where a verbal noun is covertly incorporated into a light verb. Under their analysis, (1) would be analyzed as shown in (6):

- (6) a. John-ga Bill-to [<sub>NomP</sub> aiseki-o] site-iru  
 John-Nom Bill-with table-sharing-Acc doing-be  
 (Agent, Them)

- b. John-ga Bill-to [NomP  $t_i$ -o] *aiseki* <sub>$t_i$</sub> -site-iru  
 John-Nom Bill-with  $t_i$ -Acc *table-sharing* <sub>$t_i$</sub> -doing-be  
 (Agent, Theme)
- 

Before Spell-Out, (1) is assigned (6a). In (6a), the arguments *John* and *Bill* are outside the nominal phrase and thus not assigned the genitive case particle *-no*. Then, as shown in (6b), the  $\theta$ -role assigning verbal noun *aiseki* 'table-sharing' incorporates into the light verb *suru* 'do' at LF and assigns its  $\theta$ -roles to *John* and *Bill* at this level. Note that such LF  $\theta$ -markings are allowed under the minimalist assumption that the  $\theta$ -criterion applies only at LF. Saito and Hoshi's incorporation analysis captures the PF-LF mismatch in argument linking.

As pointed out by Fukui and Sakai (2006), however, such incorporation analyses have trouble in accounting for examples like (7). (7) involves coordination of a verbal noun and its internal argument by the conjunction particle *to*; *Amerika-ni ryokoo* 'travel to America' and *Doitu-ni ryuugaku* 'study abroad to Germany' are coordinated:

- (7) Taroo-ga kotosi-no natu [Amerika-ni *ryokoo*] to  
 Taro-Nom this year-Gen summer America-to *travel* Conj  
 [Doitu-ni *ryuugaku*](*-to*)-o sita  
 Germany-to *study abroad*(*-Conj*)-Acc did  
 Lit. 'This summer, Taro did a travel to the United States and a study abroad in Germany.'  
 (Fukui and Sakai 2006: 328)

Under the incorporation analyses, the verbal nouns *ryokoo* 'travel' and *ryuugaku* 'study abroad' would be incorporated into the light verb *suru*. This would violate the general constraint on movement (8); the incorporation analyses would wrongly predict that (7) is deviant:

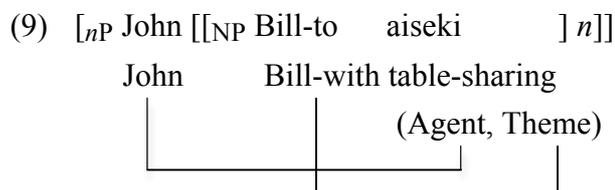
- (8) Constraint on an Across-the-Board Movement  
 An across-the-board movement of different elements into a single landing site is prohibited.

### 3. A Non-Simultaneous Transfer Analysis

Under the minimalist program proposed by Chomsky (1995) and further developed by, among others, Chomsky (2000, 2001, 2004, 2005, 2006), the syntactic component contains PF-Transfer and LF-Transfer operations, which transfer a syntactic object to the sensory-motor (S-M) and conceptual-intentional (C-I) interfaces, respectively. It is

still an open question when PF-Transfer and LF-Transfer should apply during a derivation. Chomsky (2004, 2005, 2006) assumes that phases are the same for both Transfer operations, and PF-Transfer and LF-Transfer apply simultaneously when structure-building completes a phase, which is CP and  $\nu$ P in his system. Since PF-Transfer and LF-Transfer are independent operations, however, there is no a priori reason to assume that they should apply simultaneously in a derivation. The idea of non-simultaneous Transfers, where a syntactic object can be transferred to a single interface (either only to the S-M interface or only to the C-I interface) has been advocated by, among others, Nissenbaum (2000), Megerdooimian (2002), Cecchetto (2004, 2005), Felser (2004), Marušič (2005), Matushansky (2005), and Ishii (2008). This section proposes a non-simultaneous Transfer analysis of the light verb construction, arguing that it accounts for the PF-LF mismatch. More specifically, I argue that the nominal phrase complement of a light verb functions only as an LF-phase but not as a PF-phase. I also propose "case domain fusion," arguing that when more than one "case domain" overlaps, "case domain fusion" must take place, where the notion of "case domain" is regulated by the Phase Impenetrability Condition.

Let us consider (1) again as an example. During its derivation, our analysis constructs the nominal phrase (9):



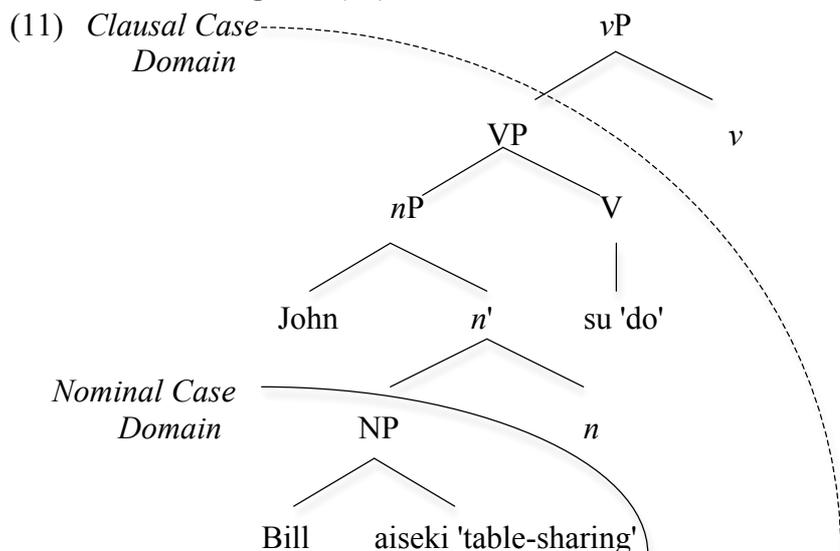
Essentially following, among others, Chomsky (2006), I assume that the nominal phrase contains the nominal functional category  $n$ , which is analogous to the verbal functional category  $\nu$ . The nominal functional category  $n$  is a light noun taking NP as its complement. In (9), the external argument *John* appears in the Spec of  $n$ P whereas the internal argument *Bill* is within NP. This is parallel to the widely accepted view of clausal structure, where an external argument appears in the Spec of  $\nu$ P whereas an internal argument appears within VP. In (9), both *John* and *Bill* are assigned  $\theta$ -roles by the verbal noun *aiseki* 'table-sharing' within  $n$ P, which satisfies the locality condition on  $\theta$ -marking. Following Chomsky's (1986) idea that inherent case is licensed in connection with  $\theta$ -marking, I claim that *Bill* is assigned the inherent case particle *-to* 'with' by its  $\theta$ -role assigner, *i.e.* the verbal noun *aiseki* 'table-sharing'. Note that given the diagnostic of an LF-phasehood (10),  $n$ P in (9) marks the completion of an argument structure (*i.e.* all the  $\theta$ -roles are assigned within  $n$ P). Hence,  $n$ P has the status of a

"proposition" just like  $vP$ ; it counts as an LF-phase (see, among others, Chomsky 2000, 2001, 2004, 2005, 2006, Matushansky 2005):

(10) LF-phasehood

LF phases have the status of a "proposition"; either a phrase in which all  $\theta$ -roles are assigned or a full clause including tense and force.

We then construct  $vP$  phase (11):



This paper adopts Miyagawa's (1991) view on Case. Miyagawa investigates the function of Case, arguing that Case of the clausal type including nominative and accusative has the function to identify an element as a member of a clause. For Case to license membership in the clause, Case itself must be licensed by the functional head INFL, which has the entire clause within its scope, *i.e.* its government domain in his analysis. Extending Miyagawa's idea, I argue that just as Case of the clausal type has the function to license membership in a clause, Case of the nominal type has the function to identify an element as a member of a nominal phrase. More specifically, I argue that there are two case marking systems in Japanese; the clausal case marking system, *i.e.* the lack of the genitive case particle *-no* including nominative and accusative, and the nominal case marking system, *i.e.* the presence of the genitive case particle *-no*. The clausal case marking system has the function to license membership in a clause whereas the nominal case marking system has the function to license membership in a nominal phrase. In order for clausal case marking to identify an element as a member of a clause, clausal case marking itself must be licensed within "the clausal case domain." The notion of "the clausal case domain" is defined as the accessible domain of  $C$  or  $v$ , which is the functional head of a clause (more precisely, a "proposition" in the sense mentioned in (10)). Nominal case marking, on the other

hand, must be licensed within "the nominal case domain" so that it can identify an element as a member of a nominal phrase. The notion of "the nominal case domain" is defined as the accessible domain of *n*, which is the functional head of a nominal phrase:

- (12) a. Clausal case marking, *i.e.* the lack of the genitive case particle *-no*, must be licensed within the clausal case domain, *i.e.* the accessible domain of *C/v*.  
 b. Nominal case marking, *i.e.* the presence of the genitive case particle *-no*, must be licensed within the nominal case domain, *i.e.* the accessible domain of *n*.

The notion of accessible domain is regulated by c-command and the Phase Impenetrability Condition (PIC) (13) formulated in Chomsky (2001):

- (13) The Phase Impenetrability Condition (PIC)  
 In [<sub>ZP</sub> Z ... [<sub>HP</sub> α [<sub>H</sub> YP]]], the domain of H, *i.e.* YP, is not accessible to operations at ZP; only H and its edge are accessible, where ZP and HP are phases. (adapted from Chomsky 2001: 13)

In (11), the nominal case domain, *i.e.* the accessible domain of *n*, is indicated by the solid line whereas the clausal case domain, *i.e.* the accessible domain of *v*, is indicated by the dotted line. Given that the nominal phrase complement of a light verb, *i.e.* *nP* in (11), is not a PF-phase, *Bill* is within the accessible domain of *v* for PF-phenomena including case marking. *Bill* is within the clausal case domain; our analysis can account for the fact that *Bill-to* 'Bill-with' may appear without the genitive case particle *-no* as shown in (1). In (11), *Bill* is also within the nominal case domain, *i.e.* the accessible domain of *n*. Our analysis therefore predicts that *Bill-to* 'Bill-with' may also appear with the genitive case particle *-no*. This prediction is born out, contrary to what has been claimed by, among others, Grimshaw and Mester (1988) and Saito and Hoshi (2000). As pointed out by Matsumoto (1996), although (14), where *Bill-to* 'Bill-with' is accompanied by the genitive case particle *-no*, sounds unnatural, its unnaturalness can be removed by some modification as shown in (15):

- (14)? John-ga Bill-to-*no* aiseki-o site-iru  
 John-Nom Bill-with-*Gen* table-sharing-Acc do-ing  
 'John is sharing a table with Bill.'  
 (15) John-ga Bill-to(-*no*) aiseki-o sita koto-ga nai  
 John-Nom Bill-with(-*Gen*) table-sharing-Acc did Comp-Nom Neg  
 'John has never shared a table with Bill.' (Matsumoto 1996: 116)

We should notice that there is an overlap between the nominal and clausal case domains in (11). I argue that when more than one case domain overlaps, "case domain fusion"

must take place:

(16) Case Domain Fusion

When more than one case domain overlaps, "case domain fusion" must take place.

I also argue that there is a constraint on "case domain fusion" (17):

(17) Constraint on Case Domain Fusion

"Case domain fusion" only takes place when two domain-defining functional heads are of the same type, *i.e.* they are either of the transitive/experiencer (T/E) type or of the unaccusative/passive (UA/P) type.

In (11), the functional head *n*, which defines the nominal case domain, has the external argument *John*; it is a transitive/experiencer (T/E) type. It then follows from (17) that the functional head *v*, which defines the clausal case domain, must also be of the same type, as shown below:

(18) [<sub>VP</sub> [<sub>VP</sub> [<sub>nP</sub> John [[<sub>NP</sub> Mary-to aiseki] *n*]] su] *v*  
           John       Mary-with table-sharing <T/E>   do <T/E>

Hence, *v* has the accusative Case feature, which is inherited by V as argued by Chomsky (2006). The nominal phrase complement *nP* moves to the Spec of VP, where it is assigned the accusative case particle *-o* by the verb *suru* 'do' as shown in (19):

(19) [<sub>VP</sub> [<sub>VP</sub> [<sub>nP</sub> John Mary-to(-no) aiseki]-*o*            [<sub>nP</sub> su]] *v*]  
           [John Mary-with(-Gen) table-sharing]-Acc       do

We then construct TP (20):

(20) [TP John-ga [[<sub>VP</sub> [<sub>VP</sub> [<sub>nP</sub> *t*John Mary-to(-no) aiseki]-*o*  
           John-Nom                    [<sub>nP</sub> *t*John Mary-with(-Gen) table-sharing]-Acc  
           [<sub>nP</sub> su]] *v*] T]]  
           do

According to the PIC (13), *John*, which is the Spec of *nP*, is accessible from T. *John* moves to the Spec of TP, where it is assigned the nominative case particle *-ga*. Hence, our analysis correctly yields (1), explaining the PF-LF mismatch in argument linking. It should be noted that if *John* were assigned the accusative case particle *-o* in the Spec of VP and *nP* were assigned *-ga* in the Spec of TP, the resultant structure would be (21):

(21) \*[TP [<sub>nP</sub> *t*John Mary-to-no aiseki]-ga            [[<sub>VP</sub> [<sub>VP</sub> John-*o*  
           [<sub>nP</sub> *t*John Mary-with(-Gen) table-sharing]-Nom       John-Acc  
           [<sub>nP</sub> su]] *v*] T]]  
           do

(21) is correctly ruled out by the Proper Binding Condition, because *t*John, the trace of

*John*, is not c-commanded by its antecedent.

The nominal phrases in the light verb constructions are in contrast with ordinary nominal phrases like (22):

- (22) [TP Mary-ga [[vP [VP [nP [NP John-no Amerika-e-no ryokoo]  
 Mary-Nom John-Gen America-to-Gen travel  
 [n]-o [t<sub>nP</sub> kyakkasita ]] v]T]]  
 -Acc turned-down

'Mary turned down John's trip to the United States.'

In (22), the nominal case domain, *i.e.* the accessible domain of *n*, is indicated by the shaded area whereas the clausal case domain, *i.e.* the accessible domain of *v*, is indicated by the closed box. Following Grimshaw (1990), I claim that *John* in (22) is not an external argument but an adjunct; *John* is not in the Spec of *nP* but adjoined to NP. This is supported by the fact that *John* does not have to be Agent. For example, (22) may have the interpretation that Mary turned down the trip to the US which John planned. Unlike *nP* in the light verb construction, the ordinary *nP* in (22) counts as a PF-phase (though it is not a "proposition" and hence does not function as an LF-phase). For PF-phenomena including case marking, therefore, *John* and *Amerika-e* 'America-to' are within the nominal case domain (the shaded area), but not within the clausal case domain (the closed box). They must be assigned the genitive case particle *-no*.

### 3. Consequences

First, the proposed analysis can account for Grimshaw and Mester's (1988) observation that an external argument never receives the genitive case particle *-no* as shown in (23):

- (23) \**John-no* Mary-to-no aiseki-o sita koto-ga nai  
*John-Gen* Mary-with-Gen table-sharing-Acc did fact-Nom Neg  
 'John has never shared a table with Mary.'

Recall that in our analysis, the external argument *John* originates in the Spec of *nP* and thus remains outside the nominal case domain, *i.e.* the accessible domain of *n*, throughout the derivation. Hence, *John* can never be assigned the genitive case particle *-no*.

Second, our analysis can account for the ergativity constraint, which states that a verbal noun in the light verb construction cannot be ergative (see, among others, Miyagawa 1989, Tsujimura 1990, and Kageyama 1991, 1993). For example, the ergative verbal nouns *meityuu* 'strike' and *tootyaku* 'arrival' cannot be assigned the

accusative case particle *-o* as shown below:

- (24) a. \*?Ya-ga mato-ni meityuu-o sita  
 arrow-Nom target-Dat *strike-Acc* did  
 'The arrow hit the target.' (Miyagawa 1989: 659)
- b. \*Ressya-ga Tookyoo-kara tootyaku-o sita  
 train-Nom Tokyo-from *arrival-Acc* did  
 'The train arrived from Tokyo.'

Let us consider (24b) as an example. Under our analysis, the *vP* phase structure of (24b) is (25):

- (25) [<sub>vP</sub> [<sub>VP</sub> [<sub>nP</sub> [<sub>NP</sub> Tookyoo-kara ressyia tootyaku] *n*] *su*] *v*]  
 Tokyo-from train arrival <UA/P> do <UA/P>

It should be noted that since *tootyaku* 'arrival' is an ergative noun, it only assigns its  $\theta$ -role to its internal argument; the surface subject *ressya* 'train' originates within NP as an internal argument in (25). In (25), given that *nP*, *i.e.* the nominal phrase complement of the light verb, is not a PF-phase, there is an overlap between the nominal case domain, *i.e.* the accessible domain of *n* (the shaded area), and the clausal case domain, *i.e.* the accessible domain of *v* (the closed box). According to (16), "case domain fusion" must take place. Given the constraint on "case domain fusion" (17), since *n* is an unaccusative (ergative)/passive type, *v* must also be of the same type. It then follows that *v* in (25) does not have any accusative Case feature; there is no way of assigning the accusative case particle *-o* to the *nP* complement of the light verb; the ergativity constraint follows.

Our analysis can also account for the fact that although zero-place ergative verbal nouns like *jinari* 'underground-rumbling' and *sokobie* 'freezing' cannot be assigned the accusative case particle *-o*, they can be assigned the nominative case particle *-ga* and combined with the light verb *suru* 'do', as shown in (26) (cf. Kageyama 1993: 285):

- (26) a. *Jinari-ga/\*-o* suru  
 underground-rumbling-Nom/\*-Acc do  
 'We hear an underground rumbling.'
- b. *Sokobie-ga/\*-o* suru  
 freezing-Nom/\*-Acc do  
 'It is freezing.'

Let us consider (26a) as an example. Under our analysis, the *vP* phase structure of (26a) is (27):

- (27) [<sub>vP</sub> [<sub>VP</sub> [<sub>nP</sub> [<sub>NP</sub> Jinari ] *n*] *su*] *v*]  
 underground-rumbling <UA/P> do <UA/P>

Since there is an overlap between the nominal case domain and the clausal case domain, "case domain fusion" takes place. Since *n* is of the unaccusative/passive type, *v* must also be of the same type. It follows that *v* in (27) does not have any accusative Case feature; the *nP* complement *jinari* 'underground-rumbling' cannot be assigned the accusative case particle *-o*. We then construct TP (28):

- (28) [TP *Jinari-ga* [[<sub>vP</sub> [<sub>VP</sub> *tnP* *su*] *v*] T]]  
*underground-rumbling-Nom* do

*Jinari* 'underground-rumbling' moves into the Spec of TP, where it is assigned the nominative case particle *-ga*; (26a) follows.

Third, a verbal noun in the light verb construction typically assigns an Agent  $\theta$ -role to its external argument. As pointed out by Kageyama (1993), however, there are cases where a verbal noun assigns an experiencer  $\theta$ -role to its external argument as shown in (29):

- (29) a. *Ikaiyoo-no titi-ga i-no tiryoo/syuzuyutu-o sita*  
*gastric ulcer-Gen father-Nom stomach-Gen treatment/operation-Acc did*  
 'My father, who had been trouble with a gastric ulcer, had treatment/an operation of his stomach.'  
 b. *Kodomo-ga asi-ni kega-o sita*  
*child-Nom leg-Dat injury-Acc did*  
 'The child injured his leg.' (Kageyama 1993: 282)

Under our analysis, since *n* in (29) is of the transitive/experiencer type, the *v* must also be of the same type. Hence, *v* in (29) has the accusative Case feature; the *nP* complement of the light verb is assigned the accusative case particle *-o*. Our analysis can accommodate the light verb construction with an experiencer subject.

Fourth, our analysis can accommodate the fact that among intransitive verbal nouns, unergative verbal nouns like *syokuji* 'meal' and *kooen* 'lecture' can appear in the light verb construction:

- (30) a. *John-ga syokuji-o sita*  
*John-Nom meal-Acc did*  
 'John had a meal.'  
 b. *John-ga kooen-o sita*  
*John-Nom lecture-Acc did*  
 'John gave a lecture.'

Given Chomsky's (1995) assumption that unergatives are hidden transitives, *n* in (30) is of the transitive/experiencer type. It then follows that *v* must be of the same type. Hence, the *nP* complement is correctly assigned the accusative case particle *-o*.

Fifth, as pointed out by Kishimoto (2001), an internal argument in the light verb construction is inside the scope of the quantificational particle *-mo* attached to a verbal noun. Let us first consider (31), where the quantificational particle *-mo* is attached to the complement clause and the matrix verb is in the negative form (Fukui and Sakai 2006: 330):

- (31) a. Taroo-wa Hanako-ni [dare-ga warui]-to-*mo* iwa-*nakat*-ta  
 Taro-Top Hanako-Dat anyone-Nom fault-that-*MO* say-*Neg*-Past  
 Lit. 'Taro did not say to Hanako that anyone was wrong.'
- b. \*Taroo-wa dare-ni [Hanako-g warui]-to-*mo* iwa-*nakat*-ta  
 Taro-Top anyone-Dat Hanako-Nom fault-that-*MO* say-*Neg*-Past  
 Lit. 'Taro did not say to anyone that Hanako was wrong.'

In (31a), the indeterminate pronoun *dare* 'anyone' is inside the complement clause whereas in (31b), it is outside the complement clause. The contrast between (31a) and (31b) shows that the indeterminate pronoun *dare* 'anyone' must be in the scope of both the quantificational particle *-mo* and the negation. Bearing this fact in mind, let us next consider (32):

- (32) a. \*Taroo-wa *dare*-ni hon-*mo* wata-*nakat*-ta  
 Taro-Top *anyone*-Dat book-*MO* hand-*Neg*-Past  
 'Taro did not hand a book to anyone.'
- b. Taroo-wa *dare*-ni soodan-*mo* si-*nakat*-ta  
 Taro-Top *anyone*-Dat consultation-*MO* do-*Neg*-Past  
 'Taro did not consult anyone.' (Kishimoto 2001: 624)

In (32a), where the quantificational particle *-mo* is attached to the direct object *hon* 'book', the indirect object *dare* 'anyone' is not within the scope of *-mo*; (32a) is deviant. In (32b), on the other hand, the quantificational particle *-mo* is attached to the verbal noun *soodan* 'consultation'; the result is acceptable. This indicates that in (32b), although *dare* 'anyone' is not marked by the genitive case particle *-no*, it is inside the scope of the quantificational particle *-mo* attached to the verbal noun. Recall that under our analysis, *dare* 'anyone', which is the internal argument of the verbal noun, stays inside the *nP* complement throughout the derivation as shown in (33):

- (33) John-wa [<sub>nP</sub> *t*<sub>John</sub> *dare*-ni soodan]-*mo* si-*nakat*-ta  
 John-Top *anyone*-Dat consultation-*MO* do-*Neg*-Past

Hence, we can correctly predict that the indeterminate pronoun *dare* 'anyone' is properly licensed within the scope of both the negation and the quantificational particle *-mo*.

Sixth, our analysis can explain the fact that a "bare" verbal noun resists XP operations including topicalization, relativization, clefting, passivization, and

scrambling (see, among others, Grimshaw and Mester 1988, Kageyama 1993, Uchida and Nakayama 1993, Matsumoto 1996, and Saito and Hoshi 2000). Let us consider topicalization as an example (Matsumoto 1996: 114):

- (34) a. John-wa [Tokyoo-ni ryokoo]-o sita  
 John-Top [Tokyo-to trip]-Acc did  
 'John made a trip to Tokyo.'  
 b. \**Ryokoo<sub>i</sub>-wa* John-ga [Tokyoo-ni *e<sub>i</sub>*] sita  
*trip-Top* John-Nom Tokyo-to did

Recall that under our analysis, the internal argument of a verbal noun, even when it is not accompanied by the genitive case particle *-no*, stays within the nominal phrase complement of a light verb throughout a derivation. It follows that (34b) can be ruled out along the same line with (35b):

- (35) a. John-ga [kagaku-no ronbun]-o kaita  
 John-Nom [chemistry-Gen paper]-Acc wrote  
 'John wrote a paper on chemistry.'  
 b. \**Ronbun<sub>i</sub>-wa* John-ga [kagaku-no *t<sub>i</sub>*](*-o*) kaita  
*paper-Top* John-Nom chemistry-Gen(*-Acc*) wrote

Under our analysis, the verbal noun *ryokoo* 'trip' in (34b) is the head of the NP complement of *n* just like *ronbun* 'paper' in (35b); it is an  $X^0$  category. Hence, (34b) and (35b) are both excluded by the fact that topicalization, which is an XP operation, cannot target the head noun, *i.e.* an  $X^0$  category, within a nominal phrase.

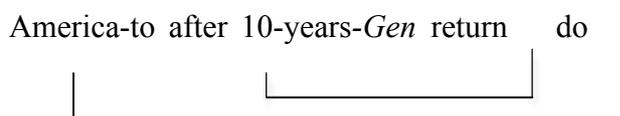
Finally, our analysis can account for the distribution of genitive case marked elements. When there are more than one elements within the nominal phrase complement of a light verb, an element without the genitive case particle *-no* can never intervene between a genitive case marked element and a verbal noun as shown below:

- (36) a. John-ga [amerika-e 10-nen buri-ni kikoku]-o suru rasii  
 John-Nom [America-to after 10-years return]-Acc do seem  
 'It seems that John will return to his country, the United States, after 10 years of absence.'  
 b. John-ga [amerika-e 10-nen buri-*no* kikoku]-o suru rasii  
 John-Nom [America-to after 10-years-*Gen* return]-Acc do seem  
 c. \*John-ga [amerika-e-*no* 10-nen buri-ni kikoku]-o suru rasii  
 John-Nom [Americak-to-*Gen* after 10-years return]-Acc do seem  
 d. John-ga [amerika-e-*no* 10-nen buri-*no* kikoku]-o suru rasii  
 John-Nom [America-to-*Gen* after 10-years-*Gen* return]-Acc do seem

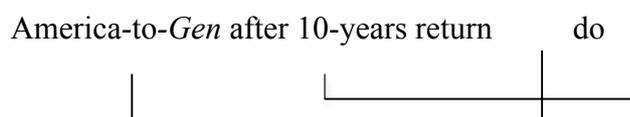
In (36c), *10-nen buri-ni* 'after 10 years', which is not marked by the genitive case

particle *-no*, intervenes between the genitive case marked element *amerika-e-no* 'Amerika-to-Gen' and the verbal noun *kikoku* 'return'; the result is deviant. Recall that under our analysis, the clausal and nominal case domains are defined as the accessible domains of *C/v* and *n*, respectively. I argue that there are dependencies between *C/v* and a clausal case marked (non-genitive case marked) element and between *n* and a nominal case marked (genitive case marked) element. Then, the above distribution can be accounted for by a crossing constraint (see, among others, Fodor 1978 and Pesetsky 1982). The relevant structures of (36b, c) are (37a, b), respectively:

(37) a. ...[[NomP Amerika-e 10-nen buri-*no* kikoku] *n*]] su ] *v*]



b. \*...[[NomP Amerika-e-*no* 10-nen buri kikoku] *n*]] su ] *v*]



Unlike (37a), (37b) violates the crossing constraint; the deviancy of (36c) follows.

#### 4. Conclusion

This paper has dealt with the light verb construction in Japanese, arguing that the nominal phrase complement of a light verb functions only as an LF-phase but not as a PF-phase. It was shown that the proposed analysis straightforwardly accounts for the paradoxical PF-LF mismatch in the light verb construction. I have also argued that the various properties of the light verb construction follow from our analysis. This paper presents evidence for the view of non-simultaneous Transfers, where a syntactic object can be transferred to a single interface during a derivation.

#### Notes:

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# Statistical Anatomy of Unacceptability\*

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## Abstract

By conducting experiments on the acceptability judgments made by a substantial number of native speakers, and statistically analyzing their results, we will attempt to identify multiple factors and their interactions contributing to acceptability judgments. Our goals are, first, to demonstrate how and how much quantitative examination of acceptability judgments can resolve some of the seemingly irreconcilable issues of grammaticality judgments, especially concerning the discrimination between ungrammaticality and unacceptability, and, second, to contribute to the task of data mining in the research conducted by generative syntacticians.

**Keywords:** Acceptability judgments, Japanese causatives, Multivariate statistical analyses, Experimental syntax

## 1. Introduction:

Since its inception, researchers in generative syntax have devoted enormous energies to the elaboration of theoretical concepts and devices, yielding a remarkable progress of the field. Compared to such vigorous pursuit of theoretical sophistication, however, much less attention has been paid to the advancement of research methodology. As a result, some serious problems have arisen concerning the main research tool in this field, namely, an appeal to speakers' introspective judgments based upon their native intuition.

Until fairly recently, virtually no methodology of measuring and assessing acceptability judgment had been developed in the field of generative syntax.<sup>1</sup> As a result, researchers continued to develop theoretical hypotheses based upon mere contrast of the relative unacceptability of sentences. Sentences have often been called ungrammatical (usually in accordance with the prediction made by the researchers' hypotheses) when they are relatively less acceptable than others. This practice has been indicated on example sentences, standardly, with fuzzy, unconstrained use of question marks, where two question marks, for instance, may indicate ungrammaticality on some sentences while they may still indicate grammaticality on others. When discrepancy in judgment arises and researchers disagree about the grammaticality of sentences, it is often ascribed to dialectal/idiolectal variations, usually without much serious investigation of the alleged variations. As a result, researchers' disagreement is often left irreconcilable, leaving behind a state of chaos.

A remedy for this problem often dubbed "experimental syntax," has emerged since the mid-1990s, which emphasizes the importance of precise, formal experimental



- (3) a. <sup>ok</sup>Taroo-ga [IP **kooen-e** kodomo-*o* **ik**] ase-ta.  
 Taro-NOM park-to child-ACC go CAUSE-PAST  
 |-----ok-----|  
 'Taro made his child go to the park.'
- b. <sup>???</sup>Taroo-ga [VP **kooen-e** kodomo<sub>i</sub>-*ni* [IP [e]<sub>i</sub> **ik**] ase]-ta.  
 Taro-NOM park-to child-DAT go CAUSE-PAST  
 |-----x-----|  
 'Taro let his child go to the park.'

(From Miyagawa (1999: 249) including translation and judgments)

The argument here was actually a little more complex. Based upon the claim made in Miyagawa (1996) and Miyagawa (1997), it was assumed that a VP-adjoined position cannot be the final landing site of movement in general and hence that the V-Ajct 'to the park' in (3b) cannot be analyzed as having been moved from the complement clause and adjoined to the matrix VP. Note that such an analysis would have permitted the intended verb modification established within the complement clause. In (3a), on the other hand, movement of the V-Ajct is permitted since it would involve adjunction to the complement IP.<sup>iii</sup> It was also assumed that (3b) "is not completely out due to the fact that there is a focus position above the VP, which is a legitimate landing site for 'to the park.'" (p. 249)

Let us point out here that the ACS-analysis inevitably makes another prediction, although it is not discussed in Miyagawa (1999). When "an adjunct meant to modify the matrix causative predicate *sase* (henceforth C-Ajct)" appears to the right of the *o*-causee at surface, it should be analyzed as being located within the complement, and hence not be permitted to establish the intended modification, as illustrated in (4) below. Two typical examples of C-Ajcts are *kyooseetekini* 'coercively' and *mite-minuhuri-o site* 'pretending not to be watching.'<sup>iv</sup>

- (4) *o*-causative: Causer-ga [IP Causee-*o* C-Ajct V] sase  
 -NOM -ACC | CAUSE  
 |-----x-----|

We will refer to these predictions (inevitably) made by the ACS-analysis as \*[V-Ajct ... *ni*] and \*[*o* ... C-Ajct], respectively.

## 2.2 Discrepancy in judgment:

We now would like to provide a brief summary of our purely linguistic conjectures on the issue raised in the previous section. First, we find it not too difficult to identify counter-examples to the ACS-analysis:

- (5) a. Kooti-wa **hiraoyogi-de** sensyu-tati-*ni* **oyog** aseta  
 coach-TOP breaststroke-in swimmers-DAT swim caused  
 'The coach had the swimmers swim in the breaststroke.'
- b. Kariforunia-syuu-wa subeteno huhoonyuukokusya-*o* **kyooseetekini** kikokus aseta  
 California-state-TOP all illegal.alien-ACC coersively return caused  
 'The State of California forced all illegal aliens to return to their home countries.'

The V-Ajct appearing to the left of the *ni*-causee in (5a) and the C-Ajct appearing to the right of the *o*-causee in (5b) seem to comfortably modify the complement verb and the matrix predicate *sase*, respectively, *with or without the focalization* of these adjuncts. If those speakers who provided the judgment indicated by three question marks on (3b)

(henceforth, the ACS-judgment) find any of the examples in (5) acceptable, that would suggest that the ACS-analysis was proposed prematurely based upon insufficient empirical investigation. If those speakers continue to reject these and similar examples, on the other hand, we do witness variation across speakers that is worthy of further investigation. With the assumption that the latter case indeed arises, we now proceed with our investigation.

### 3. Research questions and experiment

Several important research questions arise at this point. First, does the reported discrepancy in judgment reflect a difference in grammar? Is it, in other words, what is often referred to as dialectal or idiolectal variation in grammar? We are particularly interested in finding out whether or not the ACS-judgment is replicable in a larger-scale examination. Second, if some causative sentences are indeed lower in acceptability than others as claimed in the ACS-analysis, what exactly causes it? And to what extent are they awkward? In particular, are the predictions made by the ACS-analysis supported? To answer these questions, we have conducted an experiment and applied two distinct types of statistical analyses to its results, one theory-driven and the other data-driven.<sup>v</sup>

#### 3.1 Test sentences:

We prepared three different groups of example sentences for our experiment, which we will describe briefly in this subsection.

##### 3.1.1 Pre-test sentences:

First, we created "pre-test" sentences. Each pre-test sentence contained either V-Ajct or C-Ajct in a syntactic construction we labeled as V-frame or C-frame. V-frame refers to a sentence in which a V-Ajct easily succeeds in modifying a verb while a C-Ajct fails. C-frame has the opposite property — a C-Ajct is expected to succeed while a V-Ajct is expected to fail.<sup>vi</sup> The four possible combinations of the two adjunct types and two syntactic frames are exemplified as follows — V-Ajct in V-frame ((6a)), V-Ajct in C-frame ((6b)), C-Ajct in C-frame ((6c)), and C-Ajct in V-frame ((6d)).

- (6) a. *Watasi-wa batahurai-de oyoida.*  
 I-TOP butterfly.stroke-in swam  
 'I swam in the butterfly stroke.'
- b. *#Isya-ga watasi-ni batahurai-de sase-nakat-ta-koto-ga aru.*  
 doctor-NOM I-DAT in.butterfly.stroke CAUS-NEG-PAST-matter-NOM exist  
 'There is something the doctor would never let me do in the butterfly stroke.'
- c. *Sono-isya-ga itumo kanzya-ni kyoosee-teki-ni sase-ru.*  
 that.doctor-NOM always patient-DAT coercively make-PRES  
 koto-ga aru.  
 thing-NOM exist  
 'There is something that doctor always makes his patients do coercively.'
- d. *#Syuzu-yutu-no-yokuzitu sono-kanzya-wa kyoosee-teki-ni ugoki-mawat-ta.*  
 next.day.of.surgery that.patient-TOP coercively moved.around  
 'On the day after the surgery, that patient moved around coercively.'

We used six different adjuncts of each type in these four different combinations, making 24 pre-test sentences in total. Half of these sentences were expected to be accepted and the other half to be rejected.

By conducting a "pre-test" involving these sentences, we examined if the speakers participating in our experiment properly distinguish V-Ajcts and C-Ajcts, and also if the particular adjuncts we adopted can be safely used in the causative sentences we will examine in our main experiment. We examined in this pre-test, in other words, if all of the participating subjects as well as the target materials used in our main experiment can be reliably appealed to.

### 3.1.2 Experimental causative sentences

The causative sentences in our main experiment involved: (i) two types of adjuncts (V-Ajct vs. C-Ajct), (ii) two distinct particles to mark the causee NP (*ni* vs. *o*), and (iii) two distinct locations of an adjunct (to the left vs. right of the causee). With six distinct lexicalization of each adjunct type, we created 48 test sentences in total. (7a-b) exemplify two of the four possible combinations of these conditions — V-Ajct to the left of the *ni*-causee ([V-Ajct ... *ni*]) in (7a) and C-Ajct to the right of the *o*-causee ([*o* ... C-Ajct]) in (7b).

- (7) a. [<sub>Background</sub> Ziyuugata-no kyoogi-nanoni **hiraoyogi-de** sensyu-tati-**ni**  
           free.style-GEN race-despite breaststroke-in swimmers-DAT  
 oyog-aseta-no-wa ] [<sub>Focus</sub> **ANO KOOTI** ]-desu.  
 swim-CAUSED-NZR-TOP that coach-COP  
 'It was that coach who made the swimmers swim in the breaststroke in a free-style race.'
- b. [<sub>Background</sub> Subete-no huhoo-nyuukokusya-o **kyooseetekini**  
           all illegal.alien-ACC coercively  
 kikokus-ase-ta-no-wa ] [<sub>Focus</sub> **KARIFORUNIA-SYUU** ]-desu.  
 return.home-CAUSED-NZR-TOP California-state-COP  
 'It was California that coercively deported all illegal aliens.'

Note here that both adjunct and causee are placed in the background portion in a pseudocleft construction in each example. Since the focus of a sentence shows up in the precopula position, the adjunct or the causee cannot be, or at least is highly discouraged to be, interpreted as a focus. Constructing our test causative sentences in this fashion, we can eliminate a possibility for them to be secretly rescued by the application of a focus movement even when these constructions turn out to be judged highly acceptable by the subjects in our experiment. (Recall the account of the judgment associated with (3b) under the ACS-analysis presented above in Section 2.1.)

### 3.1.3 Filler sentences:

Finally, we also prepared a total of twenty-four filler sentences. They served not only as distractors but also as the stimuli that provide baseline judgments for clearly acceptable or clearly unacceptable sentences. Six of them are grammatical causative sentences (three each of the *ni*- and *o*-causatives) which either do not involve any V- or C-Ajcts at all, or at least do not involve any potential ordering problem between an adjunct and the causee, as exemplified in (8a-b).

- (8) a. Okyaku-**ni** kegas-**ase**-ru-yoodewa ii tokoya-to-wa iemasen.  
 customer-DAT get.injured-CAUSE-such-TOP good barber-that-TOP can't.be.said  
 'Any barber who injures his/her customer cannot be called "a good barber."  
 b. Yooyaku ame-ga agatta-node sotoni detagatteita inu-**o** sanpos-**ase**-ta.  
 at.last rain-NOM stopped-since outside wanted.to.go.out dog-ACC walk-CAUSED  
 'Since it finally stopped raining, I let the dog walk who was eager to go out.'

Eighteen of the fillers are ungrammatical non-causative sentences, as exemplified by (9a-b).

- (9) a. Ima, kodomotati-ga **nidoto ninsikisita**-no-wa, ningen-no yasasii inoti-wa  
 now children-NOM twice realized-NZR-TOP human gentle life-TOP  
 harikitte modotte-konai-to-iu-koto-desu.  
 enthusiastically will.not.return  
 "What the kids have realized now is that gentle human lives will never return again with vigor."  
 b. **Sensyuumatu-ni** doositemo tabe-**tai**-no-wa, **raisyuu** kat-**ta**-bakarino  
 last.weekend-on definitely eat-want-NZR-TOP next.week bought-just  
 puramoderu-o kumitateru-koto-desu.  
 plastic.model-ACC assembling.is  
 'What I definitely would like to eat last weekend is to assemble the plastic model kit that I bought next week.'

The causes of ungrammaticality involved in our filler sentences are varied and sometimes compound. Some involve a problem that is clearly syntactic in nature. Example (9a) involves a negative polarity item *nidoto* 'twice (= (never) ... again)' which remains unlicensed, (9b) involves incompatibility of tense between verbs and adjuncts (*sensyuumatu-ni* ... *tabe-tai* 'want to eat last weekend' and *raisyuu kat-ta* 'bought next week'). Some of them involve improper modification, as illustrated in (10).

- (10) Boku-ga [**teeneeni** hara-o-tateteiru]-no-wa aitu-ga [**hidoku** ayamarooto-sinai] koto  
 I-NOM politely am.angry-NZR-TOP s/he-NOM badly wouldn't.apologize fact

|-----x-----| |-----x-----|  
 'What I am politely angry at is that he wouldn't badly apologize.'

These sentences involve a similar type of improper modification to that which is expected to arise in the ungrammatical pre-test sentences. The same problem is also predicted to arise in the experimental causative sentences when they involve the order [V-Ajct ... *ni*] and [*o* ... C-Ajct] under the ACS-analysis, as in (11).

- (11) x  
 Taroo-ga **kooen-e** kodomo-**ni** [IP [e]<sub>i</sub> **ik**] **ase**-ta.  
 Taro-NOM park-to child-DAT go CAUSE-PAST  
 |-----x-----|

'Taro let his child go to the park.'

The ungrammatical filler sentences as in (10) therefore would provide the base line judgment for 'clearly unacceptable' sentences involving improper modification when we examine the acceptability judgment of pre-test sentences and experimental causative sentences.<sup>vii</sup>

The number of grammatical and ungrammatical fillers in our experiment was not equal. This is because we expected (as discussed in Section 2.2) that many of the experimental causative sentences would not be judged ungrammatical, and it has been

known that experiments with unbalanced design (in grammaticality) may result in judgment instability due to subjects' implicit bias toward counterbalancing their judgments (Snyder (2000), Sprouse (2007)).

### 3.2 Procedure:

All of the test sentences were randomized in order — among the pre-test sentences and among other sentences. Fifty-eight native speakers of Japanese, all college students, ages 18~20, 18 females, 39 males and 1 unidentified, were involved. They participated either as part of a class or were paid for participation. To the best of our knowledge, none of them have received any serious training in linguistics. Both pre-test and main test were conducted on the same day in this order.

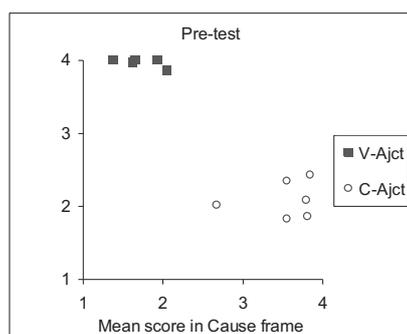
The subjects were asked to judge sentences in silent reading and select one of (a-d) below for each sentence, both in the pre-test and the main test: (a) It is a decent sentence in Japanese, (b) It may not be perfect, but I can admit it as a basically decent sentence in Japanese, (c) We may be able to guess the intention of the sentence if we try, but I do not think the way it is stated is permissible in Japanese, and (d) The way the sentence is stated is never permitted in Japanese, or we can hardly interpret the sentence. We translated each of the subjects' answers provided in the ordinal scale (a~d) into the interval scale (4~1), respectively, 4 being the maximal and 1 being the minimal score.

## 4. Experimental results and discussion:

### 4.1 Adjunct discrimination in the pre-test:

The graph in (12) visualizes the result of the pre-test.

(12) Pre-test results — Mean acceptability of Adjuncts:



Each data point in (12) represents the mean score of each of 12 adjuncts (6 V-Ajcts (■) and 6 C-Ajcts (○)). The horizontal axis shows the score when they are used in a C-frame, while the vertical axis shows the score when they are used in a V-frame. No speaker showed totally opposite or totally inconsistent reactions. Except for one sentence (— See Footnote viii below), the acceptability/ unacceptability of all sentences with all combinations of adjunct types and frames showed the clear tendency in the expected direction — the proper combination leaned toward high scores and the improper combination toward low scores. The pre-test, in other words, was by and large successful in confirming that the majority of the involved speakers distinguish V-Ajcts from C-

Ajcts and can be regarded as reliable Japanese speakers for our experiments. At the same time, this pre-test confirms that those particular adjuncts we have selected can be used safely in our main experiment.<sup>viii</sup>

#### 4.2 *The grammaticality status of causative sentences:*

We first examine the judgment scores in our experiment, i.e., the acceptability range of all 6 distinct types of sentences involved in the pre-test and the main test labeled as follows: **G-fil** = Grammatical filler sentences, **U-fil** = Ungrammatical filler sentences, **U-fil** = Ungrammatical filler sentences, **G-pre** = Pretest sentences expected to be grammatical, **U-pre** = Pretest sentences expected to be ungrammatical, **ni-caus** = Experimental causative sentences with *ni*-causee, **o-caus** = Experimental causative sentences with *o*-causee. Among them, the grammatical filler sentences (G-fil) and ungrammatical filler sentences (U-fil) exhibit a clearly high mean score and low mean score, respectively, and provide us with the baseline judgments in our investigation — **G-fil**: Mean acceptability = 3.79, Standard deviation = 1.001 **U-fil**: Mean acceptability = 1.30, Standard deviation = 1.000. The acceptability range of grammatical pre-test sentences (G-pre) (mean = 3.75) mostly overlaps with that of G-fil. The acceptability range of ungrammatical pre-test sentences (U-pre) (mean = 1.88) is also considerably low although it is slightly higher than that of U-fil. It does not seem to be overly brash, therefore, to state that those sentences that we expected to be deemed grammatical indeed seem to have been judged as grammatical and clearly acceptable, and those sentences expected to be judged ungrammatical as ungrammatical and sufficiently unacceptable.

The experimental causative sentences as a whole exhibited the mean acceptability score of 3.52 and patterned with G-fil and G-pre rather than U-fil and U-pre, although *ni*-causative sentences (*ni*-caus) and *o*-causative sentences (*o*-caus) exhibited some asymmetry — *o*-caus (mean = 3.79) had virtually the same acceptability range as G-fil and G-pre, while *ni*-caus (mean = 3.26) had a somewhat wider distribution. As will be reported and discussed directly below, among the *ni*-caus sentences, those involving the order [V-Ajct ... *ni*] received the lowest mean acceptability score, but even that score was 3.05, which is well into the upper half of the acceptability scale. (We will examine and discuss in Sections 4.3 and 5.2 below the nature and cause of the somewhat lower acceptability exhibited by some of the *ni*-cause sentences.)

Thus, the examination of the acceptability scores in our experiment suggests, first, that G-fil and G-pre clearly make up a group of grammatical sentences (henceforth G-sentences), and U-fil and U-pre, a group of ungrammatical sentences (henceforth U-sentences), and second that all the experimental causative sentences belong to the group of G-sentences rather than U-sentences.

#### 4.3 *Acceptability of causative sentences — ANOVA:*

Despite our impression that all the experimental causative sentences are to be regarded as grammatical, it was also observed that some *ni*-causative sentences are noticeably lower in acceptability than other causative sentences, being located toward the middle of the acceptability scale rather than its high end. Since this observation has potential to go along the prediction \*[V-Ajct ... *ni*] made by the ACS-analysis, it requires further scrutiny.

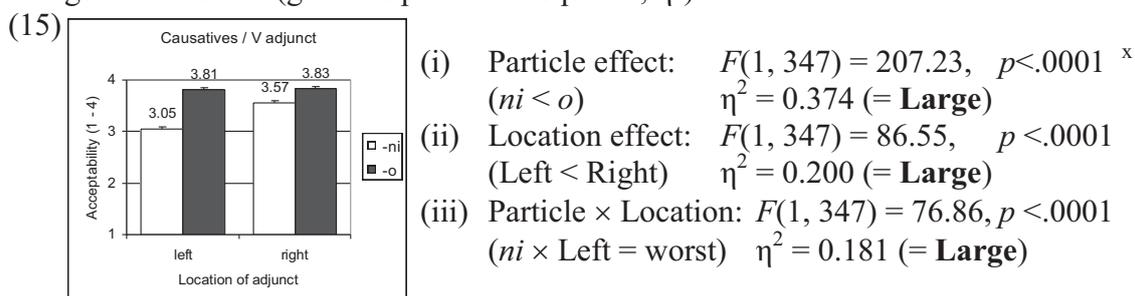
We ran the two-way ANOVA (Analysis of Variance) in order to measure how the acceptability judgments of *ni*- and *o*-causatives were affected by the syntactic conditions listed in (13).

- (13) (i) Difference in adjunct type — V-Ajct vs. C-Ajct  
 (ii) Difference in particle type — *ni* vs. *o*  
 (iii) Difference in the location of adjuncts — to the left vs. right of the causee  
 (iv) The interaction of (i)-(iii)

We conducted the analysis for V-Ajcts and C-Ajcts separately, with the obtained acceptability scores 4~1 as dependent variables and the conditions (13 ii) and (13 iii) as independent variables. In each set of four sentences we compared, we used one and the same adjunct, with the only difference among the sentences being the conditions (13 ii) and (13 iii). We therefore carried out ANOVA of repeated measures with conditions (13 ii) and (13 iii) as within-subject factors. The chart in (14) summarizes the conditions involved in the 2-way ANOVA conducted for the V-Ajct test.

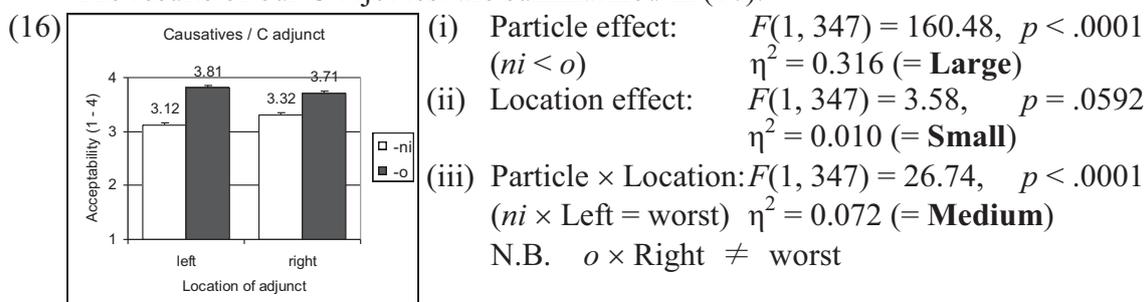
(14) V-Ajct Test		Location	
		(A) Left	(B) Right
Particle	(i) <i>o</i>	V-Ajct ... <i>o</i>	<i>o</i> ... V-Ajct
	(ii) <i>ni</i>	V-Ajct ... <i>ni</i>	<i>ni</i> ... V-Ajct

As summarized in (15), the main effect of locations, that of particles, and the interaction of locations and particles can be observed, all with statistical significance ( $p < .0001$ ) and a large "effect size." (given as partial eta-squared,  $\eta^2$ ).<sup>ix</sup>



Among these results, the interaction ( $ni \times$  Left) inducing the lowering of acceptability strikes us as a phenomenon in line with one of the predictions made by the ACS-analysis, namely, \*[V-Ajct ... *ni*]. It therefore gives us the impression that our experimental result supports the ACS-analysis. When we extend our investigation to the analysis of the C-Ajct test, however, this initial impression proves to be wrong.

The results of our C-Ajct test are summarized in (16).



Here, a significant main effect of particles ( $ni < o$ ) similar to that we saw in the V-Ajct test is observed ( $p < .0001$ ) while no significant location effect is observed ( $p = .059$ ). Even more important and crucial to us is that we do find the statistically significant

interaction (particle  $\times$  location,  $p < .001$ ), which lowers acceptability in [Ajct ... *ni*], not only in the V-Ajct test but also in the C-Ajct test, contrary to what is expected in the ACS-analysis. Recall that the ACS-analysis predicts the ungrammaticality of [V-Ajct ... *ni*] but not that of [C-Ajct ... *ni*], which should be permitted as illustrated in (17).

(17) *ni*-causative: Causer-ga C-Ajct Causee-*ni* [IP [e]<sub>i</sub> V] sase  
 -NOM | -DAT CAUSE  
 |-----ok-----|

Finally, and again crucially, the "particle  $\times$  location" interaction obviously does not lower acceptability in the case of "*o*  $\times$  Right."

To sum up the results of our ANOVA in (15) and (16), we have observed the following: (a) "*ni*  $<$  *o*" holds for both V-Ajcts and C-Ajcts, whether they are located on the left or right of the causee, (b) "Left  $<$  Right" holds for V-Ajcts for both *ni* and *o*, (c) "*ni*  $\times$  Left" is least acceptable not only with V-Ajcts but also with C-Ajcts, and (d) "*o*  $\times$  Right" for C-Ajcts is highly acceptable. None of these are predicated by the ACS-analysis, and (d) directly contradicts with it. The observations in (a-c) suggest that [V-Ajct ... *ni*] is the lowest in acceptability, first, because there generally are less number of *ni*-causative sentences that are effortlessly accepted than *o*-causative sentences, and second, because V-Ajcts are in general less comfortably used when they appear to the left of a causee rather than to their right, and finally because their effects are most robust when they interact with each other.

To sum up our investigation in Sections 4.2 and 4.3 so far, it is claimed in the ACS-analysis that causative sentences are ungrammatical and sharply rejected in all and only cases in which a specific type of adjunct and a specific causee-marking particle appear in a specific relative order, but neither of such predictions (\*[V-Ajct ... *ni*] and \*[*o* ... C-Ajct]) is supported, its expected results not having been replicated in a larger scale experiment we conducted. Thus, we are led to our interim conclusion that the ACS-analysis as a grammatical hypothesis cannot be sustained, at least based upon the behavior of adjuncts.

One question that remains is what are the sources of the two main effects ("*ni*  $<$  *o*" and "Left  $<$  Right") of ANOVA observed above. Let us briefly speculate on them based upon what we know about Japanese syntax. There is good reason to believe that the first main effect "*ni*  $<$  *o*" is induced by the extra pragmatic restrictions imposed on the *ni*-causative. It has long been noted by many researchers that the *ni*-causative tends to be more severely restrained pragmatically than the *o*-causative. Kuroda (1965), for instance, proposed the condition that the causer must assume that the *ni*-causee must be willing or has consent to do the action being caused, while the causer is indifferent or disregards such factors for the *o*-causative. Whether this or other proposed conditions ultimately survive against strictest empirical tests aside (cf. (8)), they collectively demonstrate the repeated efforts by Japanese syntacticians, who have long noted and craved to depict the asymmetry between the *ni*- and *o*-causatives concerning their pragmatic restrictedness. We find this to be a good circumstantial evidence that the asymmetry "*ni*  $<$  *o*" is induced by some "extra" pragmatic restrictions imposed on the *ni*-causatives. The wider distribution of *ni*-caus than *o*-caus mentioned in Section 4.2 above is also well in accordance with the variation and fluctuation that pragmatic factors are known to exhibit when they influence the interpretation of sentences. (Kitagawa and Yoshida (2008) discusses the possible source of the location main effect "Left  $<$  Right.")

## 5. Subgroups of sentences and speakers — Factor Analysis:

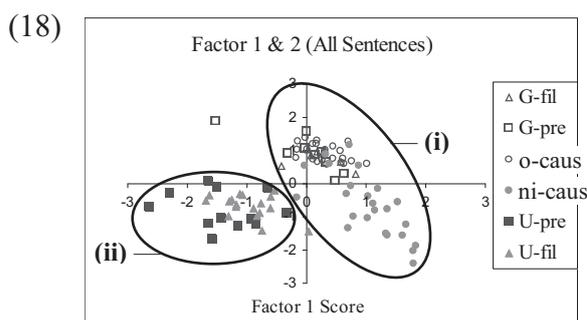
While our investigation in the previous section led us to reject the ACS-analysis, the fact remains that some variation across speakers has been observed as to the acceptability judgment of the causative sentences in Japanese (cf. Section 2.2). The next questions we would like to answer therefore is how exactly such variation arose. We are interested in discovering in particular if there are any structured properties involved in the variation.

Typically, the experimental approach to speakers' variation thus far has treated acceptability judgment as a function of the language users' grammaticality judgment, appealing only to a unidimensional scale going from low to high. We have, on the other hand, decided in this work to treat acceptability judgment as the amalgam of multidimensional factors, adopting the hypothesis that the variation across speakers is caused by the linear combination of such multiple factors. In pursuit of this idea, we re-examined all the data obtained in our experiments, applying Factor Analysis. Factor analysis is a procedure that is used to seek a set of latent factors that cannot be directly observed from multivariate observations. In our case, it explored possible latent factors underlying the speakers' judgments based upon the data set consisting of acceptability judgments (4 ~ 1) of all 96 sentences and those of all 58 speakers in our experiments.<sup>xi</sup> Appealing to this multivariate statistical method, we compared the patterns of acceptability responses concerning distinct sentence types by each speaker in the hope that it would allow us to investigate: (i) if the speakers participated in our experiment are divided into any subgroups, and if so, (ii) whether there is any "structure" or "dimension" within their acceptability patterns.

Because the number of sentences is larger than that of speakers in our experiment, we put the speakers in columns and the sentences in rows in the data set for our factor analysis. (See Section 6 below.) In this analysis, three factors were extracted which explained the three largest proportions of variance in the data.<sup>xii</sup> In accordance with the load of these three factors (to be called Factors 1-3), the speakers could be divided into three subgroups (Groups 1-3). Group 1 consists of those speakers with high Factor 1 load (32 speakers), Group 2 with high Factor 2 load (19 speakers), and Group 3 with high Factor 3 load (7 speakers). Our task now is to find out the identity of these latent factors which explain the partition of the speakers — and the partition of sentences, as we will see below. (Kitagawa and Yoshida (2008) examine if the subgrouping of speakers by the factor analysis here reflects the variation in regional dialects, and dismisses that possibility.)

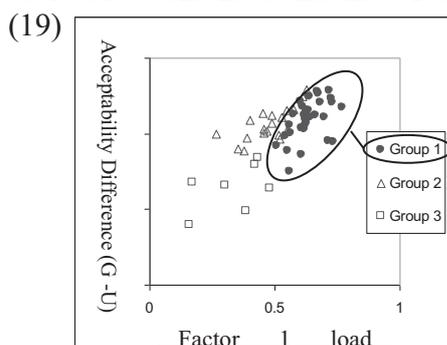
### 5.1 *The first dimension of acceptability — Factor 1:*

In pursuit of the identity of Factors 1-3, we performed several correlation analyses, starting with the examination of the factor score of all the experimental sentences. Although this perhaps deviates from the common practice, we believe that it helps us elucidate what is implied in the data. Factor 1 splits sentences into two separate subgroups (i) and (ii) indicated in (18) below, in which all the sentences were plotted with the Factor 1 score (i.e., the size of the influence of Factor 1 on sentences) indicated on the horizontal axis and the Factor 2 score on the vertical one.



Roughly, we observe here the following sub-grouping.<sup>xiii</sup> The group (i), which basically has the positive Factor 1 load, consists of G-fil, G-pre and all *ni-* and *o-caus* sentences. Note that all of these sentences can be identified as G-sentences, as pointed out in Section 4.2. The group (ii), which has negative Factor 1 load, on the other hand, consists of U-fil and U-pre sentences, i.e., U-sentences.

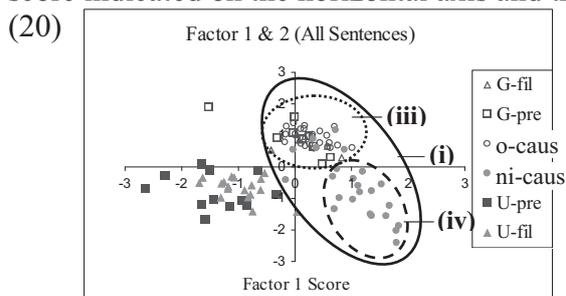
Recall here that the speakers were divided into three subgroups (Groups 1-3) in accordance with the load of Factors 1-3. In (19) below, all these speakers are plotted with Factor 1 load on the horizontal axis and the difference between the mean acceptability score of G-sentences and that of U-sentences (G - U) on the vertical axis.



What we can observe here is the correlation that the higher the Factor 1 load of a speaker is, the more clearly she distinguishes grammatical sentences from ungrammatical sentences. When we put together these observations on both sentences and speakers, we find it reasonable to identify Factor 1 as representing clear discrimination of grammaticality and ungrammaticality.

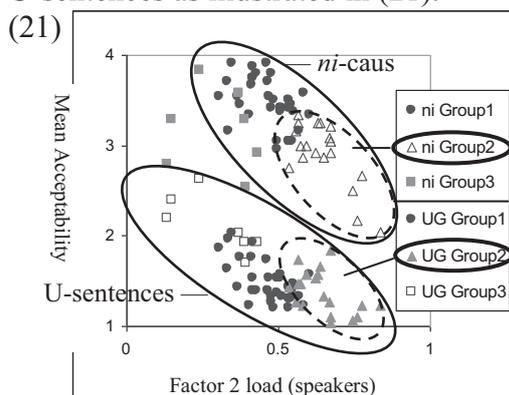
### 5.2 The second dimension of acceptability — Factor 2:

Factor 2 splits G-sentences (i) into two separate subgroups (iii) and (iv), as indicated in (20) below ( $\approx$  (18)), in which all the sentences were plotted with the Factor 1 score indicated on the horizontal axis and the Factor 2 score on the vertical one.



Here, we observe the following sub-grouping. The subgroup (iii), which has the positive Factor 2 load, consists of G-fil, G-pre, all *o*-caus sentences together with those *ni*-caus sentences with high acceptability (5/24 of *ni*-caus, mean acceptability scores 3.47~3.84). The subgroup (iv), which has the negative Factor 2 load, on the other hand, consists of those *ni*-caus sentences with lower acceptability (18/24 of *ni*-caus, mean acceptability scores 2.94~3.78). Factor 2, in other words, splits grammatical sentences into two groups — a subgroup consisting of sentences with relatively higher acceptability and one consisting of those with relatively lower acceptability.<sup>xiv</sup>

Turning now to the factor load of the speakers, we can also find out how Factor 2 characterizes speakers when we examine the way speakers judge *ni*-caus sentences and U-sentences as illustrated in (21).



Here, all the speakers are plotted in accordance with their judgment of *ni*-caus sentences (upper half) and U-sentences (lower half). The Factor 2 load is indicated on the horizontal axis and the mean acceptability score of these sentences provided by the speakers on the vertical one. Note first that, with respect to the judgment of the *ni*-caus sentences, the Group 2 speakers ( $\Delta$ ) show up in (21) not only toward the right end, reflecting their high Factor 2 load, but also toward its bottom, indicating that they have a tendency to judge these sentences notably lower in acceptability compared to other speakers. We can observe here, in other words, the correlation that the higher the Factor 2 load of a speaker is, the lower she judges the *ni*-causative sentences.<sup>xv</sup>

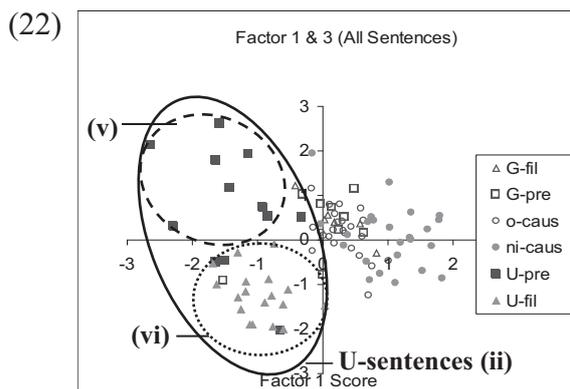
What is interesting and important is that Factor 2 is also correlated with the speakers' judgment of U-sentences in (21) — the higher the Factor 2 load of a speaker is, the lower she judges the U-sentences. Note also that even the Group 2 speakers rate the *ni*-caus sentences much higher than the U-sentences. Crucially, in other words, *this Factor 2 effect cuts across and hence is independent of grammaticality.*

Recall here what we reported in Section 4.2 above — some of the *ni*-caus sentences tend to be deemed somewhat less acceptable than other *ni*-caus sentences and the *o*-caus sentences, which we ascribed to the pragmatic restrictions more severely imposed on the *ni*-caus in general. Moreover, with our analysis of sentences in terms of Factor 1 and 2 scores in (20), we have observed that such "less acceptable" *ni*-caus sentences with the low Factor 2 score make up their own subgroup (iv) within the G-sentence group (i). When we put together all these observations on sentences and speakers, we find it reasonable to identify Factor 2 as representing susceptibility to extra-grammatical influence which degrades acceptability of sentences. We also note that the sentence groups (i) and (ii) (G-sentences vs. U-sentences) in (18) are rather clearly split while the groups (iii) and (iv) in (20) overlap in the type of membership, and make up a continuum.

This asymmetry comfortably corresponds to the traditional view of the asymmetry between grammaticality contrast ("all or nothing") and extra-grammatical deviance of sentences ("gradual degrading").

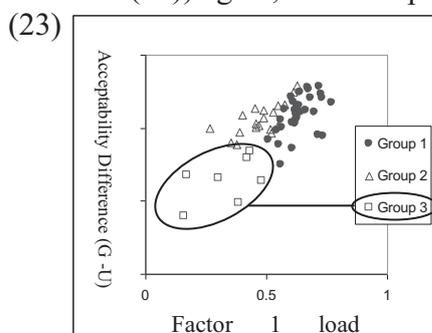
### 5.3 The third dimension of acceptability — Factor 3:

Factor 3 splits U-sentences (ii) (see (18) above) into two subgroups (v) and (vi) as in (22) below, in which all the sentences were plotted with the Factor 1 score indicated on the horizontal axis and the Factor 3 score on the vertical one.



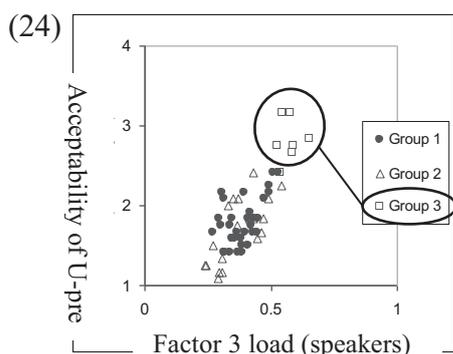
Here, we observe the following sub-grouping of U-sentences. The group (v), which has the positive Factor 3 load, consists most of the U-pre sentences, while the group (vi), which has the negative Factor 3 load, consists of all U-fil and a few U-re sentences.

We can learn how Factor 3 characterizes speakers when we examine (19) (repeated below as (23)) again, this time paying attention to the Group 3 speakers.<sup>xvi</sup>

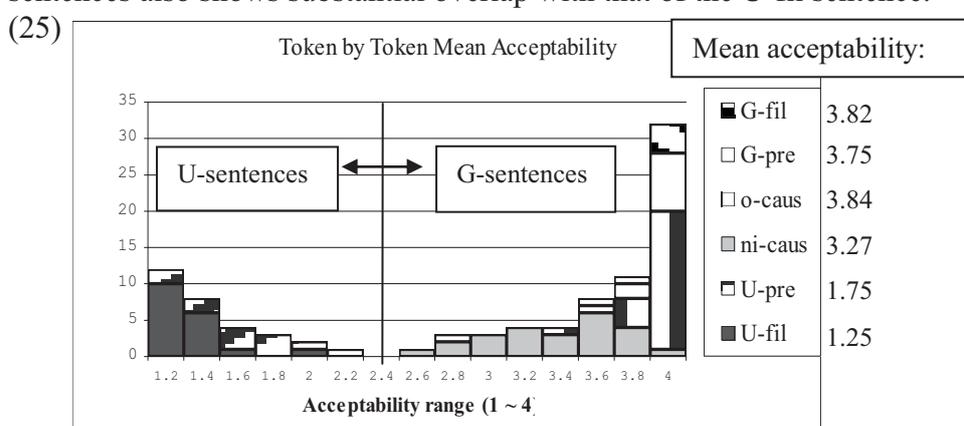


We can see here that the Groups 3 speakers, who are characterized by their high Factor 3, appear toward the bottom of the graph, indicating that they do not distinguish G-sentences and U-sentences as clearly as the other (Groups 1 and 2) speakers.

We can identify the partial cause of this tendency of the Group 3 speakers when we examine the judgment patterns of U-pre sentences by the speakers in terms of Factor 3, as in (24) below. Here, all the speakers were plotted with the Factor 3 load indicated on the horizontal axis and the mean acceptability score they assigned to U-pre sentences on the vertical one.



In (24), we find the Groups 3 speakers toward the right-top of the graph, which indicates that the higher the Factor 3 score of a speaker is, the higher she rates the U-pre sentences. The mean acceptability scores of U-pre sentences by the Group 3 speakers in fact ranged from 2.42 to as high as 3.17, the score well within the range of grammatical sentences. The Group 3 speakers, in other words, did not rule out some of the U-pre sentences, which were regarded as ungrammatical by the Groups 1 and Group 2 speakers (scores range from 1.08 to 2.42). This suggests that the Group 3 speakers were unable to rule out improper use of V-Ajcts and C-Ajcts, which was to play a crucial role in our main experiment to identify ungrammatical causative sentences, and thus failed to pass our pre-test. Based upon this observation, we have decided to regard the Group 3 speakers as unreliable subjects for our main experiment and to eliminate their judgments from our consideration. In the histogram (25) below, from which the judgments by the Group 3 speakers have been excluded, the split between G-sentences and U-sentences shows clear bimodal distribution (delimited at both ends). The acceptability range of the U-pre sentences also shows substantial overlap with that of the U-fil sentence.



When we revise the results of ANOVA in (15) and (16) excluding the judgment by the Group 3 speakers, the contrast between Group 1 and Group 2 as well as the nature of this contrast we discussed in Section 5.2 comes to be even more clearly illustrated as follows. First, the *ni*-causatives are more sharply degraded irrespective of the location of the adjunct for Group 2 than Group 1 for both V-Ajcts and C-Ajcts. Nonetheless, the mean acceptability judgments provided by the Group 1 and 2 speakers combined are well within the range of grammaticality for all cases including 3.07 for [V-Ajct ... *ni*] and 3.75 for [*o*... C-Ajct].

To sum up the results of our factor analysis, we have identified three major subgroups of speakers in our experiment characterized as follows. The Group 1 and 2

speakers provided clear grammaticality judgment. Among them, the Groups 2 speakers were more susceptible to extra-grammatical degrading of sentences (e.g., the severe pragmatic restrictions on the *ni*-causatives) than the Group 1 speakers. Finally, the Group 3 speakers did not provide clear grammaticality judgment, and failed to pass our pre-test. One important result of our factor analysis is that while these subgroups of speakers can be identified, there does not seem to exist any factor characterizing their distinction as stemming from distinct grammars.

## 6. Some methodological issues:

One methodological issue that may arise in our work is the use of the ordinal 4-point scale in our experiment. One obvious alternative approach would have been to use a similar scale with more degrees like a 5- or 7-point scale, which are popular in experimental syntax. We can imagine that the use of a finer ordinal scale may excite more insights into finer extra-grammatical influences in minute difference in acceptability judgment. It is harder to imagine, however, that it would lead us to the conclusion contrary to ours concerning grammaticality distinction of our causative sentences. There may in fact exist some advantage in adopting a 4-point scale, which does not have a middle point. Although the middle point of acceptability is theoretically conceivable, the literature reports a study which suggests its potential problem. Oda (1970) (as cited by Kamahara, et al. (1998: 17)) reports an experiment in which a choice intended to be middle in the scale like "neither ... nor" actually came below another choice intended to be lower in that scale like "not very ..." when the subjects' subjective intervals among various types of choices in a 5-point scale were measured. The middle point in a scale, in other words, may not necessarily behave as 'middle.' The choice we could have adopted as the middle point of the scale like "neither legitimate nor illegitimate as a sentence in Japanese," or "not sure whether this is a legitimate Japanese sentence or not" therefore may have fallen into this problem. Thus, our use of a 4-point scale may actually have been felicitous even if it was somewhat coarse and may have failed to catch some finer extra-grammatical factors influencing acceptability judgment.

Another possible approach would involve an appeal to magnitude estimation (ME), as advocated by Bard, et al. (1996), Cowart (1997) and Sprouse (2007), among others. At this point, however, we are not ready to appeal to this method, partly due to our inexperience in this method, and partly because there seem to exist several unresolved issues on ME which make us hesitate to dive in. One question that remains to be unanswered for us is the acceptability of what exact phenomenon involved in what type of sentence we should adopt as the reference point. Should it be a perfectly acceptable sentence, acutely rejected sentence (for what reason), or somewhere in between? Unlike most psychophysical measures, in which a meaningful 0 point or perfectly stable intervals in the scale can be independently and physically defined, we have no such perfectly reliable reference point in dealing with acceptability judgment. Even if we regard the acceptability judgment of some specific sentence as 100 (or 0, or whatever) in the scale and call it the reference, what must be sought from our subjects in the experiment still is relative acceptability difference from this arbitrary anchor, which may not be guaranteed to make up truly stable intervals. Determination of a reliable reference

therefore seems to remain to be an unresolved issue. See also Sprouse (2007) for relevant discussion on the advantages and potential problems of ME.

Another possible technical issue involved in our work is the ratio of speakers to sentences involved in our factor analysis. Generally speaking, an ideal ratio for the item (number of observation) against category (number of variables examined) is more than 2. In our case, it was about 1.66 (96 sentences divided by 58 speakers). We are, however, still comfortable with maintaining our discussion and conclusions in Section 5 intact, since, first, the results of our factor analysis came out so clear and were well in harmony with the results of our ANOVA as well as what we know of Japanese causative sentences in general, and second, the essence of its results was replicated also in the cluster analysis (Kitagawa and Yoshida (2008)).

## 7. Summary and conclusions:

We conducted two different types of statistical analysis of experimental results, combining them with our knowledge on Japanese linguistics. First, the results of ANOVA confirmed that one result of the "particle  $\times$  location" interaction, i.e., "*ni*  $\times$  Left" lowers acceptability not only for V-Ajcts but also for C-Ajcts, and that "*o*  $\times$  Right" does not lower acceptability for C-Ajcts. Combining these results with the sufficiently high mean acceptability scores of the causative sentences (3.07 for [V-Ajct ... *ni*] and 3.75 for [*o*... C-Ajct]), we confidently concluded that neither of the predictions made by the ACS-analysis \*[V-Ajct ... *ni*] and \*[*o* ... C-Ajct] are sustained.

Multivariate analysis of the acceptability judgment by Factor Analysis also allowed us to confirm that while some speakers (identified as Group 2 speakers) report somewhat lower acceptability of some *ni*-causative sentences, they do in fact judge them as "grammatical sentences with somewhat lowered acceptability" and clearly distinguish them from ungrammatical sentences. Based upon the results of our ANOVA and factor analysis, we concluded that the ACS-analysis should be rejected as a hypothesis which was constructed based upon the confusion between ungrammaticality and "grammaticality with lowered acceptability." One possible explanation is that all of the informants consulted in the construction of this hypothesis were the speakers who belong to Group 2.<sup>xvii</sup> We believe that this case study clearly demonstrates how dangerous it can be for generative syntacticians to construct a theoretical hypothesis based upon the grammaticality determination relying solely on the mere acceptability difference of sentences, especially when the involved judgments are subtle.

Through the research presented in this work, we hope to have shown that experiments conducted on a substantial number of native speakers and the statistical scrutiny of its internal structure (or dimensions) can be highly informative and useful in identifying the nature of sentences as well as informants in the generative syntactic study. We believe that such an approach has potential to resolve controversy over acceptability judgments, making explicit the distinction between ungrammaticality and "grammaticality with lowered acceptability," and proves to be useful especially when the validity of syntactic analyses rests on the acceptability judgments disagreed among researchers.

We consider it particularly effective to appeal to two different types of statistical analyses, combining them with careful linguistic considerations — *theory-driven*

*analyses* like ANOVA to evaluate the validity of specific grammatical hypotheses, and *theory-neutral analyses* like factor analysis to investigate into the nature of variation across linguistic expressions and their users. We believe that incorporating such a fine-grained experimental approach into our research will also be highly beneficial for the purpose of data mining.

## Notes

\* *Acknowledgments*: This is a somewhat shortened version of Kitagawa and Yoshida (2008). We are grateful to: Katsuo Tamaoka for his useful advice on statistical issues, Leslie Gabriele for reading the entire draft and providing us with invaluable comments, and Yuki Hirose for providing experimental resources. We are also grateful to the participants of *WPSI III*, *CIL 18* and *the Workshop on Syntactic Research and Acceptability Judgment* at Reitaku University. The usual disclaimer applies. This paper is based upon work supported by the National Science Foundation under Grant No. BCS-0650415.

<sup>i</sup> See Schütze (1996) and Cowart (1997), for some general critique of this tradition. See also Bard, et al. (1996) and Sprouse (2007), among others, for a proposal for an experimental approach involving some specific statistical method.

<sup>ii</sup> Another serious problem that needs to be resolved is how grammatical and extra-grammatical (or syntactic and extra-syntactic) causes of unacceptability can be properly distinguished so that we can distill the native intuition directly reflecting grammaticality from enormously heterogeneous acceptability judgments. See Kitagawa (2005) for a case study on Japanese syntax in pursuit of this issue. See also Wasow and Arnold (2005) for much relevant discussion on all of the major issues mentioned above.

<sup>iii</sup> Alternatively, we may consider that the V-Ajct in (3a) was base-generated at its surface position within VP.

<sup>iv</sup> The labeling V-Ajct and C-Ajct are not intended to indicate any categorial distinction. Since the causative predicate *sase* is a verb, what we label as C-Ajcts do modify verbs. They can perhaps modify even non-causative verbs if one succeeds in imagining appropriate contexts. We are using these two labels simply to indicate that the particular adjuncts involved in our particular examples are highly attuned to strictly modify the complement non-causative verbs and the matrix causative verb, respectively, while the opposite type of modification seems difficult without special effort.

<sup>v</sup> We would like to make it clear here that we have taken up the ACS-analysis merely as a test case, whose shutdown is not our primary goal. As stated in the introduction, our goal is to propose and argue for what we believe is a reliable and commendable research method in generative syntax.

<sup>vi</sup> These expectations hold with respect to the particular sentences we created.

<sup>vii</sup> One issue that we will not pursue in this work is whether the ungrammaticality caused by improper modification as in (10) (and (11a-b) according to the ACS-analysis) should be regarded as a purely semantic problem or it should be regarded as inducing a problem in syntax as well. The latter situation, for instance, may arise when the adjunct appearing in a sentence fails to find an appropriate item to modify and remains uninterpreted and

illegible at the interface, thereby failing to satisfy the Principle of Full Interpretation (Chomsky (1986), Chomsky (1995)).

<sup>viii</sup> One supposedly acceptable example involving a C-Ajct in a C-frame below showed poor performance, though it was still deemed basically acceptable (mean = 2.672):

- (i) Kokoro-yasasii taityoo-ga watasi-*ni* mite-minu-huri-o-site  
kind-hearted commander-nom I-DAT pretending.not.to.notice  
sase-te-kure-ta koto-ga-aru  
let there.is.something

'There is something the commander let me do, pretending not to have noticed.'

The following are some possible causes we can think of. It was the very first example the speakers encountered in the pre-test, and hence they may have been yet to figure out the task and yet to adjust the standard for their judgments. Besides, (i) contains the C-Ajct *mite-minu-huri-o-suru* 'pretend not to notice/close one's eyes,' which may have been somewhat unfamiliar to the young subjects (ave. = 18.8 years old) involved. It probably did not help that the sentence required them to imagine a mentality typical in the (old-fashioned) military, which they are totally unfamiliar with and may even have a hard time imagining. This problem in fact did not arise in the antecedent pilot study, which involved subjects who were somewhat older (ave. = 30.8 years old). We will treat this example as an outlier and exclude it from our analysis below.

<sup>ix</sup> Here we adapt Cohen's Convention to evaluate the effect size for partial eta-squared ( $\eta^2$ ):  $< .14$  = Large,  $< .06$  = Medium,  $< .01$  = Small (Aron, et al. (2006: 422))

<sup>x</sup> Some of the actual p-values are in fact smaller than indicated. However, we rounded them up to 4 decimals to avoid long numbers, and because practically there is no great difference when p-value gets very small. Readers can refer to the effect size ( $\eta^2$ ) to appreciate the difference in the effect of factors.

<sup>xi</sup> As for the internal consistency of the judgments from 58 subjects, we checked Cronbach's Alpha, which was very high (.993). We chose Unweighted Least Square Method with Varimax Rotation with Kaiser Normalization. With the general cutoff criterion of 'eigenvalues  $> 1.0$ ', three factors were extracted, with total variance explained by the three factors ( $R^2$ ) as .766, i.e., about 77% of the total variance within the data.

<sup>xii</sup> % of variance explained was: Factor 1  $\approx 31.8$ , Factor 2  $\approx 27.5$ , Factor 3  $\approx 17.4$ .

<sup>xiii</sup> The analysis below was performed excluding two outliers, the G-pre in the left upper end (mean = 2.67) and the *ni-caus* near sentence group (ii) (mean = 3.64). The former is the very first example presented in the experiment, which we discussed in Footnote viii above. At this point, we have no explanation to offer as to why the latter deviated from the trend of other *ni-caus* sentences.

<sup>xiv</sup> Factor 2 and the acceptability score of the *ni-cause* exhibit high correlation ( $r = .634$ ) in (iv), but no correlation ( $r = .057$ ) in (iii).

<sup>xv</sup> The mean acceptability of *ni-caus* in (iii) of

(20) is "3.66" for Group 1, "3.59" for Group 2, and "3.58" for all three groups. In (iv), it is "3.43" for Group 1 and "3.15" for all three groups, while it comes down to as low as "2.69" for Group 2.

<sup>xvi</sup> This graph excludes two sentences as outliers. See Footnote xiii above.

<sup>xvii</sup> We could consider that what is involved here is a type of idiolectal variation which concerns the speakers' susceptibility to extra-grammatical influence rather than their grammar.

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# **ELT in East and Southeast Asia – Parodic Insights into Prevailing Ideologies and Practises**

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## **Abstract**

This paper concerns ideologies underlying practises relating to curriculum planning, management and the hiring of teachers to be found in ELT in East and Southeast Asia – and the denaturalisation of such ideologies through parody. Specifically, the paper argues that parody and parodic insights are useful in exposing and denaturalising embedded ideologies. The paper provides examples of how this can be done – through the use of parodies of lectures, ELT job advertisements among other texts. It gives some attention to ELT in East and Southeast Asia which provide the background setting to most of the parodies but the ideas of language, ideology and power and how these come to bear on ELT are generalisable in other contexts.

**Keywords:** language, ideology, power, deconstruction

## **1. Introduction**

### *1.1. The Call to Unmask*

This paper owes its form to several sources of inspiration. First is the author's real life experience of engaging ideological pressures that often come to bear on non-native English teachers in East and Southeast Asia, be these from the way ELT jobs are advertised to the palpable inequalities in power relations among third world development workers engaged in ELT projects from native and non-native speaking backgrounds. Second is that not too long ago, an email from a noted academic in the area of language, ideology and power relations observed that it was important to "unmask, unmask and unmask" embedded ideologies in ELT. This particular email has inspired the 'unmasking' work in this paper as has the paper "Local Creativity in the Face of Global Domination: Insights of Bakhtin for Teaching English for Dialogic Communication" (Lin & Luk 2004). It was, in particular, the way Lin and Luk look at parody as a powerful and practicable way to provide language learners a creative (and sometimes) subversive voice to express their thoughts, that set me thinking about how parody can also be effectively deployed elsewhere in ELT. Another source of inspiration were the subversive glosses found in student marginalia captured in Canagarajah (1999). Discussing marginalia in students' textbooks, Canagarajah (1999:93) describes how "discursive data from the margins of the textbook" capture "everyday manifestations of...oppositional behaviour in the classroom." Capturing student cheek, parody and subversion, Canagarajah has this to say: "By communicating through secretive whispers, exchanging notes and messages among themselves,

deviating from the classroom agenda, and cheating the teacher, students enjoy a secret community life and a dimension of curriculum and culture that means a lot to them.” (Canagarajah 1999:93).

In this paper, I look at parody as a way to subvert and unmask embedded ideologies in Asian ELT and hopefully capture the experience of teachers and students vis-a-vis the excesses of ideologically laden encumbrances that have existed in the industry for this long.

The ELT enterprise is a hugely monied industry capitalising often on the many faces of global and regional development aid, the socio-historic winds of old and new imperialism and agendas as well as intricate systems of cronyship and power mongering. The parodies included here are an inroad into ideological deconstruction and in heightened awareness-raising – awareness of the way ideology chooses to talk and write, and awareness of the way ideology chooses to operate in ELT both in Asia and beyond.

### *1.2. Contention and Contestation*

It need not be said that ELT already embroils itself in many areas of contention and contestation where much is to be lost and won, whether it be in terms of language ecology (and consequently survival), social-politico-cultural influence, money and/or intellectual turf. Indeed, no apologies need to be made for violations of innocence when young language teachers-in-training in their first semester of a course in language and society or sociolinguistics are told that ELT is not just about language teaching and its prescribed panaceas for helping students master the language, including some more ardently touted ones like CLT (which in itself is ideological). Least of all, the language concerned here is one that had its origins many miles and eons removed from present day Asia (or many other ESL, EFL and ESOL bazaars for that matter). All a bona fide first-year tutor in any sociolinguistics related course needs to do is to pose some simple questions to her class of pre-service trainees about where this particular language originated and how it managed to slither its way (language spread) to Asia. Group work seems the best for this because the correct answers are not that obscure or beyond teacher trainees who need but to be given a chance to voice them. Some prompts may still be needed with some but this too depends on the extent of hegemonic infiltration in their situation (Toh 2003a).

## **2. Literature Review**

### *2.1 Ideology*

J. B. Thompson provides a useful definition of ideology. Ideology refers to “ways in which meaning (or signification) serves to sustain relations of domination” (Thompson 1987:519). He points out that relations of domination are a form of power relations where “particular agents or groups are institutionally endowed with power in a way which excludes, and to some significant degree remains inaccessible to, other agents or groups” (Thompson 1987:519). Domination results in power relations that are what he calls, “asymmetrical” (Thompson 1987:519). Two other definitions of ideology are also useful: ideology consists of “ideas which help legitimate a

dominant political power” (Eagleton 1991:1) and ideology is “the indispensable medium in which individuals live out their relations to a social structure” (Eagleton 1991:2).

Thompson’s definition of ideology moreover provides the answer to what mediates in a set of power relations apart from brute force: ideology. Ideology ‘sustains’ in relations of domination, where the dominant group need not resort to raw strength. Of the two definitions in Eagleton (1991), the first very clearly links ideology with power: once again, it is dominant power. The second definition is useful because it not only highlights the indispensability of ideology, it also captures succinctly the fact that ideology is linked to individuals faced with the lot of living out social relations in real life situations. Apple (1979) and others provide perceptions on how ideology also pervades curriculum choices and is closely intertwined with reproduction of cultural and other inequalities.

In addition, what is important too is the question of how ideology manages to wield such potency. This can be understood as a series of action words listed in the following. Giddens (1979:193-195) describes how ideology:

- a. Represents sectional interests as universal ones
- b. Denies or Transmutates contradictions
- c. Naturalises or Reifies the present, preserving the status quo

Terry Eagleton (1991:5-6) describes how ideology:

- a. Promotes beliefs and values congenial to a dominant power
- b. Naturalises and Universalises such beliefs so as to render them self-evident and apparently inevitable
- c. Denigrates ideas which might challenge it
- d. Excludes rival forms of thought, perhaps by some unspoken but systematic logic
- e. Obscures social reality in ways convenient to itself.

## *2.2. Parodic Insights and Sociohistoricity*

Parody is particularly useful tool where there is a need for greater probity - in order to better understand the intricacies and workings of ideology and power relations. It selects, targets, imitates and as a tool of dialogisation, criticises and illuminates (Rose 1993). As a tool of deconstruction, it probes, prods, decentres and exposes, providing insights into the nether workings and out-workings of existing monolithic entities and bastions of reductive and reductionist dominance. As a tool of dialogisation, it simultaneously captures, imitates and exposes the parodied voice, underscoring ideological struggle (Maybin 2003).

The bite of parody is essentially in the elements of travesty and daring - to make fun of a stodgy or inelastic original. Parodies succeed through outrageon, charadery, histrionics, baldness, burlesque even, as a way of curing inelasticity (Rose 1993) – which that much characterises the workings of power and ideology.

In this connection, Bakhtin is useful when he notes strong links between parody, ideology, academia and learning.

The Latin parody or semiparody was widespread. The number of manuscripts belonging to this category is immense. The entire official ideology and ritual are here shown in their comic aspect. Laughter penetrates the highest forms of religious cult and thought...There were other parodies in Latin: parodies of debates, dialogues, chronicles...these forms demanded from their authors a certain degree of learning, sometimes at a high level...(These) brought the echoes of carnival laughter within the walls of monasteries, universities, and schools.

(Bakhtin 1994a:202-203)

Also, viewed in terms of discourse and discursive practices, Lillis' (2003) call for shifts in traditional discourses in academic discussion can in many ways be met through parody. One example can be found in how Toh (2003b) deploys parodic strategies to expose inconsistencies in Berns (2003) and Brutt-Griffler (2003) through comic dislocation. Here, Rose (1993) is informative – in how parody succeeds through citing from an original but having it recontextualised in an environment of incongruity and dislocation. By way of process, Rose notes that the parodist may choose to (1) use words from the parodied original (2) substitute or insert one or more new words from the original and/or (3) paraphrase the original – but always with the aim of highlighting incongruity. Hence, in pitting Brutt-Griffler (2003) and Berns (2003), both part of a forum discussion on critical pedagogy and ELT in the developing world, Toh (2003:569) deploys Bern's metaphor of time and space and Brutt-Griffler's metaphor of historical stodginess epitomised in the notion of what is Victorian, to show (send) up the flaws in presumptuous attempts by non-participants of the 'former' world to critique the learning and teaching of English in the emerging world:

Of course, Berns' impatience for matters to hurry along, it having been "20 years" since, seems refreshingly more forward looking than any suggestion "to turn the clock back." Thus, without giving credence unduly to Brutt-Griffler, the suggestions that "there is no longer any need to conduct this postmodern exercise" (Berns) would regrettably, have to be relegated to a time when such optimism would at least appear to be less misplaced. (Toh 2003b:569)

The send-up concludes like this: "Thankfully, Brutt-Griffler's thoughts were betrayed in English, exposing just enough of a "privileged" few to such Victorian removedness" (Toh 2003b:569).

In keeping with Rose's points about the work of the parodist, the notions of privilege, naiveté, removedness, credibility, proselytisation (Brutt-Griffler 2003) and time and (Berns 2003) are parodied, through the ventriloquistic and replete use of similar words, paraphrasing and word substitution in the Toh (2003) parody. Also, in keeping with Rose (1993), Toh also uses elements of the burlesque to be found in depictions of clumsiness, crudeness, 'dark humour' and in Bakhtin's carnival characters like the Perkies – Leki's (2003) version of "post-pubescent" Christian proselytes who teach English as a way to preach "the word of freedom, salvation, vindication and deliverance from darkness" (Toh 2003:569) – and the Pricklies, the clumsily self-opinionated teachers of English who believe that they and theirs are Providence's answers to the woes of Brutt-Griffler's (2003:561) "underprivileged". One is quickly

reminded of Stone's 1914 take on how "parody explodes the pompous, corrects the well meaning eccentric, cools the fanatical, and prevents the incompetent from achieving success" (cited in Rose 1993:26). Along with this comes a challenge and taunt concerning parody dating from the early part of the last century – "Truth will prevail over it, falsehood will cower under it" (Stone cited in Rose 1993:26).

Moving on to research, parody functions in kindred spirit to current interest in sociohistoric approaches to academic research. Sociohistoric approaches probe, trace, explore and expose causations, motives, interactions and inner workings (Prior, 1998). Parody quickly and often intuitively senses and understands the inner workings of sociohistoricity and sociohistoric activity and brings the more obtuse of these to notice through magnification and through caricature.

Furthermore, in terms of composition and sociohistoricity (Prior 1998), one is reminded of how a piece of writing is a tapestry depicting vivid scenarios of its construction, and how sociohistoric triggers precipitate composition. So here again, parodies are essentially sociohistoric precipitates, revealing much of the reticulate of activity and ideology surrounding the piece. They dig (pun intended) up "views that privilege disembodied knowledge fixed in abstract centralized systems" and celebrate views that uphold "embodied action dispersed across places, time, and persons" (Prior 1998:21). They send-up "an intolerant one-sided tone of ...petrified seriousness" and celebrate "the gaiety, laughter and jests...eliminated from canonized ritual and etiquette" (Bakhtin 1994c:208). In so doing, parody, like sociohistoric approaches, allows (1) closer scrutiny of one-sided disembodied knowledge, in this case, concerning ELT in Asia (2) discovery of inconsistencies and contradictions resulting from ideologised assumptions, which in turn become fodder for parody. When linked to learning, parody in its celebration of embeddedness and situatedness, encourages (3) a pedagogy, in this case of ELT, which encourages a "formation of a (learner's) consciousness through participation in social practices, a theory that stresses affect, motivation, perspective, embodied ways of being in the world, and identity as well as conceptual development" (Prior 1998:22), rather than one which encourages the swallowing of fixed meanings and monolithic boluses.

### **3. Precipitated Parodies**

ELT in Asia fascinates with its diversity of veracities and voices, whether these be within the clammy portals of university English departments, at seminars and conferences at five-star hotels with their 'famous' invited speakers (otherwise known as 'big-names) or in the modest corner language school tucked in some busy back lane. Speaking perceptively about the dangers of co-optation and hence dilution of critical discourse by the fossilised dominant, and the importance of critical analyses in the exposure of hidden agendas and contradictions, of which parody is that much an instrument, Leki (2003) notes that "critical and theoretical generalisations" are more readily co-opted than "the unruly specifics of local knowledge" (2003:563). To avoid such co-optation, Leki suggests that "it is time to establish better access to the local knowledge and practices which critical analyses index" (2003:564). Hence, also in answer to Leki's call, the following parodies are borne of close-encounters with practices in ELT in East and Southeast Asia.

### 3.1. Situations Vacant

Position Number: XO-EN1101

Post: Lecturer in English and English Language Education (only one position)

Our venerated institution is one of the institutions in the forefront language learning, language education and language teacher training. We are at present frantically looking for a suitable candidate to fill the post of lecturer in English and English Language Education. The candidate will be a Native-Native Speaker of English. She should preferably be monolingual in English - the more smugly, resolutely, arrogantly and ignorantly so, the better. Demonstrations of such coveted qualities can be through genetic extract (for some it would also be through pigmentation or the want of it), temperament test, birth, education and indoctrination in notably (please read notoriously) monolingual English speaking countries, proven idiocy in any second or subsequent (please read *subservient*) language, or through references from famous names, authorities, professorial chairs (or stools) noted for their monolingual predilection. In this connection, experience in monolingual (English) classrooms in similarly monolingual socio-cultural and sociolinguistic contexts, is mandatory. The candidate will be eminently able to demonstrate manifest obsession for and fixation over the absolute Truth that the wonderful English language is the only answer to a better world, a better world order and a better cosmic order, where all forms of inequalities, exploitation, imperialism, subjugation and dialogisation will be obliterated through the mellifluity of lucidly enunciated English, and where all exploiters and non-sympathisers of the poor (in English) will be unmasked, exposed and expunged. Furthermore, the candidate will have post-graduate and ELT qualifications, a proven research record and publications, preferably in the areas of (English) language policy, planning, purification, promulgation, propagation and linguo-piracy. The candidate will be an independent and motivated worker capable of supervising post-graduate students and running undergraduate programmes. The candidate will also be clumsy and muddle-headed enough to take parodies (such as this very advert) with puerile earnestness, and actually respond with some semblance of a response.

Incidental Details: Accommodation - Accommodation will be provided in an exclusive suburb guaranteed to be exclusive to foreigners and diplomats working in foreign legations. The only locals one will encounter will be the maids, gardeners, chauffeurs and such like. Pubs and bars, country clubs, swimming pools, saunas, massage parlours and supermarkets stocking the finest imported products are guaranteed to be within a stone's throw. For singles, a maid service will be made available. This will come in the form of a cash-strapped student who wants to learn English from, and practice English with, a live native-speaker specimen. Please note however that a live-in maid will not be provided to male staff so as to maintain a certain level of decency and to protect the institution's reputation. Airfares - First class airfare to and from home complete with qualifying air miles will be provided the successful candidate.

Contact Details:

Wanida Pringlepuss-Ucharanimit

(e-mail: ucharanimit@useem.edu.mln)

Personal Assistant to the Worshipful Master of Neo-Graduate Studies  
University of Easterly Euroasiatic Manifestations (UEEM)  
666, Bussawa Road  
Peoples' Hypocratic Republic of Hyland  
Website: [www.gross.edu.hd](http://www.gross.edu.hd)  
(please note however that this website is still under self-deconstruction)  
Deadline for applications: 29 February 1853 – time(d) warp

Position Number BO-EN0001  
Post: Instructor in English

Applications are invited for the post of Instructor in English. The candidate must have a proven track record as an entertainer, and preferably have documented connections with the circus, for example, as a clown or if not, at least as a stand-up comedian in a respectably sordid nite-club (note deliberate mis-spellings to prove authenticity). The candidate must also have a proven track record of incompetence in matters to do with classroom and course administration, be a lazy haphazard or at least incompetent marker and an inveterate late-comer. A demonstrated ability at firing cynical remarks at and complaining against school administration, school councils, and local governments would be an advantage. The candidate must be Native-Native speaker of (what else?) English and should very preferably be clean-shaven (i.e. in the armpits) on the day of the interview, and at all times when front(al)ing students. Qualifications do not matter, as lesson preparation will be done by the students themselves, but proof of inmateship (meaning at least 8 weeks) in at least one eminent psychiatric research reformatory (in a country where English is perceived to be spoken as a homogenously and quintessentially monolingual language) will be an advantage from the viewpoint that the candidate will have some record of ability to communicate co-operatively and communicatively with various (non-English speaking) spirit voices. Respect for local culture and religion is totally irrelevant, as the candidate is expected to be an exemplary model of English culture (of whatever form or ilk). The candidate must never have visited Southeast Asia in this or previous lives, have a fear (or better still, disdain and abhorrence) for local food (e.g. dog meat) culture and language, and should be vouched for as being politically incorrect and inept. Salary will commensurate with sanity and sanitisedness (using Lux or Palmolive soap).

Please Contact:  
Michael Dyson  
Principal and (Only Other) Teacher  
Dyson's English Conversation School  
2<sup>nd</sup> Floor, Upper Cubicle 197, Midnightmarket Building  
Lane 189, Backpacker's and Felines' Alley  
Psychoceramic (Crackpot) Republic of Singuerilla

Telephone: line recently cut off, to be restored once we have paid monies outstanding  
Website - sorry, the website was hacked into by people averse to the spread of English as a Global language and it eventually self-deconstructed. Remember our Motto is "English in a Week or your Money Back(packed)"

### *3.2. Listening Exercises for ESOL Learners (pronounced in some crisp thick-lipped old world English)*

#### *3.2.1. Listening Exercise One*

Listen carefully to the recorded monologue and answer the questions that follow.

The ultimate measure of success of ELT as an enterprise is for learners to ape native speakers. They will need to speak, think and behave like the quintessential native speaker. Those unlucky enough to be born in non-English-speaking environments, choosing wrong parents and geneticity should be given the chance to learn English to enrich their lives and embalm their future. Then their lives will be better than ever before – to deny them English will be to deny them their salvific lifeline, their mental virility, and their ultimate deliverance from the darkest of colonial oppressions and exploitations.

Now listen carefully to the following questions and answer them in the blank spaces provided in your worksheet. Leave the spaces blank if you understood nothing from what you have just heard, or if you think what you have just heard can be summarised in the key words, “gutter rubbish”.

1. What is the ultimate success of ELT as an enterprise?
2. Who does a learner need to think, speak and behave like?
3. Who should be given the chance to learn English?
4. What does will mean if learners are denied the English language?

#### *3.2.2. Listening Exercise Two*

Listen carefully to the recorded passage and answer the questions that follow.

The huge and famous Noda Language School has closed down and it owes its foreign English teachers a lot of money. The foreign English teachers launch a big protest in front of the Nosaka Mayoral office saying that the Nosaka Prefecture should pay for their expenses to fly home or they should re-employ them in other full-time jobs. The foreign English teachers have been paid 260,000 every month and the Noda Language School also paid 130,000 a month for housing. One of the teachers speaks to the press, “The Noda Language School has done a very great disservice to the public, to the students and to their parents. We English teachers do a great service to society by teaching children a very important world language. English is the key to the future of this country and a key to the children’s future. By closing down and not paying the foreign teachers, this means that the school has short-changed the parents and children of this country. Some of my colleagues employed by Noda do not have enough money to fly home. Some of us only have 8,000 left in our bank accounts. We want the prefectural government of Nosaka to pay for our airfares home or to re-employ us to teach English. We are very important people.”

Now listen carefully to the following questions and answer them in the blank spaces provided in your worksheet. Leave the spaces blank if you understood nothing from what you've just heard.

1. What happened?
2. What are the foreign teachers saying about themselves?
3. What do the foreign teachers want?
4. How much were the foreign teachers paid?

### *3.3. Professor Crabtree's Lecture on Syllabus Design and Curriculum Planning – A Soporific Journey*

Language teaching must be linked to corpora. Corpora are the ultimate key to language syllabus design. Without corpora, there will be no syllabus. In fact, corpora constitute a manifest syllabus. So our language boasts of a syllabus of 10,000,000 words. If there is no syllabus, what do you teach? Corpora provide authentic data, data that is extracted from real-life utterances, the speech (and also writing) of the aboriginal speakers of the language. Where else would you get a syllabus as authentic and as original as this? Corpora hold the key to meaning, and meaning is the key to communication, and communication is the key to understanding, and understanding is the key to wisdom, knowledge and persuasion. Imagine, if you are asked to think of the meaning of "Don't you dare feed parsnips to lemming!" what would you do without corpora studies incorporated into a university linguistics programme? And what is more, without corpora, there would be no dictionaries, and without dictionaries, there would be no language. And without language, there would be no communication. And empirical research provides the final irrefutable word on corpora. It is that simple. All right, that is all for today. In our next lecture, we will be continuing along a parallel theme – our expose of copula, copularity, copulolinguistics and copulolinguicism. Our semester 2 examination will require at least cranial knowledge of these vital areas. Thank you and see you next week.

### *3.4. Conclusion of an 18-hour Certificate in English Language Teaching Programme*

Go ye, go ye. Teach and multiply. If not the English language, what else would qualify as a language of globalisation? Spanish? German? Dutch? Double Dutch? Greek? Or Afrikaans? It is in the interests of everybody to learn English. It is convenient; everybody speaks the language almost everywhere you go these days. From the beaches of the Cocos Keeling to the Australian bush, everybody speaks English. And everywhere people go, signs are in English too. So learning English is one's passport to the world, one's passport out of oneself, out of the prison of obliviousness. So we are about to unleash you as red-haired monkeys among bananas. So remember to savour, savour and savour your experiences.

### *3.5. Sponsors Needed*

World Mission Inc. Sponsors are needed for Anglicisation. World Mission Inc. is launching a money drive to sponsor underfed, undernourished and under-anglicised

children in the developing world. Enclosed are lovely pictures of happy children beside their happy native speaker English teachers as well as their happy mothers and happy fathers (for those who still have not lost their mothers and fathers to dreaded diseases like Aids or feline influenza) who have been fed, watered and anglicised. For a modest amount of \$50 a month, you will sponsor a child to learn English from well-qualified native speakers of English, people who gallantly volunteer to endanger their own precious lives and live in high ultraviolet environments in order to bring English and happiness to these less-than-fortunate children who have had no choice about not being born into native English speaking Families.

If you are a native English speaking person yourself, you may want to volunteer to be one of these noble native English speaking teachers and have your picture taken with these happy children and their happy mothers and their happy fathers after they have been happily delivered by your English teaching from their squalor. Volunteer and grab the chance to change the world.

### *3.6. Call for Papers*

28<sup>th</sup> TAESOT (Teaching Asian Englishes to Speakers of Other Tongues) Conference

Venue: Throne Room  
Imperial Hotel and Serviced Apartments  
Cooliwong Road, Beachhead  
People's Burrowcratic Union of Haadnoy

Theme of Conference: Language Mutationability in a Mutating Global Contestual Climate: Priorities, Possibilities, Premises, Promises, Perversions and Presumptions

Paper proposals can either be for parallel sessions (30 minutes of non-stop of talking and 10 minutes for questions) or workshops (30 minutes of real-life demonstration of a useful technique and 30 minutes for practicals using the attendees as guinea pigs). Paper proposals are invited along the following themes:

1. Language Mutationability: Implications for Pigeons, Quails, Lingua Cockarachas
2. Languages in Interface: Implications for Classroom Privacies and Practices
3. Languages and Interphase: Vocabularial Malformations and the Misanthropic Learner
4. Transformational Malfoliation in the Language Pendulum: Generically Mollified
5. Staging of Texts in Real World Contexts
6. Teaching Altercational Englishes to Xenophobic Learners (Workshop only)

Selected papers will be published in the refereed conference proceedings. The following are the invited speakers:

1. Rosemary Rhododendron – University of North Promontia, World Renowned Authority on CDE (Controlled Discourse Expogenesis)
2. Marge White – University of South Protrudom, World Renowned Authority on CLA (Crude Language Acquisition)
3. Lola Smith – East Harbour University of Technology, World Renowned Authority on Hole-text Approach to Teaching Reading, Writing and Aromatics

4. Christine Primworth – Estuary Institute of Educational Research, World Renowned Authority on (AML) Acquisition of Mutoid Languages
5. Peter Primworth – WEtuary Institute of Educational Research, World Renowned Authority on Language Ecology and Obliterology

All keynote sessions will be in the Throne Room and parallel sessions and workshops will be in the adjoining closets. Video projectors, transparencies, tissue paper and chamber pots are available for all presenters. Conference sponsors are:

1. Imperial Hotel and Serviced Apartments
2. Global Banking Dissolutions, Hoodwinker Publishing
3. Quian's Rent-a-Cart Service
4. Rumbles Private Limited - the Ultimate in Catering
5. Poo and Pong Tissue and Toilet Roll Manufacturers
6. Society for Linguistically Challenged Learners of Udder Languages (SLCLUL)

### 3.7 *WMD (Words of Mass Delusion)*

The following constitutes part of an essay written by a top first-year student and awarded a good grade by her tutor, Assistant Professor Amnesia Myo-Spectapopulos

We must understand that the spread of WMD is never a deliberate act. This is the plain truth of the matter. Anyone who has read any history will tell you that. WMD spread of themselves and spread by themselves – WMD are self-propagating, self-propelling. There is no agency and therefore no agenda. Anyone who has read any history will tell you that. Those who say that the spread of WMD is a deliberate act of some agencies in the Inner Circle do not know what they are talking about. They are a grossly mistaken lot. Anyway, such a spread is needful, neutral and natural. In conclusion, it is the users of WMD themselves who are responsible for their spread – there is no mystery about it. Grade Awarded: A+ (Comment from Tutor: Good points have been raised in this essay, but you forgot to acknowledge that your ideas have all been drawn from my academic papers. Please be more careful the next time.)

### 3.8 *Communicative Language Teaching*

A robot English teacher-trainer speaks and each full stop is followed by a robotic twitch of the robot's metallic upper lip.

The students are not talking. They are very quiet. They don't talk in class. Use CLT with them. Get them to talk. Give them communicative tasks. Give them problem-solving activities. The students are not talking. Give them tasks. Tell them to talk. Students learn through oral communication. Not just yes-no answers. Provide opportunities for meaningful communication. Get them to solve problems. Get them to chat with each other using info-gap tasks. If that fails, give them more tasks. The above is repeated endlessly until it is time for the robot ELT teacher-trainer to be recharged or rewired.

## **4. Food for Further Reflection and Conclusion**

Before concluding, it would be worthwhile revisiting prior discussion on the call for alternative of discoursing in academia. Like Lillis (2003), Lea in an earlier paper (Lea 1999:105) highlights the importance of challenging “supposedly ‘academic ways of knowing’”, and encouraging “new and unfamiliar literacy practices”. The obvious point here is that such various discourses are not for their own sake, but for facilitating other facets of reality and experience.

In this instance, there needs to be a way to counterpoint the reductionism and monolithicism behind smugness, glibness and hence deceptiveness of dominant ideologies and their resultant practices – those ideologies embedded behind the veils of slick ELT textbooks and honey-lipped conference keynotes. The “everyday knowledge” (Lea 1999:105) of parody, the earthiness of carnival laughter (Bakhtin 1994a:200) help counterpoint prevailing discourses and promote the fresh air and “renewal” that Bakhtin (1994a) describes. The need for this within the clammy chambers of ELT in Asia and beyond, cannot be overstated. So, even if they are not welcome by the parodically-challenged, parodies, as ways of seeing, perceiving and counteracting, will like Bakhtin’s carnival laughter, need to be “tolerated” as part of a necessary “becoming, change and renewal” (Bakhtin 1994a:199).

Finally, parody is but one way of highlighting ideology – through showing up what ideology does, how ideology speaks, and how ideology behaves. Ideally, it should be done with considerable rigour and menippean variety – “novellas, letters, oratorical speeches, symposia...prose and poetic speech” (Bakhtin 1994b:192) and possibly, repetition. Each time some ideologically laden statement comes through with self-assumed finality it can be unmasked for what it is - like Patriot after Scud. The work of unmasking ideologies continues.

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# **The Use of Singlish Particles in the Singapore Classroom**

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## **Workshop on “English with Asian Accents”: English for Intercultural Communication in Asian Contexts**

### **Worshop 2**

**Organizer: Angel Lin**

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# The Use of Singlish Particles in the Singapore Classroom

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## ABSTRACT

The use of Singlish particles has been extensively studied in everyday interactions. However, to date, there is little research on its daily use in the classroom. From the study of 91 transcripts from science, mathematics, English and social studies lessons, it was found that Singlish particles were used across the curriculum, but most frequently in science and mathematics classes. It was also found that the particle *ah* was by far the most frequently used particle in the Singapore classroom.

**Keywords:** Singlish particles, classroom.

## INTRODUCTION

Singlish, one of the New Englishes of the post-colonial world, has quite a large number of particles and this topic has been the subject of much discussion in the literature on Singlish (Richards and Tay, 1977; Kwan-Terry, 1978, 1991; Platt and Ho, 1989; Gupta, 1992, 1994; Wee, 2002, 2004; Low and Deterding, 2003; Wong, 2004, 2005; Low and Brown, 2005). These particles occur typically in phrase-final positions and do not affect the grammaticality of the utterances. These particles have been shown to mark discourse functions in everyday speech. For example, they have been used to express solidarity, annoyance, impatience, objection or doubt. As early as 1977, Jack Richards and Mary Tay investigated the use of the *lah* particle in Singlish which has been found to be a code marker serving to mark informality, solidarity and rapport among the participants.

The particle *ah* has been one of the most prevalent particles seen in the preliminary transcripts examined. Teachers seem to use this pragmatic particle quite often compared to the other particles. Platt and Ho (1989) found that a rising *ah* or *a* is associated with the proposition being questioned being true. Kwan-Terry (1991) noted that her pre-school subject used the particle *ah* in the interrogative sentence to seek confirmation or in an echo question. Gupta (1992) also found that this particle was the most common one used in her data with pre-

school children and that it was used for checking propositions and Lim (2004) found that *ah* uttered with a rise may be used to check whether the interlocutor is following. She also noted that the particle *ah* serves to soften a command when it is used with an imperative. Lim (2004) noted that when the particle *ah* used for checking purposes, the listener is expected to respond whereas if the particle has a rise, the speaker usually uses it to reiterate a fact and does not expect a response from the listener.

Although the use of Singlish particles has been extensively studied in everyday interactions, to date, there is little research on its daily use in the classroom. Thus, to fill in the gap, the purpose of this study is to investigate the teachers' use of Singlish particles in the Singapore classroom where English is the medium of instruction. Specifically, this study focused on its use in twenty primary school classes. It sought to find out the patterns of particle usage across subjects and across pedagogic functions.

## **DATA ANALYSIS**

The data were drawn from a larger study of the CORE Research Program of the Centre for Research in Pedagogy and Practice (CRPP), whose key objective was to measure, map and model classroom pedagogy and student outcomes in a large representative sample of Singapore primary and secondary schools in 2004 and 2005. For this study, only recordings from primary schools were used. There were altogether ninety-one transcripts: twenty-one lessons from five mathematics units, sixteen lessons from five science units, eighteen lessons from five social studies units, and thirty-five lessons from five English units. Lessons were taken from whole units so that the data would be representative of the way teachers use particles in the classroom. There were altogether twenty units, i.e., five units for each subject. The total duration for all the transcripts is 3932.6 minutes altogether. The duration for English, mathematics, science and social studies transcripts are 1 589.1 minutes, 891.8 minutes, 815.9 minutes and 635.8 minutes respectively.

In this study, we used an annotation tool to annotate the occurrences of particles and other Singlish features and their pedagogic functions in the classroom such as curriculum access, class management, and interpersonal relations. These pedagogic functions are the ones which have been proposed by Ferguson (2003). In this study, code-switching for curriculum access serves to help students understand the content of the lessons taught and includes the following pedagogic functions: scaffolding knowledge construction, emphasizing, reiterating, checking of understanding, assenting and pointing out of the obvious. Code-switching for classroom management discourse is used for functions such as encouraging students, inviting

student participation, disciplining students, focusing students' attention, giving directions (includes clarifying and emphasizing directions) and confirming students' propositions. Code-switching for interpersonal relations serves to build rapport for the students. For the purposes of this conference paper, only the data of the broad pedagogic functions, curriculum access, classroom management and interpersonal relations will be discussed.

To analyze the data across subjects, the number of occurrences was divided by the duration in each subject and the result was multiplied by 30 minutes. To analyze that data across the pedagogic functions, the number of occurrences of particles was divided by the total word count and the result was multiplied by 30 minutes. The duration of 30 minutes was chosen because each period in the Singapore classroom is about half an hour.

## RESULTS AND DISCUSSION

The results (see Table 1) suggest that the science teacher used particles most frequently (27.6) compared to the mathematics teacher (21.7), English (14.6) and social studies teachers (14.2). The use of particles was similar for English and social studies teachers. These results were consistent with the expectation that science and mathematics teacher had to use more Singlish particles to ensure that the students understand the subject matter and that since more science and mathematics lessons were task-based rather than English and social studies lessons, the science and mathematics would have to use Singlish more often to ensure that students remain on task. That is, on the one hand, science teachers seemed to spend more time ensuring that students know how to conduct experiment or complete science worksheets, and mathematics teachers used a lot of particles to ensure that students were following their explanation of how problem sums were solved. On the other hand, social studies teachers had fewer tasks to complete, social studies being a non-examination subject. The English teachers are expected not to use Singlish particles or other Singlish features in the classroom, so it is not surprising that few particles were used in the English classroom compared to science and mathematics classroom.

*Table 1: Particle frequency across subjects (per 30 minutes)*

Science	Mathematics	English	Social Studies
27.7	21.7	14.6	14.2

In terms of pedagogic function (see Table 2), particles were most often used by teachers for classroom management (10.9) and for curriculum access (7.2). In contrast to the use of particles for curriculum and classroom management, the use of particles for interpersonal relations was minimal (0.4). This suggests that Singaporean teachers are very much on task when they use particles. The teachers had a lot of ground to cover in terms of the requirements of the syllabus, and their talk centered on the curriculum and the activities were connected to the curriculum. They do not use Singlish particles much for building rapport with their students as they do not engage in informal talk with their students. This finding is non-congruent with the existing literature where the use of particles in non-classroom contexts seems to concentrate on its use of building solidarity among the interlocutors.

However, the preponderance of particles for the function of classroom management may be the Singaporean's teacher way of building interpersonal relationships with their students given the limited time that they have in the classroom as teachers are required to finish the syllabus and to prepare their students for school assessments. That is, the Singaporean teacher may want to build rapport with her students, but she does not have the time to engage in informal talk with them. Therefore, she may resort to using Singlish particles for the pedagogic function of classroom management to create a warmer climate in her classroom while making sure that the students stay focused on the task at hand.

Table 2: Particle frequency across pedagogic functions (per 30 minutes)

Classroom Management	Curriculum Access	Interpersonal Relations	Others
10.9	7.2	0.4	0.2

Teachers used nine different particles: *ah*, *hor*, *lah*, *leh*, *lor*, *mah*, *one*, *orh*, and *what*. One of the most commonly used particles by teachers was *ah*. The particle *ah* was used much more frequently than all the other particles (see Tables 2 and 3). Out of 10.9 particles used in classroom management, for instance, 10.2 of the particles, or 94% of the particles, was the particle *ah*. In the same vein, 6.4 out of 7.2 particles, or 89% of the particles, used for curriculum access was the particle *ah*. Thus, the particle *ah* accounted for a very high percentage of the particles used for pedagogic functions.

Table 3: Particle *ah* frequency across pedagogic functions (per 30 minutes)

Classroom Management	Curriculum Access	Interpersonal Relations	Others
10.2	6.4	0.4	0.2

However, the particle *ah* was very seldom used for the interpersonal relations function although it accounted for all the particles used for this function. The particle *lah* which is usually used for establishing solidarity in everyday discourse is seldom employed by the Singapore teachers in this study for establishing interpersonal relations in the classroom.

#### *CURRICULUM ACCESS*

Some examples of its use are described below. In the phrase-final position, it was often used to emphasise what the teacher wanted to say. For example, in one of the science lessons, which focused on the topic of genes, the teacher wanted to make sure that the pupils knew that her students understood what she was pointing at was the cell nuclei, so she used the particle *ah* to emphasise a proposition for the pedagogic function of curriculum access. Earlier on, she had talked about how traits were inherited from different families. She discussed about how our cells came from our parents. She also emphasised that she would be discussing the topic of genes especially on why we inherited genes from our parents (see excerpt (1) below).

#### *EXCERPT 1*

Teacher: She has different cells, very good. Now where does her cell come from?

Student: Mother, mother.

Teacher: Hmm?

Student: Father and mother, both parents.

Teacher: Oh, right, some of our traits ah, most of our traits come from both parents, okay? Now, you will learn about reproduction in human beings, ah, later on in second term, right? Now today, we just do very briefly on ah, why, ah, the, the genes that you inherit from your parent, ah, all right, put it that way, right? And how does it come from? I'll just do the very brief one on that, okay? We are going to look at the cell nuclei, okay? This will be our cell nuclei.

(Score\_Sci\_031, turn 60)

In the utterance-initial position, in the unit *How to Make a Dinosaur*, English teacher used the particle *ah* to acknowledge what the student had said. This English unit was a form of science fiction where scientists were trying to recreate dinosaurs. This was done specifically in the room called hatchery. In the earlier part of the transcript, the English teacher asked the students what a hatchery was and she told them to read the text first before answering her question. A few turns later, the student replied that the word *hatchery* came from the word *hatch*. The teacher then used the particle *ah* to acknowledge her response. Below is a short excerpt from the English transcript.

#### *EXCERPT 2*

Student: Come from the word hatch.

Teacher: Ah. Come from the word hatch. So what place is this?

(Score\_Eng\_025, turn 391)

#### *CLASSROOM MANAGEMENT*

Particles were used most frequently for the pedagogic function of classroom management. This could be due to the teacher trying to soften commands when giving directions. Particles were used for giving directions, seeking confirmation, encouraging, inviting student participation and focusing students' attention. For example, in one of the English lessons (see Excerpt 3), the teacher used the particle *ah* for giving directions to ensure that students not read the advertisement.

#### *EXCERPT 3*

Teacher: Who has not finish reading?

Class: Background noise

Teacher: Please do not read the advertisement yet, ah.

Class: Background noise

Teacher: Okay, Jeremy, can you please start us off

(Score\_Eng\_019, turn 356)

In Excerpt 4, the mathematics teacher used the particle *ah* to confirm whether the students have finished their work on tessellation before she had their work printed out.

*EXCERPT 4*

Student: Miss Lim, can you print out for me?

Teacher: Finished ah? Have you completed?

Class: Background noise

Teacher: Anyone who needs me to print?

(Score\_Math\_085, turn 111 )

From the above excerpts, it can be seen that the particle *ah* has similar functions in the classroom as the everyday functions described in the literature above except for the function of emphasis in classroom discourse. The function of emphasis can be particularly important in the classroom because it is important for the teacher to convey the importance of certain facts or concepts to her students.

Why as the particle *ah* used significantly more often than the other Singlish particles? One possible reason could be that the teachers were not aware that the particle *ah* was a Singlish particle and were blithely using it without realizing that they were using the Singlish particle. The particle *ah* does not receive much coverage in the print media compared to its cousin *lah* which was the first Singlish particle to be studied.

*USE OF OTHER PARTICLES*

The particle *lah*, which is used to mark informality and solidarity in everyday speech, has different functions in the classroom. It was used for pointing out the obvious to the students as in shown in the last turn of Excerpt 5. In this unit, the social studies teacher explained to her students that due to the rising population in Singapore in the nineteen seventies, there was traffic congestion in the city area and thus the government imposed the rule of car pools for cars heading towards the central business district. She proceeded to give an example of how a mother and a daughter would have to pick up two other passengers to form to a group of four in the car before they could drive into the city area. When a student asked her what if the passengers that the mother picked up were to vomit in the car, she replied that it was obvious that these passengers should be chased out of the car by using the particle *lah!*

*EXCERPT 5*

Teacher: Okay. They built a lot of car pools in your housing estate. Say maybe one, one day your mother wanted to take, want to take you. Imagine you are living at that time ah. One day your mother want to take you to Orchard Road, but in the car only your mother and you. So can you go

to Orchard Road?

Student: No.

Teacher: Cannot. So what do you do? Hold on ah. What did you do? You would drive your car to the car pool, and there will be people waiting in the queue, the taxi queue. And they would go into your car. They would sit your car. It benefit both party you see? The people can take your car for free. They no need to pay for [taxi].

Student: [How] they vomit?

Teacher: Huh?

Student: How they vomit later ah?

Teacher: What if they vomit? Of course vomit then we chase them out lah ah. Okay. First of all, they have free transport. They don't have to take taxi.

(Score\_Soc\_038, turn 88)

The particle *what* was used by a mathematics teacher in the utterance 'Only one shape *what*' to tell as student that her work needed to be changed because she drew one shape instead of two (see the first turn in Excerpt 6). The teacher pointed out that it was obvious that there was only one shape drawn, not two. She told the student that the student had not followed her instructions of drawing two shapes. This finding is congruent with Wee's (2004) assertion that the particle *what* is used to point out something being obvious.

#### EXCERPT 6

Teacher: Only one shape what.

Student: I know.

Teacher: It's only one shape. One shape.

Student: I know.

Teacher: So? I want two shapes. You give me one shape only. Okay, so go and give me two shapes. I know you know.

(Score\_Math\_032, turn 72)

The particle *lor* was used by the same mathematics teacher in the utterance 'Just leave it *lor*' to give directions for classroom management (see the third turn in Excerpt 7). The teacher told the student to fill up the page with the same shapes. The student sought

clarification whether he should even fill up the blank side of the paper. The teacher gave instructions on leaving the blank side alone.

In everyday speech, the particle *lor* conveyed the obviousness of the action required. However, in classroom discourse, the particle *lor* had the additional pedagogic function of giving directions to the student so that the student work may be completed in a satisfactory manner.

#### *EXCERPT 7*

Teacher: Fill up whatever you can

Student: Teacher, you mean even the blank side.

Teacher: No. Just leave it lor. Just leave it half there

Student: Okay.

(Score\_Math\_032, turn 319)

## **CONCLUSION**

In summary, the data analysis offers some empirical support that teachers in Singapore use Singlish particles mainly for classroom management and curriculum access in the classroom but they do not use them very negligibly for interpersonal relations. It is perhaps a reflection of the Singapore education system where the teacher is very focused on “covering the syllabus” and thus most of the talk in the transcripts was centered on the curriculum and on classroom management. The teacher’s priority is to get job done, to finish the syllabus rather than to create a warm relationship with the students through informal talk.

The use of Singlish particles is found across the curriculum, but most frequently in science and mathematics classes. It was also found that the particle *ah* was by far the most frequently used particle in the Singapore classroom. Since there is not talk about the particle *ah* in the Singapore media compared to the other Singlish particles, the teachers might not actually know that they were using Singlish particles. This might open up a new area of research regarding teachers’ perceptions of their use of Singlish particles.

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# **Production and perception of English voiceless sibilants by Korean ESL learners**

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## **Abstract**

The issues of the perception-production relationship in L2 acquisition are dealt with in the present study. The results are comparable to Bohn & Flege (1990)'s findings that the relationship between perception and production changes with time or with L2 experience. Korean ESL beginning learners could not distinctively produce the English sibilants /s-ʃ/ but they showed excellent perception scores. As L2 learners gain experience in the L2, perception and production abilities develop for an L2 contrast that is allophonic in L1. The mean production scores of Korean advanced ESL learners were not as good as their perception scores, but longer exposure to English enabled Korean ESL learners to improve their production ability.

**Keywords:** production, perception, English, sibilants, Korean ESL learners

## **1. Introduction**

This paper investigates several issues in second language (L2) phonetics and phonology: 1) how L2 learners produce and perceive an L2 contrast which is allophonic in their native language, 2) how speech perception affects production, and 3) how the relation between production and perceptual abilities changes over time. It has been claimed by most researchers that in L2 acquisition, perceptual mastery leads to accurate production of L2 sounds. However, the claim that accurate perception is a prerequisite to good production has not always been supported by experimental studies. Some experimental studies found that while L2 learners are able to produce non-native contrasts accurately, they are not able to distinguish them perceptually (Goto 1971; Kang 1999; Sheldon & Strange 1982). It is argued that production can precede perception in L2 acquisition depending on L2 proficiency level. For instance, in the study of English liquids /r/ and /l/ by Japanese learners of English, Sheldon & Strange

(1982) found that experienced Japanese learners of English have demonstrated more accurate performance in production than in perception, particularly in the prevocalic position. Flege, Takagi & Mann (1995) also found that in both reading and spontaneous speech, production of English /r/ and /l/ by experienced (or advanced) Japanese learners of English was identified correctly by native speakers of English. However, Smith (2001) goes so far as to argue that production can proceed independently of perception. She claims that factors like kinesthetic feedback during articulation facilitate the independent development of production from perception. This means that although some L2 learners may be advanced in terms of production of new L2 contrasts, they are beginners in terms of perception of those same contrasts. In fact, according to Wode (1997), the tendency to model exclusively in terms of production is one of the most critical weaknesses in phonological theories. To address this, over the last two decades, a small number of experimental studies have critically examined the relationship between production and perception (Cheon 2007; Flege 1992, 1995, 2003; Toda 2003; Wode 1997).

This paper deals with the issues of the perception-production relationship in L2 acquisition. The L2 English sounds chosen for this study are /s/ and /ʃ/. Korean and English both make use of two voiceless sibilant fricative phonemes. Korean has /s/ and /s\*/, while English has /s/ and /ʃ/. However, despite the fact that the IPA symbol /s/ is used to represent a sibilant in both languages, English /s/ is not the same as Korean /s/. In fact, it has been observed by most Korean phonologists that English /s/ is more similar to Korean /s\*/ than to Korean /s/, in spite of the use of different phonetic symbols. Recently, foreign accent has been assumed to be closely related to the degree of articulatory, acoustic, and perceptual similarities between L1 and L2 sounds.

Table 1 shows a breakdown of the two English sibilants /s/ and /ʃ/ using Jakobson, Fant, & Halle's distinctive feature system (1963).

Table 1. Jakobson et al. (1963)'s distinctive feature values for English sibilants /s-ʃ/

	[±cons]	[±diffuse]	[±grave]	[±nasal]	[±cont]	[±strid]	[±tense]
s	+	+	-	-	+	+	+
ʃ	+	-	-	-	+	+	+

As shown in Table 1, /s/ and /ʃ/ are distinguished only by the feature [diffuse]. In articulation, the feature value [+diffuse] is associated with sounds in the anterior portion of the oral cavity. Labials, dentals, and alveolars are usually diffuse consonants, while palato-alveolars, palatals, and velars are non-diffuse. /ʃ/ is made by a narrowing of the

vocal tract between the blade of the tongue and the back part of the alveolar ridge, while /s/ has a constriction in the middle of the alveolar region or the forward part of the alveolar ridge (Stevens 1998; Ladefoged 2001). Ladefoged & Maddieson (1996) and Ladefoged (2001) have all contrasted the acoustics of the English sibilants /s/ and /ʃ/. These studies produced similar results (as follows). The voiceless sibilant fricatives /s/ and /ʃ/ have relatively strong acoustic intensity as compared to labial or interdental (non-sibilant) fricatives. The difference between /s/ and /ʃ/ in the spectrograms in Figure 1 is that /s/ has its greatest energy concentration (i.e., higher pitch frication noise) above about 6,000 Hz, while /ʃ/ shows most intensity at a lower frequency, between about 3,000 Hz and 5,000 Hz (Ladefoged 1962). English [ʃ] is produced with some lip protrusion, which presumably enhances the low frequencies in the frication noise.

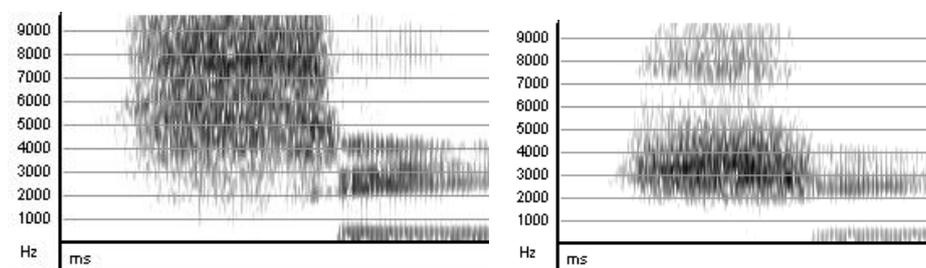


Figure 1. Spectrograms of “see” (left) and “she” (right) as produced by one of the American English speakers who participated in the present study.

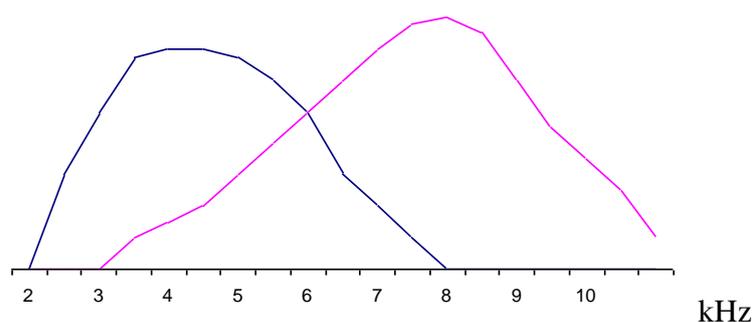


Figure 2. Spectra of the English sibilants /s/ (right) and /ʃ/ (left). The horizontal scale gives the frequency in kHz; the vertical dimension represents the amplitude of the sounds at given frequencies (Adapted from Ladefoged 1962: 53)

Figure 2 shows sample spectra of English /s/ and /ʃ/, showing that the /ʃ/ is has its energy concentration at lower frequencies than /s/. English sibilants /s/ and /ʃ/ are taken to be allophones by Korean speakers (Eckman & Iverson 1997). This present study includes two experiments that examine how Korean ESL learners perceive and produce

the L2 English contrast /s-ʃ/ which is allophonic in Korean, along with the relation between production and perceptual abilities.

## **2. Experiment 1: Production Task**

### *2.1. Method*

#### *2.1.1. Subjects*

Thirty paid volunteers participated in Experiment 1. They comprised three groups: 1) ten Korean ESL advanced learners, 2) ten Korean ESL beginning learners, and 3) ten American English speakers. Korean ESL learners who had studied English in the U.S. for less than one year belonged to the beginners' experimental group (on average, 11 months); those who had studied English in the U.S. for more than five years belonged to the advanced-learners' experimental group (on average, 5.6 years) at the time of recording. The approximate average age for the two experimental groups was 30.3 and 36.1 years, respectively. The average age of ten native speakers of American English in the control group was 22. All subjects were male undergraduate and graduate students at the University of Hawai'i at Mānoa. Twenty native Korean speakers are from Seoul or Kyunggi province. None of the subjects had a history of speech or hearing disorders.

#### *2.1.2. Stimuli and procedures*

In Experiment 1, stimuli were constructed from sibilant-vowel sequences that began with one of the initial sibilants in the English sibilant contrast /s, ʃ/ and were followed by one of the three vowels /i, a, u/. Each stimulus was composed of contrasting sibilant pairs (i.e., /si/ *see* or /ʃi/ *she*). Most of the stimuli were syllables rather than words in order to minimize the effect of individual word familiarity (even though some syllables were words per se). The stimuli were spoken in connected speech, with each speaker repeating five times a randomized list of six tokens in a carrier phrase, I'm saying \_\_\_\_\_ now) written in English on a notecard.

In order to evaluate the accuracy of the subjects' production performance on each L2 sibilant contrast, judgments of the subject's L2 speech as correct or incorrect <sup>1</sup>

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<sup>1</sup> Each stimulus was judged by three Korean raters as 1) correct, 2) unclear but acceptable or 3) incorrect; "unclear but acceptable" stimuli were considered as correct here.

were carried out with the aid of acoustic analyses by three Korean raters: 1) a phonetically trained listener, 2) a naïve listener, and 3) a bilingual speaker of Korean and English. In total, the raters judged 900 sentences (2 sibilants x 3 vowels x 5 repetitions x 30 speakers).

## 2.2. Results

Each subject's scores for the five repetitions were averaged prior to statistical analysis. An alpha level of .05 was used to determine significance for all statistical tests. To examine the production of the sibilants in the three vowel contexts by the three groups, one three-way repeated measures ANOVA also tested the effects of Group, Sibilants, and Vowels on correct production response in Experiment 1. The scores yielded a value between 0 and 1, where 0.5 represented chance response and 1 represented perfect production (five correct responses out of five).

Figure 3 shows the mean correct production scores of English sibilants /s/ and /ʃ/ in the three vowel contexts by ten native AE speakers, by ten Korean ESL advanced learners, and by ten Korean ESL beginning learners. Overall, Korean beginning learners of American English seemed to have more difficulty producing English /sa/ and /su/ (0.1 & 0.34) and English /ʃa/ (0.36) than any other sibilant-vowel sequences.

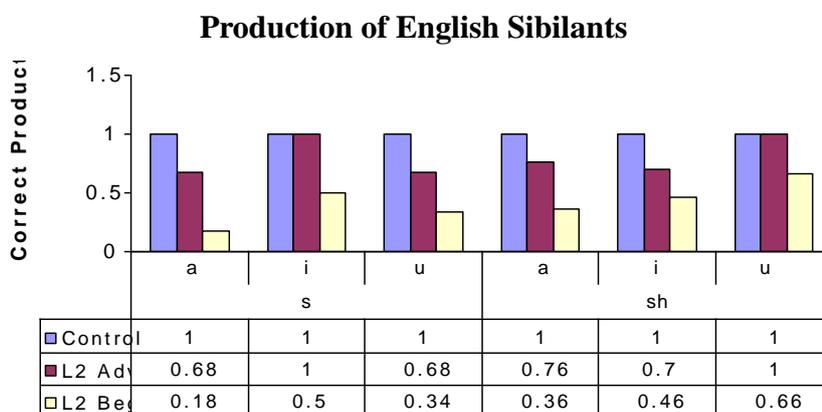


Figure 3. Mean correct production score of English fricatives /s/ and /ʃ/ "sh" in the three vowel contexts by AE speakers, by Korean ESL advanced learners, and by Korean ESL beginning learners.

A three-way repeated measures ANOVA that tested the effects of *Group*, *Sibilant contrast*, and *Vowel context* on the production of English /s/-/ʃ/ yielded two significant

main effects (*Group* and *Vowel context*)<sup>2</sup> and one significant interaction (*Sibilant contrast x Vowel context*).

A main effect of *Group* and a subsequent Tukey post-hoc test indicated that the mean production scores were significantly higher for native AE speakers than they were for Korean ESL learners ( $F [2, 27] = 38.124, p < .0001$ ). Korean ESL advanced learners were significantly higher in their mean production scores than were Korean ESL beginning learners (L2 Beg < L2 Adv < L1 Control). L2 experience made a difference in the production of English sibilants by Korean ESL learners. A main effect of *Vowel context* and a Tukey post-hoc test indicated that there was a statistically significant difference between /a/ (0.7) and /u/ (0.8), but there were no statistically significant differences between /a/ and /i/ and between /i/ and /u/ ( $F [2, 54] = 3.292, p = .0448$ ).

There was a *Sibilant contrast x Vowel context* interaction. Subsequent post-hoc tests revealed that there was a statistically significant difference between /s/ and /ʃ/ in the context of /u/, but there were no statistically significant differences between /s/ and /ʃ/ in the context of /a/ and /i/ ( $F [2, 54] = 7.923, p = .0010$ ). Figure 4 shows the mean production scores of English sibilants /s/ and /ʃ/ in three vowel contexts.

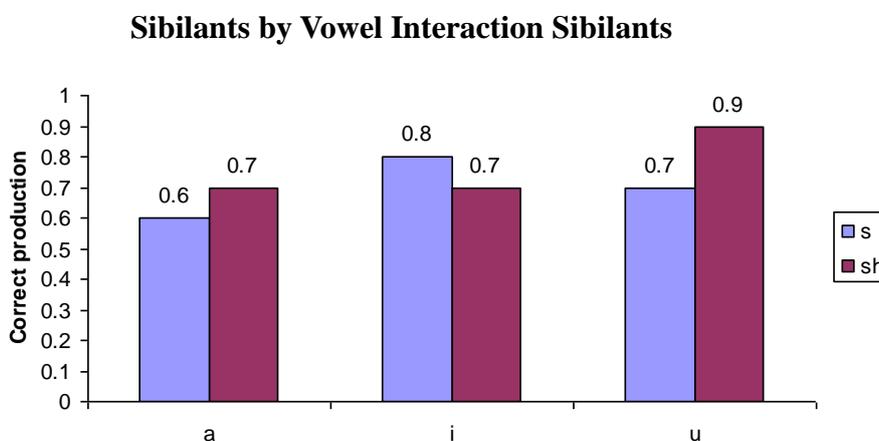


Figure 4. Mean production scores of English /s/ and /ʃ/ "sh" in three vowel contexts.

The English /ʃ/ was more accurately produced in the context of /u/ than the English /s/

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<sup>2</sup> In Experiment 2, listeners were also presented with the vowel, and their reactions to the sibilants might have been influenced by non-native vowel productions. I regret that the potential factor like a vowel environment was not taken into consideration for data analyses.

was. Both /ʃ/ and /u/ in English are made with some lip rounding. It seems that lip rounding of /u/ enables Korean ESL learners to produce /ʃ/ more accurately than in any other vowel contexts.

### **3. Experiment 2: Identification Task**

#### *3.1. Method*

##### *3.1.1. Subjects*

The same thirty subjects from Experiment 1 participated: twenty Korean ESL learners in the experimental groups (specifically, ten beginning and ten advanced learners of English) and ten native speakers of American English in the control group.

##### *3.1.2. Stimuli and procedures*

The English stimuli in Experiment 2 were the same as those in Experiment 1. The stimuli were syllables rather than words in order to minimize the effect of individual word familiarity. One male American English speaker produced the stimuli. The speaker was instructed to read a list of isolated words. Recordings for Korean stimuli were made in a sound-attenuated booth at the University of Hawai‘i at Mānoa. Each of the two sibilants before the vowels /i/, /a/, or /u/ was repeated five times. The recorded stimuli were digitized onto PCquiner at a 22.05 kHz sampling rate and edited from a waveform display with the aid of a spectrogram at the University of Hawai‘i Phonetics Laboratory. A total of 6 tokens was chosen to create stimuli. Each token was digitally repeated five times, and the resulting 30 tokens were randomized. Experiment 2 was conducted on a Power Macintosh G4 running PsyScope with a button-box.

The subjects in Experiment 2 were tested individually in a sound attenuated booth of the Language Analysis and Experimentation General Laboratory at the University of Hawai‘i at Mānoa. The experiment began with a familiarization test. Subjects were asked to listen to the stimuli and then to identify the sound by pressing one of the two sibilant buttons displayed on the button box. Two color buttons were used for each stimulus: a red button on the left and a green button on the right. The subjects heard the stimuli over headphones. Each subject was instructed to press the button as quickly as possible, but the following stimulus was not initiated until they pressed one of the buttons. That is, they could take as much time as they wanted in making a decision. Subjects did not get any feedback regarding whether the answer was

correct or not while they were participating. Natural speech stimuli rather than synthesized stimuli were used in Experiment 2.

### 3.2. Results

Correct identification scores were computed from the proportion of correct and incorrect responses for all subjects on each of the sibilants. Each subject's scores for the five repetitions were averaged prior to statistical analysis. To examine the perception of the sibilants in the three vowel contexts by the three groups, one three-way repeated measures ANOVA also tested the effects of *Group*, *Sibilant contrast*, and *Vowel context* on correct identification scores in Experiment 2. The scores yielded a value between 0 and 1, where 0.5 represented chance identification and 1 represented perfect identification (five correct responses out of five). Figure 5 shows the mean correct identification scores of three groups on English sibilants /s-ʃ/ in the vowel contexts.

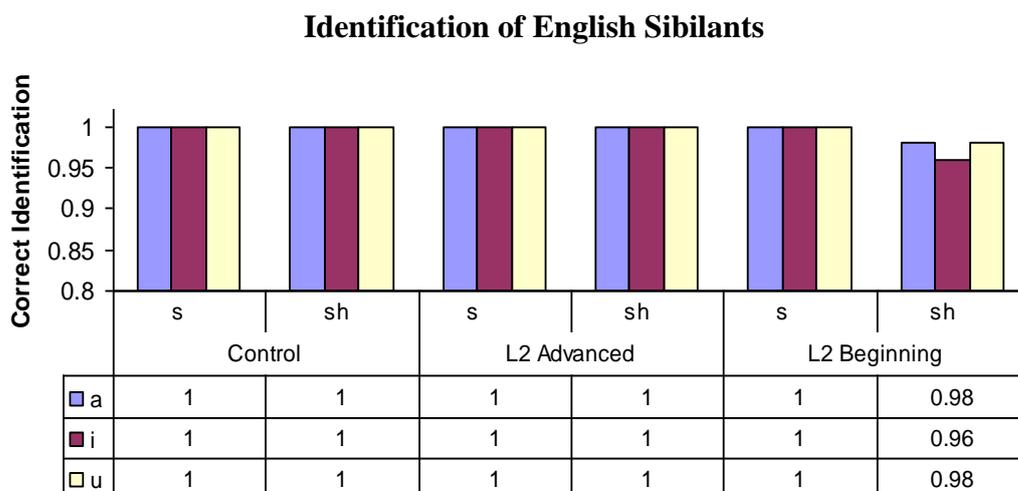


Figure 5 Mean correct identification scores of three groups on the English contrast /s/ and /ʃ/ "sh" in three vowel contexts.

The mean identification score was 1 for AE speakers, 1 for Korean advanced ESL learners, and 0.98 for Korean beginning ESL learners. English native speakers and Korean advanced learners of English showed perfect identification scores in all three vowel contexts, while Korean ESL beginning learners showed higher identification scores in the context of /a/ than in the context of /i/, and then /u/. All subjects in each group showed 'excellent' identification scores.

A three-way repeated measures ANOVA that tested the effects of *Group*, *Sibilant contrast*, and *Vowel context* on the production of English /s-/ʃ/ yielded two significant main effects (*Group* and *Sibilant contrast*) and one significant interaction (*Group x Sibilant contrast*). A main effect of *Group* on the correct identification scores and a subsequent Tukey post-hoc test showed that Korean advanced learners of English did not differ significantly from the native AE speakers ( $F [2, 27] = 6.000, p = .0070$ ). This suggests that Korean ESL advanced learners were just as accurate as AE speakers. L2 experience made a difference in perceptual improvement in second language acquisition ( $L2\ Beg < L2\ Adv \equiv L1\ Control$ ). English native speakers and Korean ESL advanced learners did better than Korean beginning learners of English. But surprisingly, Korean ESL beginning learners' identification scores were all higher than 93 percent. The results occurred despite the fact that Korean contains no phonemic contrast /s-ʃ/.

The main effect of *Sibilant contrast* and a subsequent Tukey post-hoc test indicated that English /s/ (1) was better perceived than English /ʃ/ (0.991). There was a *Sibilant contrast x Group* interaction, indicating that there were no significant differences among three groups in the perception of /s/. On the other hand, in the perception of /ʃ/, there was a significant difference between AE speakers and Korean ESL beginning learners and between Korean ESL advanced and beginning learners, but there was no statistically significant difference between AE KSL learners and Korean ESL advanced learners. All three groups got a perfect identification score (1) in /s/. AE speakers and Korean ESL advanced learners got perfect' identification scores (1) in /ʃ/, and Korean ESL beginning learners got an excellent score (0.97) in /ʃ/ as well. There was a *Group x Sibilant contrast* interaction. Subsequent post-hoc tests revealed that there was a statistically significant difference between /s/ and /ʃ/ in the beginners' group, but there were no statistically significant differences between /s/ and /ʃ/ in other groups ( $F [2, 27] = 6.000, p = .0070$ ), assuming that one beginning ESL learner did not discriminate /s/ from /ʃ/ perceptually.

#### **4. Discussion and conclusion**

The present study examined the production and perception of L2 English contrasts /s-ʃ/ which is allophonic in Korean by Korean ESL learners. This paper started with the issues of the perception-production relationship in L2 acquisition: 1) Can L2 learners perceive L2 sounds that they do not adequately pronounce, and can L2 learners produce sounds adequately that they do not perceive well?; 2) As L2 learners gain

experience in the L2, do perception and production abilities develop for an L2 contrast that is allophonic in L1? The results show that 1) L2 learners can perceive L2 sounds that they do not adequately pronounce and 2) perception and production abilities with longer L2 experience develop for an L2 contrast which is allophonic in L1.

As for the relationship between production and perception, Korean ESL learners showed improvement in perceptual ability with L2 experience (L2 Beg < L2 Adv  $\equiv$  L1 Control), and not only advanced ESL learners of Korean, but Korean beginning ESL learners reached a native level of perception (i.e., 100% and 98% accurate identification scores, respectively). They showed improvement in production ability as well after long exposure to English (L2 Beg < L2 Adv < L1 Control), even though they did not reach a native level of production. Tukey post-hoc test results indicated that Korean ESL learners did show statistically significant difference in performance between perception and production. Korean ESL learners generally showed better scores in perception than in production regardless of their length of L2 exposure (Production < Perception). Table 2 is a summary table of results of post-hoc tests of Group and Task interaction.

Table 2. Summary of results of Tukey post-hoc tests of Group and Task interaction.

Task	Perception	L2 Beg < L2 Adv $\equiv$ L1 Control
	Production	L2 Beg < L2 Adv < L1 Control
Group	Advanced	<i>Good</i> production < <i>Excellent</i> Perception
	Beginning	<i>Poor</i> Production < <i>Excellent</i> Perception

In sum, Korean ESL learners could perceive L2 English sounds that they did not yet adequately pronounce and greater L2 experience eventually had an impact on the production improvement of English sibilants.

Similarly, Bohn & Flege (1990) claim that the relationship between perception and production changes with time or with L2 experience – e.g., there is better perception than production in early stages of acquisition, but, over time, improved production, which is comparable with findings in the present study. Based on listener judgment of production data, Korean ESL beginning learners showed poor production scores (in fact, scoring near “chance production accuracy”). However, Korean ESL advanced learners were significantly higher in their mean production scores than were Korean ESL beginning learners (L2 Beg < L2 Adv < L1 Control), indicating that L2 experience made a difference in production improvement in second language acquisition

Thus, it is assumed that the production and perception of L2 contrasts that are not found in L1 are related in various and different ways. Recent research studies with various minimal segmental distinctions (Brown 2000; Cheon 2007; De Jonge 1995; Larson-Hall 2001; Toda 2003) also reveal that L2 learners' failure to acquire L2 contrasts differs according to the age of exposure to L2, to the class of L2 sounds, or to other factors. In a production-perception study of Korean voiceless sibilants which is allophonic in English by American English (AE) learners of Korean, Cheon (2007) found *poor* perception and *poor* production in the speech of AE beginning learners of Korean; *good* or *improved* perception but still *poor* production in the speech of AE advanced learners of Korean. In the study, L2 experience did not make any difference in production improvement, but Korean language experience made AE learners of Korean improve their performance in perception, even though they did not yet reach a native speaker level of perception. The results differ from Bohn & Flege (1990)'s findings. There was no improvement in production even after a long period of L2 learning or training in L2 speech learning by AE learners of Korean. Probably, they did not know the exact phonetic nature of the differences needed to produce the contrast authentically, while AE advanced learners of Korean were able to notice differences between /s/ and /s\*/ perceptually. On the other hand, the present study supports Bohn & Flege (1990)'s findings, showing the following results: 1) *excellent* perception and *poor* production in the speech of Korean ESL beginning learners; *excellent* perception but *improved* production in the speech of Korean ESL advanced learners.

In a study of the effects of phonetic similarity and L2 experience on the production of English /s-ʃ/ by adult Korean ESL learners, Cheon (2007) found that production of a dissimilar L2 sound /ʃ/ by ESL learners was perceived better by raters who were native speakers of American English than was production of the similar L2 sound /s/. Cheon (2006) also found that in an acoustic study of Korean sibilants by AE learners of Korean, AE advanced learners of Korean acoustically produce more-similar L2 Korean sounds with greater exactness than they do less-similar L2 Korean sounds,<sup>5</sup> while both L2 advanced and beginning learners poorly produced less-similar sounds; this suggests that L2 learners produce L2 sounds differently depending on the degree of phonetic similarity between L1 and L2 sounds and their L2 experience.

It seems that L2 learners' ability to acquire L2 contrasts differs according to the age of exposure to L2, class of L2 sounds, degree of phonetic similarity between L1 and L2 sounds, or other factors so that the relationship between production and perception in L2 acquisition is not easy to establish. Although perception scores were generally better than production scores in the present study, the relationship between the production and

perception of L2 contrasts that are not found in L1 were found to be more complicated, varying with the nature of the contrast or with L2 experience.

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# The (perceived) authenticity of Irish accent in film

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## Abstract

This paper explores the (perceived) authenticity of accents assumed by actors for their roles in film. Focusing on Irish film in particular, it examines the processes involved in accent acquisition by non-Irish actors, and addresses the factors which influence their success. In addition, it finds that even in cases where successful accent acquisition has taken place, performers may nevertheless be judged as not having authentic accents due to their use of stereotypical expressions, due to their appearance or simply due to accent hallucination by audiences who already know that the actors are not really Irish.

**Keywords:** accent acquisition, Irish English, dialect coaches, Irish film, authenticity.

## 1. Introduction

In the introduction to his seminal book *The Cinema and Ireland* (1988), Anthony Slide wryly observed how to many readers the idea of a book devoted to Irish cinema would be comparable to a volume on the snakes of Ireland, in that there were “none of the latter and little of the former” (1988: vi.). According to Luke Gibbons, this lack of indigenous productions could be attributed to the lack of an economy of scale and an appropriate industrial base, to a general hostility towards mass culture, to the existence of an Anglophone audience which made a fledgling Irish cinema extremely vulnerable to Anglo-American influence, and, especially, to Ireland’s lack of a strong visual tradition. (cf. 2005: 207)

In the late 1980s and early 1990s, this situation began to change and Ireland experienced somewhat of a boom in film production. This surge may be attributed to two major factors. The first was a series of tax incentives which were introduced by the Irish government from 1987 to encourage investment in film production in Ireland.<sup>1</sup> The second was the unexpected success of Jim Sheridan’s *My Left Foot* at the Academy Awards in 1990, where the film garnered awards for both best actor and best supporting actress. This film’s achievement, and the subsequent nominations for *The Field* (Jim Sheridan, 1990), *The Crying Game* (Neil Jordan, 1992), and *In the Name of the Father* (Jim Sheridan, 1993), put the Irish film industry on the map and inspired future film-production, which again probably would not have been possible without the aforementioned incentives.

However, the very tax incentives which were designed to encourage investment in

the Irish film industry from the early 1990s were also ironically instrumental in ensuring that it was actually non-Irish actors who, more often than not, received leading roles in Irish films. In *Power in the Eye*, Terry Byrne explains that compromises had to be made to guarantee financial support from abroad. Such compromises usually involved decisions in casting. According to Byrne, Hollywood backers tried to reduce their risk by ensuring that a film shot in Ireland had a number of actors in the cast who were “bankable” in the US market (cf. 1997: 189).

The consequence has been that Irish actors are often overlooked and are replaced by stars whose box-office appeal far outweighs their lack of Irishness, with producers believing that they can compensate for the latter by engaging the services of a dialect coach to make their Irish accents believable.<sup>2</sup> Unfortunately, audiences do not always agree, with actors’ attempts at Irish accents often being exposed to severe criticism:

The casting of Kevin Spacey – one of America’s finest screen actors – was nothing short of disastrous: he looks as if he had strayed in from Los Angeles just for the day and makes no attempt at a Dublin accent. (Farren, *Sunday Independent*, 16 January, 2000: 5)

In light of such judgements, this paper aims therefore to examine 1) how exactly actors go about learning these accents, 2) which factors can influence their success and, finally, 3) whether it is indeed the accent which is being criticised by audiences or whether perhaps other linguistic or non-linguistic factors might be at play.

## **2. How do actors learn accents?**

Actors who have to perform a role with an accent other than their own usually seek the assistance of specially-trained coaches, known alternatively as voice coaches, dialect coaches or dialogue coaches. While there are slight shades of meaning between these terms, all three are used interchangeably in the industry.<sup>3</sup> For the purposes of this study, however, rather than using the terms interchangeably or coining the title “accent coach”, which, in fact, would be more accurate, I will continue to use the more popular term “dialect coach”. Furthermore, in the interest of brevity, rather than giving an in-depth description of how exactly dialect coaches teach actors to perform an accent, I will instead present a brief summary of the methods used by these coaches, and encourage the reader to consult Bonnie Raphael’s excellent article “Preparing a Cast for a Dialect Show” (1984) for the definitive description of the processes involved.<sup>4</sup>

When it comes to teaching somebody a new accent, the work of the dialect coach is not too dissimilar to that of the foreign-language teacher, insofar as they both try to equip their students with a range of completely new sounds, or combinations of sounds, which differ from those of the students’ own sound system, irrespective of whether that system stems from a different language or merely a different variety. Much of the terminology and the techniques used by EFL/ESL teachers can thus be applied to the work of dialect coaches.

One approach to teaching actors a foreign accent is the intuitive-imitative approach, which involves providing the actor with a model pronunciation and having him imitate it. This method “depends on the learner’s ability to listen to and imitate the rhythms and sounds of the target language [or, in this case, accent S.W.] without the intervention of

any explicit information” and it “also presupposes the availability of good models to listen to” (Celce-Murcia 2000: 2). These good models can take a couple of forms. Either the dialect coach himself will be the model, or he can provide the actor with recordings of some other speaker speaking with the accent. Both options have their positive and negative sides, with the authenticity of the models playing a key role.

If the dialect coach himself happens to speak with the accent he is teaching, then the student has a perfect living model. However, if the dialect coach is, for example, American and is teaching an actor an Irish accent, then this may lead one to question how accurate the end-product will be. After all, a photocopy of a photocopy is quality-wise usually a couple of steps removed from the original. On the other hand, some actors may find having a “non-native” dialect coach encouraging, as he is likely to know the potential stumbling blocks which the learner will face, and his own ability to imitate the new accent shows that it can indeed be done.

Alternatively, the dialect coach can furnish the actor with a recording of the required accent, the advantage of this being that the student has a model to imitate, even in the absence of his teacher. Here again, however, one should distinguish between recordings which themselves are imitations of accents, such as dialect coach David Alan Stern’s *Acting with an Accent* series (1979), and the real thing. Many dialect coaches tailor their recordings to the exact needs of the actor, collecting speech samples from authentic speakers of the same gender, age and social class as the character to be portrayed, thus giving the actor the most accurate input possible.<sup>5</sup>

The other major approach adapted by dialect coaches from the world of foreign-language teaching is the analytic-linguistic approach, which employs teaching aids, such as the International Phonetic Alphabet (IPA), articulatory descriptions, diagrams of the vocal apparatus, contrastive information, and a host of other materials to supplement listening, imitation, and production. This approach is not designed to take the place of the intuitive-imitative approach, but rather to be employed in tandem with it. The result is that learners are not only provided with a model pronunciation, but that they are also given detailed linguistic information about the sounds they have to produce (cf. Celce-Mercia 2000: 2).

The IPA is very useful for this purpose, as it is well-established and internationally recognised, and once actors have learned it they can apply it to all future accent work. The disadvantage is that many actors have never learned this alphabet. Even when given a chance to learn it from a dialect coach, many are not willing to do so, or due to a tight shooting-schedule cannot afford to invest the time in learning what for them may seem to be a system of strange symbols and dots. They much prefer to have an approximate orthographic representation of the lines they have to say, using the regular English alphabet. While dialect coaches are usually accommodating to such requests, they nevertheless need to continue to provide a model pronunciation for the actor. Failing to do this can lead to potential misreading of such respellings, as the following quotation from Evangeline Machlin’s text book for actors shows:

[...] you must always remember that respelling is suggestive rather than exact as to the pronunciation it represents. It is the best that can be done to show dialectal pronunciations using the letters of the alphabet. The dialect pronunciations that you must learn are those HEARD ON THE TAPE. There only can you discover exactly what the respellings stand for. Guiding yourself by what you *hear* rather than by what you *see*, you will safeguard yourself against mistakes in dialect reproduction. (Machlin 1975: 2)

Machlin's advice highlights once again the age-old problem which has always befallen dialectal respellings, namely the shortcomings of a twenty-six letter alphabet in representing the forty plus phonemes of the varieties of English.

In addition to offering actors a written model of what they have to say, either in IPA or literary dialect, dialect coaches also try to familiarise their students with the workings of the vocal apparatus, in the hopes that if they know where and how the sound is produced, they may be able to produce it themselves more easily. Again, it is often necessary for the coach to avoid using technical terminology, for the sake of actors who have no grounding in linguistics. Indeed, Scott Thornbury cautions against "explicit descriptions or models of voice setting features, on the premise that such descriptions, while useful for the teacher to refer to, are not very helpful for the learner. How, for example, does one lower one's larynx and palatize one's tongue position?" (1993: 131). In a similar vein, Judy Gilbert suggests that "explaining phonological stress rules might not be any more helpful to the pronunciation student than explaining the appropriate laws of physics to someone trying to learn a bicycle" (1980: 111). Thus, it is essential that dialect coaches pitch their knowledge at a level that is understandable for their students and, more importantly, easy to put into practice. In addition, it is desirable, even if it is not always possible due to financial or logistical reasons, that the dialect coach also be present on set during the shooting of the film. The reason for this is that even if the dialect coach has been very successful at teaching the actor the required accent, fossilisation often sets in. This means that while the actor has reached a certain level of attainment, he will not progress beyond this point, and, worse still, if he has begun to make mistakes, he may just reinforce them through repetition.

### **3. Factors which determine successful accent learning**

Much research has been conducted on the factors which are responsible for precise pronunciation among second and foreign language learners, and it is my contention that these factors are essentially the same as those which determine successful accent acquisition for the stage or screen. What follows is a summary of these determinants drawn from Celce-Murcia (2000) and Nunan (1995), which has been amended slightly for the purpose of this study, with the term "language" being replaced by "accent" or "dialect" where appropriate.<sup>6</sup> The factors include: the influence of the learner's first language (or, in this case, accent), the learner's age, the amount of exposure to the target accent, the amount and type of prior pronunciation instruction, the actor's phonetic ability, his attitude toward the target accent and his motivation to achieve an accurate accent.

#### *3.1 The influence of the learner's first language*

Just as a foreign-language student's native sound system will invariably influence his pronunciation in the target language, an actor's attempt at an accent will also be influenced by his own sound system. The contrastive analysis hypothesis holds that "second language acquisition is filtered through the learner's first language, with the native language facilitating acquisition in those cases where the target structures are similar, and "interfering" with acquisition in cases where the target structures are

dissimilar or nonexistent” (Celce-Murcia 2000: 20). This “interference”, which is now more commonly referred to as “negative transfer,” is thus supposed to be a determining factor in cases where accent acquisition is not so successful. As convincing as this hypothesis appears at first sight, it may not hold up to closer scrutiny.

There is, after all, a conflicting hypothesis, Flege’s Speech Learning Model (SLM), which suggests that rather than facilitating acquisition, similar target structures actually somewhat impede it. According to this model, all sounds being learned are categorised as ‘new’, ‘similar’ or ‘identical’ depending on the differences between them and sounds which already exist in the L1. Those sounds which are regarded as being similar to an existing L1 sound will only be produced as the L1 sound, but *never* as an authentic L2 sound. Those perceived to be new, however, will be learnt successfully (in a native-like manner) by learners, while sounds which are identical in both languages will pose no problem, as they will already have been mastered in the L1. (cf. Flege 1992)

The SLM would imply that it is exactly those target structures which are classed as similar which betray an actor by revealing his or her true origins. An example would be Wallace Ford’s American [æ] rather than the Irish English [a] when referring to the “Black and Tans” in *The Informer* (John Ford, 1935).

### 3.2. *The learner’s age*

A further factor in determining the success of accent acquisition is the learner’s age. The critical period hypothesis holds that there is an optimum time for language acquisition and that once learners pass a certain age, they lose their ability to learn new languages to anything close to a near-native level (cf. Scovel, 1988; Krashen, 1973). It is thought that neuroplasticity – “the ability of the young brain to program and process new patterns of behaviour quickly and efficiently, and to relocate this programming and processing to different areas of the brain if there is congenital damage or injury incurred after birth” (Scovel 1988: 62) – is greatest in the brains of young children but then diminishes with age. For our purposes, it is interesting to note that this hypothesis distinguishes between a critical period for acquisition of grammar, pre-puberty, with a steady decline between the ages of twelve and sixteen, and one for the acquisition of near-native pronunciation, merely up to the age of six (cf. Ellis 1997: 68). The theory would suggest that it would be therefore nigh on impossible for an adult actor to ever learn a new accent to such a degree that it would sound native, which echoes Lippi-Green’s assertion that a person’s accent “is fixed or hard-wired in the mind, and once past a certain age it can only be very laboriously changed, to a very limited degree, regardless of commitment, intelligence, and resources” (1997: 241). Having said that, there are conflicting opinions on the validity of this critical period hypothesis, as a number of studies have revealed instances of adult foreign language learners, and indeed actors, who have attained excellent pronunciation, thus somewhat discrediting the theory (cf. Neufeld, 1977, Kenworthy, 1987; Knight, 2000). Furthermore, as will become apparent, Lippi-Green may very well have underestimated the effects of “commitment, intelligence, and resources”, which, in one way or another, are components of the other factors which determine the degree of accent acquisition.

### 3.3. *Amount of exposure to the target accent*

One of these factors is the amount of exposure one has had to the target accent. It is generally agreed that learners acquire language primarily from the input they receive (cf. Postovsky, 1974; Krashen, 1982). Therefore the amount of exposure they have to the target accent will play a crucial role in the degree of their success, and accents which they have been regularly exposed to should be easier to learn. Even, in the absence of first-hand exposure to the target accent, the media can play a key role, ensuring that somebody, for example, who may never have been to Australia or never met an Australian, yet has had regular exposure to Australian television programmes, such as *Home and Away* and *Neighbours*, will nonetheless be able to imitate an Australian accent.

In cases where exposure to an accent is limited, so too will be the success. From an Irish perspective, therefore, the fact that so few Irish television programmes have been readily available to viewers in the UK and the US means that British and American actors lack the same degree of exposure to an Irish accent that an Irish actor who is exposed to many American and British movies and TV shows would have to those accents. This would support an argument made by Michael Dorsey in *Volta Movie Magazine* regarding the poor quality Irish accents on offer from non-Irish actors.

Why is it that the Hollywood Irish actors can effortlessly reproduce any number of European or American accents, but their British or American counterparts give an Irish accent all four provinces and a box of Lucky Charms wrapped up in forty shades of green? Be-da-hokey! Doff dat cap, Darby, tug dat forelock. (2000: 31)

Dorsey's comments would appear not only to criticise the quantity of exposure that British and American actors have to Irish accents, but also the quality of that exposure. The reference to "all four provinces" suggests that the accents assumed by foreign actors are often an amalgam of various regional Irish accents which when mixed together create an incredible whole. This opinion is corroborated by a review in the *RTE Guide* of Kevin Spacey's accent in the film *Ordinary Decent Criminal* (Thaddeus O'Sullivan, 2000). "Spacey's Irish accent is something else, ranging as it does from the walls of Derry to Cork and back again to somewhere in Dublin" (Doherty, 2000). Furthermore, "Lucky Charms", "forty shades of green" and "Darby" are all references to Irish American creations, which are erroneously thought to be Irish, and so if actors are using these questionable sources as their model input, then their Irish accents will be equally questionable.<sup>7</sup>

### 3.4. *The amount and type of prior pronunciation instruction*

In addition to the amount of exposure to the target accent, the amount and type of prior pronunciation instruction is also a determinant of how accurate an actor's new accent will be. Some actors may have had extensive accent training at drama school or may have already played roles in plays which were written in dialect, thus making learning new accents easier as their ear and vocal apparatus are attuned to hearing and producing new sounds. However, it often arises, just as in EFL settings, that the instruction comes from a teacher whose own pronunciation differs greatly from the target norm, meaning that the coach's own negative transfer is passed onto the students. Moreover, many drama schools use manuals compiled by dialect coaches which aim to teach actors how to acquire a variety of accents, or dialects, as the case may be, yet

which may be more detrimental to their acquiring a new accent than no prior instruction at all. These manuals are often poorly researched or so ambitious in their scope that they often unintentionally propagate completely erroneous or stereotypical features.<sup>8</sup>

### 3.5. *The actor's phonetic ability*

Another factor which influences an actor's ability to assume a new accent is his "ear" for accents, as it is often termed. This phenomenon has been variously called one's "phonetic coding ability" or "auditory discrimination ability" by Kenworthy (1987) and also "phonemic coding ability" by Carrol (1962). This ability is believed to have little to do with general intelligence or even language learning ability per se, and, indeed, there is a common belief among lay people, and even among dialect coaches, that this ability to learn accents may have more to do with the learner having, what they call, a "musical ear". For example, dialect coach, Ginny Kopf, suggests that those with an aptitude for music "will be better able to hear and copy the rhythms and pitch changes of different dialects" (2000: 14), while Machlin believes that "any actor who can sing a tune can learn to speak a dialect" (1975: 1). However, Howard Gardner's seminal work on multiple intelligences offers evidence from in-depth research on the workings of the human brain, which highlights that the information-processing mechanisms for phonology are in fact located "close to the core of linguistic intelligence" and that "investigators working with both normal and brain-damaged humans have demonstrated beyond a reasonable doubt that the processes and mechanisms subserving human music and language are distinctive from one another" (1983: 81, 117). Accordingly, in normal right-handed individuals, whose linguistic abilities are centred almost exclusively in the left hemisphere, and whose musical abilities, including sensitivity to pitch, are located in the right hemisphere, neural damage to the left hemisphere, through injuries or illness, will therefore affect a person's speech but not his musical ability (cf. Gardner 1983: 118).

While we may have disproved the connection between having a "musical ear" and the ability for phonology, this does not mean that there is no validity to the notion of an "ear" for accents, which was mentioned above. Indeed, Flege *et al.* (1996) suggest that one of the main obstacles people encounter when learning pronunciation in a second language is that they simply cannot hear the phonetic nuances of the new language. This condition of "incorrect perception" is explained as follows:

During L1 acquisition, speech perception becomes attuned to the phonetic elements of the L1. L2 learners may fail to perceive the phonetic details of L2 sounds and sound contrasts accurately owing to the assimilation of L2 sounds by L1 categories. Without accurate perceptual 'targets' to guide sensorimotor learning, production is destined to be inaccurate (Flege *et al.* 1996: 48).<sup>9</sup>

As one can see, this issue is closely related to the aforementioned factor of the influence of the learner's first language. What is more, the learner's age can also play a role in this issue. Schneiderman and Desmarais state that research on phonetic perception shows that "adults and older children are less able to discriminate between speech sounds than infants when these sounds are not distinctive in the older subjects' first language [...] and that adults discriminate on the basis of the phonetic categories of their first language" (1988: 111).

### 3.6. *The learner's attitude and sense of identity*

A learner's attitude and sense of identity can also play important roles in the acquisition of an accurate pronunciation. Indeed, Guiora (1972) argues that personality, or "language ego" as he calls it, is fundamental in the acquisition of a new language, and even more so with regard to pronunciation: "Speaking a foreign language entails the radical operation of learning and manipulating a new grammar, syntax and vocabulary and, at the extreme limits of proficiency, *modifying one of the basic modes of identification by the self and others, the way we sound*" [emphasis S.W.] (1972: 144). This means that the extent to which we believe that our voices and our sense of identity are linked will be a determining factor in whether we are willing to change our voices. Schumann echoes Guiora's comments and calls this measure of our willingness to change "ego permeability" (1975: 209-35). Based on this hypothesis, one could argue that actors should be good at learning new accents, as by the very nature of their job they should have a high degree of ego permeability, since they are constantly embodying new characters and assuming new personas.<sup>10</sup>

What is more, actors may have another personality-related factor of accent acquisition in their favour, as it has been claimed that individuals who show a basic strong sensitivity to emotion perform better in phonetic acquisition (cf. Markham 1997: 25). If that is indeed the case, then one could argue that actors should therefore be at an advantage, as they generally display this sensitivity to emotion, being able to call up feelings, and sometimes even tears, at will. Indeed, this notion of empathy leading to superior accent acquisition is supported to a certain degree by the findings of a study by Taylor et al. (1969). However, this applies only to a certain degree, as it is interesting to note that the same study also suggests that, while actors indeed are often very adept at accent acquisition, it may not necessarily stem from their greater sense of empathy but can often be the result of a greater sense of narcissism. Whether or not, one agrees with their opinion about actors, the notion of personality playing a key role in accent acquisition is nonetheless very interesting.

### 3.7. *The learner's motivation*

The final, and for some the most crucial, determinant of success both in language learning and accent acquisition is motivation. Schumann (1986) and Gardner and Lambert (1972) distinguished between various forms of motivation in language learning, which are generally related to acculturation, or the extent to which the learner wants to integrate in the foreign-language community.

The first of these types of motivation is "integrative motivation" in which a learner desires to be integrated socially into the target culture, and thus learns the language. The second is "assimilative motivation" and is like the first, in that it involves a longing to be integrated, but, in the latter case, this longing is even greater, with the learner desiring to become indistinguishable from other members of the target speech community. Neither of these forms of motivation are necessarily those which drive actors who accept accent roles. They may have no personal desire at all to integrate with the community represented in the film, never mind completely assimilate there. What is more, the film may not even be shot in the actual target speech community being depicted: "Irish" films, such as *Waking Ned* and *Darby O'Gill and the Little People*, for

example, were filmed on the Isle of Man and in Burbank, California respectively. Thus, the actors in those films would not even have had the chance to integrate or assimilate with the Irish people even if they had wanted to.

A better descriptor for an actor's motivation is perhaps "instrumental motivation", that is, the incentive involved when someone learns a new language (or accent) in order to attain a certain goal – to pass an examination or to get a job promotion. While this last type of motivation does not really involve acculturation, it does not mean that it is any less effective than the previous two. In fact, Celce-Murcia (2000) cites Lukmani (1972) as having argued that the intensity of motivation is often as important as the type of motivation at play. She even adds that "someone with extraordinarily high instrumental motivation (e.g., someone who wants to sound like a native speaker in order to function effectively as an actor or an espionage agent) may well achieve a better pronunciation than someone with integrative motivation that is quite positive yet less intense" (Celce-Murcia 2000: 19). What better motivation could there be for an actor than the fact that if he fails to perform the accent properly, he runs the risk of embarrassing himself in front of millions of people? After all, in film, unlike in theatre, one's performance is not ephemeral, but rather is captured forever on celluloid.

#### **4. Factors which influence the (perceived) authenticity of accents in film**

As has been shown there are a number of factors which can influence whether or not an actor is able to acquire an authentic accent. However, even in cases where an actor does succeed in achieving an accurate accent, it is still possible that his accented performance may, through no fault of his own, still be perceived as inauthentic by cinema audiences. There are a few intriguing reasons for this, yet these are generally not borne in mind when people judge a performance. These are as follows:

##### *4.1. Degree of standardisation to appeal to mass audience*

As one can imagine, perceptions of what an authentic accent is can be very different depending on an audience's experience and expectations. Therefore, filmmakers may run the risk of disappointing Irish audiences if the accents or dialects in Irish films are not accurate, or of alienating non-Irish audiences if they are, but are difficult to understand. Since films are generally produced to be exposed to as large an audience as possible, the last thing filmmakers want is to alienate audiences just because the actors are speaking some incomprehensible dialect and thus in order to ease comprehension for a wider audience, dialect and accent are often modified.<sup>11</sup> To that end, dialect coach Robert Blumenfeld offers the following words of advice to actors:

As an actor you must be understood by your audience. Do not, for instance, do such a thoroughly authentic Cockney or Glasgow accent that most of your audience will find everything you say utterly incomprehensible. Instead do an authentic-sounding version, and always keep your diction clear by articulating consonants strongly. (Blumenfeld, 2000: unpaginated)

These words are echoed by a fellow dialect coach who suggests that "sometimes you have to 'cheat' and do a lighter or more generic accent if you

think your audience would have trouble easily accepting the true one” (Kopf 2003: 51).<sup>12</sup> In these circumstances, it is no wonder that actors’ accents may be perceived as inauthentic.

#### 4.2. *Use of erroneous or stereotypical expressions*

Just as the insertion of lexical items typical of a dialect can lend a performance an extra degree of authenticity,<sup>13</sup> the use of erroneous or stereotypical expressions can undo even the best accent. Research for my doctoral thesis, (Walshe, forthcoming) has shown evidence of accents which are quite accurate on a segmental and/or suprasegmental basis, but yet have been unjustly criticised by both audiences and critics alike.

Indeed, it is my contention that very often audiences, and in this case Irish audiences in particular, deem an actor’s accent to be inaccurate not on the basis of the accent itself, but because they react negatively towards other linguistic or, as we shall also see later, non-linguistic features. The fact that these elements, and not necessarily accent itself, play a role becomes very clear when one analyses both film reviews and what Niedzielski and Preston (2003) describe as the “folk’s” comments on the accents. The first of these comments concern themselves with linguistic features, albeit ones which are not at all related to accent, namely stereotypical expressions or catchphrases.

Since the birth of the Stage Irish figure, the use of stereotypical expressions which are falsely deemed to be typically Irish has been one of the major gripes of Irish audiences. This stems from the fact that the speech of Irish characters is often “spiced up” by the addition of pat phrases which have developed Irish connotations, such as “Top o the morning”, “Faith” and “Begorrah”. Attention has been drawn to the inaccuracy of such expressions before, perhaps most famously by George Bernard Shaw in his satirical play *John Bull’s Other Island*, in which Doyle criticises Broadbent for giving money to the so-called “Irishman” Tim Haffigan. He berates him for being so gullible as to have believed that the man was Irish.

*Doyle:* [...] He’s not an Irishman at all.

*Broadbent:* Not an Irishman! [He is so amazed by the statement that he straightens himself and brings the stool bolt upright].

*Doyle:* Born in Glasgow. Never was in Ireland in his life. I know all about him.

*Broadbent:* But he spoke – he behaved just like an Irishman.

*Doyle:* Like an Irishman!! Man alive, don’t you know that all this top-o-the-morning and broth-of-a-boy and more-power-to-your-elbow business is got up in England to fool you, like the Albert Hall concerts of Irish music? No Irishman ever talks like that in Ireland, or ever did, or ever will. But when a thoroughly worthless Irishman comes to England, and finds the whole place full of romantic duffers like you, who will let him loaf and drink and sponge and brag as long as he flatters your sense of moral superiority by playing the fool and degrading himself and his country, he soon learns the antics that take you in. He picks them up at the theatre or the music hall.

(Shaw, 1907/1964: 80-1)

Doyle’s comments are all the more humorous if one knows that while Shaw’s wonderful critique of Stage Irishism was being performed in Dublin’s Abbey Theatre almost a decade later, a new musical entitled *Top o’ the Morning* was premiering down

the road in the Empire Theatre, today's Olympia Theatre.

However, somewhat surprisingly given their presence in the public consciousness, these Stage Irish expressions almost never appear in the 50 films examined in the film corpus compiled for my forthcoming PhD thesis. Indeed, as the examples below show, the expressions "Top of the mornin'", "Begorrah", "Faith" and "More power to your elbow" appear in only one film each. "Broth of a boy" does not appear at all.

(1) *Top o' the mornin'* Father.

(*Ryan's Daughter*, 00:38:43, MP1920W)<sup>14</sup>

(2) *Begorrah!* He wasn't far wrong.

(*Darby O'Gill and the Little People*, 00:28:25, MKB1800W)

(3) *Faith*, I know I can't sing a lick, but when I'm roarin like Doran's bull, it works up a killin' hunger in me.

(*Darby O'Gill and the Little People*, 00:48:54, MMB1800D)

(4) *More power to your elbow*, Frankie.

(*Angela's Ashes*, 01:18:55, MUP1930L)

However, despite the fact that these terms almost never appear in these Irish films, many of the comments on poor Irish accents in film still incorporate these very terms, especially "Top o' the mornin'" or "Begorrah", in their description of them, thus creating for their readers an impression of Stage Irish speech, which was not present in the actual film.<sup>15</sup> Comments on Tom Cruise's performance in *Far and Away*, for example, often employ such terms, although, as already mentioned these phrases do not appear in that film.

Below are some examples: the first comes from an interview by Sell which asked informants whether they had ever seen a film in which a non-Irish person assumes an Irish accent. The second is from an Internet forum which addressed the notion of the worst accents on film.

*Respondent* – It's just, we don't talk like that.

*Interviewer* – Is it exaggerated?

*Respondent* – Yeah, a little bit, yeah, it's the usual *Top o' the mornin' to you* kind of thing. It's just you're, like, no, we don't speak like that. So, there's a bit of a stereotype to the Irish accent in general." (Female, 25, Galway, in: Sell, forthcoming)

Has everyone forgotten about Tom 'Tommy Boy' Cruise in 'Far & Away ? Oh *begora* an' *begod*, sure isn't it a fantastic mornin' to be a lepracaun! (lazyink, August 22, 2007)<sup>16</sup>

The result is that even among those people who have never seen this film there is already an expectation that the accent must be terrible. This is again substantiated in some of the Internet comments discussing accents.

I haven't seen Tom Cruise's effort, but anyone who has seems to rate it among the very worst. (John 83, September 17, 2007)<sup>17</sup>

What is more, audiences appear to have picked up on one line of dialogue from the film *Far and Away* and focus on that as the justification for Cruise's poor accent. However, it is worth asking the question whether the problem is perhaps with the line itself rather than the accent.

Far and Away - when i saw it in the early Nineties in a cinema in Galway when Tom Cruise says "*Aye Shannon you're a corker*" the cinema exploded with laughter - comedy gold, i always end up watching it on Tv just to see that bit, Niall Tobins stage Irish *begorrah* accent is hilarious as well!!<sup>18</sup> (Tim Landers, January 16, 2007)<sup>19</sup>

A movie which manages to belittle the plight of the Irish immigrant, mangle the Irish accent and trivialise Irish history in one fell swoop. When Tom Cruise fixed his slightly creepy gaze on Nicole Kidman and pronounced "*Yer a corker, Shannon*", the groans from the audience were almost as loud as the sound of Joyce, Beckett and Yeats turning in their graves. (Declan McKenna, March 14, 2008)<sup>20</sup>

Ladies and gentlemen, I give you: "Far and Away". Oh. Dear. God. "*Aye Shannon, yer a corker*" - what? I mean, *what?* Tom Cruise and Nicole Kidman, you are found guilty of grievous bodily harm to the Irish accent. (Anacreon, January 23, 2001)<sup>21</sup>

Ironically, the line which grated so much with Irish audiences, was the very one which most struck a chord with the American film critic, Peter Travers, who works for *Rolling Stone*.

"*You're a corker, Shannon.*" says Joseph in rapt admiration. "*What a corker you are.*" The delicate sweetness of that moment, magnetically played by Cruise and Kidman, represents the movie at in (sic) best. (Peter Travers, December 8, 2000)<sup>22</sup>

This shows once again that, when it comes to expectations of authenticity, Irish and international audiences differ greatly. With regard to the controversial line from *Far and Away*, it would appear, based on my own enquiries and on the reaction of Irish audiences, that the word "corker" is not used in Ireland today<sup>23</sup>. That, of course, does not mean that the term might not have been popular at the time when the film was set, namely, in the late 1880s. Indeed, according to the OED, "corker" is first attested as appearing in 1882, and is a colloquial or dialect term which refers to "a person or thing of surpassing size or excellence, a stunner" (II: 934). The OED does, however, add that the term is "also used ironically" and this may be where the problem with Cruise's use of the term arises. He delivers the line so sincerely, "in rapt admiration" as Travers described it above, that it would appear to be his undoing. It is my contention that it was the line coupled with the sincerity of the delivery, and not his actual accent, which reduced audiences to groans and laughter.

#### 4.3. *Extra-linguistic factors*

While critics and audiences alike have drawn attention to the linguistic shortcomings of the aforementioned performances, there is also evidence to suggest that it may not necessarily be the accents or the use of Stage Irish expressions which detract from the perceived authenticity of the performance, but rather some other non-linguistic factors. For example, the *Historical Dictionary of Irish Cinema* (2007) features the

following criticism of *Circle of Friends*, and particularly of American actor Chris O'Donnell:

Inevitably, however, given the absence of Irish actors in lead roles, audiences were subjected to cringe-worthy attempts at local accents, some so bad as to obscure the dialogue. Chief among the culprits was Chris O'Donnell, clearly chosen to give the film international appeal, but always looking more like an American high school jock than what in the 1950s would have been a rare creature in Ireland – a university student.” (Flynn and Brereton 2007: 58-9)

At first glance, it appears to be a run-of-the-mill criticism of poor accents in Irish film; mentioning, as it does, the “cringe-worthy attempt at local accents”. However, if one looks at the choice of words a little more closely, there is another issue at play here. While Chris O'Donnell is singled out as the chief culprit, there is a strong suggestion that this could have more to do with his appearance than with his accent. After all, the complaint is not that he *sounds* like an American high school jock, but rather that he *looks* more like an American high school jock.<sup>24</sup>

Closer scrutiny of other film reviews reveals that writers may similarly be strongly influenced by an actor's appearance rather than by his accent per se. For example, based on the following review, the credibility of Tom Cruise's performance in *Far and Away* has less to do with accent and more to do with dentistry.

Any pretensions to plausibility are, however, fatally undermined by the presence of Tom Cruise's perfect teeth. (*O' Mahony, in: Film Ireland* (121), March/April 2008: 13)

It is significant therefore that, consciously or not, it is often non-linguistic elements which these reviewers make reference to when commenting on the elements which detract from the perceived authenticity of the actors' performances.

#### 4.4. Accent hallucination

The previous point is also strongly linked to the notion of “accent hallucination”, which also can play a significant role in accent perception. Accent hallucination occurs when “prejudice on the part of the hearer lead[s] to the perception of stigmatised forms (even where in reality these do not exist)” (Fought, 2006: 187-9). In *Language and Ethnicity*, Fought offers a number of examples, including experiments by Williams (1983) and Rubin (1992), to show just how endemic accent hallucination can be. In Williams' study, a group of European-American student teachers viewed videotapes of three children (1 European-American, 1 African-American and 1 Mexican-American) with the task of rating the level of English they heard. Unbeknownst to the respondents, the voice they were hearing was always that of the same standard English-speaking child. Nonetheless, the speech of the African-American and Mexican-American children was consistently regarded as significantly more “non-standard” than that of the European-American. The same applied to Rubin's study which had students listen to a lecture while looking at a photograph which they were informed was of the speaker. Half of the group were shown a picture of a European-American, while the other half were given a picture of an Asian woman. As in Williams' experiment, the speaker was actually the same for all visual stimuli and again was a native speaker of English with

no marked regional accent. However, as before, the students who were shown the picture of the Asian woman were more likely to rate her as having an Asian accent. Bearing such results in mind, it is worth considering the question of whether audiences who know that an actor is not Irish are perhaps also susceptible to accent hallucinations, thus projecting their preconceived notions onto the actor's perhaps impeccable performance.<sup>25</sup>

The implication here is that when audiences are aware that the stars of these Irish movies are not Irish, they imagine that they can hear traces of a non-Irish accent. Indeed, such hallucination was already proven to exist (above) with regard to stereotypical expressions, such as "Top o' the mornin'", "begorrah" etc. which are projected onto actors' performances by audiences, even though the terms are never used by the actors nor appear in those films.

## 5. Conclusion

In conclusion, one can say that although numerous factors, such as age, motivation, training etc, can certainly influence an actor's success in acquiring a new accent for a role, these are not the sole determinants in whether audiences perceive the performance as being authentic. Such decisions can also be influenced by what the actor says, by how he looks, by the audience's accent hallucination, and by the degree of standardisation of the accent for a global audience. It is important that these additional factors also be borne in mind, lest we make rash judgments regarding an actor's accented performances.

## Notes

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<sup>1</sup> Under Section 481 of the Finance Act (formerly Section 35), a tax deduction is available to Irish investors who buy shares in Irish film production companies, with 80% of the amount invested being written off for tax purposes. For further information on these tax incentives, see [http://www.filmboard.ie/section\\_481.php](http://www.filmboard.ie/section_481.php) (19 June, 2005)

<sup>2</sup> A quick glance at the casts of Irish movies in the last two decades reveals a "who's who" of some of the film industry's most prominent names: Tom Cruise, Nicole Kidman, Kevin Spacey, Cate Blanchett, Daniel Day-Lewis, John Hurt, Julia Roberts, Alan Rickman, Joan Allen, Jon Voight, and Kate Hudson. All of these actors have assumed Irish accents with varying degrees of success.

<sup>3</sup> Technically, a voice coach is normally responsible for teaching proper breathing, voice projection and other elocution techniques, whereas a dialogue coach, in the early days of sound cinema in America, was traditionally somebody who helped actors to learn their lines and who ran dialogue with them. This role later developed into that of the dialect coach, who assisted actors in learning how to approximate various accents. The title, of course, is actually a misnomer and should really be "accent coach", as it is pronunciation which the coaches teach and not the grammar or other features of the dialects, which are already provided in the screenplay.

<sup>4</sup> Further insights into the work of the dialect coach were gained by consulting a number of works written by dialect coaches, such as Evangeline Machlin (1975), Lewis and Marguerite Herman (1997), Robert Blumenfeld (2000) and Ginny Kopf (2003).

<sup>5</sup> Actors often also request recordings of somebody saying the actual lines they will have to perform, and dialect coaches generally reluctantly oblige. However, they are quick to stress that their job is not

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interpretive and that, while they will happily say the lines with an accent, it is outside of their remit to interpret how these lines should be delivered. Such work is the responsibility of the actor and director. It was exactly this reluctance “to select a particular interpretation of a line, at the expense of others” (Crystal 2005: 33) which initially deterred David Crystal from providing actors with a recording of him reading the lines from *Romeo and Juliet* in his experiment to recreate Shakespearean pronunciation for the stage. As is often the case, he too later acquiesced and furnished the actors with the auditory material.

<sup>6</sup> In the direct quotations that follow, I shall leave the word “language” intact, in the interest of fidelity to the original. The reader should, however, insert the word “accent” in its place.

<sup>7</sup> “Lucky Charms” is an American breakfast cereal which uses a leprechaun figure with a faux Irish accent in its advertising campaigns. “Forty Shades of Green” is a sentimental song written by American Country singer, Johnny Cash, about an emigrant reminiscing about the old sod, while “Darby” is a reference to a character created by Hermione Templeton Kavanagh, which appears in a series of books written in dubious literary dialect. The figure is best known from the Disney film *Darby O’Gill and the Little People* (Robert Stevenson, 1959), which was loosely based on Kavanagh’s books and again features some debatable Irish accents.

<sup>8</sup> One such manual, *Foreign Dialects. A Manual for Actors, Directors, and Writers*, by Lewis Herman and Marguerite Shalett Herman, for example, ambitiously professes to teach actors all of the following “dialects”: Cockney, British, Australian, Bermudan, Indian, Irish, Scottish, German, French, Italian, Spanish, Mexican, Filipino, Portuguese, Japanese, Chinese, Chinese pidgin English, Hawaiian, Beche Le Mar, Australian pidgin, Swedish, Norwegian, Russian, Lithuanian, Yugoslav, Czech, Finnish, Hungarian, Polish, Greek, and Yiddish (Herman and Herman, 1997). The same authors have also published a separate volume on the various American dialects. However, these “dialects” are never accompanied by a recording, and to make matters worse, the authors do not use the IPA, but instead offer faux transcriptions written in undecipherable respellings, such as “dUHd uhEE kUHI UHm, sEHzuhEE” which apparently is “‘Did I kill him?’ says I” in an Irish accent (Herman and Herman 1997: 68).

<sup>9</sup> Flege *et al.* go on to state that due to the fact that adults are language-specific perceivers of speech, it is their assumption that “a larger proportion of production errors in a second language may have a perceptual basis” (Flege *et al.* 1996: 66). It should be reiterated, however, that even if one is able to “hear” the nuances of a new language or accent, that does not necessarily mean that one will be able to accurately reproduce those sounds. As outlined already in 3.2., once pre-established patterns of articulation have been ingrained by the vocal apparatus, it is very difficult to modify them in order to learn new ones. Further discussion of the interplay between perception and production (or rather reproduction) can be found in Postovsky (1974).

<sup>10</sup> It might be worth noting, however, that, etymologically speaking, the words “embody” and “persona” only refer to the visible outward transformation of the actor, and do not necessarily suggest an audible change. If actors therefore lack the necessary degree of ego permeability and are not willing to also change the voice behind the mask, then their success with the new accent will be limited.

<sup>11</sup> Of course, this is less of a problem in certain film markets, such as the German one, which tend to dub films into the audience’s mother tongue. Nevertheless, problems can still occur when trying to translate dialect or heavily accented pronunciation into a foreign language for the purposes of dubbing or subtitling. Indeed this is even evident in the English subtitling of some Irish films. For example, compare the two versions of the following exchange from *When the Sky Falls* (John MacKenzie, 2000). It takes place between a drug addict and some Dublin thugs, one of whom is named Keegan, but called Keego, the familiarizing suffix ‘o’ being common in colloquial Dublin speech. It appears on the soundtrack as follows (my transcription):

*Thug 1:* Ah look who it is.

*Thug 2:* Go on, ya waster!

*Drug Addict:* Alright, Keego?

*Thug 1:* You alright, tinfoil head?

*Thug 2:* Ya scumbag ya, keep walkin’.

The subtitles, however, read as follows:

*Thug 1:* Look who it is.

*Thug 2:* On your ways.

*Drug Addict:* All right, Keego.

*Thug 1:* You are, rude tinfoil head.

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*Thug 2*: You scumbag, keep walking.

Clearly, the person responsible for subtitling had difficulty understanding the Dublin pronunciation and thus two of the five lines of the exchange are incorrect.

<sup>12</sup> A fine example of this school of thought is evident in the case of the Newcastle-set film *The One and Only* (Simon Cellan Jones, 2002). According to the local newspaper *The Northern Echo*, the producers were so worried about foreign audiences not understanding the dialogue in the movie that they hired a dialect coach, Majella Hurley, “to create the ‘Geordie Light’ accent. Producer Leslie Udwin said: ‘We’re sorry, but we believed we could either please local people and lose an international audience, or make it accessible to everyone.’” <http://archive.thenorthernecho.co.uk/2003/2/20/103201.html> (10 June, 2008)

<sup>13</sup> One way of compensating for a poor Irish accent may be to incorporate numerous Irish expressions or turns of phrase into the film script, as these automatically create a more authentic impression. After all, according to Ives (1950: 171), “the easiest and one of the most effective methods of giving regional flavor to speech is the use of local expressions and names for things”. These can very often be used in place of Standard English expressions or names and involve very little reworking of the script. For example, in an Irish context, one only has to substitute the words “Ma”, “Mam” or “Mammy” for the standard terms “Mum” “Mummy”, “Mom” and “Mommy”, to already lend the speech a certain air of Irishness. Similar substitutions can be done with any number of terms, ranging from “Da” for “Dad” or “Daddy”, “grand” for “fine”, “guard” for “police officer”, and “shite” for “shit”, with the cumulative result being a script which seems more Irish and which may thus compensate for any shortcomings in the actor’s accent.

<sup>14</sup> These examples show the film title, the time when the sentence is uttered, and the speaker’s initials with when and where the film is set. For more see Walshe (forthcoming).

<sup>15</sup> As Niedzielski and Preston (2003) have observed, the folk often include imitations of the accent to explain their point, and this is clearly what also happens in many people’s observations, whether written or oral. The quotes on the next few pages are taken from oral interviews conducted by my colleague Katrin Sell in the summer of 2007 in Galway City or from internet forums which have addressed the notion of accent in films. These quotes have been taken over verbatim from their sources and thus sometimes contain quite a number of spelling errors. However, in the interest of transparency, I have not amended them in any way.

<sup>16</sup> <http://deputy-dog.com/2007/08/21/13-of-the-worst-fake-accent-in-film/> (1 July, 2008)

<sup>17</sup> <http://foot.ie/forums/showthread.php?t=71228> (1 July, 2008)

<sup>18</sup> Note again the use of the term *begorrah* with regard to this film, despite the fact that it does not appear in the movie.

<sup>19</sup> [http://aims.ie/interact\\_discuss\\_displaythread.asp?ForumName=Games%20Room&ForumTag=games&ParentID=71296](http://aims.ie/interact_discuss_displaythread.asp?ForumName=Games%20Room&ForumTag=games&ParentID=71296) (1 July, 2008)

<sup>20</sup> <http://www.belfasttelegraph.co.uk/entertainment/film-tv/news/article3515226.ece> (1 July, 2008)

<sup>21</sup> <http://www.everything2.org/title/Irish%2520accent> (1 July, 2008)

<sup>22</sup> [http://www.rollingstone.com/reviews/dvd/5948995/review/5948996/far\\_and\\_away](http://www.rollingstone.com/reviews/dvd/5948995/review/5948996/far_and_away) (1 July, 2008)

<sup>23</sup> While Wright cites the term as being used in Ireland (as well as in Northumberland, the West Midlands, Lancashire, Yorkshire, Cheshire, Lincolnshire, East Anglia, and Warwickshire), it should be remembered that his dictionary was actually compiled between 1898 and 1905 when the term did enjoy popularity.

<sup>24</sup> It is interesting to note that the word “look” also appears in the critique of Kevin Spacey’s accent at the beginning of this article: “he *looks* as if he had strayed in from Los Angeles just for the day.”

<sup>25</sup> Fought does, however, cite a study by Atagi (2003) which revealed that race may play more of a role in accent hallucination than foreign origin. “Overall, then, it seems that the more ‘ethnically different’ a speaker is perceived to be by the hearer, the more likely the hearer is to perceive an accent where none is present” (Fought 2006: 189).

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# **An OT Analysis of the Nasal Pronunciation Variability in Coda Position---Transfer Effect or Unmarkedness Constraint**

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## **Abstract**

This study suggests one perspective in viewing the cause of difficulty in pronouncing English /m/ sound in coda position for Native Taiwanese English learners. The Contrastive Language Hypothesis and Contrastive Analysis Hypothesis may lead people to assume that it is easy for Native Taiwanese English learners to learn the nasal coda sound since Taiwanese sound repertoire contains /m/ sound in the coda position. Nevertheless, the subjects tend to pronounce /n/ instead of /m/ in the coda position in their English oral performance and it is postulated by the author of this paper that this pattern of speech failure can only be accounted for by Optimality Theory (OT) which succinctly shows the hierarchical relations among different constraints.

**Key Words:** Nasal Sound, Second Language Acquisition, Optimality Theory, Transfer Effect, Unmarkedness

## **1. Introduction**

In Lado's Contrastive Language Hypothesis (CLH), he stated that through comparing the L2 system with that of L1 of the learner, problems which were encountered by the learner could be predicted. He also argued that "Those elements that are similar to his native language will be simple for him, and those elements that are different will be difficult" (Lado, 1957). Aside from Lado, Weinreich (1953) also made a similar claim asserting that "The greater the difference between two systems, i.e. the more numerous the mutually exclusive forms and patterns in each, the greater is the learning problem and the potential area of interference." Furthermore, according to their Contrastive Analysis Hypothesis (CAH), Freeman and Long (1991) stated that "Where two languages were similar, positive transfer would occur; where they were different, negative transfer, or interference, would result." Nowadays, both Lado's

CLH and Freeman's CAH have been considered a vast overgeneralization, and it is the emergence of Optimality Theory (OT) (Prince & Smolensky, 1993) which makes a breakthrough on this mysterious area of L2 acquisition by providing a most in-depth explanation for some unsolved problems. One of the key notions in OT is the idea of "unmarkedness" and Kager (1999) had put it this way: "[All] types of linguistic structures have two values, one of which is 'marked', the other 'unmarked'. Unmarked values are cross-linguistically preferred and basic in all grammars, while marked values are cross-linguistically avoided and used by grammars only to create contrast" (1999). This idea of markedness/unmarkedness has been a major force conflicting with faithfulness constraints in OT. While the constraints of markedness and faithfulness are universal, the rankings are not. "[Differences] in ranking are the source of cross-linguistic variation" as Kager (1999) postulated it. Thus, some L2 acquisition phenomena which could not be fully explained by CLH or CAH could find the way out in the application of Optimality Theory.

## **2. Background**

In this paper, I dwell upon the pronunciation problem which many Taiwanese English learners encounter in their interlanguage. Some studies done in Taiwan have been based on CAH and made the point that the problem that Taiwanese English learners tend to pronounce /n/ sound instead of /m/ sound in the coda position originates from the interference of the learners' native language "Chinese", for its sound repertoire does not contain the sound /m/ in the coda position. At the first glance, it may sound legitimate, yet when Taiwanese speakers whose native language is Taiwanese but not Mandarin are tested in this experiment, a stunning discovery overrules this claim. According to CAH, through the facilitating effect, Taiwanese speakers who have /m/ in their sound repertoire should not have any difficulties in pronouncing the sound /m/ despite its position of emergence, i.e., onset or coda position. Yet, the result does not match with the postulation. In this study, these Taiwanese native speakers still have serious pronunciation error in pronouncing /n/ rather than /m/ in coda position. Thus, CLH or CAH are inept at providing any convincing explanation for this phenomenon and only OT can come to its rescue. The central idea of OT is that the most optimal candidate of the input is the one which violates the least serious conflicting constraints consisting of markedness and faithfulness constraints. Since /n/ is an unmarked and /m/ is a marked sound, at the beginning stage of Taiwanese English learners'

interlanguage, the ranking of unmarkedness will be higher than the faithfulness constraint. As a consequence, Taiwanese English learners thus tend to pronounce the unmarked /n/ instead of /m/ at this stage. Through strenuous practice in conquering the force of fossilization, the faithfulness constraint will eventually overcome the markedness constraint and the L2 learner will become more native-like in pronouncing /m/ sound when it appear in the coda position. In this study, according to OT, the ranking of constraints which explains the performance error of pronouncing /n/ rather than /m/ in the coda position in Taiwanese English learners' interlanguage will be derived to provide a new perspective on explaining this language learning problem.

### 3. Experiment

#### 3.1 Methodology

##### 3.1.1 Participants

The participants consist of 35 students whose native language is Taiwanese and they major in Information Management in Southern Taiwan University of Technology. The ages of this group vary from 26 to 42 as shown below in figure 1 and they all have worked for a few years. Among these 35 participants, 13 are female and 22 are male.

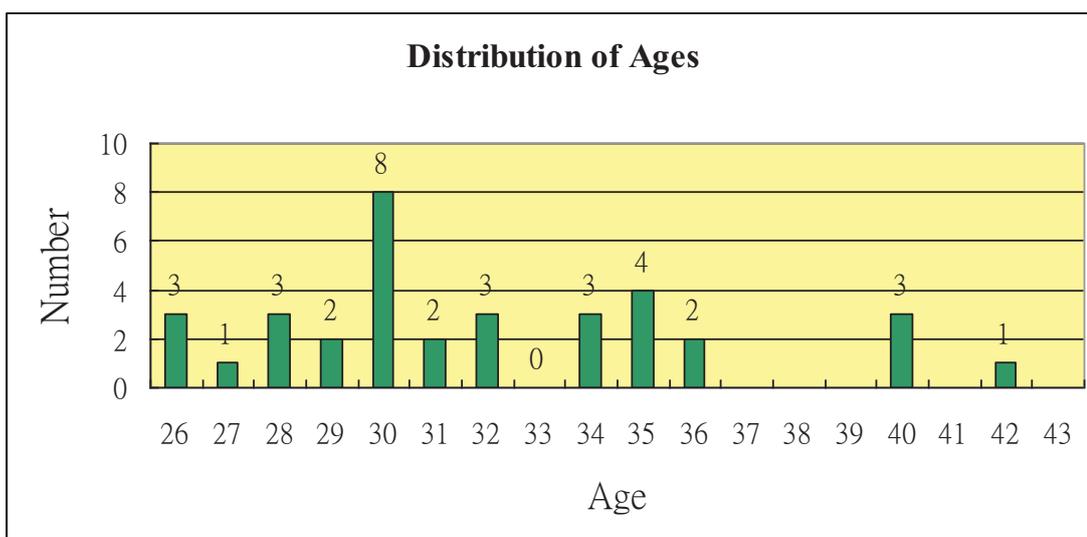


Figure 1: Distribution of Ages

### 3.1.2 Materials<sup>1</sup>

There are 53 sentences containing words with /m/ sounds totaling 126 tokens. The /m/ sound may occur in the onset or coda positions within these words. The sources of these sentences are from my originality and pronunciation textbooks including English Pronunciation in Use, Pronunciation Plus and Clear Speech.

#### *Recording and Measurement*

The recording process is carried out in a language lab in Southern Taiwan University of Technology. Each student is given plenty of time to do the reading and recording with an individual recording machine. They are also given specific instruction that they have to read the sentences without hesitation and their reading fluency is the priority in the recording. The recording of the students are later listened and analyzed by the researcher. Since there are 35 participants who read 53 sentences which contain 126 /m/ sounds, the total tokens analyzed are 4410 (35\*126=4410).

#### *Results*

The number and percentage of error produced by the participants are shown in the following tables.

Table 1: Erroneous Production of /n/ Instead of Correct Production of /m/

Word Position of Token & Percentage of /m/	Sentence Initial		Sentence Medial		Sentence Final	
	Onset 6*35=210 (Tokens in total)	Coda 7*35=245 (Tokens in total)	Onset 53*35=1855 (Tokens in total)	Coda 35*35=1225 (Tokens in total)	Onset 15*35=525 (Tokens in total)	Coda 9*35=315 (Tokens in total)
Token of Error	0	37	0	181	0	28
Percentage of Error	0	15.10	0	14.78	0	8.89
Total Count of Errors	Onset: 0 token 0% Coda: 246 tokens 13.78 % (246÷1785=0.1378)					

<sup>1</sup> Refer to Appendix A

In this table, none of the participants pronounce /n/ instead of /m/ when the /m/ sound appears in the onset position, regardless of the word position in the sentences. On the contrary, when /m/ sound appears in the coda position of the word, errors abound. There are 246 tokens of error and that take up 13.78 % of the total count of /m/ sound in coda position regardless of the positions of the word in the sentences.

### *Discussion*

Before moving on to the discussion section, findings from the experiment are summarized as the following.

- A. When /m/ sound appears in the onset position, participants do not erroneously pronounce it as /n/ sound.
- B. When /m/ sound appears in the coda position of the words (regardless of the position of the word in the sentence), participants tend to mistakenly pronounce it as /n/ sound.

The constraints involved in the process of producing /n/ instead of /m/, the correct pronunciation, are firstly listed below and then shown in the tableau.

1. MAX-IO  
Input segments must have output correspondents.
2. Two-level well-formedness  
If an input segment S is [ $\alpha$  round], then its output correspondent S' must be [ $\alpha$  round] and stand in an initial syllable.
4. Universal ranking for markedness constraints governing place of articulation \*[lab] >> \*[cor]
5. Ident-IO (Place)  
The specification for place of articulation of an input segment must be preserved in its output correspondent.

Table 2: The Ranking of Constraints Which Leads to the Pronunciation of /n/ instead of /m/ in Coda Position in the speech of Native Taiwanese English Learners—Unmarkedness prevails over Faithfulness constraint

/mam/	MAX-IO	Ident-IO (lab,[ $\sigma$ ])	*[lab]	*[cor]	Ident-IO (Place)
a. mam			**		
b. ma	*				
c. am	*				
d. nan		*			

e. na	*				
f. an	*				
☞ g. man			*		
h. nam		*			

First of all, MAX-IO, a faithfulness constraint, requires that input segments must have output correspondents. Thus, candidate b, c, e, and f are disqualified and are marked with a “\*” for each violation. As for the second faithfulness constraint “Ident-IO (Place, [σ])”, which requires that the place feature of the initial segment of each syllable in the input should have the same place feature in the output in the same position, candidates d and h are expelled under this constraint. Last but not least is the markedness constraints of “\*[lab] and \*[cor]”. It is a universal phenomenon that [lab] is more marked than [cor], so due to the higher positioned “\*[lab] >> \*[cor]” constraint than the faithfulness Ident-IO (Place) constraint, we derive the most optimal candidate “/man/”. Though the last constraint “Ident-IO (Place)”, a faithfulness constraint, can ensure the total correspondence between the input and the output segments, the ranking of this constraint is too low to influence the outcome. Thus, this table explains why many of the participants in this experiment erroneously pronouncing /n/ instead of /m/ in the coda position in a constant fashion at their interlanguage stage.

Throughout the interlanguage continuum, with much effort in practicing the coda /m/ sound, these participants may eventually overcome the markedness feature of the /m/ sound in the coda position and eventually they may correctly pronounce it in a stable fashion. When they proceed to this stage, the ranking of the constraints will be different from the above table and a new ranking of the constraints is shown table 3.

Table 3: The Ranking of Constraints Which Leads to the Correct Pronunciation of /m/ in both Onset and Coda Position of Native Taiwanese English Learners

/mam/	MAX-IO	Ident-IO (lab,[σ])	Ident-IO (Place)	*[lab]	*[cor]
☞ a. mam				**	
b. ma	*				
c. am	*				
d. nan		*			
e. na	*				
f. an	*				
g. man			*		

h. nam		*			
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In this table, the ranking of the faithfulness constraint “Ident-IO (Place)” has advanced to a position higher than the markedness constraint “\*[lab] >> \*[cor]”. Hence, the optimal candidate, according to this new ranking, is “a. mam” which is what native English speakers would pronounce for the word “mom”. In a word, when native Taiwanese English learners conquer the natural force of the more easily pronounced unmarked /n/ sound and stick to the /m/ sound under the faithfulness constraint of “Ident-IO (Place)” when the /m/ sound appears in the coda position, they will pronounce the /m/ sound in the coda position without any difficulty and sound more native like.

#### 4. Summary

Though Eckman (1981), Larsen-Freeman & Long (1991), Major (1999) and other linguists all consent to the interfering and facilitating effects of L1 over L2, CLH and CAH are still short of providing any solid explaining for some language learning problems -- such as the mispronunciation of /n/ instead of /m/ when /m/ appears in coda position of a syllable. In this study, I succinctly account for this pattern of performance error within the realm of Optimality Theory and a tentative ranking of constraints which leads to this error is also provided. The constraints which play a part in the ranking are first of all, markedness constraint: \*[lab] >> \*[cor] and secondly, faithfulness constraints: (1) MAX-IO (2) Two-level well-formedness and (3) Ident-IO (place). Throughout the continuum of the L2 learners’ interlanguage, at some point, fossilization may take place and the L2 learners may not be able to reach a stable state of pronouncing /m/ correctly when it takes place in the coda position. When this happens, the ranking of the constraints will fossilize as well and it will appear as the above second table shows. Nevertheless, if extra practice of coda /m/ sound has been done before the fossilization takes effect, the ranking of constraints may proceed from the second table to the third one. Consequently, the error of pronouncing /n/ as /m/ in coda position of a syllable will perish in native Taiwanese English learners’ speech performance.

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## Appendixes

### A: Reading List

Please read the following sentences and record them.

1. I'm \_\_\_\_\_years old and I'm a student in Southern Taiwan University of Technology.
2. My name is \_\_\_\_\_.
3. My student number is \_\_\_\_\_.
4. Mum made me move my models.
5. There was no one on the moon on the ninth of June.
6. My friend likes Robin Banks.
7. Tom ran yesterday.
8. She had a swim in the garden.
9. The son warned me.
10. Mary likes window-shopping.
11. Her name is Nancy and she's gardening.
12. Listening to music is a lot more fun than cleaning the bathroom.
13. Living room is the place where we watch TV.
14. Linda combs her hair 100 times every single night.
15. Do you know where the washing machine is?
16. The alarm clock is set at six o'clock in the morning.
17. The blanket can keep you warm at night.
18. Jim is a student who comes from Canada.
19. Tom may not be able to come to the moon-festival.
20. Would you like to have some more milk?
21. Jim is here in Taiwan for more than nine months.
22. Can you tell me what time it is?
23. Sam and I will go to the movie theater to see a great film named "Mummy".
24. I miss the feeling of eating ice cream in the summer.
25. Since it is raining so hard, Tom may already go home.
26. Turn the alarm off!
27. The noise is killing me.
28. Sunny came much later because she missed the train.
29. I need to rent a room with a bathroom.
30. He needs more money to buy a diamond ring.
31. The sun was shining a minute ago, and now it's raining hard.
32. Look, Mom.

33. Those men are selling umbrellas.
  34. They are the same men who climbed the mountains with us yesterday morning.
  35. I am sorry to let you down, Dad.
  36. Timmy got down on his knees to ask Marian to marry him.
  37. He has millions of dollars to spend.
  38. The two of them live happily ever after.
  39. Small children enjoy watching Mickey Mouse on TV.
  40. Does your mother tell you bedtime stories when you were growing up?
  41. Kenny works in the department store.
  42. It sounds like somebody is crying.
  43. I lost the money Mommy gave me for the medicine.
  44. What is your home phone number?
  45. Sorry, ma'am.
  46. I have the wrong number.
  47. We'll meet at the same time and the same place.
  48. Do you like romantic movies?
- A: (49) I met a man near the monument this morning. (50) He was a singer and he sang a song for me. (51) I'll always remember that magic moment. (52) Like something out of a dream!
- B: (53) What, is that the moment, the monument or the man you meant?

# **Building temporal structure: Adverbs and times\***

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## **Abstract**

It is suggested that finite clauses in any language contain a number of obligatory and several optional time intervals. The paper explores the source of these time intervals, arguing that functional heads, aspectual operators and certain adverbs can all introduce specific times in a clause. Some types of time intervals can be iterated; this is suggested to follow from the iterability of adverbs, but not that of functional heads or operators. The adverbs relevant to time intervals are counting adverbs. The paper proposes a taxonomy for these adverbs and discusses how the adverbs are related to the time intervals present in a clause.

**Keywords:** times, clause structure, adverbs, operators, iteration

## **1. Introduction**

The paper addresses the following basic questions: (a) What time intervals can be identified in a finite clause? and (b) How are time intervals and counting adverbs (multiplicatives, frequency adverbs and adverbs of quantification) related? The answer to the first question helps to pinpoint the relevance of time in clauses and the distinct interpretations of those predicates that apply to the time intervals in question. The answer to the second question specifies the relation of counting adverbs on the one hand and multiplicity of situations, which are required by these adverbs, on the other. It also makes explicit the precise interpretation of the time interval which cooccurs with the counting adverb in question.

The main claims put forward in this paper are as follows. Clauses – specifically, finite clauses – have an articulated structure of time intervals, with the intervals

appearing at specific positions in the clausal skeleton. The times are introduced by distinct elements in the structure, a difference which accounts for the interpretation and the obligatory or optional nature of these intervals. Turning to the adverbs which interact with times, it is argued that counting adverbs do not behave as a homogeneous group; rather, three subgroups must be distinguished among these adverbs (multiplicatives, frequency adverbs and adverbs of quantification). Members of these groups of adverbs can differ, among others, in the temporal interpretation resulting after adverbial modification and in the specific requirements on time intervals or the availability of multiple events. Finally, counting adverbs – in contrast with other constituents which are capable of introducing time intervals – can yield the iteration of times, where a clause contains more than one time interval of a specific type.

In the following discussion, the term *event description* is reserved for the description of a single, non-iterated event or state. This description may be complex itself, if it contains causation or a distinct result subevent. The term *situation description*, in contrast, is used for all predicates of times, including iterative and habitual descriptions. The paper is structured as follows. Section 2 presents the basic assumptions concerning time intervals, the elements introducing these times and the structural position of times. Section 3 presents arguments for the distinctions among counting adverbs. Section 4 discusses the possibility of adverb iteration and the ordering of adverbs. Section 5 concludes the paper.

## 2. Time intervals

A finite root clause must contain at least three time intervals, and may contain a number of additional times. Taking Reichenbach 1947 and Klein 1994 as a departure point, the obligatory times are the *event time* (the runtime of the eventuality); the *topic time* or *reference time* (the time under discussion) and the *speech time* (the time of utterance).

The three times are normally distinct, with the relation between time intervals captured as precedence or containment. The speech time, which is instantaneous or atomic, is preceded by the topic time if the time interval under discussion is located in the past. The topic time is contained by the event time in an imperfective or progressive situation description; in this case, the situation has not culminated within the time under discussion, and it may or may not have culminated at a later time. This order of times is found in (1), for example:

(1) Zed was reading the book

In addition to these obligatory times, a number of optional time intervals can also be present in a clause. These include the following:

(2) a. Result time

The time interval during which the result state of a culminated situation holds

b. Iterative time

The time during which iteration (of a type of situation) occurs

c. Habitual time

The time during which a type of situation habitually obtains

d. Perfect time

The time interval between the times determined by tense (right boundary) and an overt or covert adverb (left boundary) (Iatridou et al. 2001, a.o.)

e. Modal time

The time during which modal evaluation obtains (Zagona 1990, Stowell 2004)

The differences in the interpretation of the time intervals are illustrated in the following paradigm. The paradigm exploits the fact that the predicates applying to the times can be homogeneous, and thus the times can be modified by a durative *for*-adverb. The *for*-adverbs measure distinct times in the following examples.

(3) a. (speech time; deictic, does not allow modification)

b. Zed could have escaped *for two hours* (modal time)

c. Zed has lived here *for fifty years* (perfect time)

d. Zed was writing that letter *for half an hour* (topic time)

e. Zed drank *for fifty years* (habitual time)

f. Zed coughed *for ten minutes* (iterative time)

g. Zed wrote *for two hours* (event time)

h. Zed opened the window *for an hour* (result time)

The speech time is the only time interval which does not permit *for*-adverb modification, or any type of modification, for that matter. This restriction follows from the deictic nature of the speech time; deictic expressions resist modification, in general (cf. Hornstein 1990).

Given that *for*-adverbs can measure almost all time intervals, durative adverb modification cannot be taken to diagnose (a)telicity by itself. It must be specified what predicate or what time interval homogeneity is defined for. Similarly, homogeneity itself cannot be taken to be a defining property of event descriptions only, since the property of homogeneity can be defined (among others) for any predicate that applies to a time interval.

The constituent that introduces the time intervals (more precisely, the constituent which requires a time interval argument) can be different for the time interval types noted above. The obligatory times are arguments of constituents that are obligatorily present in the structure: the speech time is an argument of T and the topic time is an argument of the Asp head, which encodes viewpoint aspect. The event time is the argument of the event predicate, usually a verb. The result time is not necessarily present; it appears in the structure whenever the event structure contains a result subevent.

The other times are introduced by constituents which are optionally present in the clausal structure. The functional head Mod, which encodes modality, takes the modal time as argument, and the perfect time is an argument of the Perfect head. The iterative and the habitual times can be introduced by an appropriate aspectual operator, ITER or HAB, which introduce the iterative and habitual interpretation, respectively.

The relative position of the appropriate functional heads largely determines the distribution of the time intervals; the time interval local to the argument-taking head receives the appropriate interpretation. The position of functional heads does not account, however, for the placement of the event, result, iterative and habitual times. Let us assume that the event time is an argument inside a verbal (or other predicative) projection and that the result subevent is a predicate contained inside the event predicate (with the result time being an argument local to the result subevent). The iterative and habitual operators appear above the event predicate and below AspP, with the habitual operator appearing in higher position. This yields the following hierarchy for time intervals:

- (4) [ ... [ speech time [ modal time [ perfect time [ topic time [ habitual time  
[iterative time [ event time [ result time ]]]]]]]]]

On the assumption that modification is local, the hierarchy of times predicts that if two or more time intervals are modified, then the relative position of the modifiers will correspond to the time interval hierarchy. This prediction is briefly explored in section 4.

In addition to the predicates, functional heads and operators noted above, certain adverbs can also introduce time intervals. Counting adverbs are sometimes characterized this way (cf. van Geenhoven 2004, 2005 for a comparable characterization of frequency adverbs). The following section explores the group of frequency adverbs; in addition to a taxonomy of these adverbs, their interaction with time intervals is also discussed.

### 3. Counting adverbs

Counting adverbs<sup>1</sup> appear with multiple situations of some type. Since there are several situations involved, the time interval where they occur is distinct from the event time. Consider (5):

(5) Zed coughed twice

The event time is the time of a single coughing event; there are (at least) two events of this type. The time during which Zed coughed twice is distinct from the event time, and contains both event time intervals.

Counting adverbs are all tied to time intervals. Section 3.1 presents a taxonomy of these adverbs and addresses their relation to times. Section 3.2 considers some previous proposals and argues that some of the characterizations proposed earlier cannot be upheld.

#### 3.1 Taxonomy of counting adverbs

As noted above, three groups must be distinguished among counting adverbs (cf. Csirmaz (submitted a, b) and also Csirmaz (submitted c) for a slightly different position). The three adverb classes are the following:

- (6) a. Multiplicatives (*twice, five times, many times*)
- b. Frequency adverbs (*frequently, rarely, daily*)
- c. Adverbs of quantification (*often, always, sometimes*)

*Multiplicatives* specify the cardinality of situations. These adverbs introduce iterative time. Accordingly, the time during which the complex situation of *Fred cough twice* in (5) holds is the iterative time (cf. section 4 for discussion).

It is the adverb itself that introduces the iterative time, and it does not modify a situation description that is iterated (\*multiplicative (ITER [event])). The claim that multiplicatives introduce, but do not require iterativity or multiplicity of situations is supported by the following examples.

The semelfactive verbs *nod* and *wink* express unique, non-iterated events (an iterative interpretation is available with the imperfective form (cf. *Zed was nodding / winking*)). While a unique event interpretation is the only possible reading in absence of a multiplicative or a counting adverb, a multiplicative is possible, and it requires multiple events of the cardinality specified:

- (7) a. Zed nodded / winked  
 (once / \*multiple times)  
 b. Zed nodded / winked twice

The same state of affairs holds in Hungarian. If a verb has a semelfactive suffix, as in (8a), then the description can refer to a single event only. However, if a multiplicative is present, then in spite of the presence of the semelfactive suffix, multiple situations are possible; there are as many situations as specified by the adverb.

- (8) a. *Zed*            *ból-int-ott*  
 Z-NOM    nod-SEMELFACTIVE-PAST,3SG  
 “Zed nodded once / \*multiple times”  
 b. *Zed*            *kétszer / többször*            *ból-int-ott*  
 Z-NOM    twice    many.times    nod-SEMELFACTIVE-PAST,3SG  
 “Zed nodded twice / many times”

*Frequency adverbs*, as the term suggests, specify the frequency of situations within a given time interval. Given this characterization, it is apparent that in addition to the event time, another time interval must be present, which is the time for which the frequency is specified.

Frequency adverbs can be distinguished according to whether the frequency is relative to a contextually determined standard (e.g. *frequently*) or is defined in terms of an absolute time interval (e.g. *daily*). Stump 1985 labels the two kinds of adverbs *relative* and *fixed frequency adverbs*, respectively. This distinction, since it does not play a role in the issues discussed in this paper, is ignored in the following discussion.

As noted above, frequency adverbs require a time interval argument, the time for which the frequency is determined. Languages show variability, however, in whether the adverb itself can introduce iteration, or whether it requires an event description which can denote multiple events. In English a frequency can introduce iteration, thus it can specify the frequency of a nodding or winking event. The additional contexts in (9b-d) highlight the episodic, non-habitual interpretation.

- (9) a. Zed nodded / winked frequently  
 b. Zed nodded frequently in agreement as Fred lectured  
 c. He nodded frequently and his face seemed contemplative  
 d. He looked in their direction and winked frequently

In contrast with English, Hungarian frequency adverbs do not yield multiple events. Given a verb with a semelfactive suffix, frequency adverb modification is impossible (10a). These adverbs become grammatical, though, if the verb bears an iterative suffix (10b); such a verb form denotes multiple, iterated events.

- (10) a. ??Zed            *sűrűn*            *ból-int-ott*  
           Z-NOM    frequently    nod-SEMELFACTIVE-PAST,3SG  
           “Zed nodded frequently”
- b. Zed            *sűrűn*            *ból-ogat-ott*  
       Z-NOM    frequently    nod-ITERATIVE-PAST,3SG  
       “Zed nodded frequently' / 'Zed was nodding frequently”

The markedness of frequency adverbs does not extend to quantificational expressions which contain a universal quantifier. The Hungarian quantificational *minden órákor* 'at every hour' or *minden órában* '(once) in every hour' is grammatical with a semelfactive verb:

- (11) Zed        ??*óránként* / *minden óra-kor* /        *minden órá-ban*  
       Z-NOM    hourly        every        hour-AT    every    hour-IN  
       *ból-int-ott*  
       nod-SEMELFACTIVE-PAST,3SG  
       “Zed nodded hourly / once every hour”

The lack of multiple event interpretations is thus due to the fact that in Hungarian, frequency adverbs do not introduce iteration. This contradicts the assumption that frequency adverbs are pluractional operators (cf van Geenhoven 2004, 2005 and section 3.2), since pluractional operators yield multiple entities – in this case, multiple events.

The third group, that of *adverbs of quantification*, includes adverbs such as *often* and *always*. These adverbs quantify over situations, and have a time interval restrictor which is usually covert.

This characterization of adverbs of quantification excludes proportional readings (cf. Swart 1993, for example), which are ignored here. Since proportional readings are not considered, several interpretations of sentences containing an adverb of quantification are disregarded. For instance, one of the interpretations of (12a) not discussed in given in (12b). It is only the reading in (12c) which is relevant for the present discussion.

- (12) a. Zed often drank mango juice  
       b. The proportion of situations of Zed drinking mango juice and of situations of Zed drinking (any kind of liquid) is higher than a contextually determined number  
       c. The number of situations of Zed drinking mango juice is higher than a contextually determined number

Adverbs of quantification can introduce iteration. Accordingly, these adverbs are grammatical in the following English example:

(13) Zed often nodded / winked (when ...)

Adverbs of quantification can also yield multiple events in Hungarian. Accordingly, these adverbs are grammatical with a semelfactive verb; what occurs often is the event of Zed nodding once ((14a), cf. (8), (10)). Naturally, an iterative suffix is also acceptable (14b); in this case it is the event of nodding several times which occurs often.

- (14) a. *Zed gyakran b6l-int-ott*  
Z-NOM often nod-SEMELFACTIVE-PAST,3SG  
“Zed often nodded (once)”
- b. *Zed gyakran b6l-ogat-ott*  
Z-NOM often nod-ITERATIVE-PAST,3SG  
“Zed often nodded (several times)”

The three adverb types, as shown above, can differ in whether they can introduce iteration. In addition to this difference, and a contrast in the time interval introduced (cf section 4), there are other properties which distinguish the groups of counting adverbs. For instance, adverbs of quantification can appear with individual-level predicates, but frequency adverbs are ungrammatical.

(15) Germans are often / \*frequently tall

This contrast follows from the time interval requirement of frequency adverbs; recall that these adverbs specify frequency within a time interval (cf Csirmaz (submitted c) for a more detailed discussion).

While a number of properties distinguish the groups of counting adverbs (discussed in more detail in Csirmaz (submitted a, b, c)), there are properties that were argued to be distinguishing characteristics, but fail to discriminate between the adverbs. Some of these properties are discussed below.

### 3.2 *Earlier characterizations*

Previously, van Geenhoven 2004, 2005 and Jóhannsdóttir 2005, 2007 have argued for a strict distinction between frequency adverbs and adverbs of quantification. In support of the distinction, they presented characterizations and test batteries (especially Jóhannsdóttir 2005, 2007). This section addresses some of these properties, showing that they fail to distinguish these groups of adverbs reliably.

The following characterizations are offered by either van Geenhoven or Jóhannsdóttir:

- (16) a. Frequency adverbs  
 Affect the event time  
 Can affect homogeneity (diagnosed by *for*-adverbs)  
 Are pluractional operators
- b. Adverbs of quantification  
 Affect the topic time  
 Cannot affect homogeneity

In support of the difference with respect to homogeneity, van Geenhoven 2005 and Jóhannsóttir 2005, 2007 offer the following examples:

- (17) Frequency adverbs (in the scope of a *for*-adverb)
- a. John was constantly discovering fleas on his dog for a whole month
- b. Joe discovered a flea on his dog every now and then for a month
- (18) Adverbs of quantification (cannot be in the scope of a *for*-adverb)
- a. \*John was often finding fleas on his dog for a whole month
- b. \*Mary always / usually discovered a flea on her dog for a month

Given the observation that all time intervals except for the speech time can be modified by a *for*-adverb (cf. section 2), and the fact that *always*, and arguably *often* and *usually* yield homogeneous predicates of times, it is unexpected that *for*-adverbs are ungrammatical in (18).

In fact, adverbs of quantification can yield homogeneity, as shown below:

- (19) For a (whole) month, Mary often / always discovered a flea on her dog  
 (when she checked)

A clause-initial *for*-adverb is acceptable, in contrast with the reported judgment for the clause-final *for*-adverb in (18). The preferred topicalization of the *for*-adverb licensed by adverbs of quantification is not addressed here.

(19) shows that adverbs of quantification can license homogeneity, as shown by the acceptability of the *for*-adverb. Concerning the position of the durative adverb, consider *for*-adverbs licensed by negation. Speakers vary in whether they prefer a topicalized or a clause-final position, but crucially, *for*-adverbs are licensed in at least one of these positions.

- (20) a. % Zed didn't finish the picture for two hours  
 b. % For two hours, Zed didn't finish the picture

If homogeneity is not licensed, then *for*-adverbs remain ungrammatical whether topicalized or clause-final (a possible result time modification of the *for*-adverb is ignored here):

- (21) (\*For two hours,) Zed finished the picture (\*for two hours)

Given that topicalized *for*-adverbs are acceptable with (some) adverbs of quantification, these adverbs can license homogeneity, contrary to (16).

Concerning pluractionality, van Geenhoven 2004, 2005 argues that frequency adverbs are pluractional operators. Recall from section 3.1 that this fails to hold for Hungarian, for instance: frequency adverbs cannot yield a description of multiple events on their own. Furthermore, it is more generally true that frequency adverbs cannot yield iteration for unique, once-only descriptions.

Consider (22), which van Geenhoven 2004 offers in support of the claim that frequency adverbs are pluractional operators.

- (22) a. Jim hit a golf ball into the lake for an hour  
(same golf ball; # different golf balls)
- b. Jim hit a golf ball into the lake *every five minutes* for an hour  
(same golf ball; different golf balls)

The *for*-adverb enforces an iterative interpretation (an interpretation that is available with the predicate *hit*), since (22a) would otherwise not contain a homogeneous predicate of times. In (22a) the iteration fails to have wide scope over the indefinite *a golf ball*; the resulting interpretation is that the same golf ball is hit into the lake repeatedly. The universally quantified expression *every five minutes* can take scope over the indefinite; thus an additional reading is available, where each hitting event involves a different golf ball. Based on these examples, van Geenhoven concludes that frequency adverbs are pluractional operators, and can yield multiple participants denoted by an indefinite expression.

Note, however, that it is a universally quantified expression which has wide scope over the indefinite in (22b). A frequency adverb, as in (23), does not allow the same interpretation (also cf (11)):

- (23) Jim hit a golf ball *frequently* into the lake for an hour  
(same golf ball; # different golf balls)

The adverb *frequently* can introduce iterative interpretation in some languages, as shown above in (9) for English. It cannot, however, take scope over an indefinite – an observation that also accounts for the markedness of (15), where the frequency adverb cannot scope over the subject. In this respect, *frequently* behaves similarly to the operator ITER, which can also introduce interpretation, but does not permit scope over an indefinite. ITER is present in (22a), for example; yielding iterative interpretation but taking narrow scope.

In sum, frequency adverbs can introduce iteration in some languages (e.g. English), but not in others (e.g. Hungarian). Even in the former languages, they do not take wide scope over indefinite arguments, contrary to the conclusions reached by van Geenhoven.

Finally, let us consider the times affected by the adverbs. Van Geenhoven 2005 suggests that frequency adverbs affect (operate on) the event time, and adverbs of quantification affect the topic time. It is not clear, however, that this is the case.

First, note that frequency adverbs can denote the frequency of either the event (24a) or that of a complex event involving iteration (24b). In other words, frequency adverbs can affect either of these two times.

- (24) a. Zed frequently arrived late
- b. Zed frequently knocked twice

There is a similar difference in the interpretation of adverbs of quantification. These adverbs specify the quantity of either simple events (25a) or that of iterated events (25b, c).

- (25) a. Zed often arrived late
- b. Zed often knocked twice
- c. Zed always spoke frequently (in class)

While the topic time can be argued to be related to the appropriate time interval in (25), and so yield the desired interpretation, the view that the adverbs operate on the topic time faces a considerable problem given (26).

- (26) Zed always interrupted often

Since adverbs of quantification can be iterated, it cannot be maintained that they affect the topic time, which is, by definition, the time interval that is ordered by tense with respect to the speech time. Only one such interval can exist; thus adverbs of quantification do not affect the topic time. Let us assume, given lack of evidence to the contrary, that these adverbs affect either the event time or the iterative time, just as frequency adverbs do.

With the range of time intervals and the basic properties of counting adverbs given, the next section considers the time intervals introduced by counting adverbs. The section also considers the ordering and possible iteration of these adverbs.

## 4. Times, adverb iteration and ordering

### 4.1 Time intervals and iteration

Among the time intervals identified in section 2, several can occur at most once within a clause. The speech time, as well as the topic, modal and perfect times are introduced by a functional head (T, Asp, Mod and Perf, respectively), which cannot be iterated. The result time is the time interval to which the result subevent is mapped. In a complex event description, there is a unique result subevent, and thus only one time interval that corresponds to this subevent. Finally, the time interval that the maximal (possibly complex) event description maps to is the event time. Again, as there is only one maximal event description, only one event time is possible.

Two other time intervals remain: the iterative and the habitual times. If these times are introduced by a covert operator, ITER and HAB, then no iteration is possible, a restriction which may be tied to recoverability. Accordingly, (27a) has four different interpretations – a semelfactive interpretation (27b), one with ITER (27c), HAB (27d), and ITER as well as HAB (27e). Iterations of either ITER or HAB are impossible (27f,g).

- (27) a. Zed jumped  
b. Zed jumped once  
c. Zed jumped multiple times (ITER)  
d. Zed jumped habitually (HAB)  
e. Zed jumped habitually, on each occasion multiple times (HAB (ITER))  
f. \*Zed jumped repeatedly, each time multiple times (ITER (ITER))  
g. \*Zed had the habit of jumping habitually (HAB (HAB))

The iterative and habitual times can be iterated, however, with counting adverbs. If there are multiple adverbs present which introduce time intervals with the same interpretation, then a single clause may contain more than one iterative or habitual time.<sup>2</sup>

One prerequisite of iteration is a coercion operation. All counting adverbs modify countable, non-homogeneous entities. A complex structure, which is modified by an adverb, may be non-countable, however. For instance, *Zed was late* or *Zed was often late* are both non-countable. In order for a counting adverb to modify these descriptions, a coercion operation must yield a countable interpretation for them.

Coercion operations aside, all counting adverbs may be iterated, as the following examples show for multiplicatives (28a), frequency adverbs (28b) and adverbs of

quantification (28c) (cf Ernst 2004 on the iteration of similar adverbs, and Cinque 1999, 2004, who restricts iteration to at most two adverbs of the same type).

- (28) a. Zed knocked twice three times on my door  
b. Zed frequently wrote to his cousin regularly  
c. The modem light usually always flickers

Counting adverbs appear along with a time interval. All counting adverbs can appear with iterative time. Alternatively, both frequency adverbs and adverbs of quantification (but not multiplicatives) can appear with habitual time. The iteration of counting adverbs can thus yield multiple iterative or habitual times within a given clause.

On the assumption that episodic events, which transpire within a short period, cannot be habitual descriptions, all adverbs in (29) appear with iterative rather than habitual time.

- (29) a. Zed frequently / often coughed yesterday  
b. Zed coughed twice yesterday

Both frequency adverbs and adverbs of quantification can introduce a habitual time, where the complex situation description characterizes a custom which recurs habitually over a(n appropriately long) time span:

- (30) a. Zed often ate a sandwich around four  
b. Zed frequently drank mango juice

In contrast, multiplicatives do not introduce a habitual time. (31) cannot describe a custom. If a habitual interpretation is enforced, then it is a situation of Zed drinking mango juice twice that recurs habitually. This contrasts with (30), where the habitually occurring situation is that of drinking mango juice, rather than that of drinking mango juice frequently of eating a sandwich often.

- (31) Zed drank mango juice twice

Assuming that these observations are correct, iterated counting adverbs can yield multiple iterative (and arguably multiple habitual) times. Coupled with the observations at the beginning of this section, it is only multiple counting adverbs which can introduce more than one time interval of a certain type.

#### 4.2 *Adverb ordering*

A clause can contain counting adverbs of different types, and also multiple tokens of a single type of counting adverb. The interpretation with multiple adverbs follows straightforwardly from the scope relations:

- (32) a. Zed often always drinks mango juice  
 = There is a period  $t$  during which there are many subintervals  $t'$  of  $t$  such that at all (relevant) subintervals of  $t'$  there is a situation of Zed drinking mango juice (often > always)
- b. Zed always drinks mango juice often  
 = There is a period  $t$  such that at all (relevant) subintervals  $t'$  of  $t$  there are many situations of Zed drinking mango juice (always > often)

The linear ordering of counting adverbs varies across languages. The variation is expected to arise because of two reasons. Coercion operations which yield the non-homogeneous descriptions required by these adverbs may not be equally available, but can vary across languages. In addition, languages impose varying constraints on the scope and the syntactic / linear position of adverbs.

As a case in point, consider (33). On the natural interpretation *daily* has wide scope, requiring a patient to take two capsules every day (daily > 2), rather than going through two regimens of taking a capsule daily for a certain number of days (2 > daily). With postverbal adverbs, English has rigid inverse scope, hence the contrast between (33a, b).

- (33) a. Take one capsule twice daily  
 b. ?? Take one capsule daily twice

In Hungarian, postverbal constituents have either surface or inverse scope (cf. Csirmaz (submitted a), É. Kiss (submitted)). This general property makes the natural interpretation available with either ordering of *naponta* 'daily' and *kétszer* 'twice':<sup>3</sup>

- (34) a. *EGY KAPSZULÁT kell be venni naponta kétszer*  
 one capsule-ACC must in take-INF daily twice  
 "It is a capsule that must be taken twice daily" (daily > 2)
- b. *EGY KAPSZULÁT kell be venni kétszer naponta*  
 one capsule-ACC must in take-INF twice daily  
 "It is a capsule that must be taken twice daily" (daily > 2)

The present approach makes it possible to treat the ordering of counting adverbs without appealing to restrictions specific to the adverbs. The relative order of these adverbs partially follows from independent, general considerations of ordering and scope in the given language. It is also expected that adverb ordering correlates with the time intervals that are introduced by the adverbs.

This prediction is corroborated by (35), taken to describe a habit, where there are few bouts of Zed complaining frequently. *Frequently* introduces an iterative time, and *seldom*, a habitual time, which is structurally higher than an iterative time. The ordering

between the two adverbs is fixed; *seldom* linearly precedes *frequently*:

- (35) a. Zed seldom complained frequently  
b. ?? Zed frequently seldom complained  
?? Zed frequently complained seldom

The issue of possible orderings and interpretations is not exhausted by these examples, but the observations point to the tentative conclusion noted above: the position (and ordering) of counting adverbs falls out from independent facts about syntactic structure and of the language in question.

## 5. Conclusion

The paper sketched an inventory of time intervals which can be present in a clause. In addition to the time intervals themselves, the position and source of these times was also considered. Counting adverbs (multiplicatives, frequency adverbs and adverbs of quantification) were argued to show diverging behavior. The adverbs differ in a number of properties, including the possibility of yielding (rather than requiring) multiple events. Multiplicatives and adverbs of quantification can introduce iteration of an event themselves, but frequency adverbs select iterated events in some languages, rather than introducing iteration themselves. In addition, counting adverbs differ in the time interval of which the complex description is predicated. Differences aside, situation descriptions with a counting adverb can be predicated of an iterative or a habitual time. It was suggested that these adverbs are the only source of time interval iteration, where a clause contains more than one time interval of a specific kind.

## Notes

\* The present paper builds on earlier discussions of related issues, which were presented at PLC 32, BLS 34 and CIL and published or submitted as Csirmaz (submitted a, b, c). For comments and discussions, I am indebted to the audience at CIL 18, as well as the audiences at the venues where other takes on this material were presented earlier. In addition, I also acknowledge comments and data supplied by H. Bartos, A. Bene, B. Gyuris, K. É. Kiss, C. Piñón, B. Santorini, and B. Ürögdi. I am alone responsible for any errors.

1 With the exception of *once*, *never* and comparable adverbs.

2 In using the terminology of *introducing a time interval*, I abstract away from the question of whether the adverb introduces the interval (e.g. adverb (x)), or it requires a situation description which contains an operator introducing that time (e.g. adverb (ITER (x))). What is relevant for the present purposes is the time interval that serves as the argument of the (minimal) complex description containing the adverb in question.

3 Capitalization marks focusing in the example; a focused constituent is necessary to ensure the postverbal position for the adverbs in these examples.

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# Aspect shifts in Indo-Aryan

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## Abstract

The grammaticalization literature notes the cross-linguistic robustness of a diachronic pattern involving the aspectual categories resultative, perfect, and perfective. Resultative aspect markers often develop into perfect markers, which then end up as perfect plus perfective markers. We introduce supporting data from the history of Old and Middle Indo-Aryan languages, whose instantiation of this pattern has not been previously noted. We provide a semantic analysis of the resultative, the perfect, and the aspectual category that combines perfect and perfective. Our analysis reveals the change to be a two-step generalization (semantic weakening) from the original resultative meaning.

**Keywords:** Aspect, Grammaticalization, Semantic Change, Indo-Aryan Perfect, Perfective

## 1. Introduction

Large-scale grammaticalization studies have produced a number of typological generalizations about shifts in the meaning of tense-aspect categories characterized by three properties: (a) The categories involved in the shifts are stable across cross-linguistic instantiations; (b) The paths of change are unidirectional; (c) The shifts are uniformly generalizing (Heine et al., 1991; Bybee et al., 1994; Haspelmath, 1999; Dahl, 2000; Traugott and Dasher, 2002; Hopper and Traugott, 2003; Kiparsky, 2005). A well known trajectory is the one in (1).

(1) RESULTATIVE  $\gg$  PERFECT  $\gg$  PERFECTIVE

The morphological marking denoting resultative aspect diachronically generalizes to denote the perfect, including the resultative perfect, and further, to encompass the perfective as well (Dahl 1985, 2000; Bybee et al 1994). Romance languages and Chinese are familiar instantiations of the successive changes in (1). Our own comparative study of distinct diachronic stages in Indo-Aryan, which we document here, reveals that Indo-Aryan also exhibits these two aspect shifts.

The trajectory in (1) naturally gives rise to three questions: What is the semantic content of the resultative, the perfect, and the perfective categories? What logical relation in the meanings of these categories allows the construal of these shifts as generalizations? What is the motivation for the shift from one stage to the next? In this paper we answer the first two of these questions through a close examination of the Indo-Aryan diachronic facts. Our analysis of the meaning of the resultative, the perfect, and the perfective enables an analysis of the diachronic pattern as a two-step generalization (semantic weakening) from the original resultative meaning.

Although the perfect to perfective shift has been taken to involve semantic bleaching with an extension in the range of uses across time (Schwenter, 1994; Schwenter and Cacoullos, 2008; Bybee et al., 1994, a.o.), this extension has not been explicitly treated as a systematic generalization. Specifically, previous accounts are compatible with an ambiguous meaning for the forms that participate in the grammaticalization shift. The precise mechanism which introduces this ambiguity between perfect and perfective meaning is left unspecified. The generalization analysis we propose is the first explicit proposal to our knowledge for the resultative to perfect and perfect to perfective shifts.

In Section 2 we describe the three distinct stages of Indo-Aryan with reference to the changing meaning of an originally (result) stative morphology, *-ta*, and establish that it systematically undergoes the resultative to perfect to perfective shift, a fact gone largely unnoticed in the vast literature on Indo-Aryan. In Section 3 we characterize the meanings of the aspectual operators that are involved in the analysis of *-ta* across the delineated stages. The first diachronic generalization effects a change such that one of the entailments of the resultative, namely that of the prior occurrence of an event of the type denoted by the lexical predicate, becomes part of the meaning of the operator at a later stage (the perfect stage). The second diachronic generalization associates with the aspectual operator a more general relation for instantiating eventuality descriptions within temporal intervals. In Section 4 we discuss the implications of our analysis for theories of language change.

## 2. Indo-Aryan Stages

The Indo-Aryan branch of Indo-European inherited a deverbal result stative adjectival participial form with the affix *-ta* (allomorph *-na*) attached to the verb root. The distribution and interpretation of this form undergoes systematic expansion across the history of Indo-Aryan, instantiating at three historical stages the three points in the trajectory in (1). We establish this by providing original data for the distinct readings available to the *-ta* form at each of these stages and distributional diagnostics, such as presence of overt agents, compatibility with particular temporal adverbials, use in narrative discourse, etc. The three stages of Indo-Aryan are given in (2). The rightmost column gives the texts representative of the delineated periods, from which we extracted the empirical data.

(2) **The Chronology**

TIMELINE	STAGE	LANGUAGE	SOURCE
1900BCE-1100BCE	I	<b>Early Vedic</b>	Ṛgveda (RV)
1000BCE-200BCE	II	<b>Later Vedic</b>	Baudhāyana Dharma Sūtra (BS) Bṛhaddevatā (BD) Bṛhadāranyaka Upaniṣad (BAU)
300 BCE-700CE	III	<b>Middle Indic</b>	Vasudevahimṇi (VH)

(Approximate dates from Witzel (1999); Jamison and Witzel (1992); Alsdorf (1936))<sup>1</sup>

In the earliest stages of Indo-Aryan (Early Vedic), *-ta* always attaches to the root of a change of state verb whose meaning makes reference to a result state. The *-ta* form is a predicate with two distinct but related readings. On the first reading, like English de-verbal adjectival participles, it predicates a stative property corresponding to the verb’s result state of the verb’s direct object argument in both attributive and predicative positions (e.g., *hide x* → *x is hidden*, *hidden x*). Despite the restriction to change of state verbal roots with an associated result state, the *-ta* form does not entail the existence of a prior event of the type denoted by the corresponding verb (just like *x is hidden*, *hidden x*). On the second, resultative reading, the *-ta* form is in a predicative position and the sentence entails the existence of a prior event of the type denoted by the corresponding verb (like *x has been hidden* on the resultative construal of the perfect). It is the second reading that is of primary concern to this paper because, as we view it, it is the one which undergoes the semantic change. The distribution of *-ta* forms on the first reading remains constant throughout. At stage II, *-ta* exhibits the resultative, the existential, and the universal perfect readings, patterning like a regular perfect marker. In stage III, while retaining its resultative, existential, and universal readings, *-ta* is also regularly used in narrative discourse and is compatible with past referring definite frame adverbials giving rise to the implication that the described eventuality occurred within the time specified by the frame adverbial.

(3)

READINGS	Resultative Stage I	Perfect Stage II	Perfective Stage III
Resultative perfect	✓	✓	✓
Existential perfect	∅	✓	✓
Universal perfect	∅	✓	✓
Eventive/Past	∅	∅	✓

Before we move on, let us summarize what the labels we use for the readings amount to, by relating them to the English perfect and perfective.<sup>2</sup> The resultative perfect applies to predicates of events with associated result states and asserts that the relevant state holds at the reference time as a result of an event of the type denoted by the verb having occurred. For instance, *John has put the cake in the oven* implies that the cake is now in the oven as a result of John’s putting it there. The existential perfect applies to predicates of any type and has a backshifting effect: it asserts that the predicate holds at some time before the reference time. For instance, *John has visited Korea many times* implies the past

occurrence of many separate visits to Korea by John. On the universal perfect reading, the predicate is understood to have continuously held throughout an interval stretching from some time in the past up to the reference time, as in *John has lived in Korea for the last three years*. With perfective aspect a predicate is asserted to hold within the reference time. Sentences with perfective aspect are typically used in narrative discourse to advance the reference time, contrasting with the perfect aspect in this respect. Compare *John iced the cake. He (then) went shopping* with #*John has iced the cake. He (then) went/has gone shopping*. The English perfect morphology, unlike the German or French perfect, does not express perfective aspect and cannot be used in narratives (de Swart and Molendijk, 2001; Pancheva and von Stechow, 2004).

## 2.1. Early Vedic: Stage I

### 2.1.1. Plain stative and result-stative readings of *-ta*

Much of the literature on Sanskrit treats *-ta* as used to refer to events occurring in an indefinite or proximate past time (e.g., Whitney 1889: 340, 362; Speijer 1886: 4), or as expressing exclusively the result state of an action (Jamison, 1990), or a completed action whose results persist in the present (e.g., Keith, 1909: 247). We agree with the latter authors that *-ta* does not have a past perfective reading at Stage I (Vedic), but we distinguish between two *stative* readings available to *-ta* – a distinction in use that has already been noticed by Vedic scholars focusing on the temporal and aspectual semantics of the Sanskrit verbal system (Wackernagel, 1954: 583; Delbrück, 1888: 385).<sup>3</sup>

These two readings — the plain stative and the result stative readings — are illustrated below.<sup>4</sup> In (4a), the *-ta* form predicates of the tree the state of being fixed/established in a certain location, and it certainly does not imply any event that resulted in the coming about of this state. (4b) is part of a characterizing description of Maruts (minor storm deities), which enumerates stable attributes of these deities rather than describing a result state obtaining from a prior event. The visors are understood as being in a spread-out position without there being a prior event by which they come to be in such a position. (4c) is an example of a prenominal attributive *-ta* form, derived from the root *su* ‘press’, that agrees in case and number with the head noun it modifies, *soma*.

- (4) a. *kāḥ svid vṛkṣó níṣṭh-ito mādhy-e árṇas-o*  
 Which indeed tree.NOM.SG fix-PERF.M.SG middle-LOC.SG sea-GEN.SG  
*yá-m̄ taugryó nādhī-tāḥ paryáśasvaj-at*  
 which-ACC Taugrya.NOM.SG supplicate-PERF.M.SG cling-IMPF.3.SG  
 ‘Which tree (was it) that *was fixed* in the middle of the sea, to which Taugrya (the son of Tugra), supplicated, was clinging to?’ (RV.1.182.7)
- b. *agníbhṛājas-o vidyút-o gábhastiy-oḥ śípra-h̄*  
 fire.glowing-NOM.PL lightning-NOM.PL hand-LOC.DU visor-NOM.PL  
*śīrśá-su víta-tā hiranyáyi-h̄*  
 head-LOC.PL spread-PERF.M.PL golden-NOM.PL  
 ‘Lightenings glowing with fire are on your hands; visors wrought of gold *are spread* on your heads.’ (RV. 5.54.11)

- c. *indrāvaruṇā sutapāv*                      *imá-m*    **su-tá-m**  
 IV.NOM.DU soma.drinker.NOM.DU this-ACC press-PERF-ACC.M.SG  
*sóma-m*                      *piba-tam*  
 soma-ACC.M.SG drink-IMP.2.DU  
 ‘O Indra and Varuṇa, the pressed-juice (Soma) drinkers, drink this *pressed*  
 Soma.’ (RV 6.68.10a)

The plain stative reading of *-ta* forms contrasts with their result stative reading, asserting the existence of a prior event and the result state it brings about. This is the familiar resultative reading of the perfect aspect, where the result state of the event is understood to hold at the contextually salient reference time. This reading of *-ta* becomes salient in the presence of agentive and instrumental phrases, as well as adverbial modifiers of the underlying eventive predication. In (5a) the three short clauses with *-ta* are understood to describe three events essential to the preparation of the Soma drink and undertaken in order to offer the drink to Indra. In (5b) the result stative reading becomes salient because of the presence of the agentive phrase. In (5c) and (5d) the result stative reading is again made prominent by the presence of the benefactive dative-marked arguments.

- (5) a. *nṛ-bhir*            **dhū-táh**            **su-tó**            *ásnaiḥ*            *áv-yo*  
 man-INS.PL wash-PERF.M.SG press-PERF.M.SG stone-INS.PL wool-GEN.SG  
*vāra-iḥ*            **páripū-taḥ**  
 filter-INS.PL strain-PERF.M.SG  
 ‘It (the Soma) *has been washed* by men, *pressed* with the help of stones,  
*strained* with wool-filters.’ (RV 8.2.2)
- b. *johūtr-o*            *agní-ḥ*            *prathamá-ḥ*    *pitéva*  
 neighing-NOM.SG agni-NOM.SG first-NOM.SG father.NOM.SG like  
*iláspad-e*            *mánuṣ-ā*        *yát*    **sámid-dhaḥ**  
 worship.seat-LOC.SG man-INS.SG PRT kindle-PERF.M.SG  
 ‘Agni, neighing, the first one, like a father, *has been kindled* by man upon the  
 seat of worship.’ (RV. 2.10.1)
- c. *ayám hí*    *te*            *śunáhotre-ṣu*    *sóma*            *indra*            *tvā-yā*  
 this FOC you.GEN.SG S-LOC.PL soma.NOM.SG indra.VOC you-DAT.SG  
**párisik-to**            *mád-āya*  
 sprinkle-PERF.M.SG delight-DAT.SG  
 ‘This Soma juice *has been sprinkled* among the Sunahotras, in love, for your  
 delight, Indra.’ (RV 2.18.6c)
- d. *tú-bhyam*    **su-tó**            *maghavan*        *tú-bhyam*        **ābhṛ-tas**  
 you-DAT.SG, press-PERF.M.SG maghavan-VOC you-DAT.SG offer-PERF.M.SG  
 ‘For you, Maghavan, it (the Soma) *has been pressed*, for you, it *has been*  
*offered*.’ (RV. 2.36.5)

(6) illustrates the two readings of a *-ta* form with the same verbal root *yuj* ‘yoke’. In (6a) the state of being yoked is predicated of the bull and the dolphin (a prior yoking event is inferrable, but arguably not part of the meaning of the sentence.). In (6b) the state of being yoked is understood to be brought about by a prior event of yoking, which is clearly what the adverbial modifier *by means of prayer* is associated with.

- (6) a. *yád áyā-tam divodās-āya vartī-ḥ... revád*  
 when come-IMPF.2.DU D-DAT.SG abode-ACC.SG riches.ACC.SG  
*uvāh-a sacan-ó ráth-o vām vṛṣabhá-ś*  
 carry-PFCT.3.SG good-M.PL chariot-NOM.SG you.GEN.DU bull-NOM.M.SG  
*ca śimśumāra-ś ca yuk-tā*  
 and dolphin-NOM.M.SG and yoke-PERF.M.PL  
 ‘When you (Aśvins) *came* to Divodāsa, (to his) abode, your chariot *carried*  
 rich goods. A bull and a river dolphin *were yoked* to it.’ (RV 1:116:18)
- b. *ātiṣṭha vṛtrahan rátha-m yuk-tā te*  
 mount.IMP.2.SG Vṛtra-slayer.VOC chariot-ACC.SG yoke-PERF.M.DU your  
*bráhman-ā hári*  
 prayer-INS.SG steed.NOM.DU  
 ‘Mount the chariot, O Slayer of Vṛtra (Indra), your steeds *have been yoked* by  
 means of prayer.’ (RV 1:84:3)

### 2.1.2. -ta as the resultative operator

Having established that *-ta* has a result stative reading distinct from the plain stative reading, characteristic of its Indo-European origin as a deverbal adjective, we proceed to show that as an aspectual operator, it has only the result stative reading and not the larger range of readings associated with the more general perfect operator (specifically the existential and the universal perfect readings). This larger range of readings is available to the reduplicated perfect at this stage (Renou 1925; Dahl 2008). Nor does *-ta*, contra most standard grammars, have a perfective reading, with past eventive reference at this stage (contrast with the Aorist, whose perfective status is under no doubt (Delbrück, 1888; Hoffman, 1967; Dahl, 2008)).

A close survey of Vedic data by Jamison (1990) shows that predicative *-ta* forms are uniformly stative at this stage and overwhelmingly make reference to result states (see also Keith, 1909: 247). Jamison claims that the vast majority of instances of *-ta* forms without the copula at this stage refer to a present result state. We offer three empirical arguments to corroborate her finding that *-ta* forms do not have existential perfect or eventive readings at this stage.

First, we conducted a small study of Sanskrit verbs (n=92) for which the *-ta* form is first attested at Stage I.<sup>5</sup> The hypothesis was that the availability (as inferred from attestation) of the *-ta* form at this stage should vary with lexical subclasses, if *-ta* denotes result states. Result states are expected to be more easily accessible with change of state verbs. The study presented a striking asymmetry between predicates which encode a change of state and those which do not with respect to the attestation of *-ta* forms at Stage I. As (7) shows, the *-ta* participial form is attested for 80% of verb roots encoding change of state but only for 10.5% of simple verb roots. This distribution of *-ta* strengthens the case for it being associated with the resultative aspectual operator at this stage.

(7)

VERBS	CHANGE OF STATE			OTHERS
	BARE	PREVERBED	TOTAL	
Number of roots	44	10	54	38
<i>-ta</i> attested	33	10	43	4
% <i>-ta</i> forming roots	75%	100%	<b>80%</b>	<b>10.5%</b>

Second, we examined all instances of *-ta* forms for some very frequent change of state verbs in the R̥gveda in order to determine the readings they exhibited in context. This set of verbs is given in (8). None of the predicative instances of verbs in this set exhibited the existential perfect or past perfective reading. Although the set of verbs investigated is small, the consistent absence of an existential or past eventive reading for the *-ta* forms in context supports the case for its resultative status.

(8)

verb	<i>-ta</i> form	Count	Existential/Past reading
<i>su</i> ‘press out’	<i>suta</i>	58	0
<i>yuj</i> ‘yoke’	<i>yukta</i>	46	0
<i>idh</i> ‘kindle’	<i>iddha</i>	30	0
<i>badh</i> ‘bind’	<i>baddha</i>	15	0
<i>gr̥bh</i> ‘grasp’	<i>gr̥bh̄ita</i>	15	0
<i>vi+tan</i> ‘spread’	<i>vitata</i>	15	0

Third, we investigated the co-occurrence of *-ta* forms with indefinite past referring and frequency adverbials. The reasoning is that if the *-ta* form can trigger eventive reference for the sentence it occurs in, then it should be possible for the predicate to be modified by indefinite past and frequency adverbs. However, this expectation is not met in the textual data. Of all occurrences of three adverbials, *purā*, *pūrvam*, and *purudhā*, only one each appear with the *-ta* form, and two of these three instances occur in the part of the text known to be authored much later than the soriginal text (the 10th Book).

(9)

Adverbial	Occurrence	modification of <i>-ta</i>
<i>purā</i> ‘of old, earlier’	45	1 (RV 6.60.4)
<i>pūrvam</i> ‘before, in the past’	8	1 (RV 10.97.1)
<i>purudhā</i> ‘often’	9	1 (RV 10.27.21)

We take these facts, together with Jamison’s quantitative study, to show that *-ta* realizes the resultative aspect at Stage I. The next section discusses the generalization of *-ta* to the perfect category in Stage II, which is the language of Late Vedic (Vedic prose).

## 2.2. Late Vedic: Stage II

Two changes characterize Late Vedic: (a) the availability of the existential and the universal perfect readings for *-ta* forms; and (b) the extension of *-ta* to lexical predicates which do not encode change of state.<sup>6</sup> The original resultative perfect reading (ongoing result

state) is still available to *-ta*, indicating an expansion in the set of readings from Stage I to Stage II rather than a non-generalizing change.

The following examples illustrate the existential reading of *-ta*. In (10a), the verb *dr̥ś* ‘see’ does not imply a change of state. The *-ta* sentence with *dr̥ś-ta* simply makes reference to a prior seeing of the formulae (the formulae are considered divine, incapable of being written by human effort), not to any result state associated with such a seeing. This is a case where an existential reading is associated with a lexical predicate that does not encode change of state. The existential reading may also be available with lexical verbs that do encode a result state. In (10b) *smṛ* ‘teach’ can be associated with the result state of successful knowledge transfer. The context provides a description of barley (grains), which are being praised. (10b), in this context, only refers to the pronouncement on the part of the sages regarding the sin-banishing abilities of barley. There is no implication that any state has resulted from this event; the existential reading is salient. (10c) is another illustration of a *-ta* sentence with existential reading, where the form is built on the non-change-of-state predicate *vac* ‘speak’.

- (10) a. *mantrā*                      *nānāprakār-āḥ*                      *sy-ur*                      ***dr̥ś-tā***  
 formula.NOM.PL various.sort-NOM.PL be-OPT.3.PL see-PERF.M.PL  
*ye*                      *mantridar̥śi-bhiḥ*  
 which.NOM.PL seer-INS.PL  
 ‘The formulas, which have been seen by the sages, may be of various sorts.’  
 (BD 1.34)
- b. *nirṇoda-ḥ*                      *sarvāpānānām*                      *pavitra-m*                      *r̥ṣi-bhiḥ*  
 banishment-NOM.M.SG all.sin-GEN.M.SG filter-NOM.N.SG sage-INS.M.PL  
***smṛ-tam***  
 taught-PERF.N.SG  
 ‘(You) have been taught by the sages as the filter (for) banishment of all sins.’  
 (BS 3.6.5.1)
- c. *iti trayā-ṇām*                      *ete-ṣām*                      ***ukta-ḥ***                      *sāmāsik-o*  
 thus three-GEN.M.PL these-GEN.M.PL state-PERF.M.SG general-NOM.M.SG  
*vidhi-ḥ*  
 rule-NOM.M.SG  
 ‘Thus, the general rule about these three (Gods) has been stated.’ (BD. 1.79)

(11) illustrates the use of *-ta* with stative predicates, where the relevant inference is that the state denoted by the lexical verb continues to hold throughout some interval from a time in the past until the reference time. The context before (11a) describes how the original father produced (*ajanayat* Imperfect) seven kinds of foods and how he apportioned (*abhājayat* Imperfect) them. One of these foods (viz. milk) he gave (*prāyacchat* Imperfect) to the animals. Since this apportioning, milk has been the basis for living and non-living beings. The *-ta* modified predicate *prati+sthā* ‘rest’ denotes the state which has held since the completion of the apportioning event.<sup>7</sup> (11b) is a similar example from a later text with the verb *man* ‘think’. In this case also, the belief or thought is considered to have held throughout an interval stretching from a past time up until the present.

- (11) a. *ta-smin sarva-m pratiṣṭh-itaṃ yat ca prāṇiti yat ca*  
 it-LOC all-NOM.N.SG rest-PERF.N.SG which and live-PRES.3.SG which and  
*na*  
 NEG  
 ‘On it (milk) everything has rested; that which lives and that which does not.’  
 (BAU. 1.5.1)
- b. *lokasaṅgrahaṇa.artha-m hi tad amantra-h*  
 world.adultery.purpose-ACC.M.SG PRT then non.mantra-NOM.F.PL  
*striy-o ma-taḥ*  
 women-NOM.F.PL think-PERF.F.PL  
 ‘It is due to their adulterous nature that women have been thought un-entitled  
 to knowledge of the Vedas.’ (BS 1.5.11.7)

The final example in this section serves to illustrate the continuation of the original resultative reading available to the *-ta* form.

- (12) *samjñā tu viśva-m iti eṣā*  
 term.NOM.F.SG PRT collective-NOM.SG thus this.FEM.SG  
*sarvāvāpt-au nipāt-ita*  
 all.comprehensiveness-LOC.SG lay.down-PERF.F.SG  
 ‘The term *viśvam* (collective) has thus been laid down in (the sense of) all comprehensiveness.’ (BD. 2.134)

### 2.3. Middle Indic: Stage III

The Middle Indic languages (illustrated here by Mahārāṣṭrī Prakrit) are characterized by a simpler past marking system, having lost most of the inflectional past tense morphology of Old Indic.<sup>8</sup> The result of this morphological loss is that *-ta* becomes the default morphology for past time perfective reference (This change is, in fact, evident from the period of at least the Epic Sanskrit texts within Sanskrit (Old Indic) as well). In addition to the perfect readings of *-ta* from Late Vedic, it exhibits a past perfective reading.

Every study of Middle Indic grammar recognizes the perfective use of the *-ta* form as central to its distribution (Pischel, 1900; Bloch, 1965; Bubenik, 1996, a.o.). In addition to relying on this observation from the literature, we use two distributional diagnostics to argue that *-ta* sentences refer to culminated past events. First, in contrast to earlier periods, *-ta* is the only form available for narrating sequences of past events. In simple narrative discourse, where consecutive sentences typically move reference time forward, verbs in these sentences inflect with *-ta*. Second, in contrast to the earlier period, *-ta* appears with definite past referring adverbials. Of course, because the change involves an expansion in the set of readings, the resultative, universal, and existential perfect readings remain available to the *-ta* form.

The narrative fragment in (13) illustrates the perfective readings available to *-ta*. The main predicate in each of the sentences in (13) is a *-ta*-inflected form. The story describes the events before the sacrifice of a goat, beginning with the departure of the family (with

their friends and relatives) to the sacrificial stake. Every following sentence is understood to describe an eventuality that took place later in time, each of them ordered with respect to each other.<sup>9</sup> Thus, the going (13a) is understood to occur prior to the goat-taking (13b), which is before the worshipping (13c), which is followed by the elders' announcement (13d) and the leaving of the son (13e).

- (13) a. *tato te mitta-bāndhava-sahi-ā... ga-ya*  
 then they.NOM.PL friends-relatives-with-NOM.PL go-PERF.M.PL  
 'Then they went there with their friends and relatives.'
- b. *chagal-o vi ya maṇḍe-um tatth-eva ni-o*  
 goat-NOM.M.SG also and decorate-INF there-FOC take-PERF.M.SG  
 'And the goat also was taken there to be decorated.'
- c. *gandha-puppha-malla-puyāvisesena ya acchi-ya*  
 sandal-paste-flowers-worship-ingredients and worship-PERF.M.PL  
*devaya*  
 god-NOM.M.PL  
 'The Gods were worshipped with sandalwood paste, flowers, the ingredients of worship.'
- d. *ghara-mahattara-ehi ya bhaṇi-yam chagala-o*  
 house-elders-INS.PL and say-PERF.N.SG goat-NOM.SG  
*āṇi-jja-u*  
 bring-PASS-IMP.3.SG  
 'And the house elders said: Let the goat be brought.'
- e. *tato tassa putt-o... chagalay-am āṇe-um ga-to*  
 then his son-NOM.M/SG goat-ACC.SG bring-INF go-PERF.M.SG  
 'At that, his son... went to bring the goat.' (VH:D 29.25-28)

The other piece of evidence that the *-ta* form has past eventive reference is that it may be modified by definite past adverbials. Definite time adverbials specify particular intervals within which eventualities are realized. The *-ta* form, when modified thus, indicates that a completed event obtains in the time denoted by a definite time adverbial. The impossibility of modification by definite temporal adverbials is one of the defining features of the English present perfect. The *-ta* form (which may have present reference in the absence of tense auxiliaries), on the other hand, can be freely modified in this way. In this respect it patterns like the German or French perfect, which have been analyzed as having undergone some kind of a perfect-to-perfective shift.

- (14) a. **tato** *kaiva-esu divas-esu aikkan-t-esu... diṭṭhā me*  
 then many-LOC.PL day-LOC.PL pass-PERF-LOC.PL see-PERF.F.SG I-INS  
*taruṇajuvati*  
 young.woman.NOM.SG  
 'Then, upon the passing of many days, I saw the young woman.'

- b. **tamm-i**     **ya sama-e...**     *so mahis-o*     *ṅ-eṅa*     *kiṅe-uṅa*  
 that-LOC.SG and time-LOC.SG that buffalo-NOM.M.SG he-INS.SG buy-GER  
**mār-io**  
 kill-PERF.M.SG  
 ‘And, at that time, having bought that buffalo, he *killed* it.’ (VH:KH 14:21)

The following examples show that the earlier perfect readings of the *-ta* form continue to be available at this stage. (15a) illustrates the resultative reading; (15b) illustrates the existential reading, while (15c) illustrates the universal reading for *-ta*.

- (15) a. *amhe-him maṅussajamma-ssa phala-m*     *sayalam*  
 we-INS.PL human.life-GEN.SG consequence-NOM.N.SG all  
**gihi-yam**  
 grasp-PERF.N.SG  
 ‘We have grasped all the consequence of human existence.’ (VH:KH.5.8)
- b. *tubbhe-him mamā-o vi airitta-m dukkha-m*  
 you-INS.SG I-ABL even more-NOM.N.SG sorrow-NOM.N.SG  
**pa-ttam**  
 receive-PERF.N.SG  
 ‘Have you received (experienced) even more sorrow than me (at any point in time)?’ (VH:DH.35.25)
- c. *kim mann-e devī passa-māṅī*  
 why think-IMP.F.1.SG lady.NOM.SG looking-PART.NOM.SG  
*nicchalacchī*     **ṭhi-ya**  
 unmoving.eyes.NOM.SG stand-PERF.F.SG  
 ‘Why, I wonder, has the watching lady, stood (been standing) with an unmoving gaze?’ (VH:KH.9.7)

### 3. Analysis

In the previous section, we provided evidence for the instantiation of the resultative to perfect to perfective shifts in Indo-Aryan, through the changes in the interpretation of the *-ta* form from Vedic to Late Vedic to Middle Indic. In this section we characterize the meaning of the aspectual operators implicated in the analysis of predicative *-ta* forms across the three distinct stages and show how each shift involves a generalization of the meaning of the relevant aspectual operators. We are assuming that saturated clausal predications, sentence radicals, denote properties of eventualities which get instantiated by aspectual operators. Most of our assumptions are standard but we make a new proposal about the lexical denotation of change of state predicates with associated result states and the resultative perfect and about an aspectual operator whose meaning encompasses that of perfect and of perfective.

Let  $\mathcal{E}$  be a domain of eventualities, sorted into a set of events  $\mathcal{E}^E$  and a set of states  $\mathcal{E}^S$ , and  $\mathcal{T}$  a domain of non-null temporal intervals (with points as a special case) partially ordered by the relation of temporal precedence  $\prec$  and by the subinterval relation

$\sqsubseteq$ . A function  $\tau$  from  $\mathcal{E}$  to  $\mathcal{T}$  gives the time span of an eventuality. Basic eventive predicates have an eventuality argument of the sort  $E$  (event); basic stative predicates have an eventuality argument of the sort  $S$  (state). Sentence radicals arising out of such predicates then are either eventive or stative predicates. Aspectual operators, such as the perfect and the perfective that we discuss below, apply to such sentence radicals to yield predicates of times within which the properties denoted by sentence radicals are instantiated. Instantiation of properties of eventualities involves the familiar existential quantification over the Davidsonian event variable. In (16) we define instantiation for both predicates of eventualities and predicates of times.

(16) **Property Instantiation**

$$\text{INST}(P, i) = \begin{cases} \exists e \in \mathcal{E} [P(e) \wedge \tau(e) \sqsubseteq i] & \text{if } P \subseteq \mathcal{E} \\ P(i) & \text{if } P \subseteq \mathcal{T} \end{cases}$$

In the absence of overt morphosyntactic tense, we assume that a semantic tense operator, dependent on a contextually determined reference time, applies to a property of eventualities or times and instantiates it within/at that time. We use the operator  $\text{TNS}$  indexed to a time variable  $i$  whose content is given in (17). The time of utterance  $\text{Now}$  is always available as a potential reference time, i.e., as a value for  $i$ .

(17) Relative to context  $c$  and contextual variable assignment  $g_c$ ,

$$\text{TNS}_i = \lambda P \text{INST}(P, g_c(i))$$

We additionally define two notions that we will use in the discussion to follow: the notion of the temporal correlate  $P[i]$  of a predicate of eventualities  $P$ , given in (18), and the notion of non-final instantiation, given in (19).

(18) For any  $P \subseteq \mathcal{E}$ ,  $P[i] = \lambda i \exists e [P(e) \wedge i = \tau(e)]$

(19)  $\text{NFINST}(P, j, i)$  is defined only if  $i$  is a final subinterval of  $j$   
 $\text{NFINST}(P, j, i) = \exists k [\text{INST}(P, k) \wedge k \sqsubseteq j \wedge \neg(i \circ k)]$  if defined

3.1. *-ta: Lexical Stativizer and Resultative Perfect*

We take the non-ambiguity of attributive and the ambiguity of predicative *-ta* forms to show two distinct functions of *-ta*, one as a lexical, derivational operator operating on change of state verbs, the other as an aspectual operator operating on sentence radicals. The historical changes under discussion involve *-ta* as an aspectual operator. Below we briefly outline our view of *-ta* as a lexical operator and then go on to analyze its meaning as an aspectual operator.

Kratzer (2000), Piñón (1999) and von Stechow (2003), based on empirical evidence of different kinds, have made a convincing case that certain eventive verbs make result states accessible for phrasal semantic composition. Following this main idea, we assume that change of state verbs can make the result state property accessible for lexical and for phrasal semantic operations by projecting it into the lexicon in a particular way. We take verbs like *yoke* to have purely eventive denotations, such as those shown in (20), as

well as denotations that pair the eventive component with the stative component of their meaning, such as those shown in (21). We give the variants in (a) and (b) to illustrate that the descriptive term attached to the event determines the descriptive term attached to the state. For the sake of concreteness, we have chosen to associate the arguments of eventive predicates via thematic roles and the arguments of stative predicates via the ordered argument method but this is not essential to our analysis. We assume that meaning postulates regulate the identification of arguments across the two predications.

- (20) a.  $\lambda y \lambda x \lambda e \text{ put-yoke-on}(e) \wedge \text{Agent}(e,x) \wedge \text{Patient}(e,y) [x \text{ yokes } y]$   
 b.  $\lambda y \lambda z \lambda x \lambda e \text{ connect-to-with-yoke}(e) \wedge \text{Agent}(e,x) \wedge \text{Patient}(e,y) \wedge \text{Theme}(e,z) [x \text{ yokes } y \text{ to } z]$
- (21) a.  $\langle \lambda e \text{ put-yoke-on}(e), \lambda y \lambda s \text{ have-yoke-on}(s)(y) \rangle$   
 b.  $\langle \lambda e \text{ connect-to-with-yoke}(e), \lambda z \lambda y \lambda s \text{ connected-to-with-yoke}(s)(y)(z) \rangle$

As a lexical operator, *-ta* maps paired properties to their stative component. In that case the predicates projected to the syntax and entering semantic composition are as in (22). The eventive component of the meaning of the original predicate is not made available for semantic composition. Any implications about the existence of an event of the relevant type resulting in the truth of the stative predication are inferential.

- (22) a.  $\lambda y \lambda s \text{ have-yoke-on}(s)(y)$   
 b.  $\lambda z \lambda y \lambda s \text{ connected-to-with-yoke}(s)(y)(z)$

Pairs such as those in (21) are also projected to the syntax and enter semantic composition, where the arguments of the stative predicate will be saturated. The output will be paired eventive-stative property sentence radicals. *-ta* in its function as an aspectual operator applies to such sentence radicals to yield the temporal correlate of the stative property. We can thus identify the meaning of *-ta* with the aspectual operator RESPERF.

The resultative perfect RESPERF applies to paired property sentence radicals and instantiates the two properties via paired property instantiation, defined in (25). The logical form of sentences with a sentence radical  $\langle P, Q \rangle$  would be as in (23). The reference time  $r$  specified by tense has to be one of the elements of  $\text{RESPERF}(\langle P, Q \rangle)$ . Given that  $r \in \text{RESPERF}(\langle P, Q \rangle)$  only if  $r \in Q[i]$ , the characteristic entailment of the resultative perfect that the reference time is included in the time span of the result state is captured.

$$(23) \text{TNS}_i(\text{RESPERF}(\langle P, Q \rangle))$$

$$(24) \text{RESPERF} = \lambda R \lambda i \text{INST}^2(R, i) \text{ defined only if } R = \langle P, Q \rangle \text{ with } P \subset \mathcal{E}^E \text{ and } Q \subset \mathcal{E}^S.$$

(25) **Paired Predicate Instantiation**

$$\text{INST}^2(\langle P, Q \rangle, i) = \exists e \in \mathcal{E}^E \exists s \in \mathcal{E}^S [P(e) \wedge Q(s) \wedge \text{result}(e, s) \wedge i = \tau(s)]$$

We assume that for any event  $e$  and state  $s$  if  $\text{result}(e, s)$ , then  $\tau(e) \prec \tau(s)$ , and allow for multiple states, with different time spans, to be related to an event  $e$  via  $\text{result}$ , i.e., unlike many other treatments of the resultative perfect we do not take  $\text{result}$  to be functional

and thus avoid having to refer to maximal states. Otherwise, we remain agnostic here on how exactly result should be axiomatized, for instance, whether it involves the notion of causation.

To illustrate, let us consider a somewhat simplified resultative perfect variant of the Vedic (6a), rendered in English as in (26). Its sentence radical would be as in (27), and application of RESPERF would yield (28). Application of tense to (28) with the reference time set to Now would yield (29).

(26) The dolphin has been yoked to the chariot.

(27)  $\langle \lambda e \text{ connect-to-with-yoke}(e), \lambda s \text{ connected-to-with-yoke}(s)(d)(c) \rangle$

(28)  $\lambda i \exists e \in \mathcal{E}^E \exists s \in \mathcal{E}^S [\text{connect-to-with-yoke}(e) \wedge \text{connected-to-with-yoke}(s)(d)(c) \wedge \text{result}(e, s) \wedge i = \tau(s)]$

(29)  $\exists e \in \mathcal{E}^E \exists s \in \mathcal{E}^S [\text{connect-to-with-yoke}(e) \wedge \text{connected-to-with-yoke}(s)(d)(c) \wedge \text{result}(e, s) \wedge \text{Now} = \tau(s)]$

### 3.2. From Resultative Perfect to Perfect

For any pair  $\langle P, Q \rangle$  and any  $i \in \text{RESPERF}(\langle P, Q \rangle)$ , there is an interval  $j$  of which  $i$  is a final subinterval such that  $j$  contains an event  $e$  of type  $P$  which does not overlap  $i$ . In other words, the subset relation in (30) holds for the following two sets of times: the set of times in the temporal correlate of  $Q$  and the set of times that are final subintervals of intervals within which  $P$  is instantiated non-finally.

(30)  $\lambda i \exists e \exists s [R(e, P, Q, s) \wedge i = \tau(s)] \sqsubseteq \lambda i \exists j \text{NFINST}(P, j, i)$

We claim that this entailment of the resultative perfect gets conventionalized as the meaning of *-ta*, when it combines with verbs of any kind without restrictions. In Stage II then, *-ta* is identified with the aspectual operator RESPERF applying to paired property sentence radicals, as in Stage I, and also with the aspectual operator PERF applying to sentence radicals of the regular type. The meaning of PERF is given in (31).

(31)  $\text{PERF} = \lambda P \lambda i \exists j [i \sqsubseteq_{\text{final}} j \wedge \text{NFINST}(P, j, i)]$

This is, in effect, the ‘extended now’ analysis of the perfect (McCoard, 1978; Dowty, 1979; Iatridou et al., 2001, among others). If  $P$  is an eventive or stative sentence radical and the reference time is the time of utterance, the meaning of the sentence would be as in (32):  $P$  is asserted to be instantiated within intervals preceding Now.

(32)  $(\text{PERF}(P))(\text{Now}) = \exists j \exists k \exists e [P(e) \wedge \neg(\text{Now} \circ k) \wedge \tau(e) \sqsubseteq k \wedge k \sqsubset j \wedge \text{Now} \sqsubseteq_{\text{final}} j]$

The existential and universal readings are a consequence of the semantic properties of the predicate  $P$  to which PERF applies; these determine certain relations between elements of  $P$  and elements of  $\text{PERF}(P)$ . To show how the existential and the universal readings arise we will consider here only PERF applying to eventive and stative sentence

radicals, though the same point can be made for temporal properties as well. Take an eventive predicate  $P$ . For any  $t \in P[i]$ , there is a subset  $Sub_t(\text{PERF}(P))$  of  $\text{PERF}(P)$  such that for every  $t' \in Sub_t(\text{PERF}(P))$ ,  $t \prec t'$ . For any such  $P$ ,  $\text{PERF}(P)$  will yield the existential reading, involving backshifting from the reference time. Take a stative predicate  $P$  that holds over a given time. Given the divisiveness of stative predicates and their temporal correlates,<sup>10</sup> there are  $t \in P[i]$  and subsets  $Sub_t(\text{PERF}(P))$  of  $\text{PERF}(P)$  such that for every  $t' \in Sub_t(\text{PERF}(P))$  the convex interval  $[t, t']$ <sup>11</sup> is itself an element of  $P[i]$ . If the reference time  $r$  is assumed to be within such a subset of  $\text{PERF}(P)$ , then the universal reading arises. Otherwise, the existential reading arises.

### 3.3. From Perfect to Perfective

In the transition from Stage II to Stage III the condition for non-final instantiation is generalized to instantiation and *-ta* is identified with the aspectual operator  $\text{PERV}$ , whose meaning is given in (33).

$$(33) \text{ PERV} = \lambda P \lambda i \exists j [i \sqsubseteq_{\text{final}} j \wedge \text{INST}(P, j)]$$

$\text{PERV}$  subsumes the readings of  $\text{PERF}$  and in addition allows for instantiation within the reference time, the hallmark of a perfective reading. If  $i = j$  or if  $i \sqsubseteq_{\text{final}} j$  and  $P$  is instantiated within  $i$ , the perfective reading arises. If  $P$  is instantiated before  $i$  within  $j$ , the perfect reading arises. In case  $P$  is instantiated at some time within  $j$  that overlaps  $i$ , the eventuality instantiating  $P$  is taken to be culminating within  $i$ , hence within the reference time.

In this paper we do not work out the dynamics of reference time advancement but we can assume that in a narrative sequence like that of (13) each sentence is evaluated relative to the reference time set by the context thus far and then resets the reference time to a later time. That reference time is then given as an argument to the temporal abstract obtained by applying  $\text{PERV}$  to the sentence radical of the following sentence, with  $i$  and  $j$  identified.<sup>12</sup>

## 4. Comparisons and conclusion

We have characterized the meanings of *-ta* as an aspectual operator at the three diachronic stages and demonstrated the semantic relatedness of resultative ( $\text{RESPERF}$ ), perfect ( $\text{PERF}$ ), and perfect+perfective ( $\text{PERV}$ ). *-ta* undergoes successive generalization of its meaning. Our proposal rests on the conventionalization of entailed meaning and the generalization of the relation instantiating event descriptions in time. It, therefore, holds promise of application to other instances of this type of cross-linguistic shift.

### 4.1. Semantic generalization vs. invited inferences

Our semantically-rooted account may be contrasted with the pragmatic inferencing approach that has been invoked for explaining regular semantic change (Traugott and Dasher,

2002; Eckardt, 2006). On this view, pragmatically derived ‘invited’ inferences associated with an expression are diachronically *semanticized* or conventionalized as part of the meaning of that expression. For instance, Eckardt (2006) proposes that the emergence of the prospective aspect in English is the result of the conventionalization of the invited inference of imminent event occurrence available to a transparent *going to V* construction. The conventionalized meaning is distinct from the original compositionally available meaning and the form may be ambiguous between the diachronically former and latter meanings at some stage.

The pragmatic inferencing hypothesis and the meaning generalization hypothesis make distinct predictions about the meanings of the aspectual categories concerned. Specifically, it is only the latter that requires that the meaning of an expression at a diachronically earlier stage be a subset of the meaning at a later stage. In this regard, the semantic generalization hypothesis offers a more restrictive account of the set of changes in question.

#### 4.2. *Motivating semantic generalization*

Our account may explain how the diachronic changes involve semantic generalization, but it does not address the motivating factors for the occurrence of each shift. Here we offer some speculative remarks on why the shifts might have occurred. The Old Indo-Aryan finite verbal tense-aspect system (Stage I) contains a number of past aspectual categories, which overlap with *-ta* in some of their uses. The Aorist expresses the perfective, while the reduplicated Perfect realizes the more general perfect aspect, with stative present readings limited to some predicates. The Imperfect is a neutral past tense, and is often used in narrative contexts with eventive reading (Delbrück, 1888; Whitney, 1892). In the second stage, the reduplicated perfect generalizes to include the past perfective reading, overlapping in this domain with the Aorist and the Imperfect. By the time of Epic Sanskrit these three past referring categories have become interchangeable and there is an increase in the frequency of the *-ta* form.<sup>13</sup> These three finite categories are lost almost entirely by Stage III (Pischel, 1900) and their functions taken over by the *-ta* form. At Stage III, *-ta* realizes the complex aspectual category PERV (perfect+perfective) and has the entire range of readings available to the older, lost Perfect and Aorist.

A plausible motivation for the generalization of *-ta* is the diachronic loss of forms that express perfect and perfective meaning, respectively. The semantic shift, thus, may be seen as going hand-in-hand with a morphological change that affects the semantic categories expressed by the broader verbal paradigm of Indo-Aryan. We do not have spontaneous changes in the meaning of *-ta* but rather these changes are triggered by the need for morphology that can express the semantic categories previously expressed by older forms. This change is, of course, spread over several centuries and must have involved a period over which *-ta* increased in relative frequency over the Perfect and the Aorist. There is a clear morphological advantage that *-ta* enjoys over the Perfect and the Aorist: it is built on the root, and constructs an invariant stem that inflects with the set of adjectival endings. The Perfect and Aorist stems involve reduplication and other morphological changes to the root, and the perfect further involves a distinct set of personal endings. The case can be made that the increasing use of *-ta* is facilitated by its relative lack of morphological complexity and predictable derivation, but that remains a speculative point, and is

ultimately orthogonal to the purposes of this paper.

### 4.3. Conclusion

Our semantic analysis shows that the resultative to perfect to perfective shift is a generalization, which is consistent with the proposal that grammaticalization is non-exemplar-based analogical change (as has been argued by Kiparsky, 2005). A more ambitious goal would be to specify the factors that trigger the grammaticalization in a particular language at a particular time. We suggested some language-specific factors that might have triggered it in Middle Indic. Our proposal makes predictions that can be tested by textual research that traces changing the frequencies of *-ta* and its competitors across time.

## 5. Notes

1. These are approximate periods and the first of these, especially, only gives the broad window within which Northern and North-west India were settled (Jamison and Witzel, 1992, p.6). The composition of the texts that have been used for our research, for the most part, took place in the later parts of each of the three delineated chronological stages.
2. For a recent discussion of the descriptive issues and analytical choices pertaining to the syntax and semantics of the perfect see Alexiadou et al. 2003.
3. The Modern Greek cognate of *-ta*, the participle in *-tos/ti/to*, exhibits only the plain stative reading and contrasts with *-menos/meni/meno* participles which exhibit the result stative reading. For discussion and other references see Anagnostopoulou 2003.
4. We gloss *-ta* as PERF regardless of its distribution and readings at distinct stages of Indo-Aryan. The other glosses are as follows: PRES = present; PST = past; IMP = imperative; NOM = nominative; ACC = accusative; INS = instrumental; GEN = genitive; LOC = locative; M = masculine; F = feminine; N = neuter; SG = singular PL = plural; PRT = particle; FOC = focus particle.
5. The information for the first attested *-ta* forms for lexical roots and the roots themselves have been gleaned from Grassman, 1964 and Whitney, 1883.
6. It is difficult to precisely locate a line of clean separation between Stage I and Stage II corresponding to Vedic verse and Vedic prose. Specifically, there is no exhaustive study of Vedic lexical verbs that establishes that *-ta* appears only with change of state predicates in Early Vedic (Stage I), although, overwhelmingly *-ta* is used to describe result states. Early Vedic texts (the Mantras) were composed over a long period and represent multiple linguistic layers. What we are able to clearly show in this section is that Stage III (the period characterized by Middle Indic (and possibly Epic and Classical Sanskrit) is preceded by a period during which *-ta* functions as the perfect with existential, universal, and resultative readings. At this stage, covering the bulk of the Vedic prose, “the tendency is to assimilate the part.(iciple) to the present” (Keith 1909: 248). This tendency is much more visible in the *Dharmasūtras*, the youngest texts within Vedic prose.
7. Note that the universal reading of the perfect is absent in several languages, such as Greek and Russian. In these languages, the universal reading is expressed by the present tense forms. *-ta* forms with stative predicates occurring in Vedic prose may often be translated in the English present tense (e.g., Keith, 1909). However, the fact that this translation is possible with a form expressing resultative or perfect meaning provides evidence that the form licenses universal perfect readings.
8. The inflectional system of verbal contrasts in OI changed to a relatively morphologically impoverished inflectional system in MI with loss of most of the past referring categories. Pischel (1900), on the basis of careful textual study, reports that the Imperfect, the Aorist, and the Perfect occur in MI texts only as a few scattered forms for a few verbs. The single instance of the Imperfect retained in MI is the Imperfect form of the verb *as* ‘be’ (Pischel, 1900: 421-22). The Aorist occurs relatively more frequently (Pischel, 1900: 422-24), while the Perfect is preserved only as an archaism for a few verbs. Bloch (1965: 228-233) reaches the same conclusion. The only remaining past-referring paradigm from Epic Sanskrit is

the PERF paradigm and it is used regularly for past time reference, which is the reason for it to be considered the simple past tense in MI.

9. Also see VH:KH 3.10-17, VH:KH 7.7-11, VH:KH 23.8-12, Vh:D 29.19-23, VH:D. 31. 1-8, VH:D. 34. 18-25 as examples in support of the claims that *-ta* forms have eventive reference and are understood as causing an advancement of reference time.
10. A temporal predicate *P* is divisive iff its denotation is closed under the subinterval relation.
11.  $[t, t']$  is a convex interval with *t* as an initial subinterval and *t'* as a final subinterval.
12. In this version of the paper we use temporal adverbs as diagnostics for certain readings but we do not provide an analysis of them.
13. While this lack of distinction has been well-established in the literature, it is a puzzle why the Imperfect, the Aorist, and the Perfect are interchangeable at the Epic Sanskrit stage. It is conceivable that the writers of the Sanskrit Epics, are, in fact, speakers of a language with a Middle Indic (Stage III) type system, characterized by a single perfective form and no further distinctions within the perfective domain. We know that the MI Prakrits were the vernacular languages in the region at least since the 300 BCE (based on Aśokan inscriptions). On the other hand, Sanskrit was the learned language of prestige. MI native speakers, whose language was characterized by a single aspectual category that referred to past situations—the *-ta* form—may well have mapped the distinct Vedic paradigms onto this single category, when writing in Sanskrit. This can account for why the three paradigms appear to be undifferentiated in terms of their distribution. It also accounts for the increased frequency in the usage of *-ta* (Avery, 1875), an anticipation of the later MI system, where this is the only exponent of the perfective and perfect aspects.

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# Scoping over epistemics in English and in Dutch\*

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## Abstract

This paper concerns a peculiar contrast between English and Dutch: in English, subject quantifiers are not allowed to scope over epistemic modals, whereas in Dutch, this is not problematic at all. I argue that this contrast relates to a difference in subjectivity of the modals involved: English modals are more subjective than Dutch ones. I will discuss various ways to implement this idea, settling in the end for a speech act modifier analysis of subjective epistemic modals. Such modals contribute to the illocutionary force, while quantifiers contribute to the truth conditional content. As illocutionary force is a 'higher' level of meaning, subjective epistemics always take wide scope.

**Keywords:** epistemic modality, wide scope, subjectivity, speech acts

## 1. A difference between English and Dutch

English and Dutch differ with respect to the scopal interaction between epistemic modals and nominal quantifiers. In English, nominal quantifiers are not allowed to take scope over epistemic modals, but in Dutch this is possible. I will first present the relevant English data, and then I will look at Dutch.

### 1.1 The English facts

As observed by von Stechow & Iatridou (2003), English epistemic modals take obligatory wide scope over subject quantifiers.<sup>1</sup> Among the evidence they present is the fact that (1) is reliably judged false in the given scenario:

Scenario:

*We are standing in front of a student residence. In some of the rooms the light is on, in other rooms it is off. Imagine that every room is equipped with a special device that automatically switches off the light if a student leaves his/her room. We thus know that some students are home, because some lights are on.*

- (1) Every student may have left.
- |    |                     |         |
|----|---------------------|---------|
| a. | may > every student | (false) |
| b. | every student > may | (true)  |

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<sup>1</sup> The same claim can be found in Leech (1971), Drubig (2001) and Gergel (2003), but none of these authors present any evidence for it. I therefore restrict myself to von Stechow & Iatridou's work.

It follows that (1) can only be interpreted with wide scope for the modal. That is, the sentence means that the speaker considers it possible that every one of the students has left. The reading that for every student  $x$  the speaker considers it possible that  $x$  has left is unavailable.<sup>2</sup> Further evidence is that the following sentence is contradictory:

- (2) #Every student may have left, but not every one of them has.  
a. may > every (inconsistent)  
b. every > may (consistent)

If the quantifier were allowed to scope over the modal, (2) should be consistent.

Strong and weak quantifiers are equally unable to scope over epistemic modals. For example, (3), containing the weak quantifier *two friends of John's* is inconsistent:

- (3) #Two friends of John's from Texas may have come to visit him this weekend, but they can't both have come (because they hate each other).

Again, this is explained if the modal takes obligatory wide scope.

It is indeed the epistemic nature of the modal which forces it to take wide scope. Expressions that are not interpreted epistemically may take both scope positions. The modal in (4) is deontic, and the sentence has two readings, which can be brought out by different continuations:

- (4) Most of our students must get outside funding,  
a. for the department budget to work out.  
must > most of our students  
b. the others have already been given university fellowships.  
most of our students > must

The continuation in (4a) corresponds to a wide scope construal of the modal. It doesn't matter which of our students get outside funding, as long as most of them do. In contrast, in (4b) the obligation is imposed on specific students: those who haven't already received a university fellowship. This interpretation goes with wide scope for the quantifier.

Though I agree with von Stechow & Iatridou that in the above examples the epistemic modals take wide scope, I take issue with their claim that epistemic modals *always* take scope over nominal quantifiers. Below in 2.2 I will present some counterexamples.

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<sup>2</sup> Von Stechow & Iatridou (2003 fn. 7) note that some people claim that they can get the reading with wide scope for the quantifier, given the right intonation, but they have no explanation for this. Below I will point out further cases in which wide scope for the quantifier is possible, and my account of these might extend to the reported effect of 'prosodic acrobatics'.

## 1.2. The Dutch facts

The wide scope behavior that we just saw that English epistemics display is not something to be found in all languages. In Dutch, for instance, matters are entirely different. In the student residence scenario given above, (5) is undoubtedly true:

- (5) Iedere student kan vertrokken zijn.  
every student may left be  
'Every student may have left.'

As is expected, the following isn't contradictory at all:

- (6) Iedere student kan vertrokken zijn, maar niet iedere student  
every student may left be but not every student  
is vertrokken.  
be left  
'Every student may have left, but not every student has left.'

Being able to take scope over an epistemic modal is not the prerogative of the universal quantifier *iedere* 'every', but other quantifiers have the same ability. For example, the following sentences are fine. Yet, if the modal took obligatory wide scope, they should be odd, for in each sentence the predicate is such that only one individual can satisfy it:

- (7) Slechts weinig studenten kunnen de langste van de klas zijn.  
'Just a few students might be the tallest of the class.'
- (8) Minstens drie mannen kunnen de vader van mijn kind zijn.  
'At least three men might be the father of my child.'

In contrast to the English (3), the next sentence is not contradictory:

- (9) Twee van Jans vrienden kunnen gisteren bij hem op bezoek zijn gekomen, maar ze zijn in ieder geval niet allebei gekomen, want ze hebben een ontzettende hekel aan elkaar.  
'Two of Jan's friends may have come to visit him yesterday, but they sure haven't visited him both, because they hate each other.'

However, while it is easy for a Dutch quantifier to take scope over an epistemic *auxiliary*, it is difficult to scope over an epistemic *adverb*. Note that the following sentences only have one reading, and that this is the one where the modal takes wide scope, even though it appears below the modal at surface:

- (10) Iedereen heeft het misschien gedaan.  
everyone has it perhaps done  
'Perhaps everyone has done it.'

- (11) Slechts weinig studenten zijn waarschijnlijk geslaagd.  
 just few students are probably passed  
 ‘Probably only a few students have passed.’

In this respect, Dutch is like English. For instance, ‘Every student has perhaps left’ is clearly false in the student residence scenario above (cf. von Stechow & Iatridou 2003, fn. 8).

### 1.3 Interim Summary

In this section, we have seen that:

- in English, it is difficult for quantifiers to scope over epistemics
- in Dutch, it is quite easy for quantifiers to scope over epistemic auxiliaries, though not over epistemic adverbs

The aim of this paper is to account for this contrast between English and Dutch.

## 2. Subjective vs. objective epistemic modality

The first step in accounting for the above data is—I believe—to relate the above data to a traditional distinction found in the literature: that between *subjective* epistemic modality and *objective* epistemic modality (Lyons 1977). The same hunch can (independently) be found with Tancredi (2007), though he is not concerned with cross-linguistic differences. Why should it be relevant to distinguish these two senses of epistemic modality? First, it is known that subjective epistemic modals generally prefer wide scope, while this is not so for objective epistemics. It could thus very well be that the wide scope behavior we have just witnessed is a rather broad phenomenon, not restricted to the modal’s scope with respect to subject quantifiers. Second, it is usually assumed that (English) modals are ambiguous between subjective and objective readings (though the subjective reading is often preferred), which might explain why even in English scoping over an epistemic modal sometimes is allowed (recall footnote 2, and see 2.2 below). Finally, it is conceivable that languages differ in the expression types that they use for subjective epistemic modality. Indeed, this is what I propose in this paper: subjective epistemic modals take wide scope, both in English and in Dutch, but in Dutch, subjective epistemic modality is typically expressed by adverbs. The modal auxiliaries express objective epistemic modality, and items which express this kind of modality may scope under quantifiers.

In what follows, I will first discuss the difference between subjective and objective modality in detail. After that, I will demonstrate the relevance of the distinction with respect to quantifier-modal interactions. Finally, I will provide support for the idea that English and Dutch employ different strategies to express subjective epistemic modality.

## 2.1. The traditional distinction

The distinction between subjective and objective epistemic modality goes back to Lyons (1977: 797ff). The distinction has strong intuitive appeal, and has been widely adopted in the literature, yet I know of no clear definition. Lyons presents the subjective-objective distinction as relating to the quality of the evidence of which an epistemic claim is based. He discusses the following sentence:

(12) Alfred may be unmarried.

Assuming the modal is interpreted epistemically, the sentence has two readings. First, it might be understood as an expression of the speaker's personal belief state. This is the subjective epistemic reading. But the sentence also has a more objective reading. Lyons sketches the following situation to bring that reading out:

There is a community of ninety people; one of them is Alfred; and we know that thirty of these people are unmarried, without however knowing which of them are unmarried and which are not. In this situation, we can say that the possibility of Alfred's being unmarried is presentable, should the speaker wish so to present it, as an objective fact. (Lyons 1977: 798)

Thus, (12) can also be understood as a conclusion based on reliable, public facts, and if so, it is understood objectively. In contrast, understood subjectively, (12) involves a mere subjective hunch or guess.

Lyons' remarks should obviously be qualified further, since even on its subjective reading (12) is surely based on some sort of 'objective fact', say the fact that some people are unmarried. What rather seems to matter is the *quality* of the available evidence. The better or stronger the evidence is, the more objective the interpretation of the modal that depends on this evidence. Related to this is the accessibility of the evidence: strong evidence is typically accessible to a larger group of people, while more shaky evidence such as a personal guess is accessible only to the speaker, inscrutable by other people (cf. Nuyts 2001a;b).<sup>3</sup>

In Lyons' system, the distinction between subjective and objective epistemic modality is captured in terms of scope. The idea is that subjective epistemics act like illocutionary force indicators. In Lyons' terminology, they are part of the 'I-say-so' or 'neustic' component of the utterance, which is superimposed on the 'it-is-so' or 'tropic' component of the utterance, to which objective epistemics contribute. One might think of the latter component as the truth conditional content of the utterance. It follows that subjective epistemics do not contribute to this level of meaning. As such, they are similar to performatives:

[The function of subjective epistemic modality] is to express different degrees of commitment to factuality; and in this respect it qualifies the illocutionary act

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<sup>3</sup> Note that it would be a mistake to correlate subjectivity with indirect, non-observable evidence, and objectivity to direct, observable evidence. Inferential evidence might be of impeccable quality, if the premises are based on good evidence and if the inference is valid.

in much the same way that a performative verb parenthetically qualifies, or modulates, the utterance of which it is a constituent in an explicitly performative utterance or a primary performative with a performative clause tagged on to it. Looked at from this point of view, *It may be raining* (construed as a subjectively modalized utterance) stands in the same relationship to *It's raining, I think* or *I think it's raining* as *Is it raining?* does to *Is it raining, I wonder?* or *I wonder whether it's raining*. (Lyons 1977:805)

Lyons backs up his proposal by pointing out that subjective epistemics resist embedding in the antecedent of a conditional and in the complement of a factive verb. The examples below are taken from Papafragou (2006):

- (13) a. ?If Max may be lonely, his wife will be worried.  
b. ?If Max must be lonely, his wife will be worried.
- (14) a. ?It is surprising that Superman may be jealous of Lois.  
b. ?It is surprising that Superman must be jealous of Lois.

In contrast, objective epistemics can be embedded in these positions:

- (15) If it may rain tomorrow, people should take their umbrellas.
- (16) It is surprising that it may rain tomorrow, since there was no sign of a cloud all day today.

Lyons also noted that subjective epistemic modals cannot be assented or dissented to, whereas objective modals can:

- (17) This professor may be smart.
  - a. ?Is that so?
  - b. ?I don't believe it.
  - c. ?I agree.
- (18) The weather forecast told viewers it may rain tomorrow.
  - a. Is that so?
  - b. I don't believe it.
  - c. I agree.

It seems that in (17), the replies target the utterance without the epistemic modal; i.e. they target the proposition embedded by the modal. In contrast, in (18) it is the modal claim that is agreed or disagreed with.

We now have some idea as to what the subjective-objective distinction pertains to. What is particularly relevant for the topic at hand is that subjective modals make solipsistic claims, dependent on evidence that is inscrutable by anyone other than the speaker, whereas objective modals depend on public evidence; on quantifiable facts. In the next subsection, I will address the relevance of this distinction.

## 2.2. Quantifier-modal interactions

The claim that it is the subjectivity of an epistemic modal, which influences its wide scope behavior, makes clear, testable predictions. By forcing an objective interpretation, it should be possible for quantifiers to scope over epistemics, even in English. How can we make sure that our modals are interpreted objectively? Given the above discussion, what seems to be important is that the context provides the facts on which the utterance is based. The prediction that quantifiers can scope over epistemic modals in such contexts seems to be borne out. Consider for instance:

Scenario (variation on an example by Tancredi 2007):

*I have 5 friends that visit me regularly; 2 of which are blond, 3 of which have dark hair. My boyfriend opens the door and tells me that there is one person at the door and that she has blond hair.*

- (19) Two of my friends may have come to visit me (but they can't both have come, since there is only one person at the door).

Contrary to what one might expect given von Stechow & Iatridou's paper, there is nothing contradictory about this sentence. This means that the *quantifier* takes wide scope, not the epistemic modal. What facilitates this reading seems to be the added context. Recall example (3), repeated below:

- (20) Two friends of John's from Texas may have come to visit him this weekend, but they can't both have come (because they hate each other).

Von Stechow & Iatridou report that we feel that the speaker is making an inconsistent claim. But apparently this results from the sentence being presented to us out of the blue. As soon as the context makes clear on which evidence the claim is based, we can understand utterances like (20) as consistent (for note that (19) is like (20) in all relevant aspects).

Another case in point is the following context plus sentence (capital letters indicate stress):

Scenario:

*Miss Marple is investigating a murder. She has found out that the murder has been committed between 7 and 9 pm last night. At this point, she has eight suspects. Two of them have provided a good alibi for the time of the murder: they were at home and their roommates confirm this. The others have all said that they were home alone. Naturally, no one can confirm that they were in fact home.*

- (21) Fewer than half of the suspects **MUST** have been home last night. But it is possible that they were all at home.

Again, if it were never possible for the quantifier to take wide scope, this should be contradictory. But it isn't.

In the above examples, the contexts seem to favor an objective interpretation, in the sense of Lyons, since the modals clearly depend on accessible, quantifiable evidence. This suggests the following reformulation of the situation that we want to explain: in English, *subjective* epistemic modals take obligatory wide scope.<sup>4</sup>

### 2.3. Subjectivity, expression type and language

The above considerations pave the way to an account of the difference between English and Dutch. According to Lyons, the subjective interpretation is the default for English modals. If so, it is expected that in isolation, speakers will prefer the wide scope reading for the modal, and this is indeed what we find (see section 1.1). However, in Dutch, epistemic auxiliaries have little trouble taking narrow scope. This follows if Dutch auxiliaries are not subjective by default. This claim, too, gives rise to clear predictions. It should be easier to embed Dutch auxiliaries than it is to embed English auxiliaries. This seems to be the case indeed:

- (22) Als Max wel eens eenzaam kan zijn, zal zijn vrouw zich wel zorgen maken.  
'If Max may be lonely, he wife will be worried'
- (23) Het is verrassend dat Superman wel eens jaloers kan zijn op Lois Lane.  
'It is suprising that Superman may be jealous of Lois.'

According to my intuitions, these sentences are pretty good. Yet, their English counterparts are usually considered to be odd.<sup>5</sup>

As said, Dutch epistemic adverbs do tend to take wide scope. From this I conclude that speakers of Dutch tend to employ adverbs if they want to convey subjective epistemic modality. Lyons already noted that adverbs are particularly subjective. The adverb *perhaps* even seems specialized as a subjective epistemic modal:

- (24) \*If it will perhaps rain, people should bring their umbrellas.

Something similar seems to hold for Dutch epistemic adverbs; they may not be specialized for subjective epistemic modality, but it is certainly true that they are the most natural choice when trying to communicate subjective modality.<sup>6</sup>

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<sup>4</sup> At this point, the reader may wonder about the student resident scenario. Isn't this an objective context? And if so, then why does (1) seem false? I will address this objection below in 3.4.

<sup>5</sup> The Dutch modal *kunnen* differs from the English *may* in that allows both an epistemic reading and an opportunity reading (perhaps it is more like *could* than like *may*). In the example above, I have added the particle combination *wel eens* to force an epistemic reading. See Geurts & Huitink (2006) on the combination of *kunnen* and *wel eens*.

<sup>6</sup> Nuyts (2001a,b) offers some examples of objective uses of Dutch epistemic adverbs, yet he too concedes that the adverbs tend to be more subjective in their interpretation than adjectives or auxiliaries.

This diagnosis of the English-Dutch contrast is in line with the conclusions in van der Auwera et al. (2005): on the basis of an analysis of epistemic modals in translations of J.K. Rowling's *Harry Potter and the chamber of secrets* in various Slavonic languages, they suggest that there is an east-west cline, such that languages that are spoken more to the east often employ adverbs in cases in which more western languages employ auxiliaries. The findings by Aijmer (1999) point into the same direction. She studied translations of English modals in Swedish, and found that auxiliaries are often translated by an adverb.

#### 2.4. *Interim conclusion*

In this section, I have wanted to point out that providing good, public evidence has an effect on the scoping possibilities for epistemic modals: it makes it easier for them to take narrow scope. This suggests that objective epistemics can take both scope positions, and that only the subjective epistemics are the problematic items. This provides for an explanation of the contrast between English and Dutch: whereas in English modal auxiliaries are subjective by default, in Dutch there is a division of labor between auxiliaries and adverbs: typically, epistemic adverbs are chosen when subjective modal claims are made.

### 3. Analysis

Let me now consider various ways to capture the subjective-objective distinction. I will first discuss two proposals already on the market, and I will argue that these are not satisfactory. After that I will present my own account.

#### 3.1. *Previous proposals*

The two proposals on the market are by von Fintel & Iatridou (2003) and Tancredi (2007). Von Fintel & Iatridou conclude that the data follow from a constraint on Quantifier Raising:<sup>7</sup>

- (25)      *The Epistemic Containment Principle (ECP)*  
A quantifier-trace chain cannot cross a subjective epistemic modal  
\*Q<sub>i</sub> . . . [Subjective Epistemic Modal (. . . t<sub>i</sub> . . .)]

The ECP forces quantifiers to reconstruct, i.e. to be interpreted at the position of their trace. The main problem with this theory is that it isn't really an analysis, but merely a restatement of the facts. One is left wondering *why* there should be such a constraint. Moreover, the theory doesn't extend to epistemic adverbs, so this cannot be seen as a full explanation of our data.

An alternative analysis is proposed by Tancredi (2007). As the analysis is quite intricate, I will refrain from presenting it in detail. Essentially, the proposal is that

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<sup>7</sup> In their paper, von Fintel & Iatridou do not restrict their claim to subjective epistemic modals, but I take it that section 2 has sufficiently made clear that such a restriction is necessary.

subjective epistemic modals are interpreted in a model attributed to the subject. Naturally, all the worlds in this model count as relevant for the modal's interpretation. This means that we do not need a world parameter to figure out the modal's contribution. Quantifiers, however, do need such a parameter, in order to fix their domain. 'Above' subjective epistemics, no such parameter is available.

The problem I have with this analysis is that the underlying intuition is doubtful. Tancredi ultimately proposes that in (1) the quantifier cannot take wide scope, because then we wouldn't know about which students we were talking. It is, however, perfectly clear about which students we are talking. After all, we are standing *in front of the student residence*.

### 3.2. Speech act modifiers

To capture the above patterns, I propose that subjective epistemics do not contribute to the truth conditional content of the utterance in which they occur. The basic idea is that (26), on its subjective reading, is used to offer a conjecture that it is raining/to raise the possibility that it is raining.

(26) It may be raining.

Then, what subjective *may* contributes to, is not the content of the sentence, but its illocutionary force. Assuming that the default speech act for declaratives is assertion, subjective *may* functions as a down-toner, which weakens that speech act into conjecture. The following table makes the gist of the analysis clearer. Here *may<sub>s</sub>* stands for subjective (epistemic) may, while *may<sub>o</sub>* stands for the objective interpretation. The diamond has its usual interpretation (explicated below in (29))

	FORCE	CONTENT
It is raining.	assert	rain
It may <sub>s</sub> be raining.	conjecture	rain
It may <sub>o</sub> be raining.	assert	◇rain

Following Krifka (2001), I assume that speech act modifiers relate commitment states. The subjective interpretation of *may* can then be implemented as follows, where *c* is a commitment state:

(27)  $[[\text{may}_s\phi]] = \lambda c. c + \text{the speaker is weakly committed to } \phi$

In turn, weak commitment can be explicated in terms of the beliefs of the speaker:

(28) an individual *x* is weakly committed to  $\phi$  iff  $\phi$  is compatible with *x*'s beliefs.

This makes the subjective interpretation of *may* close to its objective interpretation, the main difference being that objective *may* relates propositions and contributes to the truth conditions (here *b* represents the beliefs of the speaker or of a larger group of believers; *b* is of the type  $\langle s, t \rangle$ , a proposition):

(29)  $[[\text{may}_o\varphi]] = \lambda b. b$  is compatible with  $\varphi$

How does this account for the fact that subjective modals take obligatory wide scope? Since quantifiers contribute to the truth-conditional content (they just aren't illocutionary force indicators/modifiers), it follows that they can never scope over subjective epistemics.

### 3.3 Removing objections.

Papafragou (2006) argues against the idea that subjective epistemics fail to contribute to the truth conditions of the utterance.<sup>8</sup> One of her arguments is that this would wrongly predict that (30) is contradictory :

(30) Sally<sub>i</sub> may come, and (then) she<sub>i</sub> may not come.

But it is clear that on my analysis of speech act modification, this objection doesn't hold water. For (30) is contradictory only if the speaker both asserts that Sally comes and that she doesn't come. But I claim that the speaker is not asserting at all when uttering (30). She is merely making a conjecture that she comes, and then she is making a conjecture that Sally does not come.

Yet Papafragou does point out a nasty problem: subjective epistemics may fall in the scope of negation:

(31) a. John doesn't have to be the prime suspect.  
b. John can't be the prime suspect.

To deal with this kind of sentences, I will have to claim that *can't* doesn't involve a subjective modal in the scope of a negation, but rather than *can't* is one unit, expressing one negative speech act.

### 3.4. The case of every

The reader may have noted that I 'pulled a fast-one'. My claim is that epistemic modals that depend on objective, quantifiable evidence, may scope under subject quantifiers. This claim seems to be contradicted by example (1). It seems that the student residence context counts as an objective context. This is even more clearly the case for the next example by von Stechow & Iatridou:

Scenario:

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<sup>8</sup> She presents an alternative analysis which centers around the idea that there is something indexical in the meaning of subjective epistemics: such modals depend on what the *current* speaker knows *at the time of utterance*. While this strikes me as plausible, it does not account for the fact that subjective epistemics take obligatory wide scope over nominal quantifiers. So it seems to me that her story is not the whole story about subjective epistemics.

*Imagine a group of people who were exposed to an infectious agent. From anonymous test results, we have concluded that half of the people are healthy, but we don't know which ones they are. For any given person, then, we don't know whether he or she is infected.*

(32) Half of you are healthy, but everyone may be infected.

My theory predicts that (32) is good, yet it is inconsistent. Still, the given context seems to be as objective as can be. How is this possible?

I submit that in case of *every*, a narrow scope reading for the modal is blocked, because of the existence of the free choice item *any*. Clearly, (33) is the preferred way of reporting our situation:

(33) Half of you are healthy, but anyone may be infected.

In general, the wide scope tendency for the quantifier is strongest with *every*, no matter how objective the context, this item just cannot take scope over an epistemic modal. Nevertheless, perhaps all that we are witnessing is a division of labor between *every* and *any*.<sup>910</sup>

#### 4. Conclusions and future research

To sum up, I have demonstrated that it isn't the case in all languages that epistemic modals take obligatory wide scope. In Dutch this is not true. Even for English, the claim needs to be further qualified, as in some cases, it is possible for epistemics to scope under subject quantifiers. I have argued that in these cases, the modal receives an objective interpretation.

So my claim is that subjective epistemics take obligatory wide scope. In English, it seems that modals are subjective by default, but not so in Dutch. In this language, only the adverbs tend to be subjective, which results in there being no problem with nominal quantifiers scoping over epistemic auxiliaries. I have argued that the best way to capture the subjective-objective distinction is by locating each sense at another level of meaning: objective epistemics contribute to the content, but subjective epistemics rather modify the speech act. I have tried to make sense of the subjective and objective meanings of *may* in such a way that they are still related. After all, it is probably not a coincidence that English uses the same item to express both meanings.

There are many issues left open for future research. One is how other languages behave. It seems that Japanese (Tancredi 2007) and Modern Greek (Iatridou p.c.)

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<sup>9</sup> Unlike English, Dutch doesn't have a free choice item like *any*, but uses universal quantifiers in this case. Note that this fact alone is not enough to account for the English-Dutch contrast: quantifiers other than *iedereen* 'every' also scope over epistemics.

<sup>10</sup> Interestingly, *each* patterns with *any*, in that it can also scope over epistemics. Tancredi (2007) assumes that the use of *each* typically signals an objective context. The same line of defense is open to me.

behave like English, but that German and Mandarin Chinese (Ken Shan p.c.) are like Dutch. Another open question is whether we can make sense of the data without having to stipulate that subjective modals make non-truth-conditional contributions. On the one hand, I think that if such an analysis were available, it would be preferred over the one I presented here. On the other hand, I don't see how this can be achieved, and it really does seem to me to be the case that in subjective epistemic claims, the modal serves to merely mark the force of the speaker's commitment to the complement of the modal.

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# A Time-Relational Approach to Aspect in Mandarin Chinese and English

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## Abstract

In this paper, we compare the semantics of Chinese and English aspect marking in the Reichenbachian (1947) time-relational framework. The temporal interpretation of a simple Chinese sentence with no time adverbials or aspect markers mainly depends on the Vendlerian (1967) class of the verbal predicate. For the four aspect markers *le*, *guo*, *zai* and *zhe*, we basically follow Klein *et al.*'s (2000) definition but abandon their use of the distinguished phase. We conclude that *zai* and *zhe* indicate the same time relation as the English progressive, while *guo* indicates the same relation as the English perfect, and *le* indicates a precedence relation between the initial point of event time and the final point of reference time.

**Keywords:** time-relational, verbal classes, zero marking, *le*, *guo*, *zai*, *zhe*.

Both English and Mandarin Chinese have grammatical aspect, while the former also has grammatical tense but the latter does not, just as is usually assumed. In this paper, we compute the semantics of Chinese aspect marking in simple isolated sentences in the Reichenbachian time-relational framework and compare it with that of English. In the first section, we introduce a time-relational definition of tense and aspect for English and discuss the interaction between aspect and Vendlerian classes of the verbal predicate in that language. Against this theoretic background, we move on to Chinese aspect. In the second section, we introduce the Chinese aspectual system, focusing on the combinational restrictions of aspect markers with verbal classes. In the third section, we discuss two recent papers on Chinese aspect marking that were both done in the time-relational framework, namely, Klein *et al.* (2000) and Lin (2006), and we make our own claim based on these studies. The last section offers some concluding remarks.

## 1. Introduction: The case of English

### 1.1. A time-relational definition of English tense and aspect

Reichenbach's (1947) philosophical work has had a tremendous impact on linguistic works about tense and aspect. He introduces three notions of time: speech time ( $T_S$  - the time when the utterance is made), event time ( $T_E$  - the time when the event described in the utterance takes place) and reference time ( $T_R$  - the time from which the event is seen). In his system, tense and aspect are represented in terms of positional relationships of these three times. More recent attempts at time-relational definitions of tense and aspect such as Johnson (1981) and Klein (1994) adopt the notion of intervals instead of Reichenbach's points of time. An interval of time has a beginning point  $t_1$  and an end point  $t_2$ . If the end point of an interval  $T_1$  is located before the beginning point of the other interval  $T_2$ , there is a relation of temporal precedence between the two intervals. Temporal overlap indicates that two intervals share some part in common. As a special case of temporal overlap, temporal inclusion means that one interval is included in the other one. They are defined below:

(1) Temporal relations (Carpenter 1997: 413)

Temporal precedence:  $T_1 < T_2$  iff  $t_1 < t_2$  for every  $t_1 \in T_1$  and every  $t_2 \in T_2$

Temporal overlap:  $T_1 \text{ O } T_2$  iff  $T_1 \cap T_2$  is nonempty

Temporal inclusion:  $T_1 \subseteq T_2$  iff  $T_1 \subseteq T_2$

For both Johnson and Klein, tense indicates a relation between reference time and speech time, while aspect points to a relation between reference time and event time.

(2) Table 1. Time-relational definitions of tense and aspect<sup>1</sup>

		Johnson (1981)	Klein (1994)
Tense	Past	$T_R < T_S$	$T_R < T_S$
	Present	$T_S = T_R$	$T_S \subseteq T_R$
	Future	$T_S < T_R$	$T_S < T_R$
Aspect	Simple	$T_E = T_R$	$T_E \subseteq T_R$
	Progressive	For some $t$ in $T_E$ , $T_R < t$	$T_R < T_E$
	Perfect	$T_E < T_R$	$T_E < T_R$

In the current analysis, we follow Klein's (1994) definitions, because there are two weak points in Johnson's definitions: first, Johnson's definition of present tense is problematic for statements such as *Mary has long hair*, which indicate that speech time is included in (not simultaneously with) reference time. In other words, there is a relation of  $T_S \subseteq T_R$  rather than  $T_S = T_R$ . Second, his definition of the simple aspect does not hold in sentences like *I worked* or *I work*, in which event time is not the same as reference time but is included in the reference time, that is,  $T_E \subseteq T_R$ .

Focusing on aspect, as Klein’s definition in Table 1 shows, the criterion for the simple/progressive distinction is whether event time is (properly or improperly) included in reference time or reference time is (properly) included in event time. The simple aspect in *Tom smiles / Tom smiled* indicates that the event of Tom’s smiling is located somewhere within or simultaneously with the interval of reference time (that is fixed by tense); with the progressive form such as in *Tom is smiling / Tom was smiling*, on the contrary, reference time is located within the interval of event time. For a sentence such as *Anna has graduated*, the event of Anna’s graduating takes place before the time about which the assertion is made, that is, before reference time. Table 2 presents the time relations due to tense and aspect in English simple sentences.

(3) Table 2. The English tense/aspect system

Aspect Tense			Time relations	Example sentences
	± Perfect	± Progressive		
Past	+	–	$T_R < T_S, T_E < T_R$	<i>Anna had met Peter.</i>
	–	–	$T_R < T_S, T_E \subseteq T_R$	<i>Anna met Peter.</i>
	–	+	$T_R < T_S, T_R \subset T_E$	<i>Anna was meeting Peter.</i>
Present	+	–	$T_S \subseteq T_R, T_E < T_R$	<i>Anna has met Peter.</i>
	–	–	$T_S \subseteq T_R, T_E \subseteq T_R$	<i>Anna meets Peter.</i>
	–	+	$T_S \subseteq T_R, T_R \subset T_E$	<i>Anna is meeting Peter.</i>
Future	+	–	$T_S < T_R, T_E < T_R$	<i>Anna will have met Peter.</i>
	–	–	$T_S < T_R, T_E \subseteq T_R$	<i>Anna will meet Peter.</i>
	–	+	$T_S < T_R, T_R \subset T_E$	<i>Anna will be meeting Peter.</i>

### 1.2. Aspect and inherent verb meaning

By aspect, we mean only grammatical aspect. The reason why some linguists group grammatical aspect and lexical aspect or “inherent verb meaning” (Comrie 1976) together under the one term ‘aspect’ (Ref. Smith 1991) lies in the fact that the two kinds interact greatly with each other so that it is not always easy to tell them apart. For the current discussion, we will introduce Vendler’s (1967) four verb classes and Klein’s (1994) three kinds of lexical contents (that are mainly relevant for the discussion about Chinese aspect), both of which take the interaction between aspect and inherent verb meaning into consideration.

#### 1.2.1. Vendler’s (1967) States/Activities/Accomplishments/Achievements<sup>2</sup>

Vendler (1967) observes that state verbs such as *know*, *love* and *recognize* do not occur in the progressive form. The verbs that do occur in the progressive can be divided into two groups, namely, those that have a set terminal point such as *run a mile*, *draw a*

*circle*, and those that do not such as *run*, *push the cart*. He calls the first kind accomplishments and the second activities. State verbs can be combined with durative adverbials such as *for three years* while achievements like *reach the hilltop* can only be combined with punctual adverbials such as *at 5 o'clock*. Accomplishments and achievements have in common that the eventualities they involve have natural terminal points, while this is not the case with states and activities. Both activities and accomplishments can be combined with the progressive aspect, while states and achievements cannot. Vendler's verb (or predicate) classes correspond to the telic/atelic distinction of verbal predicates.<sup>3</sup> His accomplishments and achievements correspond to telic verbal predicates. States and activities equal atelic verbal predicates.

### 1.2.2. Klein's (1994) 0-phase/1-phase/2-phase Lexical Contents

Klein (1994) distinguishes three kinds of lexical contents: 0-phase, 1-phase and 2-phase. 0-phase lexical contents are verb contents, "which, when applied to some argument(s) at some time T, are supposed to apply to the argument(s) at any other time T as well" (Klein *et al.*, 2000: 747). For example, if we say *The Rhine is in Europe*, it should hold true at any time. 1-phase lexical contents, for example, *sing*, *work*, describe situations that are "true for some argument(s) at some time T" with "a contrasting time T' at which they are not true". Klein claims that 0-phase contents describe situations without boundaries but 1-phase contents describe bounded situations, in other words, those with a beginning and an end. If we say *Tom loves Amy*, there is usually some time at which the described situation does not hold true in contrast to the time of reference (or time of assertion TT in Klein's term) at which the situation does hold true. This kind of contrast is what Klein calls a TT-contrast. Like 1-phase lexical contents, 2-phase lexical contents also involve a TT-contrast, but it is rather an internal one, that is, within the same TT there is "a change of state" such that "a situation first obtains" and then "does not obtain (or vice versa)" (Klein *et al.*, 2000: 748). 1-phase content / 2-phase lexical content pairs are, for instance, *stechen/erstechen* 'to stab'/'to kill by stabbing' in German or *eat/eat up* in English or *da/da-si* 'hit'/'hit-die' in Chinese. As we will discuss later, such constructions as *da-si* are called RVCs in Chinese.<sup>4</sup>

Roughly speaking, Klein's 0-phase lexical contents are atemporal in nature (often applied for factual statements). Both his 1-phase and 2-phase lexical contents are temporal as they hold true only for a certain stage of time. His 1-phase contents correspond to atelic predicates or Vendler's states and activities, while 2-phase contents correspond to both accomplishments and achievements, in other words, to telic predicates. At this point, we find Klein's classification problematic, because it neither

considers the common features of 1-phase and 2-phase lexical contents, both being temporal predicates, nor the distinctions between states and activities of 1-phase contents and between accomplishments and accomplishments of 2-phase contents. We will come back to this when talking about Chinese aspect marking.

### 1.2.3. A summary

The Vendlerian classes can be applied cross-linguistically, as verbal predicates in any language are used to express human conceptualization of what is going on in the world, that is, eventualities, which is ontology rather than linguistics. Linguistically speaking, eventualities involve much more than what verbs denote. Parsons (1990: 145) claims that “Most events and states are concrete entities, not abstract ones”, thus *Brutus’s stabbing of Caesar* is different from *Parson’s stabbing of his finger*. We neglect such differences, taking the compositional approach like Verkuyl (1972). His suggestion that the Vendler classes pertain to predicates and not to verbs means that *run*, *run a mile*, *run to the library* do not belong to the same class even though the same verb *run* is used. Among those languages with aspect, the nature of aspect is different in each language. For example, regarding the combination restrictions of verbs classes with aspect, there is variation, as we will see, between English and Mandarin Chinese.

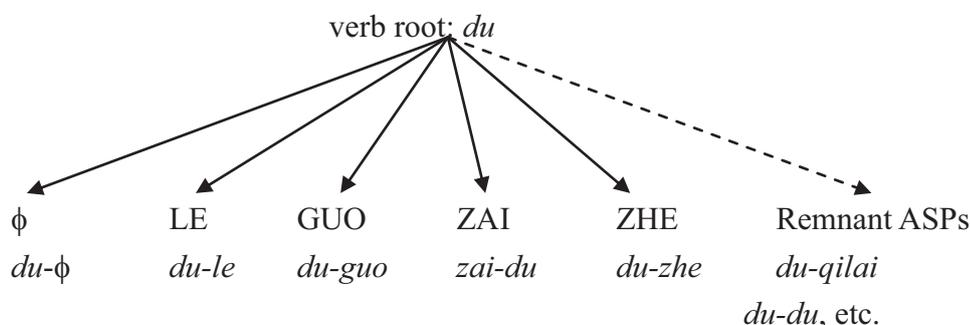
## 2. Chinese aspect marking

Except for the fact that English has tense and Mandarin Chinese does not, in either of the languages, time adverbials, aspect and inherent verb meaning all contribute to the temporal interpretation of the described situation in simple sentences. Lin (2006) proposes [CP...[IP...[ModalP...[AspP...[VP...]]]] as the Chinese phrase structure, with no TP above AspP. We assume that in a finite sentence, if the verb does not take any aspect marker, there is zero marking.<sup>5</sup>

Chinese is called an aspect-prominent language due to its very rich aspectual system, yet there is no consensus about how many aspect markers there are. Li and Thompson (1981: 185) categorize four types: “1. Perfective: *-le* and perfectivizing expressions, 2. Imperfective (durative): *zai*, *-zhe*, 3. Experiential: *-guo*, 4. Delimitative: reproduction of verb”. Chu (1998) adds one more, namely the inchoative aspect marker *qilai*. Since our present work does not aim at any exhaustive listing of all potential aspect markers, we concentrate on the four most discussed and well acknowledged ones, namely, *le*, *guo*, *zai* and *zhe*, leaving all the other potential ones in the category of ‘Remnant ASPs’ for

future study. Of the four aspect markers, *zai* is the only one that precedes the verb and receives a fourth tone, while the other three are all toneless verbal suffixes. The finite forms of the verb *du* ‘read’ are stated below:

(4) Chinese aspectual system



With zero marking, the temporal features of a sentence are usually expressed through time adverbials (if there is none, the reference time simply includes the speech time (now); in other words, time is located at the present) and the inherent temporal properties of the verbal predicate.<sup>6</sup> With aspect markers used, the temporal meaning can be conveyed by three elements, namely time adverbials, inherent verb meaning and aspect. In the following sections, we leave out time adverbials completely while discussing only simple isolated (in other words, without any context backgrounding) sentences to show how zero marking and the four aspect markers work, especially how they interact with Vendlerian verb classes in Chinese.

2.1. Zero marking

Concerning zero marking, we want to answer two questions: first, are aspect markers, as some linguists claim, optional in Chinese? Second, how do temporal interpretations obtain in sentences without aspect markers?

Smith (1991) claims that aspect markers are “syntactically optional” in Chinese and therefore that zero marking, or the “neutral viewpoint” as she calls it, is “in principle always available”. This is a problematic claim, as with achievement verbs such as *si* ‘die’, *dao* ‘arrive’ or *bi-ye* ‘graduate’, aspect markers are not optional if neither time adverbials nor RVC elements are present.

(5) a. *zhang-san si-le.*

Zhangsan die-LE  
‘Zhangsan died.’

b. \**Zhangsan si-φ.*

Zhangsan die.

- c. *zhang-san gang-gang si.*  
 Zhangsan just die  
 ‘Zhangsan just died.’
- d. *zhang-san si-diao.*  
 Zhangsan die-RVC  
 ‘Zhangsan died.’

In Lin’s (2006) attempt to decode the semantics of zero marking, which he calls “default viewpoint aspect”, he starts with the following example sentences:

- (6) a. *zhang-san hen mang.*  
 Zhangsan very busy  
 ‘Zhangsan is very busy.’
- b. *ni da lan-qiu ma?*  
 you play basketball Q  
 ‘Do you play basketball?’
- c. *zhang-san da-puo yi-ge hua-ping.*  
 Zhangsan break-RVC one-CL vase  
 ‘Zhangsan broke a vase.’
- d. *ta dai wo qu tai-bei.*  
 he take me go Taipei  
 ‘He took me to Taipei.’

For Lin, (6a) is interpreted as a present tense sentence and (6b) as a present generic one; (6c) and (6d) both have a past interpretation. This interpretation is quite problematic. First, as a native speaker, I do not think that the sentence (6d) necessarily indicates a past interpretation unless the aspect marker *le* is added. Nevertheless, it is also all right to interpret it with a future reading. If someone says *ta dai wo qu tai-bei*, it sounds more natural to ask *When are you leaving?* than *When did you go?* Thus, the temporal reference in (6d) is rather ambiguous.

The weakness of Lin’s proposal lies also in that he does not clarify how the past interpretation obtains in (6c) and (6d). It is obviously not random that these two sentences could have (although questionably) a “past interpretation”. Taking a closer look at the four sentences, we find that (6a) involves a state that is indicated by an AdjP (without any copula verb, as Chinese allows), that (6b) involves an activity and that (6c) involves an achievement indicated by a RVC. The last sentence is hard to define at first sight. What Lin terms as a past interpretation in (6c) seems to come from some kind of world knowledge: if an event such as *zhang-san da-puo yi-ge hua-ping* does not take place in the past (which means nothing has been achieved yet), it will sound odd to utter

such a sentence with all the detailed information, namely the agent of the event *Zhang-san*, and the existence of the undergoer of the event, *yi-ge hua-pin* in this case. Even in English, it sounds odd to say *Peter breaks a glass* (if we take the present tense/simple aspect as the default form in English corresponding to zero marking in Chinese) although it is a completely grammatical sentence. Moreover, *breaking a glass* can not be something ‘habitual’ so as to convey a present reading. The only possible factor that causes a “past interpretation” (if there were one) is the verbal predicate *da-pao* ‘hit-broken’, which is a RVC construction and an achievement in nature.

Since the other three sentences cover a state, an activity and an achievement, (6d) is probably supposed to an accomplishment. As Smith claims, accomplishment sentences without aspect markers are aspectually vague and the described situation “may be ongoing, terminated or completed” (1991: 364). This corresponds to our intuition.

In brief, aspect markers are not always optional in Chinese, especially those with non-RVC achievements. Accomplishments without any aspect marker are aspectually ambiguous. We have to mention again that we mean isolated accomplishment sentences, as often discourse or world knowledge, for example, can specify the aspectual property of the given situation, even when no aspect marker is present. With zero marking, the temporal meaning of a given situation comes mainly from inherent verb meaning, that is, whether it is a state, an activity, an accomplishment or an achievement.

## 2.2. The four aspect markers

### 2.2.1. *Le*

First of all, *le* marks a termination of an event, but not necessarily a completion. (7a) is ambiguous in that the homework can either be finished or not, which for whatever reason is not specified. (7b) makes the incompleteness explicit, whereas in (7c), the meaning of completion is marked through use of a RVC.

- (7) a. *ta zuo-le zuo-ye.*  
       he do-LE homework  
       ‘He did his homework.’
- b. *ta zuo-le zuo-ye, dan-shi mei zuo-wan.*  
       he do-LE homework but not do-RVC  
       ‘He did his homework, but didn’t finish it.’
- c. *ta zuo-wan-le zuo-ye.*  
       he do-RVC-LE homework

‘He finished doing his homework.’

However, the meaning of completion follows from the verbs sometimes. When *le* is used with atelic verbs or activities in Vendler’s term, the sentence does not indicate completion necessarily, while a sentence with *le* suffixing telic verbs or achievements has the meaning of completion. With accomplishments such as *zuo yi-ge dao-gao* ‘make a cake’, it remains unclear to us whether the completion follows necessarily or not and therefore we leave this issue for future research.

State verbs usually do not appear together with *le*. When they do, there are two possibilities. We observe that with verbs like *xiang* ‘think’, the sentence indicates a state without *le* but an activity with *le*, similar to the verb *think* in English. When *le* follows state verbs such as *zhi-dao* ‘know’ or adjectives such as *pang* ‘fat’ without anything following it, the sentence denotes a meaning of inchoativity.

- (8) *nana pang-le*.  
Nana fat-LE  
‘Nana gained weight.’

### 2.2.2. *Guo*

*Guo* means that some event takes place at least once, which requires the event indicated by the predicate to be repeatable.

- (9) *?ta si-guo*.  
he die-GUO  
‘He died once.’

*Guo* is often called an experiential aspect marker due to the pragmatic principle governing its use, namely, it should be applied to things that can be called an experience. This leads to the contrast in (10), as rice eating can hardly be called an experience in most cultures.

- (10) a. *ta chi-guo kimchi/?mi-fan*.  
he eat-GUO kimchi/?rice  
‘He has eaten kimchi/?rice (once).’

### 2.2.3. *Zai* and *zhe*

It is easier to understand both *zai* and *zhe* by comparing them with each other. As ‘imperfective’ aspect markers, they cannot co-occur with states or achievements.

- (11) a. *\*ta zai zhi-dao*.  
he ZAI know  
b. *\*ta yin-zhe*.

he win-ZHE

*Zai* differs from *zhe* in that the former only modifies dynamic durative events, whereas the latter usually modifies stative durative ones. *Zhe* indicates continuation either of an action or a resultant state from an action. As (12) shows, with the same verb such as *chuan* ‘put on / wear’, the difference whether it is meant to be an action or a result state is made clear through the use of *zai* or *zhe*. With the former, an action is expressed and with the latter, a resultant state from the action. In other words, *zai* is action-oriented while *zhe* is result-oriented.

- (12) a. *ta zai-chuan yi-jian da-yi.*  
 he ZAI-wear one-CL coat  
 ‘He is putting on a coat.’
- b. *ta chuan-zhe yi-jian da-yi.*  
 he wear-ZHE one-CL coat  
 ‘He is wearing a coat.’

### 2.3. A Summary

(13) Table 3. Combinational restrictions of aspect and Vendlerian verb classes

	$\phi$	<i>le</i>	<i>guo</i>	<i>zai</i>	<i>zhe</i>
States	+	?	+	?	+
Activities	+	+	+	+	+
Accomplishments	?	+	+	+	+
Achievements		*	+	*	*
	RVCs	+	+	*	*

Table 3 summarizes the restrictions on the combinations of aspect marking and verbal classes in Mandarin Chinese. To clarify, firstly, some but not all state verbs can be combined with *le* to indicate inchoativity. State verbs with *zai* are not completely unacceptable, but often they are switched into activities in the meantime. Secondly, activities are available with both zero marking and all the four aspect markers. Thirdly, accomplishments are available with both zero marking and all the four aspect markers. However, they are aspectually ambiguous with zero marking. Last, non-RVC achievements are incompatible with zero marking. Achievements, in general, can occur with *le*, but not *guo*, *zai*, or *zhe*.

### 3. A time-relational definition of Chinese aspect marking

More recently, linguists working on Chinese aspect have taken efforts to approach

it in a more formal way, such as Smith's (1991) schematic statements of the four aspect markers in her two-aspect theory, Klein *et al.*'s (2000) time-relational definitions of the four aspect markers and Lin's (2006) formal analysis of zero marking and aspect markers. In the following paragraphs, we will discuss the latter two works that are both done in the time-relational framework in order to make our own claim.

### 3.1. Klein *et al.*'s (2000) definitions of the four aspect markers

It must be noted that “‘perfective aspect’ in one language is not necessarily the same as ‘perfective aspect’ in another language” and for example, “Chinese ‘perfective’ and English ‘perfective’ are similar in many ways, but they also differ in some respects” (Klein *et al.* 2000: 744). This is why we do not use the perfective/imperfective distinction but rather the simple/progressive one for English. For the same reason, instead of using the terms perfective/imperfective/perfect for Chinese aspect markers, we simply stay with the original Chinese words and discuss the time relations indicated by them respectively, in order to respect and thus convey the language-specific properties of Chinese aspect.

To understand Klein *et al.*'s definition of Chinese aspect markers, it is necessary to mention that according to them, “a situation described by a 2-phase expression such as <Adam fall asleep> includes two distinct time intervals, a source phase which can be described by <Adam not be asleep>, and a target phase which can be described by <Adam be asleep>” (Klein *et al.* 2000: 751). They further claim that languages must choose one of the two phases to which the reference time (in Klein's term, topic time or time of assertion) is related. The chosen phase in a language is called “the distinguished phase (DP)”, which is “(a) the only phase in the case of 1-phase contents, and (b) either the source phase or the target phase in the case of 2-phase contents” (Klein *et al.*, 2000: 751). They assert that DP is the source phase in English but the target phase in Chinese, as “English is more ‘action-oriented’ while Chinese is ‘result-oriented’” (754).

In the time-relational framework, they define the four Chinese aspect markers as in (14): all of them indicate a relation between event time and reference time. This is exactly what aspect is defined to do.

- (14) Klein *et al.*'s (2000) time-relational definition of Chinese aspect markers<sup>7</sup>
- le*:  $T_R \text{ O PRETIME } T_{DP} \text{ and } T_{DP}$
- guo*:  $T_{DP} < T_R$
- zai*:  $T_R \subset T_{DP}$

*zhe*:  $T_R \subset T_{DP}$

We propose revising this definition on the basis of the following three points:

### 3.1.1. *Guo* is a perfect marker

*Guo* is in fact more of a perfect maker than a perfective one, although it is usually given the latter term. According to Klein *et al.*, DP in Mandarin Chinese is the single phase for 1-phase lexical contents and the target phase for 2-phases contents. Therefore, for 1-phase contents or in more general terms, states and activities, the relation of ‘ $T_{DP} < T_R$ ’ that *guo* is defined to indicate is a relation of ‘ $T_E < T_R$ ’. For 2-phase contents or for accomplishments and achievements, the relation ‘ $T_{DP} < T_R$ ’ says nothing more than a relation of ‘ $T_E < T_R$ ’, since DP, in Chinese, that is, the target phase is evidently the latter part of a 2-phase content. This means that more generally speaking, whatever content is involved, *guo* indicates a precedence relation between event time and reference time, which is exactly what the English perfect does.

### 3.1.2. Redefinition of *le*

As defined in (14), *le* indicates that reference time overlaps with DP and part of the time before DP. Observe the following examples with some simple diagrams according to Klein *et al.* (2000). +++ stands for DP, ---for the source phase of 2-phase contents and [] for reference time that corresponds to Klein’s topic time or time of assertion, that is, “the time about which an assertion is made” (Klein *et al.* 2000: 742).

- (15) a. *zhang-san tiao-wu-le.* [ +++]+++ or  
[ ++++++]  
Zhangsan dance-LE  
‘Zhangsan danced.’
- b. *zhang-san pang-le.*  
[ ++++++]  
Zhangsan fat-LE  
‘Zhangsan became fat.’
- c. *zhang-san hua-le yi-fu hua.* ---[---+++]+++ or ---[---  
+++++]  
Zhangsan draw-LE one-CL picture  
‘Zhangsan drew a picture.’
- d. *zhang-san si-le.* ---[---+++++]  
Zhangsan die-LE  
‘Zhangsan died.’

In (15a), with the activity verb *tiao-wu* ‘dance’, *le* does not necessarily indicate

any completion. The interpretation is left open. In (15b), combined with a state predicate, the adjective *pang* ‘fat’ without any copula verb, as is allowed in Chinese, together with *le* conveys an inchoative reading. In (15c), with an accomplishment, the sentence is also ambiguous as to whether it indicates completion or not, since we can say, for example, *zhang-san hua-le yi-fu hua, dan-shi mei-you hua-wan* ‘Zhangsan drew a picture, but didn’t finish it’. This ambiguity can be avoided by using a resultative verb complement added to the verb, in which case completion is indicated. In the last sentence, with the achievement verb *si* ‘die’, *le* marks the realization of DP. Obviously, all the four cases fall into Klein *et al.*’s definition of *le*, namely, ‘ $T_R$  O PRETIME  $T_{DP}$  and  $T_{DP}$ ’.

However, we claim that the use of DP is totally redundant to define *le*. To back up this claim, let’s check Klein *et al.*’s definition with 1-phase contents and with 2-phase contents separately.

For 1-phase contents such as in the first two sentences of (15), the time of DP is simply the time of event; thus it is all right to translate Klein *et al.*’s definition of *le* into ‘ $T_R$  O PRETIME  $T_E$  and  $T_E$ ’.

“For 2-phase contents in Chinese, the target phase is the distinguished phase DP, and as a consequence, the source phase is the pretime of DP” (Klein *et al.*, 2000: 757). If it is possible to take <Zhangsan be not dead> and <Zhangsan be dead> to be the source phase and the DP for <Zhangdan die> in (16d), we find it difficult to tell what is the source phase and what is the target phase of <Zhangsan draw a picture> in (15c).

To avoid the sort of confusion stated above, we suggest giving up the concept of DP, and coming back to the notion of event time. In this case, we only have to switch ‘--for the source phase of 2-phase contents’ in (15c) and (15d) into +++ and combine it with DP to stand for event. Thus, (15c) involves four kinds of temporal relations, namely, [ +++]+++, [ +++++], +++[+++]+++ and +++[+++]. As we mention in the first section, with notions of intervals,  $T_E$  and  $T_R$  can be defined with two endpoints as  $[t_1, t_2]$  and  $[t_3, t_4]$ <sup>8</sup>. Then, the four time relations presented by the four sentences in (15) can be translated into  $t_3 < t_1 < t_4 < t_2$ ,  $t_3 < t_1 < t_2 \leq t_4$ ,  $t_1 < t_3 < t_4 < t_2$  and  $t_1 < t_3 < t_2 \leq t_4$ . All of them include a relation of ‘ $t_1 < t_4$ ’, in other words, that the initial point of event time precedes the final point of reference time. Thus, we can redefine *le* as below:

(16) Redefinition of *le*: InitialPoint  $T_E <$  FinalPoint  $T_R$

In fact, all the four time relations also involve a relation of  $t_3 < t_2$ , that is, ‘InitialPoint  $T_R <$  FinalPoint  $T_E$ ’. The reason why we pick the relation in (16) is that it can perfectly explain all the behaviors of *le* shown in (15), especially the fact that *le* does not indicate completion itself. As our redefinition shows, the focus of *le* is put on

the relation between the initial point of event time and the final point of reference time while the final point of event time, which determines the completion of an event, is left unspecified. Moreover, such a definition also seems to be in line with the definition of *guo* in that both concern a precedence relation between event time and reference time (although not in exactly the same way). Hence we can claim that *le* and *guo*, which are traditionally called perfective markers, are better defined as perfect markers, as Klein *et al.* themselves almost claim: “*le* and *guo* express a ‘perfective’ (or perhaps ‘perfect’ aspect)” (2000: 1-2). As we will see later in this section, our claim even brings the accounts of zero marking into our framework.

### 3.1.3. *The redundancy of DP*

As we show in 3.1.1. and 3.1.2., DP is not necessary for the definitions of *le* or *guo*. In this part, we will show that it is not necessary for the definition of *zai* and *zhe*, either.

Most often *zai* and *zhe* appear with states or activities. States and activities are called 1-phase contents by Klein (1994, 2000) and for them, the time of DP equals event time. In this case, we can switch Klein *et al.*'s (2000) definition of *zai* and *zhe* into ‘ $T_R \subset T_E$ ’. Achievements in Chinese can not occur with *zai* or *zhe*, while accomplishments like *hua yi-fu hua* ‘draw a picture’ can be combined with either of them. However, then they rather behave like activities because the resulting state (remember that an accomplishment involves an activity and a state resulting from the activity), that is, DP, is not relevant or realized, although it is there naturally. Thus, we do not think it necessary to distinguish the source phase and the target phase (DP). In short, we can abandon the use of DP for the definition of *zai* and *zhe* as well. A relation of  $T_R \subset T_E$  is sufficient to define both of them.

## 3.2. *Zero marking*

The semantics of zero marking is often neglected in the research on Chinese aspect. Some accounts on it can be found in Smith (1991), Klein *et al.* (2000) and Lin (2006). Smith (1991) claims that aspect markers in Chinese are optional and without them, the sentences have a so-called neutral aspect that needs the context and world knowledge to specify whether an imperfective or a perfective meaning is intended. We agree with Klein *et al.* that “it is rarely the case that the same sentence can have both a perfective and an imperfective reading: discourse or situational contexts almost always disambiguate the two interpretations” (Klein *et al.* 2000: 766). As we have argued in the

last section, aspect markers are not always optional, especially with non-RVC achievements. Furthermore, the aspectual meanings of a sentence without aspect markers basically come from the inherent meaning of the verb predicate.

In the following, we will discuss Lin's (2006) accounts of zero marking, which he calls "default viewpoint aspect", arguing against his claim that "the temporal interpretation of sentences without any temporal adverbs or aspectual markers is determined via their viewpoint aspect. Namely, a sentence with imperfective viewpoint aspect has a present interpretation, whereas a sentence with perfective viewpoint aspect has a past interpretation" (Lin 2006: 4). Without clarifying how, the default perfective is distinguished from the default imperfective aspect when no aspect marker is present, Lin proposes a definition for Chinese perfective aspect (both in his default sense and also for the two aspect markers *le* and *guo*), which "is functionally like the past tense in English" (Lin 2006: 6):

(17) Lin's (2006) temporal semantics of Chinese 'perfective' aspect

Perfective aspect =  $\lambda P_{\langle i, t \rangle} \lambda t_{\text{Top}} \lambda t_0 \exists t [t \subseteq t_{\text{Top}} \wedge P(t) \wedge t_{\text{Top}} < t_0]$

$\| \text{guo} \| = \lambda P_{\langle i, t \rangle} \lambda t_{\text{Top}} \lambda t_0 \exists t [P(t) \wedge \text{IStage}(t, P) \subseteq t_{\text{Top}} \wedge t_{\text{Top}} < t_0]$

$\| \text{le} \| = \lambda P_{\langle i, t \rangle} \lambda t_{\text{Top}} \lambda t_0 \exists t [P(t) \wedge \text{IStage}(t, P) \subseteq t_{\text{Top}} \wedge t_{\text{Top}} < t_0 \wedge t_{\text{ana}} \subseteq \text{Rstate}(t, P)]$

To explain (17), we have to mention Lin's claim that "(the time of) an eventuality canonically breaks down into (the time of) Inner Stage and (the time of) Result State" (2006: 8). According to him, the time of Inner Stage equals event time for atelic events, that is, for states and activities, whereas for telic ones, that is, for accomplishments and achievements, the time of Inner Stage is the time of event time minus its final point. For states and achievements, the time of Result State is the time following the interval of event time, and for accomplishments and achievements, it is the time at which the result state holds. In (17), 'IStage' stands for Inner Stage and 'Rstate' for result state. Furthermore,  $t_{\text{Top}}$  stands for topic time or reference time,  $t$  for event time,  $t_0$  for "local evaluation time", which I understand as speech time, and  $t_{\text{ana}}$  for "an anaphor-like variable that needs to be bound or given a value from context" (Lin 2006: 14), the function of which is still vague for me.

Lin argues that *le* and *guo* incorporate into their temporal meaning "an extra relation between the topic time and the evaluation time" indicated as  $t_{\text{Top}} < t_0$  (equals  $T_R < T_S$  in our terms) so that *le* and *guo* are not pure aspectual markers but "a mixture of tense and aspect". However, observe the sentences in (18):

(18) a. *ming-tian zhe-ge shi-hou, ta yi-jing zou-le.*  
 Tomorrow this-CL time he already leave-LE  
 'He will already have left by this time tomorrow.'

b. *mei-tian ba-dian, ta yi-jing qi-chuang-le.*

every day 8 o'clock he already get up-LE

'Every day at 8 o'clock, he has already got up.'

c. *ming-nian zhe-ge shi-hou, ta yi-jing qu-guo mei-guo.*

next year this-CL time he already go-GUO America

'He will have already been to America (once) by this time of next year.'

If Lin's claim was accurate, the sentences in (18) could not be grammatical, for the time adverbials, either indicating a present or future time reference, would be in conflict with the past interpretation that Lin supposes *le* and *guo* to indicate. This is to say, if *le* and *guo* indicated a past interpretation, the combination of them with any present-locating or future-locating time adverbials should be totally ruled out, just as we cannot say in English *\*He now worked* or *\*He will worked*. Thus, it is unconvincing to say that what Lin still calls the 'perfective' in Chinese, whether 'default' or with aspect markers, denotes a past interpretation. Rather, like in English, it just expresses a relation between event time and reference time.<sup>9</sup>

At this point, we assert again that the present or past interpretation claimed by Lin actually comes from the inherent temporal meanings of verbal predicates. In Mandarin Chinese, a language without tense, states and activities in finite sentences without time adverbials nor aspect markers indicate a meaning of the simple present, while achievements in finite sentences without time adverbials nor aspect markers (if they can appear at all without any aspect marker) indicate a meaning of the present perfect. As we have claimed earlier in this paper, accomplishments are aspectually vague, that is, a meaning of either the simple present or the present perfect is possible, being further specified by other contextual or pragmatic factors. Below, we give each verbal class one example sentence (with neither time adverbials nor aspect-markers) and the time relations they indicate.

(19) Table 4. Semantics of zero marking

Verbal classes	Example sentences	Time relations
States	<i>ma-li hen gao.</i> Mary very tall 'Mary is very tall.'	$T_R \subseteq T_S, T_E \subseteq T_R$
Activities	<i>ma-li tiao-wu.</i> Mary dance 'Mary dances.'	$T_R \subseteq T_S, T_E \subseteq T_R$
Accomplishments	<i>ma-li hua yi-fu hua.</i> Mary draw one-CL picture 'Mary draws/has drawn a circle.'	$T_R \subseteq T_S, T_E \subseteq T_R$ or $T_R \subseteq T_S, T_E < T_R$

Achievements		* <i>ma-li si.</i> Mary die	
	RVCs	<i>ma-li si-diao.</i> Mary die-RVC 'Mary has died.'	$T_R \subseteq T_S, T_E < T_R$

To sum up, in Mandarin Chinese, before any aspect marker is added, temporal meanings of a simple finite sentence can be interpreted through both time adverbials and inherent verb meaning. When no time adverbial is present, a relation of  $T_R \subseteq T_S$ , that is, a present time location, is taken by default. Inherent verb meaning, whether states/activities or achievements, further denotes a relation between event time and reference time, the former ' $T_E \subseteq T_R$ ' and the latter ' $T_E < T_R$ '. With accomplishments, both interpretations are available for isolated sentences, while one of the interpretations is usually specified by the larger context. In brief, without time adverbials, zero marking in Mandarin Chinese has the semantics of either the simple/perfective or perfect aspect, as defined in the first section for English.

#### 4. Conclusion

With Klein's time-relational definition of English aspect and our definition of Chinese aspect, we arrive at the comparative schemata below:

(21) Time-relational definitions of aspect

Chinese	English
zero marking: $T_E \subseteq T_R$ or $T_E < T_R$	Simple: $T_E \subseteq T_R$
<i>le</i> : InitialPoint $T_E < \text{FinalPoint } T_R$	Perfect: $T_E < T_R$
<i>guo</i> : $T_E < T_R$	
<i>zai</i> : $T_R \subset T_E$	Progressive: $T_R \subset T_E$
<i>zhe</i> : $T_R \subset T_E$	

To conclude, with the addition of the semantics of zero marking, our definition of Chinese aspect marking is more complete than Klein *et al.*'s. In both Mandarin Chinese and English, aspect indicates a relation between event time and reference time, either of temporal precedence or of temporal inclusion, with the exception of some minor language-driven differences.

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#### Notes

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<sup>1</sup>We apply the simple/progressive distinction for English, instead of the more general perfective/imperfective one, because the latter does not take language-driven differences into consideration. That is to say, what is called perfective in one language is probably (more or less) different from the perfective in another language, as we will show later with regard to Mandarin Chinese and English. The same is true with the imperfective. For example, the French imparfait should have different representations from the English past progressive.

<sup>2</sup>Vendler’s (1967) philosophical work actually targets ‘time schemata’. However, it has been widely applied by linguistics to verbs at first and then to predicates since Verkuyl (1972) suggested that the four classes pertain to predicates rather than to verbs.

<sup>3</sup>Garey’s (1957) telic/atelic distinction was the first attempt to classify verb predicates according to their inherent temporal meanings. The word ‘telic’ is from ancient Greek word *télos* ‘end’. For telic verbs such as *die*, *make a cake*, a terminal point at which the death is realized or the cake is ready is naturally presupposed, while there is no natural termination of *dancing* for instance, which can stop at any point. The latter kind of verbs are atelic and by definition, they “do not have to wait for a goal for their realization, but are realized as soon as they begin” (Garey 1957: 106).

<sup>4</sup>RVCs stand for Resultative Verb Compounds/Complements/Constructions, whose second element (after the verb), either simple or complex, also contributes to temporal (often resultative) properties of verb predicates. They are achievements in nature.

<sup>5</sup>The existence of such a zero is hard to prove empirically. In order not to incite any argument, we want to make clear that by zero marking, we mean nothing more than sentences without aspect markers. However, we believe intuitively that at least in one sense, the use of zero marking is meaningful here and for the Chinese language. As we have argued so far, Mandarin Chinese is a tenseless but aspectual language. Some

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linguists assume that all languages have both TP and AspP nodes and if some language does not have tense or aspect, there is a zero form. In contrast to them, we take the position that Chinese does not have TP-nodes instead of saying that there is a zero under the TP-node. Further, concerning aspect, we maintain that it has a zero form in relation of complementary distribution to non-zero forms, namely, sentences that have aspect markers.

<sup>6</sup>Sometimes even world knowledge is needed to capture the temporal nature of a situation.

<sup>7</sup>In Klein *et al.* (2000), TT and T-DP are used for what we label as  $T_R$  and  $T_{DP}$ .

<sup>8</sup>We neglect the bounded/unbounded difference here.

<sup>9</sup>We have already pointed out that *le* and *guo* are rather perfect markers than perfective ones. Analogously, if there is no aspect marker present, since we understand Chinese to be a tenseless but aspectual language, there might probably be aspectual relations implied, that is relations between event time and reference time, rather than between reference time and speech time.

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# Aspect markers in two dialects of Japanese and Korean: Variation and division of labor

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## Abstract

This paper first shows that the well-known ambiguity of *-te i-ru* in the Tokyo dialect is disambiguated by two distinct morphemes *-yor-u* and *-too* in the Hakata dialect. I argue that the Hakata Dialect is closer to English with respect to the relation between verb classes and aspectual interpretation. Then I argue that the “event” position associated with some nominals causes variation in the usage of *ar-u* ‘exist’ in those dialects. Finally, I compare the above dialects and Korean and show that division of labor is observed depending on existence or absence of double forms, evidential markers, etc. In particular, I argue that if there are distinct morphemes for evidentiality, “invasion” of tense markers into the region of aspect occurs.

**Keywords:** progressive, perfect, event, evidentiality.

## 1. Introduction

This paper seeks to show the following three theses by comparing two dialects of Japanese, the Tokyo and Hakata dialects, and Korean. First, division of labor among tense, aspect and modality is subject to typological and/or parametric variation. Second, in Japanese and Korean, realization of tense, aspect and modality is often done in a way one specific morpheme that bears one meaning in either one of these grammatical categories can play the role of signifying a different meaning in another, adjacent category. Finally, to better understand these natures in Japanese, dialects other than the Tokyo dialect should be investigated.

The structure of the paper is as follows: In Section 2 I will discuss Japanese data. In particular, Section 2.1. reviews well-known cases of *-te i-ru* in the Tokyo dialect (henceforth TD). In Section 2.2. I will show a striking contrast observed between TD and the Hakata dialect (henceforth HD). Section 3 summarizes the facts and raises questions, answers to which will be given in Section 4. Then we turn to Korean *-ko*

*iss* in Section 5. Section 6 is a brief discussion of evidentiality markers in Korean and the Goshogawara dialect (henceforth GD). Specifically, 6.1. shows interesting patterns of “double-past” forms in Korean. In comparison, a seeming Japanese counterpart found in the Goshogawara dialect is discussed in 6.2.

In discussing these markers and their interactions with verbs, I assume verbal classification by Vendler (1967) and Dowty (1972).

## 2. Japanese data

### 2.1. Tokyo Dialect (TD) of Japanese: the sole form *-te i-ru*

It is well-known among Japanese linguists that a TD aspectual morpheme *-te i-ru* attaches to a verbal stem and expresses the aspect of progressive or perfect.<sup>1</sup> The meaning depends on the class of verbs that the main predicate belongs to. When *-te i-ru* attaches to activity verbs, it bears the meaning of progressive, as in (1). Note in passing that another morpheme *-ta* is ambiguous between perfect and simple past ((2)):

- |     |                     |   |   |
|-----|---------------------|---|---|
| (1) | Mina-ga<br>Mina-nom | hasit-te i-ru.<br>run- <i>te-i-ru</i> ([-past]) | ‘Mina is running.’<br>*‘Mina has run.’ <sup>2</sup> |
| (2) | Mina-ga<br>Mina-nom | hasit-ta.<br>run-[+past]                        | ‘Mina ran/has run.’                                 |

In the case of accomplishment verbs, ambiguity is observed:

- |     |                                    |  |   |
|-----|------------------------------------|--|---|
| (3) | Mina-ga hon-o<br>Mina-nom book-acc | yon-de i-ru.<br>read- <i>te-i-ru</i> ([-past]) | ‘Mina is reading a book.’<br>or ‘Mina has read a book.’ |
|-----|------------------------------------|--|---|

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<sup>1</sup> The form itself is morphologically complex: *-te* is a connective morpheme between a verbal stem and another verbal element. *I-ru* is originally an independent verb meaning “(a mobile subject) exist”. *-te* undergoes the phonological change of voicing and surfaces as *-de* when it attaches to a verbal stem whose ending is nasal or voiced obstruent.

<sup>2</sup> In some cases this sentence can also express the perfect aspect. But in those cases, there must be a preceding context referring to the object of the act of running, such as ‘the track’ or ‘along the river’. That is, the sentence should be glossed as ‘Mina has run *pro*’. In other words, such cases are instances of ‘aspectual shift’ whereby a phonologically-null object *pro* causes the verb class to shift from activity to accomplishment.

This is disambiguated by the choice of locative postposition. When the locative NP is marked with *de*, *-te i-ru* is interpreted as progressive, while it has the perfect reading when the locative NP is *-ni*-marked. I will return to this in Section 4.

- (4) a. Mina-ga niwa-de sentakumono-o hosi-te i-ru.  
 Mina-nom garden-in laundry-acc dry- *-te-i-ru*([-past])  
 ‘Mina is putting the laundry in the garden.’
- b. Mina-ga niwa-ni sentakumono-o hosi-te i-ru.  
 Mina-nom garden-in laundry-acc dry- *-te-i-ru*([-past])  
 ‘Mina has put the laundry in the garden.’

When it comes to achievement verbs, *-te i-ru* has the perfect interpretation only. Again, perfect can also be expressed by *-ta*.:

- (5) Kisha-ga Seoul-ni tochaku-si-te i-ru  
 train-nom Seoul-dat arrival-do-*te i-ru*  
 ‘The train has arrived in Seoul.’
- (6) Kisha-ga Seoul-ni tochaku-si-ta.  
 train-nom Seoul-dat arrival-do-[+past]  
 ‘The train (has) arrived in Seoul.’

## 2.2. *Hakata Dialect (HD) of Japanese*

Let us now turn to HD, which is spoken in Fukuoka in Kyushu Island, southern part of Japan. A striking difference from TD is that HD has two distinct aspectual morphemes *yor-u* and *too*, which exactly correspond to English *-ing* and *-en*, respectively.

### 2.2.1. *yor-u*

When this morpheme attaches to activity and accomplishment verbs, it yields progressive meaning:

- (7) Mina-ga hasiri-yor-u. ‘Mina is running.’  
 Mina-nom run-*yor-u*

- (8) Mina-ga hon-o yomi-yor-u. 'Mina is reading a book.'  
 Mina-nom book-acc read-*yor-u*

As in the case of TD, a locative P *-de*, but not *-ni*, is compatible with the progressive:

- (9) Mina-ga niwa-de/\*-ni sentakumono-o hosi-yor-u.  
 Mina-nom garden-in laundry-acc dry- *yor-u*  
 'Mina is putting the laundry in the garden.'

Turning to achievement verbs, however, *-yor-u* expresses neither progressive nor perfect: Instead, it refers to so-called 'proximate future', or the event about to take place in the near future. This is parallel to English *-ing*:

- (10) Densha-ga Seoul-ni tuki-yor-u.  
 train-nom Seoul-dat arrive-*yor-u*  
 'The train is arriving in Seoul.'

#### 2.2.2. *too*

On the other hand, another morpheme *-too* signifies the meaning of perfect.<sup>3</sup> Since, as we saw in the case of TD (1), activity verbs are only compatible with progressive, attachment of the perfect morpheme *-too* yields ungrammaticality:<sup>4</sup>

- (11) Mina-ga hasit-too. \* 'Mina has run.'  
 Mina-nom run-*too*

With accomplishment verbs, it is interpreted as perfect:

- (12) Mina-ga hon-o yon-doo. 'Mina has read a book.'  
 Mina-nom book-acc read-*too*

And since *-too* exclusively means perfect, only P *-ni*, but not *-de*, is allowed:

<sup>3</sup> There seems to be a variation among speakers. Namely, while *-yor-u* bears the meaning of progressive for all speakers, *-too* is ambiguous between progressive and perfect for younger generations. I will not go into this matter here.

<sup>4</sup> Again, it is grammatical under the interpretation with the object *pro* 'Mina has run *pro*.' See Note 2.

- (13) Mina-ga niwa-ni/-de sentakumono-o hosi-too.  
 Mina-nom garden-in laundry-acc dry- *too*  
 ‘Mina has put the laundry in the garden.’

Finally, when *-too* appears with achievement verbs, it is interpreted neither as progressive nor near future but as perfect:

- (14) Densha-ga Seoul-ni tui-too.  
 train-nom Seoul-dat arrive-*too*  
 ‘The train has arrived in Seoul.’

### 2.3. Summary

The above facts are summarized in (15). Note in particular that the behaviors of HD *-yor-u* and *-too* are parallel to those of English *-ing* and *-en*:

(15)

	English		Tokyo Dialect		Hakata Dialect	
	<i>-ing</i>	<i>-en</i>	<i>-te i-ru</i>		<i>yor-u</i>	<i>-too</i>
State	*	*	*prog	*perf	(*)prog	(*)perf
Activity	ok	*	<sup>ok</sup> prog	*perf	<sup>ok</sup> prog	*perf
Accomplishment	ok	ok	<sup>ok</sup> prog	<sup>ok</sup> perf	<sup>ok</sup> prog	<sup>ok</sup> perf
Achievement	n.f.	ok	*prog/*n.f.	<sup>ok</sup> perf	*prog/ <sup>ok</sup> n.f.	<sup>ok</sup> perf

### 2.4. Progressive and perfect of some state verbs

Let us now take a look at yet another striking difference between TD and HD. It is well-known that in TD state verbs cannot co-occur with *-te i-ru*. The fact has been pointed out by many scholars, Kindaichi (1950), among others:<sup>5</sup>

<sup>5</sup> In TD, there is an alternation between *ar-u* and *i-ru*, which is sensitive to whether the subject of the sentence is capable of moving by any internal mechanism. Namely, if

- (16) a. \*Tana-ni hon-ga at-te i-ru.  
 shelf-dat book-nom exist-*te i-ru*  
 ‘There is (temporarily) a book on the shelf.’
- b. \*Ima kaigi-ga at-te i-ru.  
 now meeting-nom exist-*te i-ru*  
 ‘There is a meeting being held now.’
- c. \*Moo kaigi-ga at-te i-ru.  
 already meeting-nom exist-*te i-ru*  
 ‘There has already been a meeting.’
- (17) a. \*Taro-ni-wa ani-ga i-te i-ru.  
 Taro-dat-top elder brother-nom exist-*te i-ru*  
 ‘Taro has an elder brother.’
- b. \*Ima ie-ni tomodati-ga i-te i-ru.  
 now house-dat friend-nom exist-*te i-ru*  
 ‘There is a friend of mine in my house now.’

One might argue that (17a) is ungrammatical because “having an (biological) elder brother” is an inherent property of the subject, or it is an individual-level predicate in the sense of Diesing (1992). However, as the rest of the examples in (16) and (17) show, it is not the individual/stage distinction that determines grammaticality. As I will show through examples from HD below, I argue that what is relevant is “eventhood” of the subject nominals.

To see this, let us now turn to HD. The HD counterparts of these verbs, on the contrary, allow attachment of *-yor-u* and *-too* in some cases:<sup>6</sup>

- (18) a. \*Tana-ni hon-ga ari-yor-u.  
 shelf-dat book-nom exist-*yor-u*  
 ‘There is temporarily a book on the shelf.’

---

the subject is [-mobile], *ar-u* is used, while if it is [+mobile], *i-ru* is used. Note that this is different from the “animacy restriction” well-observed in many languages. For instance, artifacts such as ‘elevator’ and ‘taxi’ can be predicated of either by *ar-u* or *-i-ru* depending on the context, or the speaker-hearer’s cognitive process.

- (i) Kono biru-ni-wa elevator-ga 3-ki ar-u. “There are 3 elevators in this building.”  
 this building-in-top elevator-nom 3-nc exist-[-past]
- (ii) Ima elevator-wa 3-kai-ni i-ru. “The elevator is at the third floor now.”  
 Now elevator-top 3-floor-at exist-[-past]

<sup>6</sup> The same alternation as in TD is observed in HD, though its realization is *a-ru* [-mobile] and *o-ru* [+mobile].

- b. Ima kaigi-ga ari-yoo.  
now meeting-nom exist-*yor-u*  
'A meeting is being held now.'
- (19) a. \*Taro-ni-wa ani-ga ori-yor-u.  
Taro-dat-top elder brother-nom exist- *yor-u*  
'Taro has an elder brother.'
- b. \*Ima ie-ni tomodati-ga ori-yor-u.  
now house-dat friend-nom exist- *yor-u*  
'My friend is in my house now.'
- (20) a. \*Tana-ni hon-ga at-too.  
shelf-dat book-nom exist-*too*  
'There has been a book on the shelf.'
- b. Moo kaigi-ga at-too.  
already meeting-nom exist-*too*  
'A meeting has already been held.'
- (21) a. \*Taro-ni-wa ani-ga ot-too.  
Taro-dat -top elder brother-nom exist-*too*  
'Taro has an elder brother.'
- b. Moo ie-ni tomodati-ga ot-too.  
already house-dat friend-nom exist-*too*  
'My friend has already been in my house.'

As the above examples show, attachment of *yor-u* and *-too* is allowed only if the subject denotes an event. In other words, (18b) and (20b) are grammatical because "meeting" is an event. *Yor-u* and *-too* cannot attach to *or-u*, a mobile variant of the verb "exist", since the mobile subject cannot be eventive. Thus, the determining factor is not the nature of predicates, i.e. stage/individual distinction, but the nature of the subject nominals.

### 3. Questions

The above observation leads us to the following questions:

- (21) a. How can we capture the distribution and interpretation of TD *-te i-ru*,

HD *-yor-u* and *-too*?

- b. Why can some state verbs co-occur with *-yor-u* and *-too* in HD, while it is utterly ungrammatical under any reading in TD?

A composite mechanism will be proposed below to answer these questions.

#### 4. Proposal and analysis

##### 4.1. Compositional organization of grammar

I argue that aspect of the predicate is determined by combining the inherent property of the main predicate and other elements in the sentence. This compositional view on aspectual interpretation is not new at all. Many researchers have observed that aspect of the sentence is influenced by singularity/plurality of the object (22), existence/absence of prepositional phrases denoting a goal (23), type of durational prepositional phrases (24), and so on:

- (22) a. John is drawing a circle. (accomplishment)  
b. John is drawing circles. (activity)
- (23) a. John is pushing a cart to the car. (accomplishment)  
b. John is pushing a cart. (activity)
- (24) a. John read a book in an hour. (accomplishment)  
b. John read a book for an hour. (activity)

In order to capture this composite nature of aspect, I will introduce the following two mechanisms: inherent specification of boundedness for each predicate in the lexicon, and syntactic projections for encoding aspect and event.

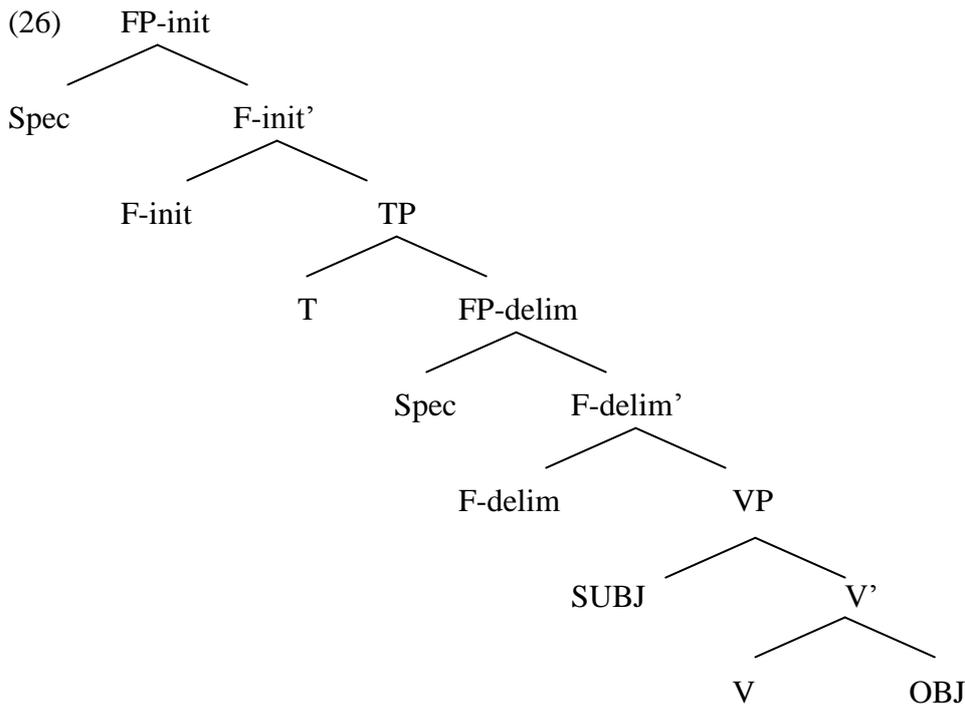
First, assuming that an event is cognitively differentiated by boundedness of its initial and terminal points, I argue that each verb is inherently specified for its boundedness for these two points as in (25). The similar view has been presented in Ritter and Rosen (2000:195) and also by Kudo (1995):

(25)

Class	Initial point	Terminal point
States	[-bound]	[-bound]
Activities	[+bound]	[-bound]
Accomplishments	[+bound]	[+bound]

Achievements	[-bound]	[+bound]
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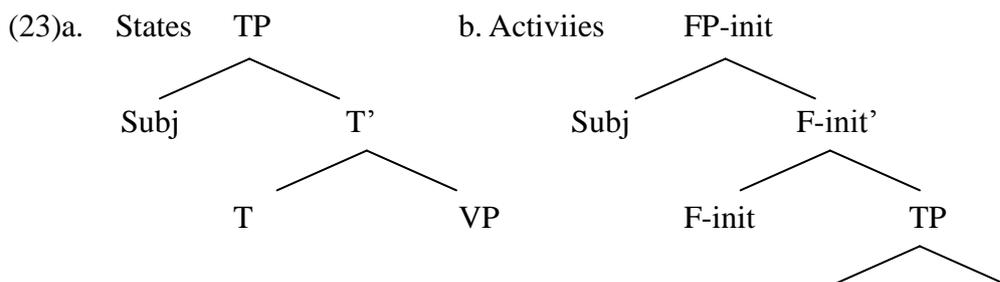
Second, adopting from Ritter and Rosen (2000:197), I assume that there are two functional heads F-init(iator) and F-delim(iter), which are licensed by [+bound] feature of the initial and terminal points specified for the main predicate, respectively. The full structure looks like (26):

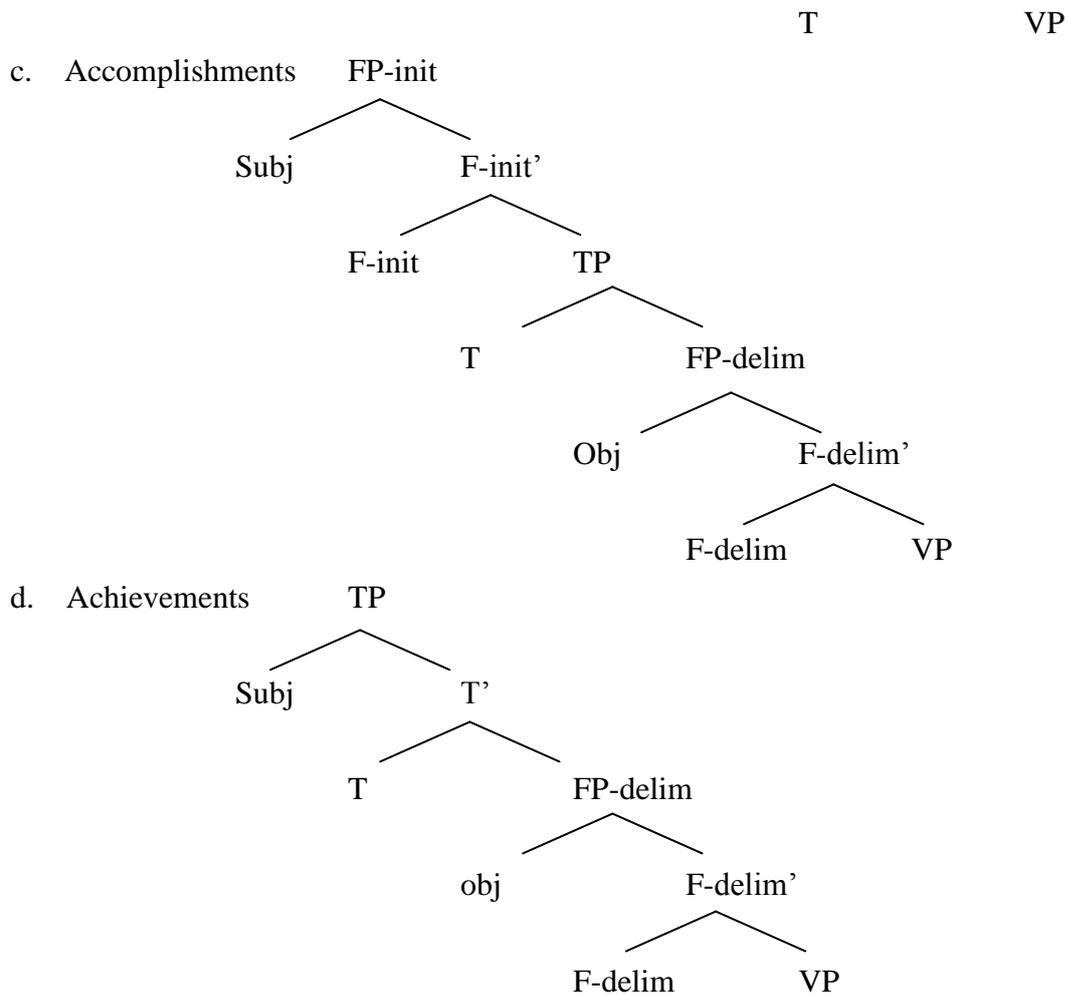


As mentioned above, the licensing mechanism for F-init and F-delim are as follows:

- (27) Licensing mechanism of F-init and F-delim
- a. If [+bound] for initial point → then F-init is projected
  - b. If [+bound] for terminal point → then F-delim is projected

This way, the fundamental structure for the four classes of verbs is projected as follows:





For realization of these aspectual heads, I take the view of Distributed Morphology proposed by Halle and Marantz (1993). Following their system, actual morphemes are inserted under heads at Morphological Structure through the following Vocabulary Insertion Rules:

(25) Vocabulary Insertion

- TD) {F-init, F-delim} ⇔ *-te i-ru*  
 HD) a. F-init ⇔ *-yor-u*  
       b. F-delim ⇔ *-too*

These mechanisms will derive ambiguity of *-te i-ru* in TD, while capturing the exclusive nature of HD *yor-u* and *-too* in their interpretation, which constitutes an answer to (21b). Given the space limitation, I will not demonstrate them in details.

#### 4.2. *Event transfer*

Now let us tackle the second question (21b), namely, why can some state verbs co-occur with *-yor-u* and *-too* in HD, while it is utterly ungrammatical under any reading in TD?

First, let us recapture the generalization within HD. As I indicated in Section 2.4., even in HD not all instances of *ar-u* plus *-yor-u*(progressive) or *-too*(perfect) are allowed: it is only when the subject denotes an event.

In order to explain this HD fact, I extend the notion of the “event positions” proposed by Davidson (1967) and adopted by Grimshaw (1990) and others, and propose that nominals denoting event have an event position. Then, I argue that in HD this event position is transferred to its head V via spec-head relation. Presumably state verbs do not have event positions inherently. Therefore, when the event position is transferred from the subject nominal to the state verb, *ar-u* in particular, this transfer changes the aspect of *ar-u* from state to accomplishment, projecting F-init and F-delim. That is why *ar-u* plus progressive and perfect morphemes are grammatical in HD.

Then a natural question is, why this option is unavailable in TD, which is the latter half of (21b). I propose that there is a parametric variation with respect to the way the event position associated with the subject nominal affects the main predicate. Whereas the mechanism of the “actual” event transfer occurs in HD, thereby changing the aspect of the main predicate itself, this is unavailable in TD for some reason. Yet, since the subject nominal in the specifier position of the main predicate has <e>, it percolates up to the maximal projection of VP to supplement the privative feature <e>. This is in accordance with the “feature percolation convention” proposed by Lieber (1982). This mechanism of event transfer is summarized below:

(26) { meeting, lecture, conference, festival, demonstation, exam(ination) } = <e>

(27) Event transfer: If the subject of a state verb has <e>,

a. in TD, it percorates up to VP and changes the VP into an eventive predicate.

(cf. Lieber (1982))

b. in HD, it is transferred to V and changes the V into an accomplishment verb.

→ licenses F-init and F-delim

If the above analysis is correct, we should expect indication of the percolated event position even in TD. In the following two subsections, I will show two pieces of

evidence supporting this.

#### 4.2.1. Evidence 1: Choice of locative postpositions

In Japanese, the postpositions associated with locative NPs are either *-ni* or *-de*. Yet there is a correlation between the choice of the preposition and whether the locative NP is an argument or an adjunct of the predicate:

- (28) a. Mina-ga Tokyo-ni (sun-de) i-ru.  
 Mina-nom Tokyo-*ni* (live-*te*)exist [-past]  
 ‘Mina is (lives) in Tokyo.’
- b. Mina-ga tana-ni hon-o oi-ta.  
 Mina-nom tana-*ni* book-acc put-[+past]  
 ‘Mina put the book on the shelf.’
- c. Mina-ga Tokyo-de hon-o kat-ta.  
 Mina-nom Tokyo-*de* book-acc buy-[+past]  
 ‘Mina bought a book in Tokyo.’

Now, both in TD and HD, the locative NP appearing with *ar-u* takes *-ni* or *-de* depending on the eventhood of the subject:

- (29) a. Tana-ni hon-ga ar-u.  
 shelf-*ni* book-nom exist-[-past]  
 ‘There is a book on the shelf.’
- b. Tokyo-de kaigi-ga ar-u.  
 Tokyo-*de* meeting-nom exist-[-past]  
 ‘There is a meeting in Tokyo.’

I take this to be the indication that in TD the event position associated with the subject NP *kaigi* ‘meeting’ is percolated up to the VP dominating the subject NP itself, the verb *ar-u* and the locative PP. This means that *ar-u* is no longer a stative verb which takes the locative PP as an argument, but is a eventive verb where the locative PP behaves as an adjunct. That is why *-de*, not *-ni*, is used on the PP.

The same holds for HD, the only difference being that the event position is not percolated to the VP, but transferred to the head V.

#### 4.3.2. Evidence 2: Interpretation of some modal elements

The second evidence is concerned with the interpretation of some modal

elements. *-Soo-da* takes VP and expresses the modality of likelihood in either present or future. When this modal element is attached to stative predicates, the only available interpretation is that the state expressed by the VP is likely at present, and the sentence is unambiguous. If, on the other hand, *-soo-da* appears with eventive predicates, both present and future interpretations are available and the sentence is ambiguous:

- (30) a. Mina-ga kasiko-soo-da.  
 Mina-nom smart-likely-copula  
 ‘Mina seems to be smart.’  
 \* ‘Mina is going to be smart.’
- b. Mina-ga hon-o yomi-soo-da.  
 Mina-nom book-acc read-likely-copula  
 ‘Mina seems to read books (Mina seems to like books.)’  
 or ‘Mina is going to read a book.’

Now, when *-soo-da* co-occurs with *ar-u*, the sentence is unambiguous if the subject is a simple noun, but is ambiguous with an eventive nominal as the subject:

- (31) a. Tana-ni hon-ga ar-i-soo-da.  
 shelf-*ni* book-nom exist-likely-copula  
 ‘There seems to be a book on the shelf.’  
 \* ‘There is going to be a book on the shelf.’
- b. Tokyo-de kaigi-ga ar-i-soo-da.  
 Tokyo-*de* meeting-nom exist-[-past]  
 ‘There seems to be a meeting in Tokyo.’  
 or ‘There is going to be a meeting in Tokyo.’

The reason is that while *ar-u* is inherently a stative verb, it is turned into an eventive predicate by virtue of the event position associated with the subject nominal.

This also supports the existence of the event transfer mechanism.

## 5. Korean data

### 5.1. *-ko iss-ta*

In this section we take a look at Korean morphemes expressing progressive and perfect. *-ko iss-ta* is a morpheme that shares characteristics TD *-te i-ru* in some respects and HD *-yor-u* in others. When this attaches to activity verbs, it means progressive, which is the same with both *-te i-ru* and *-yor-u*:

- (32) Mina-ka talli-ko iss-ta. 'Mina is running.'  
 Mina-nom run-ko iss-ind

In order to express perfect, a different morpheme *-ess* is used:

- (33) Mina-ka talli-ess-ta. 'Mina ran/has run.'  
 Mina-nom run-perf-ind

With accomplishment verbs, *-ko iss-ta* behaves like *-te i-ru* in that it induces ambiguity between progressive and perfect:

- (34) Mina-ka chayk-ul ilk-ko iss-ta.  
 Mina-nom book-acc read-ko iss-ind  
 'Mina is reading a book.'  
 or 'Mina has read a book.'

Thus, just like TD example (4), the sentence is disambiguated by the choice of locative postpositions:

- (35) a. Yenghi-ka mantug-eyse ppallay-lul  
 Yenghi-nom garden-in laundry-acc  
 nel-ko iss-ta.  
 dry-ko iss-ind  
 'Yenghi is drying the laundry in the garden.'  
 b. Yenghi-ka mantug-ey ppallay-lul  
 Yenghi-nom garden-in laundry-acc  
 nel-ko iss-ta.  
 dry-ko iss-ind  
 'Yenghi has put the laundry in the garden.'

(Kim (2006: 11))

In the case of achievement verbs, *-ko iss-ta* patterns with HD *yor-u*, as the sentence means near future:

- (36) Kicha-ka Seoul-ey tochak-ha-ko iss-ta.  
 Train-nom Seoul-to arrival-do-ko iss-ta  
 ‘The train is arriving in Seoul.’

5.2. *-ess-ta* vs. *-ess-ess-ta*

Let me draw attention to a less-known case of the “double past” form for perfect. This form is used if and only if the main verb belongs to the class of achievement verbs:

- (37) Mina-ka talli-ess-ta/\*-ess-ess-ta.  
 Mina-nom run-perf-ind  
 ‘Mina ran/has run.’
- (38) Mina-ka chayk-ul ilk-ess-ta/\*ess-ess-ta.  
 Mina-nom book-acc read-perf-ind  
 ‘Mina read/has read a book.’
- (39) a. Kicha-ka Seoul-ey tochak-ha-ess-ta.  
 Train-nom Seoul-to arrival-do-ess-ta  
 ‘The train (has) arrived in Seoul.’
- b. Kicha-ka Seoul-ey tochak-ha-e-iss-ta.  
 Train-nom Seoul-to arrival-do-e-iss-ta  
 ‘The train has arrived in Seoul.’

This presents a rather complex situation, which is shown in the tables below:

(40) Activity verbs

	Korean	TD	HD
progressive	-ko iss-ta	-te i-ru	-yor-u
perfect	-ess-ta	-ta	-ta
past			

## (41) Accomplishment verbs

	Korean	TD	HD
progressive	-ko iss-ta	-te i-ru	-yor-u
perfect			-too
past	-ess-ta	-ta	-ta

## (42) Achievement verbs

	Korean	TD	HD
progressive (near future)	-ko iss-ta	-(r)u or -soo-da	-yor-u
perfect	-ess-ess-ta	-te i-ru	-too
past	-ess-ta	-ta	-ta

## 6. Evidentiality Markers

Finally, let us take a look at evidentiality markers in Korean and the Gohogawara Dialect of Japanese.

### 6.1. Korean

There is a Korean sentence-final particle *-te-la*, which means that the speaker of the sentence has actually seen the event denoted by the sentence. If, on the other hand, when *-ess* is inserted between the verbal stem and *-te-la*, the sentence indicates that the speaker did not actually see the event, but infers from some evidence. Furthermore, if the “double past” observed above is used regardless of the verb class, then, the sentence is about indirect report. Thus, in (43a), the speaker has actually seen Mina’s reading of the book, while (43b) is inferential and (43c) is reported speech:

- (43) a. Mina-ka chayk-ul ilk-te-la.  
Mina-nom book-acc read-*te-la*  
‘Mina read/has read a book.’ (direct evidential)
- b. Mina-ka chayk-ul ilk-ess-te-la.  
Mina-nom book-acc read-perf-*te-la*

- ‘Mary read/has read a book.’ (indirect-inferential)
- c. Mina-ka chayk-ul ilk-ess-ess-te-la.  
 Mina-nom book-acc read-past-*ess-te-la*  
 ‘Mary read a book.’ (indirect-reported)

6.2. *Goshogawara Dialect of Japanese (spoken in Goshogawara, north of Aomori, northern part of Japan)*

Interestingly, a similar pattern is found in the Goshogawara dialect:

- (44) a. Mina-ga hon-o yon-de-ra.  
 Mina-nom book-acc read-*te-ra*  
 ‘Mina is reading a book.’ (direct evidential)  
 or ‘Mina has read a book.’ (direct evidential)
- b. Mina-ga hon-o yon-da.  
 Mina-nom book-acc read-[+past]  
 ‘Mina read/has read a book.’ (indirect-inferential)
- c. Mina-ga hon-o yon-dat-ta.  
 Mina-nom book-acc read-past-*ta*  
 ‘Mina read/has read a book.’ (indirect-reported)

Correspondence between Korean and the Goshogawara dialect is shown in (45). We can attain a generalization which is stated in (46):

(45)

	progressive	perfect	direct evidential	indirect evidential	
				inferential	reported
Korean	-ko iss-ta	-ess-ta	-te-la	-ess-te-la	-ess-ess-ta
Goshogawara	-te-ra			-ta	-tat-ta

(46) Generalization

Doubling of “tense” morphemes causes a shift in aspect and mood toward more “perfect” and “remote”.

- Korean) ess-ess-ta > ess-ta: past vs. perfect  
 ess-ess-ta > ess-te-la: reported vs. inferential
- Goshogawara) tat-ta > ta: past vs. perfect

tat-ta > ta: reported vs. inferential

## 7. Conclusions and residual problems

In this paper I mainly analyzed the form and meaning of *-ko iss-ta* in comparison with HD *-yoo/-too* and their much-discussed TD counterpart *-te ir-u*. Doing this line of research reveals interesting questions which have been concealed by the ambiguity of *-te i-ru*. Specifically, difference between TD and HD in aspectual realization stems from two factors. First, there is a difference in the number of morphemes available: while HD has two morphemes, TD has only one. Naturally, the overall pattern of progressive and perfect aspect of HD is closer to English than that of TD is. Second, I argued for the mechanism of event transfer. Furthermore, I proposed two different modes of that mechanism: percolation of the event position to VP in the case of TD and the actual transfer of that event position to the head V.

In actual analysis I adopted the compositional view on the interaction between the lexical information and syntactic structure proposed by many researchers, Ritter and Rosen (2000) in particular. By implementing their theory with the correlation with inherent feature specification and functional projection, the questions addressed on the otherwise mysterious facts are partially solved.

In particular, event transfer from subject nominals is an addition to compositional aspect. This is particularly interesting because the findings thus far have been limited to aspectual shift caused by elements within the maximal domain of the main predicate, most typically VP.

Extending the range of analysis, I took into consideration some evidentiality markers in Korean and Goshogawara Dialect of Japanese and reached the following generalization. Namely, doubling of “tense” morphemes causes a shift in aspect and mood toward more “perfect” and “remote”. This indicates that tense, aspect and modality are not isolated categories but adjacent, interactive categories.

There are, however, still some stipulations, as well as more interesting generalizations. Among them are how to derive near-future interpretation and details of vocabulary insertion and interpretation. Hopefully these will be cleared in future studies.

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# The interpretation of a “contrast-marking” particle

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## Abstract

The paper discusses the interpretation of the accented *csak* discourse particle in Hungarian that is often referred to in the literature as a marker of contrast. It is argued that this particle has the function of an adversative context marker (Zeevat 2003, 2006). The discourse particle use of *csak* is contrasted to its older use as an exclusive particle, whose interpretation is described in terms of Beaver and Clark’s (2008) theory. It is shown that the meaning change in the course of which *csak* acquired its adversative particle interpretation can be accounted for in terms of semantic reanalysis, along the lines of Eckardt’s (2006) theory.

**Keywords:** adversative context marker, discourse particle, exclusive particle, ordered alternatives, semantic reanalysis.

## 1. Aims

The paper analyses the interpretation of the accented *csak* discourse particle in Hungarian, which has been claimed by some authors to be a marker of contrast (Kocsány 1986).<sup>1</sup> In the first half of the paper, we will provide an empirical characterisation of the necessary and sufficient conditions for the appearance of this particle in Hungarian sentences, and then we will try to formalize them in the framework of Zeevat (2003, 2006), relating the use of accented *csak* to the use of accented *toch* in Dutch and *doch* in German. The particle *csak* in Hungarian has a much more prominent and older use as a focus sensitive particle with an exclusive (scalar) interpretation analogous to English *only*. In the

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second half of the paper we will look at the contribution of this exclusive *csak* to the presuppositions and truth conditions of Hungarian sentences, proposing that they are best accounted for in the framework of the theory recently proposed by Beaver and Clark (2008). It will then be argued that the latter approach also leads naturally to an explanation of the meaning change in the course of which *csak* acquired its discourse particle use in terms of semantic reconstruction that took place in order to avoid pragmatic overload (cf. Eckardt 2006). The paper ends with a summary of the conclusions. In what follows, to avoid confusion, we refer to the obligatorily accented discourse particle as *CSAK*.<sup>2</sup>

## 2. The discourse particle *CSAK*

### 2.1. Data

Example (1) below illustrates a context where a sentence containing an obligatorily accented *CSAK* particle can appear in Hungarian:

- (1) A: *I don't think John will be invited.*  
 B: *I've just heard Mary invite him.*  
 A: (*Szóval*) *CSAK meghívták Jánost.*  
 so            *CSAK VM:invited:3pl John:ACC*  
 "(So) John got invited after all."

Although leaving the particle *CSAK* out from A's second utterance would not make the sentence ungrammatical or alter its truth conditions, it would definitely make the sentence inappropriate in the context, since the speaker would have to be attributed contradictory beliefs (given that he would be taken to utter two declarative sentences whose propositional contents are incompatible with each other).<sup>3</sup> Thus, (1) suggests that the contribution of the particle to the interpretation of the sentence is to mark that the speaker is aware that the propositional context of his present utterance is incompatible with the propositional content of a previous utterance of his. The above

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<sup>2</sup> There are other discourse particle uses of (non-accented) *csak* in addition to the one discussed in this paper, most of which are analogous to the discourse particle uses of German *nur* 'only' (cf. Gyuris 2007).

<sup>3</sup> Note that the propositional contents of the first and the second utterances by A in (1) are not contradictory, since the first one is of the form 'I don't think that *p*', whereas the second is of the form *p*.

example is thus a typical case where the use of a particle serves the aim of making the discourse coherent, or, more specifically, as Zimmermann (to appear) puts it, indicates the “speaker’s epistemic attitude” towards the truth of the proposition. The latter interpretational features have been attributed in the literature to the so-called *modal* or *discourse particles* (cf. Kiefer 1988, Thurmair 1989, Meibauer 1994, Zimmermann, to appear, among others), whose characteristic features on the formal side include that they cannot be negated, do not answer any questions, cannot be coordinated, and do not form a constituent with other expressions. In the rest of this section we will specify what the presence of *CSAK* can signal about the context and in what cases it is necessary for the coherence of the discourse.

First, as (2) illustrates, *CSAK* can also appear in a sentence *S* that is uttered by a speaker different from the one who previously uttered the sentence expressing a proposition felt to be incompatible by the speaker of *S* with the propositional content of *S*:

- (2) A: *I think John will be invited.*  
 B: *I don’t think so, Mary does not like him.*  
 C: *I’ve just heard Mary invite him.*  
 A: *Szóval (CSAK) meghívták Jánost.*  
 so CSAK VM:invited:3pl John:ACC  
 “(So) John got invited after all.”

Note that in the context of (2), as opposed to that of (1), the presence of *CSAK* is not obligatory. In both contexts, however, a German sentence containing the accented particle *DOCH*, illustrated in (3), would be just as acceptable as the corresponding Hungarian sentences with *CSAK*:

- (3) *(So,) Hans ist DOCH eingeladen.* (German)  
 so John is DOCH invited:PTCP  
 “(So) John got invited after all.”

The following contrast between the acceptability of accented Dutch *TOCH* and *CSAK* in parallel contexts shows that it is not enough for *CSAK* to be properly licensed in a context where a sentence attributing some kind of attitude to somebody towards the negation of the propositional content of the *CSAK*-sentence has been uttered:

- (4) *Jan droomde dat hij was gezakt voor het examen, maar hij had het TOCH gehaald.* (Dutch)  
 “John dreamt that he would pass the exam but he failed after all.”  
 (Zeevat 2000:14)

- (5) #*János azt álmodta, hogy megbukik a vizsgán, de CSAK átment.*  
 John that:ACC dreamt that fail the exam:on but CSAK passed  
 Intended: “John dreamt that he would pass the exam but he failed after all.”

There are two further important facts to be observed about the use of *CSAK*. The first one is that, as (6) shows, it is not a necessary condition for the use of this particle in a sentence *S* that there be precisely one sentence *S'* in the preceding discourse that expresses a proposition felt to be incompatible with the propositional content of *S*:

- (6) *Zsuzsi: Hisz' ez azé a kis tolvajé! oly kegyetlen volt but this that:POSS the small thief:POSS so cruel was nagyságod, hogy elvette tőle? your:majesty that VM:took from:him*  
 “But this belongs to that small thief! Was your majesty so cruel as to take it away from him?”

*Countess: CSAK nem hagyhattam a karján!*<sup>4</sup>  
 CSAK not leave:could:1sg the arm:POSS:on  
 “I could not leave it on his arm after all!”

Note that there is nothing incompatible between the propositional content of the second speaker’s sentence and those of the first speaker’s first or second sentences individually. What the propositional content of the second speaker’s sentence is incompatible with is the proposition expressed by the first speaker’s first sentence, the presuppositions introduced by her second sentence, and default inferences based on the latter two. The second fact is that the acceptability of discourses with *CSAK* is a gradual matter, and depends not only on the content of utterances but also on the shared beliefs of the interlocutors. For example, the acceptability of (7) depends on how important B thinks A was in the campaign of János, and how efficient B thinks A is in performing the tasks related to the campaign:

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<sup>4</sup> From the Hungarian Historical Corpus (<http://www.nytud.hu/hhc>).

- (7) A: *I campaigned hard for John.*  
 B: *CSAK nem választották meg.*  
 CSAK not elected:3pl VM  
 “He was not elected after all”

If B thinks A is a good campaigner and has a great influence on the campaign, then the fact that A worked hard in the campaign leads him to conclude that John was likely to be elected. B then marks the incompatibility between the latter inference and information pertaining to the actual outcome of the election by using *CSAK*. (Sentence (7B) can, naturally, also be meant ironically, to express the belief on the part of the speaker that the fact that A participated in the campaign does not legitimate an inference that John will be elected.)

The *yes-no* interrogative in (8) below, which would be coherent way to continue the discourse in (1) above, and the second, imperative sentence of the discourse in (9) illustrate that *CSAK* is not only possible in declaratives:

- (8) A: (*Szóval*) *CSAK meghívták Jánost?*  
 so CSAK VM:invited:3pl John:ACC  
 “(So) did John get invited after all?”
- (9) A: *I don't think John would come to the party if he got an invitation.*  
 B: *CSAK hívjuk meg!*  
 CSAK invite:IMP1pl VM  
 “(So) John got invited after all.”

As the parallel between the third sentence of (1) and (8) also shows, the conditions under which *CSAK*-sentences belonging to any of the latter two sentence types can or must appear in a discourse are analogous to those under which the corresponding declaratives are licensed.

Having illustrated the basic facts about the use of the *CSAK* discourse particle, in the next section we will try to capture its meaning in terms of Zeevat's (2000, 2003, 2006) proposals.

## 2.2. *CSAK as a context marker*

Zeevat (2000, 2003, 2006) argues that a number of discourse particles in various languages, including English *indeed*, Dutch *immers*, *toch*, *wel*, or German *ja* and *doch*, serve as so-called *context markers*, that is, they mark whether the propositional content of the sentence they are situated in is viewed by the speaker as being part of the *common ground*, as having been suggested to be false in the context, as having been denied in the common ground, or as addressing a topic that has been addressed before. Zeevat assumes that context markers have to be present due to functional necessity, since in the lack of them, the hearer is determined to interpret any new sentence as carrying information to be added automatically to the common ground, independently of its previous content. In case the relevant information was already present in the common ground, the latter strategy results in having to view the incoming information as superficial, and in case the negation of the propositional content of the sentence was already part of the common ground, the strategy results in having to think that the speaker has contradictory beliefs.

Zeevat (2000, 2003, 2006) argues that German accented *doch* and Dutch accented *toch* are *adversative context markers*, which are defined by him as in (11) below. The definition of adversative context markers uses, assuming that  $\varphi$  is a proposition, the proposition *suggested*( $\varphi$ ), which is defined by Zeevat in a recursive fashion, shown in (10), and the proposition *normally*( $\varphi$ ), the truth of which in an information state requires, according to Zeevat, that  $CG \models \psi_1, \dots, \psi_n$ , where  $\psi_1, \dots, \psi_n$  together constitute a reason for thinking that  $\varphi$ , while at the same time the *CG* does not support a similar argument for  $\neg p$  (Zeevat 2006:141).

(10) *suggested*( $\varphi$ )  $\leftrightarrow$  *may*  $\varphi \wedge (\varphi \vee O_1 \varphi \vee \dots \vee O_n \varphi \vee \textit{suggested}(\varphi))$   
the set  $\{O_1, \dots, O_n\}$  contains operators like *x dreams that, x suggests that, x believes that.* (Zeevat 2003:182)

(11) *adversative*(*CG*,  $\varphi$ ) holds iff  $CG \models \textit{normally}(\neg\varphi)$  or  $CG \models \textit{suggested}(\neg\varphi)$   
(Zeevat 2003:182)

The data presented in the previous section suggest that Hungarian *CSAK* should be analyzed as an adversative marker analogous to Dutch accented *toch* and German accented *doch*. The approach seems to run into two problems, however. The first one is illustrated by (12)–(13) below, which contain the prosodically prominent particles *doch* and *csak*, respectively:

- (12) A: *John wasn't invited.*  
 B: *Hans war DOCH eingeladenet.* (German)  
 John was DOCH invited:PTCP  
 "John WAS invited."
- (13) A: *John wasn't invited.*  
 B: #CSAK *meghívták Jánost.*  
 CSAK VM:invited:3pl John:ACC  
 Intended: "John WAS invited."

The pair of sentences above point to an asymmetry between the behaviour of the two particles: although the propositional content  $p$  of sentences (12B) and (13B) satisfies the first requirement of adversativity in the relevant contexts, since there is a set of propositions in the common ground, namely the unit set  $\{\neg p\}$ , such that its elements constitute a reason for thinking that  $\neg p$ , the two sentences differ in acceptability. In Zeevat's framework, however, it is possible to find an explanation for this problem: in addition to the adversative markers, he also distinguishes so-called *corrective markers*, which mark the content of the sentence to be false in the common ground. The correction relation is an extreme case of adversativity, therefore, whenever the propositional content of a sentence is viewed as also satisfying this stronger relation to the common ground in addition to that of adversativity, it is a natural requirement that a context marker marking this stronger relation be chosen if available in the language. He argues that the prosodic realization of *doch* in (13B) is different from that of *doch/toch* in (3)–(4) above, the latter being only accented and the former contrastively stressed. Zeevat argues that this prosodic difference correlates with an interpretational difference, contrastively stressed *doch* being a corrective marker.<sup>5</sup> The unacceptability of (13B) in the relevant context thus indicates that *CSAK* cannot have an interpretation as a corrective marker. The second problem is illustrated by the contrast between (4) and (5) above, which suggests that *CSAK*, as opposed to *Duch* accented *toch*, does not get licensed in a sentence whose propositional content  $p$  is only *suggested* in the context according to definition (10), but does not follow by default reasoning from the common ground (that is, where *normally(p)* is not part of

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<sup>5</sup> Zeevat (2003, 2006) makes a systematic difference between these two prosodic realizations of the *doch/toch* particle even by typographic means: he capitalizes only the occurrences of the particles that he considers contrastively stressed. In this paper, I am ignoring this distinction for the sake of being able to emphasize the prosodic parallel between accented *csak* and *doch/toch*, which I mark with capitals in the examples.

the common ground). Given these findings we will assume that Hungarian *CSAK* belongs to a subtype of adversative context markers that, when inserted into a sentence with propositional content *p*, can only mark that the following: there is a set of propositions in the common ground that constitute a reason for thinking that *p* is true, but that an analogous requirement does not hold for the negation of *p*.

Having illustrated the contribution of the discourse particle *CSAK* to the meaning of Hungarian sentences, we look at the interpretation of its homonym, the exclusive particle *csak*.

### 3. The meaning of the exclusive particle *csak*

Examples (14)–(17) illustrate four typical uses of the focus-sensitive exclusive particle *csak* ‘only’ in Hungarian. The syllables bearing the heaviest accent within the sentences (marking the information structural focus) are marked with capital letters.<sup>6,7</sup> As the English translations indicate, English *only* has analogous interpretations:

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<sup>6</sup> In these examples, the constituents focused in an information structural sense are all identical to or included in the constituent in the syntactic focus position, referred to as [Spec,FP] in É. Kiss (2002).

<sup>7</sup> The exclusive particle is normally unaccented in these examples. However, in certain cases (where the focus is a non-complex expression, as in (14), for example), the accent of the focus can move over to *csak* for prosodic reasons (I. Kenesei, p.c.).

- (14) *Csak JÁnost hívták meg.*  
 only John:ACC invited:3pl VM  
 “Only John got invited.”
- (15) *Csak KÉT diákot hívtak meg.*  
 only two student:ACC invited:3pl VM  
 “Only two students got invited.”
- (16) *Csak a TITkárnyóvel tudtam beszélni.*  
 only the secretary:with could:1sg talk:INF  
 “I could only speak to the secretary.”
- (17) *Mari csak egy DIák volt.*  
 Mary only a student was  
 “John was only a student.”

(14) illustrates the simplest use of *csak*, on which it signals that no propositions generated by replacing the focus for a different element in the set of its alternatives (the set of contextually relevant people) are true. In addition, the presence of the particle in (14) conveys that the speaker has expected more alternative propositions of the latter kind to be true (that is, he expected that more people will get invited). (15) illustrates a case where *csak* excludes only those alternative propositions that are not entailed by the proposition denoted by the sentence. (That is, (15) does not exclude the truth of the proposition that there was one student who got invited.) In other words, the exclusive particle operates on an ordered set of propositions, that is, it has a scalar interpretation. The sentence also conveys that the speaker expected for alternative propositions ordered higher on the relevant scale to be true as well.<sup>8</sup> The interpretation of (16) that comes most readily to mind illustrates the following scalar use of *csak*: the sentence expresses that there is no proposition more rewarding (Bonomi and Casalegno 1993) that is true, given the aims of the discourse, than the one that the speaker talked to the secretary. (In a prototypical situation this means that he could not talk to the director, for example. Given that the alternative propositions are not ordered by entailment, the truth of (16) does not mean that all propositions less rewarding than the one expressed by the sentence are true.) This sentence also conveys that the speaker expected for alternative propositions ordered higher to be true. The scalar *csak* of (17) differs from the one in (16) in the following respect: assuming a prototypical situation where each person has

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<sup>8</sup> Apparently non-scalar uses of *csak* like in (14) can, naturally, be viewed as special cases of scalar *csak* (cf. van Rooij 2002, Beaver 2004, for example).

only one job, *csak* seems to make a vacuous contribution to the truth conditions of (17). However, it cannot be considered superfluous even in such a context, since it also conveys, like all the examples above, that the speaker had expected that alternative propositions ordered higher would be true (e.g. like the one that Mari was a member of the staff).

The acceptability of sentences like (17), as well as the fact that the placement of constituents into the Hungarian syntactic focus position ([Spec, FP] in É. Kiss 2002) has also been claimed to result in an exclusive interpretation (cf. Kenesei 1989, Szabolcsi 1994, É. Kiss 1998, among others) have promoted approaches like that of Balogh (2005), which follows Zeevat's (2007) proposal for *only*, and argues that the contribution of *csak* to the meaning of Hungarian sentences is only pragmatic, and indicates that the proposition expressed by the sentence falls short of the speaker's expectations. This approach runs into the problem of not being able to account for the fact that the negated version of a *csak*-sentence like (14), illustrated in (18), and the negated version of its counterpart without *csak*, illustrated in (19), have different entailments: whereas the former entails that John was invited, the latter does not:

(18) *Nemcsak János*     *hívták*     *meg.*  
 not.only John:ACC invited:3pl VM  
 "Not only John got invited"

(19) *Nem János*     *hívták*     *meg.*  
 not John:ACC invited:3pl VM  
 "It was not John who got invited"

Szabolcsi's (1994) approach (based on Kenesei 1989, and Bonomi and Casalegno's 1993 theory for *only*) is able to account for the latter mismatch, and also for the apparent equivalence of the meaning of (14) and its variant without *csak* by suggesting a different division of the meaning of these two types of sentences into a presupposed and an asserted part. She proposes that *csak*-sentences presuppose that their *prejacent* (the proposition expressed by their variant without *csak*) is true. This suggestion, however, runs into the problem of predicting that *csak* is superfluous in the case of (17).

In view of the problems previous approaches have to face with, I believe that the contribution of *csak* to the interpretation of the Hungarian sentences illustrated above is best captured with the help of the proposal by Beaver and Clark (2008), who argue for an interpretation for exclusives that equally takes into account their truth-conditional

impact (excluding higher values on a scale), and their *mirative* function (the expression of the fact that a higher value was expected). Beaver and Clark's definition for the meaning of exclusives is repeated below, where *Current Question* refers to the question that the particular utterance addresses:

(20) *Meaning of exclusives*

The lexical meaning of exclusives is exhaustively described by:

*Discourse function:* To make a comment on the Current Question (CQ, [...]), a comment which weakens a salient natural expectation. To achieve this function, the prejacent must be weaker than the expected answer to the CQ on a salient scale.

*Presupposition:* The strongest true alternatives in the CQ are at least as strong as the prejacent.

*Descriptive Content:* The strongest true alternatives in the CQ are at most as strong as the prejacent. (Beaver and Clark 2008: 251)

This means that on Beaver and Clark's proposal to the meaning of exclusives, there is an ordering on the set of possible true answers to the Current Question, which includes the prejacent of the sentence containing the exclusive particle, from weak to strong.<sup>9</sup> According to the authors, the ordering is either based on entailment or some relevant pragmatic notion, e.g. newsworthiness, and it creates a structure on the set of true alternatives that can either be a pre-order or a partial order.

On this proposal, none of the occurrences of *csak* in (14)–(17) are predicted to be superfluous, since each of them introduces a presupposition, described in (20), which amounts to saying that among the alternative true answers that the speaker would have found appropriate to the Current Question beforehand, all are stronger or at least as strong as the prejacent. Given the descriptive content attributed to exclusives in (20), the proposal correctly predicts that in cases where the alternative propositions do not exclude each other, the truth of a *csak*-sentence entails the falsity of alternative answers stronger than the prejacent, but does not exclude the truth of weaker alternative answers.<sup>10</sup>

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<sup>9</sup> In my CIL18 talk I made a suggestion for capturing the contribution of scalar *csak* to the presuppositions of Hungarian sentences that resembled Beaver and Clark's (2008) proposal very much, without having been aware of the latter.

<sup>10</sup> It appears to me that the contrast between the truth conditional meaning of Hungarian sentences with a

Having discussed the interpretation of exclusive *csak* in Hungarian, in the next section we will argue that assuming an interpretation of the type shown in (20) for exclusive *csak*, it is possible to put forth a reasonable explanation for how it acquired the discourse particle interpretation described in section 2 historically.

#### **4. From exclusive particle use to discourse particle use: historical development through semantic reanalysis**

In this section, I would like to show that assuming the interpretation proposed by Beaver and Clark (2008) for exclusives in (20), there is a natural way of accounting for the problem of how the adversative discourse particle use described in section 2 developed for *csak*, to which no real solution has been proposed in Hungarian historical linguistics so far.<sup>11,12</sup> The explanation will be based on the idea that the semantic change in the course of which the particle *csak* acquired its adversative interpretation was a consequence of semantic reanalysis, which took place in order to avoid *pragmatic overload*, an important cause in meaning change, according to Eckardt (2006).

Eckardt (2006) claims that semantic reanalysis takes place in order to avoid pragmatic overload when an expression is used in a particular type of construction where information necessary to compute the presuppositions/implicatures introduced by it is not readily available for the hearers, and therefore it requires too much pragmatic accommodation from them to understand the meaning of the construction. In such cases, assuming that they understand the intended overall meaning of the sentence, the hearers re-distribute the parts of meaning among the constituents in a way that frees the relevant

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constituent in preverbal focus position and those containing the exclusive particle *csak* could be captured by modifying Beaver and Clark's (20) formula along the lines suggested by van Rooij (2002), according to whom, the exhaustive interpretation of free focus amounts to saying that no better true answer could be given, whereas an exhaustive particle conveys that there is no alternative true answer that is equally good. For lack of space, and due to the fact that in accounting for the meaning change resulting in the discourse particle *CSAK* we will rely primarily on the presuppositions of exclusive *csak*, we will not elaborate on this issue further here.

<sup>11</sup> Cf. Pólya (2008) for an overview of the various interpretations of *csak* that it acquired historically.

<sup>12</sup> It would be a topic for further research to find out whether the homonymy of an adversative discourse marker and an exclusive particle is attested in other languages as well, and whether theoretical explanations for this homonymy in other languages (if available) can be adopted for the Hungarian case.

constituents from the pragmatic overload.

The earliest appearance of *csak* as an exclusive particle is found in a codex (Jókai codex) written in the 14th–15th century. I found the earliest clear examples of the particle having the adversative discourse marker interpretation in texts dating from the middle of the 17th century.<sup>13,14</sup> In (21)–(23) below, three examples from the latter period containing a use of *csak* are shown that can only be associated with an adversative interpretation. (A clear indication of the adversative reading is that speakers of present-day Hungarian only find these sentences grammatical if the particle is pronounced with an accent.)

(21) ... *noha szivesenn igyekeztem, de bizony csak nem leheté*  
though with:pleasure strove:1sg but however CSAK not could  
“... although I strove with pleasure, it was still not possible to do”

(from a letter by Miklós Bethlen, 1672)

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<sup>13</sup> Benkő (1993–1997) argues that the first occurrence of *csak* having the adversative interpretation (marked by the fact that it is translated into German as *doch*) dates back to the middle of the 16th century. There are, however, strong reasons to debate the accuracy of the author’s classification of the particular use of the particle as a synonym of *doch*, which cannot be discussed here for lack of space. Szabó T. (1978) cites an example he considers relevant from 1608.

<sup>14</sup> Due to the fact that only a very limited number of written texts are available electronically from before the middle of the 18th century in Hungarian, more exact estimates cannot be provided.

- (22) ... *egy darabig mind igyekezénk a szelet megcsalni*  
 one while:for continuously tried:1pl the wind:ACC cheat:INF  
*oldalfejt való ... mesterséges evezésekkel, ... de hiába, csak meg*  
 sideways being artificial rowing:PL:with but in:vain CSAK VM  
*kelle fordulni...*  
 must:PAST turn:INF  
 “... for a while we continuously tried to cheat the wind by rowing sideways  
 artificially, ... but in vain, we still had to turn round...”  
 (from a letter by Miklós Bethlen, 1672)

- (23) *Kedveseb jószágunk nincsen az életnél*  
 more:dear value:our be:NEG:3SG the life:than  
*Halálnak sarcoló pénzt ha fizethetnél*  
 death:DAT ransom money:ACC if pay:could:2sg  
*Van-é oly kedves jód, mellyet kimilhetnél,*  
 is-whether such dear good:your that:ACC save:would:2sg  
*Az mig kedved tartya, csak addig élhetnél.*  
 that as:longliking:your holds CSAK that:until live:could:2sg  
 “We have nothing valuable than our lives, If you could pay ransom to death,  
 Would you save any of your dearest properties, To be able to live just long as  
 you wish?”<sup>15</sup>  
 (from the poem *Murány Venus conversing with Mars*, by István Gyöngyösi, 1664)

The only analysis in the literature about the relation between the exclusive and the adversative interpretations of *csak* is from Simonyi (1881). According to him, the adversative interpretation of the particle developed from another discourse particle use of non-accented *csak* (which appears to be more directly derivable from the exclusive interpretation than from the adversative one), to be paraphrased as ‘without interruption’.<sup>16</sup> One of the examples Simonyi considers relevant is shown below:

- (24) *Akármit ragyogjon a nap, de csak nem lát a vak*  
 no:matter:how shine:SUBJ the sun but CSAK not see:3sgthe blind

<sup>15</sup> Literal translation, by the author.

<sup>16</sup> The relevant discourse particle use of *csak* is illustrated by Simonyi’s (1881:193) following example:

- i) *csak beszélek, csak beszélek neki, de hiába*  
 only talk:1sg only talk:1sg him but in:vain.  
 “I keep talking to him, but in vain.”

“No matter how strongly the sun shines, the blind cannot see.”

(*Proverb*, cited by Simonyi 1881: 193)

The scarcity of the relevant data available prohibits one from deciding whether this explanation is on the right track. Nevertheless, I can see two potential problems with it. On the one hand, there seems to be no evidence for the fact that the use of non-accented *csak* on which it is to be paraphrased as ‘without interruption’ is earlier than the adversative use. (Neither Benkő (1993–1997) nor Szabó T. (1978) discusses the former interpretation.) On the other hand, Simonyi’s account would predict that immediately after the adversative interpretation for *csak* arises historically, constructions where *csak* associates with an activity or a state verb (phrase) should be more numerous than those where it associates with other types of verb phrases or is followed by a non-verb focus (as in (23), for example). The data I could get hold of do not support this prediction.

The alternative I would like to put forth is to say that the adversative interpretation of the *csak* particle came about as a result of semantic reanalysis. I claim that the change was initiated by constructions where the exclusive particle appeared to make a vacuous contribution to the descriptive content of the sentence, and where its contribution to the presuppositions gave rise to pragmatic overload. Let us first consider two examples of the construction type at hand. The first example is from the description of a religious dispute, and the second from the memoirs of a Hungarian aristocrat, citing the words of his second wife having the same illness as the one his first wife died from:

(25) ... *ha a lovak magokban mind sánták, ha öszve fogjákis*  
if the horses alone:PL all lame:PL if together harness:also  
*tsak sánták.*

CSAK lame:PL

“... if the individual horses are all lame, they are still lame if they are harnessed together.”

(from the *Sárospatak Dispute*, 1660)

(26) ... *csak úgy jár kegyelmed énvélem, mint az első asszonnyal.*

CSAK so go:3sg you I:with than the first wife:with

“... you fare the same way with me as with your first wife after all.”

(from the *Biography of Miklós Bethlen*, before 1710)

The examples in (25)–(26) (viewed in the context of the preceding sentences) have the following common features. First, the alternative answers to the Current Question in the sense of (20) (in which the foci of *csak* are replaced for their alternatives) exclude each other, therefore, *csak* does not make a contribution to the descriptive contents of the sentences (since more than one alternative answers could not be true simultaneously anyway). Second, the reason why the speakers of these examples use the *csak* particle is compatible with the discourse function of exclusive particles according to Beaver and Clark (2008), cited in (20), which is to make a comment on the Current Question “which weakens a salient natural expectation”. The natural expectation in the case of (25) is that the horses harnessed together are something better than lame, whereas the expectation in the case of (26) is that the husband will fare better with the second wife than with the first one, who died. Given, however that, as clear from the relevant contexts, the ordering on the set of alternative answers is based on the desirability of the states of affairs described by them, and the prejacent of both sentences describe states of affairs that are considered the least desirable, the presupposition that should be introduced by the exclusive use of *csak* in these examples according to (20) is that all relevant alternative answers describe states of affairs that are considered equally bad or better than the one described by the prejacent. This is what gives rise to the pragmatic overload, since the use of *csak* forces the interpreter to assume that there are alternative answers that are ordered below the prejacent with respect to the desirability of the states of affairs described by them, although it is not clear from the context what these alternative answers could be.

In both contexts, given that the foci of *csak* refer to minimal quantities, claiming that the state of affairs described by the prejacent is less desirable than expected is equivalent to saying that the former state of affairs is less desirable than any state of affairs compatible with the negation of the prejacent. Therefore, when interpreters are faced with the pragmatic overload, they can reorganize the meaning of sentences like (25)–(26) in a way that *csak* becomes responsible for conveying that it was a salient natural expectation that the negation of the prejacent would be true. (This is equivalent to saying that in a sentence *S* with a propositional content  $\phi$ , *csak* conveys that Zeevat’s condition *normally*( $\neg\phi$ ) holds, as discussed above.) This component of the meaning of

the sentence cannot, however, be considered a presupposition any more, since it is not cancellable, and the use of the particle is obligatory whenever the context has properties of a particular kind. The particle thus acquires the function of a context marker, characterized in section 2.2 above following Zeevat (2003, 2006).

It is assumed that the interpretation of *csak* as an adversative context marker spread afterwards to all three sentence types where it can appear now (declaratives, *yes-no* interrogatives and imperatives), including structures where *csak* cannot have an exclusive reading at all. Two relevant constructions of the latter type are illustrated in the examples below. In (27), (accented) *CSAK* is followed by a universal noun phrase, and in (28) by a negated noun phrase, neither of which can be interpreted as being the focus of an exclusive particle:

(27) *CSAK mindenki Jánost hívta meg.*

CSAK everybody John:ACC invited VM

“Everybody invited John after all.”

(28) *CSAK nem Jánost hívták meg.*

CSAK not John:ACC invited VM

“It wasn’t John who got invited after all.”

We have yet to account for the obligatory accenting of the *csak* particle on its interpretation as an adversative context marker. I assume that it is due to information structural constraints: given that both the prejacent and its negation count as given information in the context, the single new piece of information within a *CSAK*-sentence is carried by the discourse particle, which is then marked by accenting.<sup>17</sup>

## 5. Conclusions

In this paper, the interpretation of the Hungarian accented *CSAK* discourse particle was investigated. I was argued that the necessary and sufficient conditions for its appearance in discourses indicate that it has the function of an adversative context marker, as proposed by Zeevat (2000, 2003, 2006). It was shown that a plausible motivation for the meaning change in the course of which the exclusive particle *csak* acquired this discourse particle use can be given by assuming Beaver and Clark’s (2008)

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<sup>17</sup> I thank Manfred Krifka for suggesting this explanation.

analysis for the interpretation of exclusive *csak*, and a process of semantic reconstruction due to pragmatic overload, a process of semantic change, described by Eckardt (2006).

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# Focus Particle *Mo* and *Many/Few* Implicatures on Numerals in Japanese

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## Abstract

Japanese focus particle *mo* expresses scalar implicatures similar to English *even* and the implicatures have been analyzed in literature relating to ‘likelihood/expectation’ for the occurrences of propositions. This paper investigates the ‘numeral-CL-*mo*’ construction where *mo* follows a numeral and means either *many* or *few*; and clarifies the nature of ‘unlikeliness’ given by *mo* in terms of the probability (Fernando & Kamp 1996) and the set of alternatives (Rooth 1985) of quantities. It is shown (i) syntactic categories and scope of *mo* determine possible interpretations, (ii) conventional implicature of *mo*-phrase, together with the order of probabilities, provides *many/few* interpretations.

**Keywords:** scalar implicature, focus, *many*, monotonicity, probability.

## 1. Introduction

Japanese postpositions *mo*, *sura*, *sae*, *demo*, called focus particles, express scalar implicatures similar to *even* in English, and their implicatures have been analyzed in literature with regard to ‘likelihood’ or ‘expectation’ for the occurrences of propositions (Numata 1986 etc.). Among these focus particles, *mo* productively makes various conventional implicatures (Grice 1975, Karttunen & Peters 1979), when following or preceding a case marker. While the sentence without *mo* in (1) simply means ‘ten students came,’ the first *mo* in (2) expresses either *also* or *even* and the second *many* so as to implicate ‘others than students came’ and ‘ten is many’ respectively.

- (1) *Gakusei-ga juu-nin ki-ta.*  
student-NOM ten-CL come-PST  
‘Ten students came.’

- (2) *Gakusei-mo*                      *juu-nin-mo*                      *ki-ta.*  
 student-NOM.mo.also/even    ten-CL-mo.many    come-PST  
 ‘Ten students also came. / Even ten students came. (Ten is many.)’

This paper deals with the ‘numeral-classifier-*mo*’ constructions (‘*n-CL-mo*’, henceforth), where *mo* follows quantities and means either *many* or *few* according to environments; and clarifies how the *many/few* interpretations and the scale of likelihood/expectation are determined.

It is known that the interpretations of focused numbers are affected by the polarity of sentences, for they are interpreted as *many* in affirmatives such as in (3), but *few* in quantifier negations as in (4).

- (3) *Gakusei-ga*    *juu-nin-mo*                      *ki-ta.*  
 student-NOM    ten-CL-mo.many    come-PST  
 ‘Ten students came. (Ten is many.)’

- (4) *Gakusei-ga*    *juu-nin-mo*                      *ko-nakat-ta.*  
 student-NOM    ten-CL-mo.few    come-NEG-PST  
 ‘Less than ten students came. (Ten is few.)’

The polarity, however, does not explain the sentences such as below, where *mo* in conditional indicates *few* without negation.

- (5) *Gakusei-ga*    *hutari-mo*                      *kure-ba*                      *juubunda.*  
 student-NOM    two\_person-mo.few    come-COND    enough  
 ‘If only about two students come, it’s enough. (Two is moderate.)’

For the unified account of these, we consider syntactic categories and scope (Karttunen & Peters 1979) of the focus particle *mo*, together with monotonicity (Barwise & Cooper 1981 etc.) of quantities, in section 2.

Regarding the meaning or implicature of the ‘*n-CL-mo*’, the *many* and *few* interpretations, as well as *even*, have been explained in literature in connection with ‘likelihood’ or ‘expectation’ (Numata 1986 etc.): so to say, they are either ‘unlikely many’ or ‘unlikely few’ different from expectations. This unlikeliness, which has been considered to be the reason behind the *many/few* interpretations and can be seen in the examples above, serves our interest too if we want to give *mo* a single meaning rather

than the two *many* and *few*.

However, it is not clear how the unlikeliness determines the likely quantities, since any quantity can be ‘likely’ depending on the situation. If we say ‘*only ten came*,’ ‘more than ten’ is likely; but in ‘*as many as ten came*,’ it is ‘less than ten.’ That is, the uni-directionality of expected quantities is not given by the unlikeliness alone, and we seem to have no explanation why, for instance, the *n-CL-mo* in affirmative sentences as (3) indicates only smaller quantities as likely ones. The notion of likelihood should be elaborated to the extent the uni-directionality of likely numbers is uniquely determined. In section 3, we give a single meaning to various quantifier-focus *mo*-phrases, including one in conditional sentences which express speakers’ expectations as in (5), making use of the probability function (Fernando & Kamp 1996) and the set of alternatives (Rooth 1985) of quantities.

In addition, the correlation between the three meanings of *mo*, i.e., addition, scale, and *many/few*, such as seen in (2) is considered. There seems to be no necessity that the same morpheme, *mo*, is used for them, since in other languages they are expressed by elements different from each other; but it is still possible to see the common part of their interpretations, for explaining the cognation of the three *mo*.

## 2. Scope and monotonicity

In the ‘*n-CL-mo*’ construction, *mo* gives an interpretation of either *many* or *few* to the focused number as in the following examples. In each case, the number of coming or not-coming is the same, *ten*, i.e.,  $|A \cap B| \geq 10$ , or  $|A \cap B| < 10$ , where *A* stands for a NP (set of students), *B* a VP (set of coming individuals), and *n-CL-mo*, which is a determiner in Generalized Quantifier theory, specifies the relation between *A* and *B* (Barwise & Cooper 1981, Zwarts 1983). The interpretations of *n-CL* and *n-CL-mo* in affirmatives are regarded as ambiguous between ‘*n or more*’ and ‘*exactly n*’, if not specified.

When focus particle *mo* precedes case or other postpositions, this pre-case *mo*, a kind of particle/postposition within a NP which could be called ‘*fuku joshi*’ or ‘*juntai joshi*’ in Japanese, is invariably interpreted as *many* in both affirmative and negative sentences as shown in (6) and (7). The difference between affirmation in (6) and VP negation in (7) does not affect the interpretation of *mo*.

(6) *Gakusei juu-nin-mo-ga ki-ta.*

student ten-CL-*mo*.many-NOM come-PST  
'Ten students came. (Ten is many.)'

(7) *Gakusei juu-nin-mo-ga ko-nakat-ta.*  
student ten-CL-*mo*.many-NOM come-NEG-PST  
'Ten students were absent. (Ten is many.)'

By contrast, post-case *mo* or 'kakari joshi' in Japanese which follows case postpositions or adverbials, expresses *many* in affirmations but *few* in quantifier negations as seen in (3) and (4), repeated here.

(3) *Gakusei-ga juu-nin-mo ki-ta.*  
student-NOM ten-CL-*mo*.many come-PST  
'Ten students came. (Ten is many.)'

(4) *Gakusei-ga juu-nin-mo ko-nakat-ta.*  
student-NOM ten-CL-*mo*.few come-NEG-PST  
'Less than ten students came. (Ten is few.)'

This correspondence of syntactic categories and *many/few* interpretations can be stated as (8) below.

- (8) Categories and interpretations of *mo*.
- (i) pre-case *mo* in affirmation / negation: *many*
  - (ii) post-case *mo* in affirmation: *many*
  - (iii) post-case *mo* in negation: *few*

Since the pre-case *mo*'s *many* interpretation is fixed irrespective of environments, we may regard this *mo* as a kind of postfix in NPs and its meaning, *many*, can be stated in the lexicon. On the other hand, the post-case *mo*'s different interpretations seem to be explained in terms of polarity, for negation provides *few* interpretations; but it does not hold in conditionals we have seen in (5). Here the notion of monotonicity (Barwise & Cooper 1981 etc.), either increasing or decreasing, deserves consideration, as both negation and conditionals affect monotonicity.

If we see the monotonicity in scalar entailments, i.e., logical material implications, of focused numbers, the rules as (9) can be seen: if *n* is increasing in an environment,

*mo* gives it a *many* reading, but *few* if decreasing. Negation and conditionals are operators which reverse monotonic directions, thus provide environments for *few* interpretations.

(9) Monotonicity and interpretation of *n-CL-mo*.

- (i) increasing *n-CL*: *n* is *many*
- (ii) decreasing *n-CL*: *n* is *few*

Accordingly, *mo* indicates *many* in (3) ‘*Gakusei-ga juu-nin kita (Ten students came),*’ since it logically implies ‘*gakusei-ga kyuu-nin kita (nine students came)*’; but *few* in quantifier negation in (4) ‘*Gakusei-ga juu-nin ko-na-kat-ta (Less than ten students came)*’ which implies ‘*gakusei-ga jyuuichi-nin ko-nakat-ta (less than eleven students came)*.’ The same applies for pre-case *mo*, which provides *many* interpretations for both affirmation in (6) and VP negation in (7); since the negation in VP does not affect the monotonicity outside of it, and ‘*Ten students were absent*’ implies ‘*nine students were absent*.’ Thus, (9) explains both pre-case and post-case *mo*.

And if we consider the scope of focus particle *mo*, various interpretations are explained in terms of the scope ambiguity: focus particles must have the scope for a proposition in which the alternatives of a focused element are embedded (Karttunen & Peters 1979, Rooth 1985), and this scope determines the monotonicity.

Following Karttunen & Peters (1979), the focus is indicated by capital letters and the scope of focus by [ ] in the examples below. In (10) and (11) the different scope produces different interpretations. If the scope excludes conditional subordinator *ba* as in (10), the numeral must have increasing monotonicity and *many* interpretation; whereas if it includes the conditional, the numeral is decreasing and *few* as in (11).

(10) [*Gakusei-ga JUU-NIN-mo kure*]-*ba totemo ureshii*.  
 student-NOM ten-CL-*mo*.many come-COND very happy  
 ‘If as many as ten students come, I’m very happy. (Ten is many.)’

(11) [*Gakusei-ga JUU-NIN-mo kure-ba juubunda*].  
 student-NOM ten-CL-*mo*.few come-COND enough  
 ‘If only about ten students come, it’s enough. (Ten is few.)’

The scope ambiguity also explains different interpretations in quantifier negations below. The bigger scope which includes negation in (12a) creates the decreasing

monotonicity thus *few* interpretation, while the smaller one without negation in (12b) does not change the increasing monotonicity and provides *many*.

(12) a. [*Gakusei-wa JUU-NIN-mo atumara-nakat-ta*].  
 student-TOP ten-CL-*mo.few* gather-NEG-PST  
 ‘Less than ten students gathered. (Ten is few.)’

b. [*Gakusei-wa JUU-NIN-mo atsumara*]-*nakat-ta*<sup>1</sup>.  
 student-TOP ten-CL-*mo.many* gather-NEG-PST  
 ‘Less than ten students gathered. (Ten is many.)’

Likewise, when both reversing operators, i.e., negation and conditional, appear in a single sentence, either one of *many* and *few* is chosen according to the scope, as seen in (13) below.

(13) a. [*Gakusei-ga JUU-NIN-mo atsumara-nakere*]-*ba kono-kurasu-wa*  
 student-NOM ten-CL-*mo.few* gather-NEG-COND this-class-TOP  
*hirake-nai*.  
 open-NEG  
 ‘If as few as ten students don’t gather, we can’t offer the class. (Ten is few.)’

b. [*Gakusei-ga JUU-NIN-mo atsumara*]-*nakere-ba kono-kurasu-wa*  
 student-NOM ten-CL-*mo.many* gather-NEG-COND this-class-TOP  
*hirake-nai*.  
 open-NEG

[*Gakusei-ga JUU-NIN-mo atsumara-nakere-ba kono-kurasu-wa*  
 student-NOM ten-CL-*mo.many* gather-NEG-COND this-class-TOP  
*hirake-nai*].  
 open-NEG  
 ‘If as many as ten students don’t gather, we can’t offer the class. (Ten is many.)’

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<sup>1</sup> The same scope assignment as in (12b) applies if *mo* is followed by the focus particle *wa*, as in ‘[*Gakusei-wa JUU-NIN-mo-wa atsumara*]-*nakat-ta*. (Ten students did not gather. ten: many).’

In (13b), two different scopes are possible for a single *many* interpretation, the smaller affirmative one and the bigger conditional one; since the conditional which follows negation reverses the decreasing monotonicity and creates the increasing one.

Thus, we can conclude here it is the scope of *mo* which determines the choice of *many* or *few* interpretations; and can sum up the interpretations in sentences as follows. Negation and conditionals which are reversing operators change monotonicity within the scope of *mo*, so that among the sentences we have seen, only negative or conditional sentences can be ambiguous between *many* and *few* according to the scope of *mo*. Affirmative sentences and VP negations should have only *many* interpretations, for they have no reversing operators affecting monotonicity of quantity. As well, pre-case *mo*, which cannot scope over quantifier negation, indicates invariably *many*.

Next, we turn to the unified account of *many* and *few* readings.

### 3. The meaning of *n-CL-mo*

#### 3. 1. *Unexpectedness, moderation, and the co-occurrence restriction*

As seen earlier in the Introduction, the *many/few* interpretations are considered to be related to ‘unlikeliness’ or ‘unexpectedness’ in the literature. In addition to this, Numata (1986) pointed out that *mo* in conditionals as in (5) is used for ‘softening’ or ‘moderating’ quantities.

- (5) *Gakusei-ga hutari-mo kure-ba juubunda.*  
 student-NOM two\_person-*mo.few* come-COND enough  
 ‘If only about two students come, it’s enough. (Two is moderate.)’

The number *two* above is *few*, for it can be modified by *seizei (few)*, but it is clearly ‘expected’ within the speaker’s estimation, so that the notion of ‘unlikeliness’ or ‘expectation’ without clear definition does not seem to explain these sentences.

Moreover, *n-CL-mo*, different from the quantifier *takusan (many)*, very often focuses on the number *two* if the speaker has expected numbers fewer than *two*, i.e., *one* or *zero*, as in (14); but it never co-occurs with the number *one* or ‘additive determiner (Zwarts 1996)<sup>2</sup>, which designates the least quantities, even if the speaker has expected

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<sup>2</sup> A function *f* from Boolean algebra *B* to *B\** is said to be additive iff for each two

zero as in (15).

(14) *Gakusei-ga hutari-mo ki-ta.*  
student-NOM two\_person-mo.many come-PST  
'Two students came. (Two is many.)'

(15) *Gakusei-ga \*hitori-mo ki-ta.*  
student-NOM one\_person-mo come-PST  
'One student came. (One is many/few.)'

By contrast, *mo* occurs with the smallest number to compose a negative polarity item in quantifier negation as in (16), so that 'anti-additivity (Zwarts 1996)<sup>3</sup>' in the least quantity in negative environments does not obstruct *mo*.

(16) *Gakusei-ga hitori-mo ko-nakat-ta.*  
student-NOM one\_person-mo.few come-NEG-PST  
'Not a single student came. (One is few.)'

These co-occurrence restrictions on determiners should also be explained by the meaning of *n-CL-mo*. In the following 3.2, the notion of probability, *many*, and *few* are defined, and in 3.3 the unified interpretation of 'quantifier-*mo*' is shown.

### 3.2. 'Many' and probability

The correlation of the notions *many* and 'expectation' has been studied in literature (Barwise & Cooper 1981, Keenan & Stavi 1986, Partee 1988 etc.) for clarifying the meaning of quantifier/determiner *many* in English as in 'Many students came,' since unstated quantities which satisfy *many* are determined according to expectations in context. Regarding the two different readings or reasons of *many*, i.e., a cardinal one and a proportional one, Partee (1988) claims (17), where some number *n* in a weak cardinal reading and some fraction *k* (between 0 and 1) in a strong proportional

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elements *X* and *Y* of the algebra *B*:  $f(X \cup Y) = f(X) \cup f(Y)$ . A determiner such as *one* in 'One student came', which is a function on NPs, is called an additive determiner.

<sup>3</sup> A function *f* from Boolean algebra *B* to *B\** is said to be anti-additive iff for each two elements *X* and *Y* of the algebra *B*:  $f(X \cup Y) = f(X) \cap f(Y)$ . A determiner such as *no* in 'No student came,' which is a function on NPs, is called an anti-additive determiner.

one are determined by fixed context, thus extensionally.

- (17) (i) cardinal reading:  $many(A, B)$  iff  $|A \cap B| > n$   
(ii) proportional reading:  $many(A, B)$  iff  $|A \cap B| > k \cdot |A|$

As opposed to this simple extensionality, Fernando & Kamp (1996) presents the intensionalized interpretations of *many*, considering how different expectations determine the values of  $n$  and  $k$  in a given context. They claim that ‘ $n$   $C$ ’s are many when  $|C|$  could well have been  $< n$ ,’ and show the interpretations of the determiner *many* as follows,

$$(18) \text{ Many } x(\phi, \psi) \text{ iff } \bigvee_{n \geq 1} ((\exists_{\geq n} x)(\phi \wedge \psi) \wedge n\text{-is-many}_x(\phi, \psi))$$

where  $\phi$  and  $\psi$  represents the set  $A$  and  $B$  above.  $(\exists_{\geq n} x)(\phi \wedge \psi)$  gives an existential claim ‘there are at least  $n$   $x$ ’s which are  $\phi$  and  $\psi$  in the actual world,’ and  $n\text{-is-many}_x(\phi, \psi)$  concerns expectation or probability of  $n$ .

The cardinal reading of *many* is given by substituting  $n\text{-IS-MANY}_x$  in (19) below for  $n\text{-is-many}_x$  above.

$$(19) n\text{-IS-MANY}_x(\chi) \text{ iff "it is probable that } (\exists_{< n} x)\chi\text{"}$$

$$\text{iff } p(\{w : |\chi|_{x,w} < n\}) > c.$$

$|\chi|_{x,w}$  is defined as  $|x : \chi \text{ in } w|$  and the probability function  $p$  on sets of worlds counts the number of possible worlds accessible in the model where the number of  $\chi$ - $x$ ’s is less than  $n$ . The values of  $p$  and  $c$  are fixed independently of  $\chi$ , and if a value of the probability function (between 0 and 1) is greater than  $c$ , it is probable; thus the notion of ‘probable’ is defined here within the possibility throughout accessible worlds.

The proportional reading on the other hand, is defined as

$$(20) n\text{-is-many}_x(\phi, \psi)$$

$$\text{iff "it is probable, given there are } |\phi|_x \text{ } \phi\text{-}x\text{'s, that } (\exists_{< n} x)(\phi \wedge \psi)\text{"}$$

$$\text{iff } p(\{w : |\phi \wedge \psi|_{x,w} < n\} \mid \{w : |\phi|_{x,w} = |\phi|_x\}) > c,$$

where the conditional probability  $p(X/Y)$  of  $X$  given  $Y$ , and  $c$  determine a probable number, which can be different from one in cardinal reading, according to the number of  $\phi$ - $x$ ’s.

These notions of probabilities can be used for the *n-CL-mo* constructions as the

resolution of the controversial ‘unlikelihood’ seen earlier. First of all, let us define the determiner  $n$ -CL and  $\neg n$ -CL in verbal/adjectival/nominal predicate sentences to fix the existential readings of  $n$ , as below.

$$(21) \ n\text{-CL}_x(\phi, \psi) \quad \text{iff} \quad (\exists_{\geq n} x)(\phi \wedge \psi) \\ \text{iff} \quad |\phi \wedge \psi|_x \geq n.$$

Since  $n$ -CL is a weak intersectional determiner, it can be regarded as a unary predicate applied to  $\phi \wedge \psi$ . And  $|\phi \wedge \psi|_x$ , where no world is specified, represents the cardinality of  $x$ 's which are  $\phi \wedge \psi$  in the actual world. If  $n$  is *five*, it means ‘there are at least five  $x$ 's which are  $\phi$  and  $\psi$ .’ The interpretation of  $n$ -CL is ambiguous between ‘exactly  $n$ ’ and ‘at least  $n$ ’ if not stated explicitly: the ‘exactly  $n$ ’ readings in those predicate sentences which are given by conversational implicatures are cancelable (Grice 1975, Gazdar 1979), so that the literal meaning of  $n$ -CL ought to be ‘ $n$  or more.’ This seems to be because the default interpretation of cardinal determiners in verbal/adjectival/nominal predicate sentences such as ‘*Gakusei-ga go-nin ki-ta (Five students came)*,’ assures us of monotonic reasoning, whereas cleft-like sentences such as ‘*Kita gakusei-wa go-nin dat-ta (It was five students who came)*,’ force ‘exactly  $n$ ’ readings. (21) does not represent interpretations in cleft sentences, where *mo* rarely appears.

The negation within the negative determiner  $\neg n$ -CL ranges over only the determiner, so that  $\neg(\exists_{\geq n} x)(\phi \wedge \psi)$ , and it is defined as a complementary determiner of  $n$ -CL as below.

$$(22) \ \neg n\text{-CL}_x(\phi, \psi) \quad \text{iff} \quad (\exists_{< n} x)(\phi \wedge \psi) \\ \text{iff} \quad (|\phi \wedge \psi|_x < n).$$

If  $n$  is *five*, it means ‘there are less than five  $x$ 's which are  $\phi$  and  $\psi$ .’

Then, the interpretations of  $n$ -CL-*mo* and  $\neg n$ -CL-*mo* with the cardinal interpretation of *many* are defined as follows.

$$(23) \ n\text{-CL-mo-MANY}_x(\phi, \psi) \quad \text{iff} \quad n\text{-CL}_x(\phi, \psi) \wedge n\text{-IS-MANY}_x(\phi \wedge \psi) \\ \text{iff} \quad (\exists_{\geq n} x)(\phi \wedge \psi) \wedge \text{"it is probable that } (\exists_{< n} x)(\phi \wedge \psi) \text{"} \\ \text{iff} \quad |\phi \wedge \psi|_x \geq n \wedge p(\{w: |\phi \wedge \psi|_{x,w} < n\}) > c.$$

$n$ -CL-*mo*, which ought to have a *many* interpretation, is regarded here as a new unary predicate  $n$ -CL-*mo*-*MANY*, and its interpretation is given as a conjunction of  $n$ -CL and Fernando & Kamp's  $n$ -*IS-MANY*. If  $n$  is *five*, it means ‘there are at least five  $x$ 's which are  $\phi$  and  $\psi$ , and it is probable that less than five  $x$ 's are  $\phi$  and  $\psi$ .’ In the same manner, negative determiner  $\neg n$ -CL-*mo*, which has a *few* interpretation, is defined as

$\neg n$ -CL-mo-FEW, a conjunction of  $\neg n$ -CL and a new predicate  $n$ -IS-FEW as below.

$$(24) \neg n\text{-CL-mo-FEW}_x(\phi, \psi) \text{ iff } \neg n\text{-CL}_x(\phi, \psi) \wedge n\text{-IS-FEW}_x(\phi \wedge \psi) \\ \text{iff } (\exists_{<n}x)(\phi \wedge \psi) \wedge \text{"it is probable that } (\exists_{\geq n}x)(\phi \wedge \psi) \text{"} \\ \text{iff } |\phi \wedge \psi|_x < n \wedge p(\{w: |\phi \wedge \psi|_{x,w} \geq n\}) > c.$$

If  $n$  is *five*, it means ‘there are less than five  $x$ ’s which are  $\phi$  and  $\psi$ , and it is probable that five or more  $x$ ’s are  $\phi$  and  $\psi$ .’

The proportional *many/few* readings are also gained if the unary predicate  $n$ -IS-MANY and  $n$ -IS-FEW above are substituted with proportional ones as follows.

$$(25) n\text{-CL-mo-many}_x(\phi, \psi) \\ \text{iff } n\text{-CL}_x(\phi, \psi) \wedge n\text{-is-many}_x(\phi \wedge \psi) \\ \text{iff } (\exists_{\geq n}x)(\phi \wedge \psi) \wedge \text{"it is probable, given there are } |\phi|_x \text{ } \phi\text{-}x\text{'s, that } (\exists_{<n}x)(\phi \wedge \psi) \text{"} \\ \text{iff } |\phi \wedge \psi|_x \geq n \wedge p(\{w: |\phi \wedge \psi|_{x,w} < n\} \mid \{w: |\phi|_{x,w} = |\phi|_x\}) > c.$$

If  $n$  is *five*, (25) means ‘there are at least five  $x$ ’s which are  $\phi$  and  $\psi$ , and it is probable that less than five  $x$ ’s are  $\phi$  and  $\psi$ , provided the number of  $\phi$ - $x$ ’s is the same as that in the actual world.’ And negative counterpart is given in the same manner as below.

$$(26) \neg n\text{-CL-mo-few}_x(\phi, \psi) \\ \text{iff } \neg n\text{-CL}_x(\phi, \psi) \wedge n\text{-is-few}_x(\phi \wedge \psi) \\ \text{iff } (\exists_{<n}x)(\phi \wedge \psi) \wedge \text{"it is probable, given there are } |\phi|_x \text{ } \phi\text{-}x\text{'s, that } (\exists_{\geq n}x)(\phi \wedge \psi) \text{"} \\ \text{iff } |\phi \wedge \psi|_x < n \wedge p(\{w: |\phi \wedge \psi|_{x,w} \geq n\} \mid \{w: |\phi|_{x,w} = |\phi|_x\}) > c.$$

Here we seem to have appropriate interpretations for each  $n$ -CL-mo and  $\neg n$ -CL-mo. However, above definitions do not give us the fundamental reason why *mo* expresses *many* in a positive determiner, but *few* in a negative one, since it is not explained how the direction of probable elements, i.e.,  $(\exists_{<n}x)(\phi \wedge \psi)$  in (23) and (25), or  $(\exists_{\geq n}x)(\phi \wedge \psi)$  in (24) and (26), is determined. We go on to this problem next.

### 3.3. Alternatives in quantity

Focus particles indicate the existence or non-existence of other elements than focused elements through conventional implicatures (Grice1975, Karttunen & Peters 1979). In order to capture this function of *mo*-phrases, the set of alternatives (Rooth 1985) and the focused subexpression (Fernando & Kamp1996) and replacement of alternatives are defined as follows.

A determiner  $Q$  in  $Qx(\varphi, \psi)$  is a relation between  $x$ -extensions  $\{x: \varphi\}$  and  $\{x: \psi\}$  of  $\varphi$  and  $\psi$ .  $Q_e^a$  is a determiner obtained by replacing  $e$  in  $Q$  by  $a$ , where  $e$  is a focused subexpression in  $Q$ ,  $A$  is a set of alternative quantities,  $a$  is an alternative in  $A$ , and  $a, e \in A$ .  $Q$  is made up of a quantity, weak cardinal or strong proportional, which co-occurs with *mo*;  $e$  is either a part or the whole of the  $Q$ ; and  $A$  consists of only quantities resembling  $e$  in ‘the most similar worlds modulo  $a/e$  (Fernando & Kamp 1996)<sup>4</sup>.’

Then, *mo*-phrases of quantity, which express probability and *many/few*, are interpreted as in (27)<sup>5</sup>.

(27)  $Q\text{-mo}_x(\varphi, \psi)$

iff " $Qx(\varphi, \psi)$ , and for some  $a$  other than  $e$  in  $Q$ , it is probable  $Q_e^a x(\varphi, \psi)$   
but not  $Qx(\varphi, \psi)$ "

iff  $Qx(\varphi, \psi) \wedge \exists a((a \neq e) \wedge p(\{w: Q_e^a x(\varphi, \psi)\}) > c > p(\{w: Qx(\varphi, \psi)\}))$ .

In the second conjunct,  $\exists a((a \neq e))$  assures the existence of an alternative, i.e., some other quantity than the focused one, and the following

$$p(\{w: Q_e^a x(\varphi, \psi)\}) > c > p(\{w: Qx(\varphi, \psi)\})$$

determines uni-directionality of alternatives, employing the probability function and  $c$  and the relation ‘ $>$  (is greater than)’ seen in section 3.2. Here, ‘it is probable’ is defined as ‘higher probability than  $c$ ’ as in Fernando & Kamp (1996), and another definition ‘it is not probable’ as ‘lower probability than  $c$ ’ is added.

Probabilities of propositions with quantities in  $A$  constitute a weak partial order (transitive, reflexive, antisymmetric), together with a relation ‘ $\geq$  (is greater than or equal to)’<sup>6</sup>. For instance, probability of ‘four or more students come’ should be the same

<sup>4</sup> The clarification of the notion of ‘resemble’ and ‘similar world’ are beyond the scope of this study; and we simply assume here ‘if  $Q\text{-mo}$  is made up of a number,  $A$  also consists of numbers or proportions whose cardinality is calculable within the same cardinality of  $\varphi$ ’ adopting the postulation in Fernando & Kamp (1996) ‘the switch  $a/e$  (regarding the alternation  $\chi_e^a$ ) could be viewed intensionally as moving to a most similar world modulo  $a/e$ .’

<sup>5</sup> For displaying the scope and focus of *mo* seen in section 2,  $Q\text{-mo}_x(\varphi, \psi)$  in (27) can be replaced by  $\text{mo}(Q_{F^x}(\varphi, \psi))$ , where *mo*’s scope is shown by  $( )$ , the focus by  $F$ . Thus,  $Q\text{-mo}_x(\varphi, \psi)$  iff  $\text{mo}(Q_{F^x}(\varphi, \psi))$ . We use here the former concise one for simplicity.

<sup>6</sup> The order can be a chain (a total weak partial order), if the substitution occurs only within positive integers.

or higher than that of ‘five or more students come’ in every model/context, as the latter materially implies the former in each world; their probabilities are the same only if there is no possible world in which ‘exactly five students come’ is satisfied. The actual interpretation of *Q-mo* is always obtained in accordance with this probability order, since *Q-mo* must choose *a* within the order. The strong partial order with  $>$  in (27) is identical to the conjunction of a weak partial order with  $\geq$  and an unequal relation  $\neq$ :

$$\begin{aligned} p(\{w: Q_e^a x(\varphi, \psi)\}) &> c > p(\{w: Qx(\varphi, \psi)\}) \\ &\equiv (p(\{w: Q_e^a x(\varphi, \psi)\}) \geq c \geq p(\{w: Qx(\varphi, \psi)\})) \wedge \\ &\quad (p(\{w: Q_e^a x(\varphi, \psi)\}) \neq c \neq p(\{w: Qx(\varphi, \psi)\})). \end{aligned}$$

Thus, the interpretation of *Q-mo* contains the weak partial order which is identical to the order of probabilities<sup>7</sup>. This is the reason why monotonicity between logical implications of numerals affects interpretations as seen in section 2, since logical implications determine the probability order. It is also explained why monotonic reasoning is crucial for this construction, since it creates logical implications.

In (27),  $(a \neq e)$  is actually not needed: since their probabilities are different, they cannot be the same. Thus, (27) can be replaced by (27)' below, which is identical to (27) but the redundant  $(a \neq e)$  is omitted.

(27)' *Q-mo*<sub>*x*</sub>( $\varphi, \psi$ )

iff " $Qx(\varphi, \psi)$ , and for some *a* other than *e* in *Q*, it is probable  $Q_e^a x(\varphi, \psi)$   
but not  $Qx(\varphi, \psi)$ "  
iff  $Qx(\varphi, \psi) \wedge \exists a (p(\{w: Q_e^a x(\varphi, \psi)\}) > c > p(\{w: Qx(\varphi, \psi)\}))$  .

To gain the interpretation that ‘alternative numbers are likely but the focused number is unlikely,’ which gives only probable alternatives, *c* is placed between probabilities of *e* and *a*. For if there is no *c*,

$$p(\{w: Q_e^a x(\varphi, \psi)\}) > p(\{w: Qx(\varphi, \psi)\})$$

simply indicates existence of other possible quantity in either direction of the order without ‘probable’ property. It can choose appropriate direction by the partial order between probabilities in quantities, e.g., probability of ‘four or more  $\varphi$ -*x*’s are  $\psi$ ’ is the same or higher than that of ‘five or more  $\varphi$ -*x*’s are  $\psi$ .’ But it cannot specify ‘likely’ quantities as alternatives, since any number greater than *one* has this property of *e* if *a* is

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<sup>7</sup> To put it differently, alternatives of *Q-mo* constitute a preordered (transitive, reflexive) subset of  $\mathbb{A}$  by the relation ‘probability of the proposition containing ... is greater than or equal to that of ...,’ and *mo* chooses *a* whose proposition’s probability is higher than *c* and that of *e*.

possible in at least one world.

Likewise, if not the probability of the focused number  $e$ , then

$$p(\{w: Q_e^a x(\varphi, \psi)\}) > c$$

expresses only ‘alternative number is likely,’ and we cannot have the information ‘the focused number is unlikely.’ It allows

$$p(\{w: Qx(\varphi, \psi)\}) > p(\{w: Q_e^a x(\varphi, \psi)\}) > c,$$

where  $e$  cannot be a maximal element in the order created by  $mo$ , thus ‘uni-directional alternation from the focused number’ is lost.

We employ only the cardinal reading of *many* above, since it is enough for choosing appropriate alternatives. Though the quantity in  $Q$  can be proportional, such as *gojup-paasento* (fifty percent) or *sanbun-no-ichi* (one third),  $Q$ -*mo* can choose appropriate alternatives, since in any world, the probability of, for instance, *yonjup-paasento* (forty percent) is the same or higher than that of *gojup-paasento* (fifty percent). Admittedly, the proportional reading, given the number of  $\varphi$ - $x$ ’s, provides another reason why the focused number is unlikely in an extensional manner as seen in section 3.2. But this also does not seem to be necessary for  $Q$ -*mo*, since the extensionality of determiner is already given by  $Q$ , and the implicated alternatives by  $mo$  can be any quantities which satisfy  $Q$ -*mo* in the speaker’s mind. If we take  $c$  as intentional,  $c$  can be more flexible in  $Q$ -*mo* according to subjective expectations of the speaker, and we do not have to specify each reason extensionally.

The interpretation of  $Q$ -*mo* above can provide the uni-directionality in both positive and negative polar, regarding both  $n$ -CL-*mo* and  $\neg n$ -CL-*mo* defined in (21) and (22) in 3.2 as  $Q$ ’s. If, for instance,  $e$  is *five* and  $A$  consists of numbers, the following interpretations in (28) and (29) are given to them respectively.

$$(28) \text{ 5-CL-}mo_x(\varphi, \psi) \\ = (|\varphi \wedge \psi|_x \geq 5) \wedge \exists a(p(\{w: |\varphi \wedge \psi|_{x,w} \geq a\}) > c > p(\{w: |\varphi \wedge \psi|_{x,w} \geq 5\})).$$

Provided  $e$  is *five*, it chooses  $a$  from numbers *one* to *four* as a probable one in the possible worlds, making use of the transitive probability order in  $A$ . If the sentence is ‘*Gakusei-ga go-nin-mo* kita (As many as five students came),’ the interpretation amounts to ‘it was probable that fewer than five students came, but in fact five students, which was not probable, came.’ Thus, it has both the interpretations, *many* and *unlikeliness*. If *five* appears in the negative determiner  $\neg n$ -CL-*mo* as in

$$(29) \text{--}5\text{-CL-mo}_x(\varphi, \psi) \\ = (|\varphi \wedge \psi|_x < 5) \wedge \exists a(p(\{w: |\varphi \wedge \psi|_{x,w} < a\}) > c > p(\{w: |\varphi \wedge \psi|_{x,w} < 5\})),$$

the numbers more than *five* are chosen as probable ones. And the sentence ‘*Gakusei-wa go-nin-mo ko-nakat-ta. (Less than five students came)*’ indicates ‘it was probable more than five students came, but in fact, less than five, which was not probable, came.’

If we look here at the co-occurrence restrictions mentioned earlier, the reason behind additive restriction on *n-CL-mo* is obvious: if *e* is the least quantity in a context as *one person*, no *a*’s which satisfy *Q-mo* exist in  $\mathbb{A}$ ; i.e., due to the transitive probability order, no quantities can have higher probability than *one person*. Zero and negative integers are not in  $\mathbb{A}$ , as they are unable to construct a determiner for persons in verbal/nominal/adjectival predicate sentences. Therefore, *1-CL-mo* cannot appear in affirmative sentences such as ‘\**hitori-mo kita (one person came)*.’ On the other hand, *2-CL-mo* and  $\neg 1\text{-CL-mo}$  are possible, if the probable numbers are *one* and more than *one* respectively. For this reason, ‘*one-CL-mo*’ amounts to a NPI in Japanese.

We seem to reach the same interpretation of *many* as Fernando & Kamp’s “*n-is-many*” by way of slightly different semantics. The *many* interpretation in adverbial *many* is expressed by the likeliness of the complementary event, i.e., the proposition created by the negative determiner ‘ $<n$ ’, which amounts to the negation of ‘ $\geq n$ ’. And since ‘ $<n$ ’ and ‘ $\geq n$ ’ make complementary events and *c* is assumed to be big enough, there is no need to express the unlikeliness of ‘ $\geq n$ ’. On the other hand, the semantics of *Q-mo* provides the likeliness/unlikeliness only through substitution of alternatives, thus we cannot compare ‘ $\geq n$ ’ with ‘ $<n$ ’, but the transitive order of probabilities gives us the same interpretation.

This substitution mechanism can specify alternative quantities within other monotonic environments created by conditionals as in (30), where *mo* has the widest scope<sup>8</sup>.

$$(30) Q\text{-mo}_x(\varphi, \psi) \rightarrow \omega \\ \text{iff } "Q_x(\varphi, \psi) \rightarrow \omega, \text{ and for some } a \text{ other than } e \text{ in } Q, \text{ it is probable} \\ Q_e^a x(\varphi, \psi) \rightarrow \omega, \text{ but not } Q_x(\varphi, \psi) \rightarrow \omega" \\ \text{iff } (Q_x(\varphi, \psi) \rightarrow \omega) \wedge \\ \exists a(p(\{w: Q_e^a x(\varphi, \psi) \rightarrow \omega\}) > c > p(\{w: Q_x(\varphi, \psi) \rightarrow \omega\})).$$

Since *mo* ranges over conditionals, the likely quantities are determined within the whole

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<sup>8</sup> As well as (27),  $Q\text{-mo}_x(\varphi, \psi) \rightarrow \omega$  means  $\text{mo}(Q_F x(\varphi, \psi) \rightarrow \omega)$ , where the scope and focus of *mo* are explicitly shown.

$(\varphi, \psi) \rightarrow \omega$ . If  $e$  is *five* and  $A$  consists of numbers, it means

$$(31) \text{ 5-CL-mo}_x(\varphi, \psi) \rightarrow \omega \\ = (|\varphi \wedge \psi|_x \geq 5 \rightarrow \omega) \wedge \\ \exists a(p(\{w: |\varphi \wedge \psi|_{x,w} \geq a \rightarrow \omega\}) > c > p(\{w: |\varphi \wedge \psi|_{x,w} \geq 5 \rightarrow \omega\}))$$

where the likely numbers should be more than *five*. If the sentence is ‘*Gakusei-ga go-nin-mo kure-ba juubunda* (If only about five students come, it’s enough),’ with the widest scope of *mo*, it amounts to ‘it is probable if more than five or six or seven... come, it’s enough; but in fact, if five come it’s enough, which is not probable in other situations.’ Thus, it indicates *five* as moderation, and the *five* which is *not probable* here can co-occur with the speaker’s estimation ‘five will come,’ if the person can imagine many other possible worlds which are different from the estimation, since *probable* is determined on the number of possible worlds.

Provided  $Q$  is 10-CL or  $\neg$ 10-CL, the *many/few* interpretations in sentences seen in section 2 are correctly given. Only the sentence (12b), where the scope of *mo* is smaller than quantifier negation, is hard to explain with the definitions of the negative determiner and  $Q$ -*mo* above, since *mo* cannot be negated by the wider scope negation. We must leave it to future study.

### 3.4. ‘Many/few’, ‘even’, and ‘also’

Lastly, we look briefly here at the correlation of the three meanings of *mo* seen in the Introduction, i.e., addition *also*, scalar *even*, and *many/few*. If we eliminate the meaning of determiner  $Q$  from the interpretation of  $Q$ -*mo* in (27) to see the conventional implicature of *mo*, it is “for some other  $a$  than  $e$  in  $Q$ , it is probable  $Q_e^a x(\varphi, \psi)$ , but not  $Qx(\varphi, \psi)$ ,” thus,

$$\exists a((a \neq e) \wedge p(\{w: Q_e^a x(\varphi, \psi)\}) > c > p(\{w: Qx(\varphi, \psi)\})).$$

It indicates ‘the existence of some other alternative that is probable than the focused one,’ and this interpretation is identifiable as the meaning of the NP-focus scalar *mo*, which means *even* following nouns/individuals, since it also designates some other alternatives as probable, as in ‘*John-mo kita* (Even John came).’<sup>9</sup> We can regard that these *mo* have the same conventional implicature which employs the weak/strong partial

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<sup>9</sup> Regarding the meaning of *even*, Rooth(1985) employed a unary predicate unlikely’( $p$ ) on propositions, while Krifka (1991) adopted a probability relation  $\langle p$ , whose left proposition is less/least probable.

order of probabilities, or the preorder of alternatives, but only the domains of focused elements or alternatives are different from each other: if the domain is a set of individuals, it means *even*, if a set of quantities *many* or *few*. The complementary distribution also suggests they can be the same.

In addition, the interpretation above amounts to

$$\exists a((a \neq e) \wedge Q_e^a x(\varphi, \psi) \wedge p(\{w: Q_e^a x(\varphi, \psi)\}) > c > p(\{w: Q_x(\varphi, \psi)\})),$$

where ‘the existence of alternatives in the actual world’ is expressed by  $Q_e^a x(\varphi, \psi)$ . It is brought by the logical implications of quantified sentences, e.g., ‘four or more students come’ has higher probability than ‘five or more students come,’ and it is logically implied by ‘five or more students come.’ Thus, the interpretation of *Q-mo* includes an existential claim of alternatives, which is the same as the existential interpretation of addition *mo*, i.e., *also*, as in ‘*John-mo kita (John also came)*,’ though the domains are different. In the case of scalar NP-focus *mo*, the existence of probable alternatives is assured not in the actual world but in the possible worlds; since ‘John came’ does not logically imply ‘others came,’ and it is possible to say ‘*John-mo kita-noni hokani daremo ko-nakat-ta (Even John came, but no others came)*.’

This common interpretation, i.e., the existence of alternatives in either the actual world or possible worlds, can be one of the reasons why the same *mo* is used for both the existential reading and scalar ones; since it is natural to assume that the similarities between interpretations support the cognation of different meanings of the same morpheme.

#### 4. Conclusion

We can summarize the claims in this paper as follows.

- (i) Syntactic categories and the scope of *mo* determine *many/few* interpretations, by affecting monotonicity.
- (ii) The monotonicity of focused elements is crucial in interpretations, since it determines the probability order, by which *mo* chooses alternatives.

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# Interpretations of numerals and structured contexts

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## Abstract

In this paper, I show that numerals do not constitute a semantic scale, and that numerals themselves do not have the meaning of 'at least', as (neo-)Griceans claim. There are two kinds of scalarity in interpreting numerals. One is the basic scalarity among numerals and the other that of being unlikely. The direction of the latter is determined contextually, based on a sentence itself and background knowledge, which, in turn, determines the interpretation of a numeral by taking the numeral mentioned as a (upper/lower) limit value. This leads to the meaning of 'at most/least'. This scalarity applies to domains of quantification. When there is no explicit quantification involved in a sentence, the default quantification is quantification over epistemic alternatives. The basic scalarity applies to each case in a domain of quantification requiring us to consider only the maximal numbers of elements in the domain.

**Keywords:** numerals, 'at least', 'at most', scalarity, likelihood, domain of quantification, quantification over epistemic alternatives.

## 1. Introduction

Grice's (1961) maxim of quantity consists of two sub-maxims like the following:<sup>1</sup>

- Make your contribution as informative as is required for the current purposes of the exchange.
- Do not make your contribution more informative than is required.

The maxim applies to utterances with scalar expressions, and yields implicatures. Neo-Griceans assumed that a numeral  $n$  has the semantic meaning of 'at least  $n$ ': the semantic meaning of (1a) is (1b). On the other hand, it comes to be interpreted as (1d) because

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1 The original maxim of quantity mentions the factor of relevance to the context. Later this factor is more or less ignored and informativeness is more focused, and the maxim has got other names like the Q-principle (Horn 1984 and Levinson 1987) or the principle of volubility.

the speaker is supposed to follow the maxim of quantity: the speaker would mention a larger number if he or she could assert a stronger statement with the larger number. Therefore we get the implicature like (1c).

- (1) a. John has three children.
- b. John has at least three children.
- c. NOT(John has more than three children)
- d. John has *exactly three* children.

However, this view is easily refuted by the following observations.<sup>2</sup> Numerals are different from other scalar terms.

- (2) A: Are many of your friends linguists?  
    B: ?No, all of them are.  
    B': Yes, (in fact) all of them are.
- (3) A: Do you have three children?  
    B: No, four.  
    B': ?Yes, (in fact) four.

If all of your friends are linguists, it is also true that many of your friends are linguists. So after you deny that many of your friends are linguists, you cannot claim that all of your friends are. On the other hand, you can claim that you have four children after you deny that you have three children, as shown in (3B). On the other hand, after you assert that you have three children, it is awkward to claim that you have four children, as shown in (3B').<sup>3</sup> A more convincing example from Horn (1996, 316) is the following:

- (4) a. ??Neither of us liked the movie – she hated it and I absolutely loved it.
- b. Neither of us have three kids – she has two and I have four.

Here loving a movie entails liking it. If neither of us liked the movie, neither of us loved it. On the other hand, having four children does not entail having three, as (4b) shows. This would be surprising if *three children* meant 'at least three children'. This shows that numerals do not constitute a semantic scale.

A second argument against the semantic interpretation of a numeral *n* as 'at least *n*' is that a numeral *n* can have an 'at most *n*', 'at least *n*' or 'exactly *n*' interpretation, depending on the context. Sadock (1984, 143) and Carston (1998) gives some examples involving modality in which a numeral has an 'at least' or 'at most' interpretation.

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2 Cf.. Horn (1992, 1996), Koenig (1991), Atlas (1992), etc.

3 You may think of a situation in which the discourse becomes appropriate, but in general, a numeral tends to be focused, which has the effect of excluding other alternatives. In this example, if the number *four* is also relevant in the context, the discourse is odd. See the discussion of (10-11).

- (5) a. That golfer is capable of a round of 100 (and maybe even 90/\*110).  
b. Women with two pre-schoolers are eligible for the welfare benefit.

In the first example, the number 100 is interpreted as 'at most 100', so the possibility of 90 is allowed. In the second example, the number *two* has an 'at least' interpretation since people with more pre-schoolers are more likely to get the welfare benefit. When necessity is involved, a numeral tends to have an 'at least' interpretation, as the following examples show.

- (6) a. In Britain you have to be 18 to drive a car.  
b. Mary needs three A's to get into Oxford.

Breheny (2008) shows that the interpretation of a numeral is completely dependent on background knowledge. Consider the following example.

- (7) No one who has three children is happy.

In this example, the quantifier introduces a downward-entailing context, but the numeral has three possible readings, depending on background knowledge. In a context in which more children means more stress, the numeral is likely to have an 'at least' interpretation. But if more children means more benefits, it gets an 'at most' interpretation. Having four children is taken to be the minimal requirement to get some benefits. We can also think of a context in which a specific number of children, namely three children, make their parents unhappy. In this context the numeral *three* is interpreted as 'exactly three'. Breheny (2008) discusses this example to show that monotonicity does not affect the interpretation of a numeral, and that the main factor of determining the interpretation of a numeral is background knowledge.

One thing to note in (7) is that the example involves quantification. When there is no quantification or modality involved, a numeral generally has an 'exactly' or, less likely, 'at least' interpretation.<sup>4</sup>

- (8) A: who has three children?  
B: John has three children.  
B': John has three children, in fact he has five.

In (8B), the numeral *three* seems to have an 'exactly' interpretation, if B does not add anything. In (8B'), however, it has an 'at least' interpretation. One interesting fact is that in neither case can we get an 'at most' interpretation.

Despite this generalization, there is an example discussed by Krifka (1999) in

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4 Example (8) seems incompatible with (3), but here *five* is not relevant in the first place. This allows the reply in (8B').

which a numeral has an 'at most' interpretation even without any quantifier involved.

(9) In Guatemala, 3 % of the population owns 70 % of the land. (Krifka 1999)

In this example, the number 70 has an 'at least' interpretation, but *three* has an 'at most' interpretation. We have to be able to explain why numerals in general do not have an 'at most' interpretations when there is no quantification involved. In addition, we have to explain why the numeral *three* in (9) has an 'at most' interpretation.

## 2. Previous Analyses

The problems with the classical analysis of numerals have been discussed by many linguists, including Carson (1998), Breheny (2008), Van Kuppevelt (1996a, 1996b), Horn (1992, 1996), Koenig (1991), Atlas (1992), etc. Among these, Carston (1998) claims that the meaning of a numeral is *underspecified*, like the following.

[ X [THREE] ], where the value of X is pragmatically determined.

(cf. Recanati (1989))

We have seen that the interpretation of a numeral depends on the context in which it is used, but simply saying that X is given by the context is not an explanation. We have to explain how the interpretation is determined. This is what I am doing in this paper.

Van Kuppevelt (1996a, 1996b) shows that whether a cardinal (or other scalar term) is given an “at least” or an “exactly” interpretation depends on whether the term is in the topic or the comment part of the information structure of the utterance.

(10) How many children does John have?

- a. He has three children.
- b. \*He has three children, in fact five.

(11) Who has three children?

- a. John has three children.
- b. John has three children, in fact he has five.

In (10), *three* is in the comment and has the 'exactly' interpretation. This does not allow the possibility that John has more than three children. In (11), however, the numeral has an 'at least' interpretation in the topic position of the sentence, which allows the possibility that John has five children. With these examples, he tried to show that interpretation of numerals is affected by information structure, another contextual factor.

However, this explanation has some problems. First, it is not explained how an 'at most' interpretation is possible. It does not seem to depend on information structure.

Second, Krifka (1999) refutes their claim with the following example.

(12) A: How many children does Nigel have?

B: Nigel has fourteen<sub>F</sub> children, perhaps even fifteen<sub>F</sub>.

Here *fourteen* is focused, but it does not lead to an 'exactly' interpretation: it allows the possibility that Nigel has fifteen children. This shows that focus itself does not exclude other alternatives. Ultimately, it depends on the speaker's knowledge or certainty.

Geurts (2006) gives a semantic analysis of the semantics of numerals. He assumes that the basic meaning of a numeral  $n$  is that of a predicate that applies to sum individuals, following Krifka (1999). In this usage, a NP with a numeral basically has an 'exactly' interpretation. He tries to explain an 'at least' interpretation in the way of type-shifting, as in Partee (1986).

(13) a.  $\|n \text{ CN}\| = \lambda P \exists !x[\#(x) = n \ \& \ \| \text{CN}\|(x) \ \& \ P(x)]$

b.  $\lambda x[\#(x) = n \ \& \ \| \text{CN}\|(x)]$  (Quantifier Lowering)

c.  $\lambda P \exists x[\#(x) = n \ \& \ \| \text{CN}\|(x) \ \& \ P(x)]$  (Existential Closure)

(13a) is the meaning of a NP with a numeral when it is used as an argument. As the operator shows, the basic meaning of a NP with a numeral is an 'exactly' interpretation. From this, we get the meaning of a NP with a numeral as a predicate, as given in (13b), by applying Quantifier Lowering. Then we can get (13c) as the meaning of a NP as an argument again, by Existential Closure. (13c) is compatible with the situation in which  $x$  is more than  $n$ , a case of an 'at least' interpretation. By the derivations, Geurts tries to explain how an 'exactly' or 'at least' interpretation of a numeral occurs.

Geurts explained these meanings based on semantic type-shifting, but an 'at most' interpretation cannot be derived by semantic type-shifting. He claims that it is derived pragmatically. However, there is no evidence for accounting for 'at least' interpretations semantically and 'at most' interpretations pragmatically. As will be shown below, interpretations of numerals are determined contextually, and even predicative uses of NPs with numerals can have 'at least' interpretations.

(14) These are five pills, if not six.

In a predicate use, *five pills* normally has the meaning 'exactly five pills', but in this example it has an 'at least' interpretation. So the interpretation of a numeral in a predicative is also a pragmatic matter: the speaker's uncertainty.

In this paper, I am going to account for how a numeral is interpreted in a pragmatic approach. To support my analysis, I am going to make several claims, which

refute some previous analyses of numerals. First, I show that numerals do not constitute a semantic scale, and claim that the meaning of 'at least/most' is not part of the meaning of a numeral itself. There are two kinds of informativeness based on two kinds of scalarity: the basic scalarity among numerals and a contextual scalarity of likelihood. The basic scalarity requires the speaker or hearer to consider the maximal numbers of elements. The contextual scalarity comes in when some quantification is involved. It requires the speaker to provide a limit value in a set of the maximal numbers of elements in a context, and the limit number  $n$  is taken to be 'at least  $n$ ' or 'at most  $n$ ', when the scalarity is combined with lack of information, depending on the direction of scalarity. If no quantification is involved, quantification over epistemic alternatives is the default option. If no uncertainty is involved, a numeral has an 'exactly' interpretation.

### 3. Pragmatics in Using Numerals

#### 3.1 Evidence against semantic scalarity

First, numerals do not constitute a semantic scale. Suppose that John juggles with balls. And for some reasons, it is impossible to juggle with an odd number of balls.

(15) A: Anyone who can juggle with more than six balls can participate in the competition. Does John juggle with six balls?

B: Yes, he does. He can even juggle with ten balls.

In this example, *six* means '*at least* six', but B's answer does not entail that John can juggle with five or seven balls. Note that an 'at least' interpretation does not have anything to do with semantic scalarity.

Suppose one boy ate three apples, and two boys two apples each. (Krifka 1999)

(16) a. Three boys ate seven apples.

b. Two boys ate six apples.

In a given context, (16a) does not entail, or pragmatically imply, (16b). Accumulation is not a semantic process. When numerals constitute a scale, the set is determined in the context, not inherently in the language system. There are cases where numerals behave as if they constituted a semantic scale. This is related to the fact that the event of reading five books includes the subevent of reading four books. But this is still pragmatic because the inclusion relation is pragmatically restrained.

### 3.2. 'At least/most' not part of semantics

In some previous analyses, the meanings like 'at least/most' are part of the meanings of numerals. However, this is not the case. The same numeral can have different meanings depending on background knowledge. As I said, the interpretation of the numeral *three* in (7) depends on which context the sentence is uttered in. However, the number itself does not seem to have the meaning of 'at least' or 'at most'. One piece of evidence is that the three interpretations are always available, whether or not the relevant scales are semantic or pragmatic.

- (17) a. You must (at least) like studying maths if you want to do well in maths.  
b. You may (at most) watch her dance(, but you may not dance with her).  
c. No one who (at most) like studying maths do well in maths.  
d. No one who (at least) like studying maths fail in maths.

Here the expressions in parentheses indicate the possible interpretations of *like studying maths*. It is unlikely that *like studying maths* itself means 'at least/most like studying maths'. This shows that the meaning of 'at least' or 'at most' is not inherent part of the meanings of numerals.

In (7), it is clear that directions of contextual scalarity are determined by *background knowledge plus the whole sentence*, and that the relevant factor is also informativeness: the less likely the utterance, the more informative it is. If more children means more stress, the order of being less likely to hold is like the following:

Ordering of being less likely:  $1 > 2 > \mathbf{3} > \dots > n-1 > n$

This means that the smaller the number, the more informative the sentence becomes. When a number  $x$  is mentioned in the sentence, it means that the *lower* limit number  $x$  such that no one who has  $x$  children is happy is three, so it gets the meaning of 'at least'.

Now if we change the sentence as in (18), the direction of scalarity changes.

- (18) People who have three children are happy.

Since more children means more stress, the ordering of the sentence being less likely to be true is like the following:

Ordering of being less likely:  $n > n-1 > \dots > \mathbf{3} > 2 > 1$

In this context *three* is taken to be the *upper* limit number  $x$  such that people who have  $x$  children are happy. The numeral mentioned gets the meaning of 'at most three'.

Now we consider the two sentences with different background knowledge. Suppose that more children means more prosperity. Then the direction of scalarity

changes as below, and the numeral gets an 'at most' interpretation.

Ordering of being less likely:  $n > n-1 > \dots > \mathbf{3} > 2 > 1$

As to (18), the direction of scalarity is as follows:

Ordering of being less likely:  $1 > 2 > \mathbf{3} > \dots > n-1 > n$

And the numeral three is understood as meaning 'at least three'. This indicates that the direction of scalarity changes with background knowledge and the whole utterance, and that the numeral itself does not have the meaning of either 'at most' or 'at least'. Therefore the meanings like 'at least' and 'at most' must be associated with the whole sentence. So the meanings of the two sentences can be represented as follows:

AT\_LEAST/MOST[No one who has three children is happy]

AT\_MOST/LEAST[People who have three children are happy]

We can say a similar thing about sentences in which modality is involved. Suppose that people want to eat more apples. In this context, the numeral in the following sentence is interpreted as 'at most three'.

(19) You may have three apples.

If people want to eat more apples, you are less likely to give a permission of allowing people to have more apples. So the ordering of being less likely is the following:

(20) Ordering of being less likely:  $n > n-1 > \dots > \mathbf{3} > 2 > 1$

The larger the number, the stronger the permission becomes. So the number mentioned is taken to be the upper limit number  $x$  such that the speaker can allow the hearer to eat  $x$  apples. This can be expressed as follows:

AT\_MOST[You may have three apples]

The same thing happens to an obligation statement: (21a) is likely to mean (21b).

(21) a. You must have three apples.

b. AT\_MOST[You must have three apples]

Suppose that people want to solve fewer problems. Then it is less likely that permission or obligation statements are made with a smaller number. So the ordering of being less likely is like the following:

Ordering of being less likely:  $1 > 2 > \mathbf{3} > \dots > n-1 > n$

In this context, the statements in (22) are interpreted as those in (23).

(25) You may/must solve three problems.

(26) AT\_LEAST[You may/must solve three problems]

The discussion so far shows that a numeral does not have the meaning of 'at least' or 'at most'. It is not assumed that a numeral has an 'exactly' interpretation in the sense that statements with alternative numerals do not hold, either. A numeral mentioned is selected based on the basic scalarity among numerals, which will be discussed, with the exceptions where the maximal number based on the basic scalarity is irrelevant in the context, as in (11). A numeral has an 'at least' or 'at most' interpretation depending on how the context as whole is structured. This is discussed in the the following section.

#### 4. 'At least/most' Interpretations and Domains of Quantification

When the scalarity of being unlikely applies, the numeral itself does not have the meaning 'at least' or 'at most'. When a statement with a numeral is uttered, the context is structured into sub-contexts with respect to alternatives of the numeral. Each sub-context provides a domain of quantification. That is, the statement itself is associated with a certain domain of quantification, each of the alternatives introducing alternative potential domains of quantification. The alternative domains of quantification are ordered with respect to a scalarity like unlikelihood. If the context as a whole is structured directionally and the speaker is not quite sure about the other alternatives, the domain for the statement with the numeral mentioned is taken to be a limit case, and alternative propositions are implicated which are relevant to alternative domains of quantification and are more likely to hold, and other alternative propositions which are less likely to hold are excluded from the context. The basic assumption here is that a statement with a numeral itself has no implications about other numerals: that is, a numeral itself does not have an 'at least' or 'at most' interpretation.

I claim that an 'at least' or 'at most' interpretation is obtained when alternative statements with larger numbers or smaller numbers are more likely to hold. A numeral in a statement itself does not have such an interpretation. This idea can be clear when bare numerals are compared with numerals preceded by *at least* or *at most*. In general, when sentences with numerals have 'at least/most' interpretations, we get the same meanings by putting 'at least/most' before the numerals.

- (24) a. AT\_LEAST/MOST[No one who has three<sub>F</sub> children is happy]  
b. No one who has at least/most three children is happy.
- (25) a. AT\_LEAST[John must solve three problems]  
b. John must solve at least three problems.
- (26) a. AT\_MOST[John may eat three apples]

b. John may eat at most three apples.

Here (24-26a) have the same meaning as (24-26b), respectively. In the following two pairs, however, the second sentences do not seem appropriate.

(27) a. AT\_MOST[John must eat three apples]

b. ?John must eat at most three apples.

(28) a. AT\_LEAST[John may solve three problems]

b. ?John may solve at least three problems.

In the (a)-statements, *must* and *may* have narrower scope than AT\_MOST/LEAST, while in the (b)-statements, they have wide scope over *at most three apples* and *at least three*. AT\_LEAST/MOST can be attached to a sentence even when *at least/most* before a numeral cannot. Now we have to explain why the (b)-statements are not natural.

In (25a), *must* has narrower scope than AT\_LEAST. This means that there are other alternative domains in which the statement with a larger number is likely to hold. This is the situation in which if the domain is extended to include cases where John solves more than three problems, then it is true that John solves (at least) three problems in every possible world in the extended domain. This is a context we can utter (25b) appropriately.

In (27), the two statements have different interpretations. In (27a), *must* has narrower scope than AT\_MOST. This means that there are other potential domains of quantification in which it is likely that John must eat less than three apples. This means that the domain of quantification can be extended to include cases where John eats less than three apples. Then John eats three apples in some possible worlds and less than three apples in others in the extended domain. This context is not appropriate for uttering (27b). It is more appropriate for a statement like 'John may eat three apples'. (27b) is awkward because there is no context in which it can be uttered appropriately.

The intended meaning can be expressed with the following sentence instead.

(29) John must eat three apples at most.

Here the expression *at most* is equivalent to the operator AT\_MOST. The sentence means that the upper limit of the numbers of apples John must eat is three. This implicates that there are possibly other domains in which it is likely that John must eat fewer than three apples, which is understood as meaning that the upper limit of the numbers of apples John eats must be three.

A similar reasoning can apply to permission statements. (26a) means that *three* is the upper limit of the numbers of apples John may eat. There may be other domains of quantification in which John eats less than three apples. This is the situation in which if

the domain is extended to cover cases where John eats less than three apples, John eats three or fewer apples in some possible worlds in the extended domain. This is why we can say (26b) appropriately.

(28a), on the other hand, means that there are other possible domains in which it is likely that John may solve four or more problems. Then if the domain is extended, there are possible worlds in the extended domain in which John solves more than three problems, together with those in which John solves less than three. The situation is not appropriate for (28b) because *three* in this situation is not a limit value. (28b) is awkward because there is no context in which it is appropriately uttered.<sup>5</sup> For this reason, (28a) is, together with its scalar implicatures, understood as meaning that John may solve only three problems.

So far I have shown that obligation statements require numerals with 'at least' interpretations, and permission statements those with 'at most' interpretations, and in such cases, they have corresponding sentences with *at least/most* before numerals. With other interpretations, they do not have corresponding sentences with *at least/most* before numerals, because the latter cannot be uttered appropriately. AT\_LEAST/MOST is always possible because it only applies to a domain for the numeral mentioned.

## 5. Informativeness from the Basic Scalarity

There are two kinds of scalarity which apply to two different areas. I have discussed informativeness with respect to the scale of being less likely. In some sense, uttering a sentence which is less likely to be true is uttering a pragmatically stronger sentence. However, linguists have been more concerned with the more basic scalarity among numerals: the event of solving three problems includes that of solving two problems, unless the context excludes the possibility that the two numbers are relevant

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5 One thing to explain is why (28a) does not allow John to solve less than three problems. The implicature is that it is not appropriate to say that John may solve less than three problems. This is understood as meaning that John is not allowed to solve less than three problems. This is contrasted with (27a), which implicates that it is not appropriate to say that John must eat more than three apples. It is understood as implicating that John must not eat more than three apples, not that John does not have to eat more than three apples. This is related to the observation that a scalar implicature is derived sometimes locally and sometimes globally. As for scalar implicatures, see Chierchia (2004), Sauerland (2004), Russell (2006), etc.

in the context. Informativeness from the basic scalarity requires us to consider only the maximal number of problems solved.

(30) a. John must solve three problems.

b.  $\Box \exists x[\#(x) \geq 3 \ \& \ \text{problems}(x) \ \& \ \text{solve}(j,x)]$

c. John must solve two problems.

d.  $\Box \exists x[\#(x) \geq 2 \ \& \ \text{problems}(x) \ \& \ \text{solve}(j,x)]$

The meaning of (30a) can be represented as (30b), but pragmatically it is supposed to mean that John must solve at least three problems. On the other hand, if there is an event of John solving three problems, it is also true that there is an event of John solving two problems. In the current context, however, we cannot say that John must solve two problems. We only consider the maximal numbers of problems John solves in every possible world. The numeral is taken to be the lower limit of the maximal numbers. That is, the scalarity from being less likely applies to domains of quantification, while the basic scalarity applies to each case in a domain of quantification, independently of the scalarity of unlikelihood.

This can apply to cases of quantification over individuals. Consider (7) again. When more children means more stress, the sentence means that no one who have at least three children are happy. In the domain of quantification, we have people who have three children. Having three children means having two children too, but we only consider the maximal numbers of children each person in the domain has. The number mentioned is taken to be the lower limit among the maximal numbers of children which people in the domain of quantification have, on the basis of the (un)likelihood scalarity.

The same distinction applies to cases where numerals have an 'at most' interpretation: the number mentioned is taken to be the upper limit, and it is the one in a set of maximal numbers.

(19) John may eat three apples.

$\Diamond \exists x[\#(x) \leq 3 \ \& \ \text{apples}(x) \ \& \ \text{eat}(j,x)]$

(31) John may eat two apples.

$\Diamond \exists x[\#(x) \leq 2 \ \& \ \text{apples}(x) \ \& \ \text{eat}(j,x)]$

(31) may follow from (19) pragmatically. Here again we only consider the maximal number of apples John eats in each possible world. 3 is the upper limit among them. The upper limit among the non-maximal numbers of apples people eat makes no sense at all. In (7), if the numeral has the interpretation of 'at most three', it must be the upper limit of the maximal numbers of children people have. We can say the same thing about (21a). The discussion so far indicates that the scalarity of being unlikely applies to domains of quantification, whereas the basic scalarity among numerals themselves applies to each

case in the quantification domain. And the latter works whether a numeral takes an 'at least' or 'at most' interpretation. This means that it does not determine the meaning of a numeral itself.

## 6. Statements with no Quantification Apparently Involved

So far I have claimed that numerals can be understood as meaning 'at least/most' or 'exactly' when there are domains of quantification involved. In the case, the basic scalarity among numerals is the only factor that works in the context. As I said, this scalarity does not determine the interpretation of a numeral. However, a sentence with no quantification involved can have 'at least' interpretations in general. Even 'at most' interpretations are possible in some exceptional cases, as in (9). This implies that even when no explicit quantification seems involved, there is some kind of quantification involved implicitly.

One such candidate is universal quantification over epistemic alternatives. As will be discussed below, the meaning 'at least/most' is related to lack of knowledge in some sense, and all statements inherently involve quantification over epistemic alternatives. Under the assumption of quantification over epistemic alternatives, a statement uttered in a context is taken to be what the speaker can assert *at least* in the current information state. Thus the default 'at least' interpretation arises from epistemic necessity, just as obligation statements require numerals to have 'at least' interpretations.

This is how the numeral in (32) gets an 'at least' interpretation.

(32) John ate three apples.

$n > n - 1 > \dots > \mathbf{3} > 2 > 1$

Here 3 is the upper limit. Even if the speaker can assert a weaker statement, the sentence does not mean that John ate at most three apples. Applying the epistemic necessity to the statement, we can get the following meaning.

AT\_LEAST[  [John ate three apples]]

With the universal quantifier, *three* has an 'at least' interpretation. We might coerce an 'at most' interpretation, but it would just mean that John ate only three apples.

We can apply the same reasoning to (9), and an 'at most' interpretation is derived. In (9), the relevant scale is the following:

*strongest*

<1,100>   <2, 100>   <3, 100>   <4, 100>   ...   <100, 100>

<1, 99>	<2, 99>	<3, 99>	<4, 99>	...	<100, 99>
...	...	...	...	...	
<1, 70>	<2, 70>	<3, 70>	<4, 70>	...	<100, 70>
<1, 69>	<2, 69>	<3, 69>	<4, 69>	...	<100, 69>

The actual statement includes the pair <3, 70>, where 3 is the lower limit and 70 is the upper limit, compared with other possible statements the speaker can assert. Then does the sentence mean that *at least* 3 % of the population owns *at most* 70 % of the land? In the correct meaning, the numbers have the opposite meaning. How is this explained? The answer is universal quantification over epistemic alternatives again.

[In Guatemala, 3 percent of the population owns 70 percent of the land]

With the universal quantifier , the pair of numbers is taken to be the lower limit and the statement must be taken to have the minimal strength.

AT\_LEAST[  [In Guatemala, 3 % of the population owns 70 % of the land]]

This opens the possibility that the statement can be strengthened further: that is, 3 can become smaller and 70 can become larger. So 3 has an 'at most' interpretation, while 70 has an 'at least' interpretation.

## 7. So-called 'Exactly' Interpretations

So-called “exactly” readings obtain when all the other alternative numbers are excluded. There are two such cases. One is cases where scalarity lies in the background but it is known that other alternatives are not appropriate to assert, and the other is cases where the context is structured in a way that no scalarity is involved. In (33) the numeral *only three* is understood as having two meanings.

(33) John ate only three apples.

(33) means that John ate no more than three apples, or that the number of apples John ate is only three, not two or four. The former is a scalar reading, which is more plausible, and the latter is, less likely, a non-scalar reading. Even in the former case, we do not say that the numeral has an 'at least/most' interpretation, because the speaker knows that John did not eat two or four apples. In neither case can we say that the numeral has different interpretations. This shows that so-called 'exactly' interpretations are obtained when the speaker knows that the other alternatives are excluded, regardless of whether

numerals constitute scalar terms or not.

## 8. Conclusions

In this paper I have shown that numerals do not have 'at least/most' interpretations. Such interpretations occur pragmatically when contexts provide such interpretations. Behind these interpretations lies directional likelihood with respect to numerals: the larger the numeral, the more or the less likely the whole sentence is to hold. In some sense, the less likely the statement, the more informative it is. However, there is another factor of informativeness: something like 'eating three apples includes eating two apples'. This always works in the basic cases which constitute a domain of quantification, regardless of whether the informativeness from likelihood applies in a set of domains of quantification or not. In cases where no explicit quantification is involved, we can assume that implicit universal quantification over epistemic alternatives is involved. This also leads to some limit interpretation of the numeral mentioned in a statement, the lower limit in general. Conclusively, an 'at least/most' interpretation arises when the numeral mentioned is taken to be a limit value.

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# Partition Semantics and Pragmatics of Contrastive Topic

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## Abstract

Two existing approaches to the semantics and the pragmatics of contrastive topic (CT) will be examined to be shown that neither of them is adequate enough because one cannot account for what the other can; moreover, there is a garden-variety class of CT sentences that is problematic to both of them. Against a backdrop of this, an alternative approach will be proposed couched in the (dynamic) partition semantics of questions and answers proposed by Groenendijk and Stokhof. The alternative approach will be demonstrated to be able to handle the class of CT sentences in question as well as capture the insights of both existing approaches, thus having the best of both worlds so to speak.

**Keywords:** contrastive topic (CT), semantics, pragmatics, partition semantics of questions and answers

## 1. Introduction

To the semantics and pragmatics of contrastive topic, there have been two approaches proposed in the literature: one is to take contrastive topic as an information-structural discourse regulating notion on a par with focus (Roberts 1996, Büring 1999, Kadmon 2001) and the other is to analyze a contrastive marker, phonetic or morphological as an focus-sensitive operator with its inherent semantic and pragmatic content (Lee 1999, 2006, Hara 2006, Oshima 2002). In the current work, we will review the two approaches and show that both of them have empirical problems; then, we will present an alternative analysis of contrastive topic couched in the so-called partition semantics of questions proposed by (Groenendijk & Stokhof 1984, Groenendijk 1999). It will be seen that the proposed analysis has the best of both worlds so to speak, being empirically more adequate than the existing analyses of either approach. A word is in order about the marking of Contrastive Topic. Crosslinguistically, there are more than one way of marking CT; by means of, e.g. a morpheme like *-wa* in Japanese and *-nun* in Korean and H\*LH% or L+H\*LH% tone (Pierrehumbert 1980) in English. In the following, a CT-marked constituent is marked with subscript CT or a CT-marker morpheme (*wa* in Japanese).

## 2. Two Existent Approaches to Contrastive Topic

### 2.1. CT as an information-structural discourse-regulating device

(Roberts 1996, Büring 1999, Kadmon 2001)

Consider the question-answer discourse in (1). It is intuitively clear that CT has much to do with the fact that the questions and the answer are congruent with each other as they occur in the order in which they do. The congruence can be described as follows: (1c) directly answers (1b), and (1b) is a sub-question of (1a), or to use Robert's terms, (1b) is part of "strategy of inquiry" aimed at answering (1a).

- (1) a. Who kissed whom?  
b. Well, who did Larry kiss?  
c. [Larry]<sub>CT</sub> kissed [Nina]<sub>F</sub>

Büring proposed that a contrastive topic induces a third type of semantic value besides ordinary and focus semantic values, called *topic* semantic value. He proposed that the topic semantic value of an expression is the set of alternatives of the focus semantic value in the sense of Rooth (1985, 1991). Then, the topic semantic value of a declarative sentence is a set of sets of propositions, i.e. a set of questions; the topic semantic value of (1c) is (2).

- (2) {‘Who did Larry kiss?’, ‘Who did Bill kiss?’, ‘Who did John kiss?’, ...}

Kadmon (2001) argued the focus and the topic semantic values for (1c) can account for the congruence in question; first, the focus semantic value of (1c) being equal to the ordinary value of (1b) is considered to be a formal semantic characterization of (1c) being a direct answer to (1b), and second, (1b) being an element of the topical semantic value of (1c), which is the set of the subquestions of (1a) accounts for the intuition that (1c) answers (1b) as part of "strategy of inquiry" aimed at answering (1a).

The above analysis of CT as an information-structural discourse-regulating device seems to be very successful as long as it is applied to sentences with one instance of CT and one instance of focus like (1c). However, in Japanese, there are simply garden-variety examples with more than one instance of CT and/or with no instance of fo-

cus like (3).<sup>1</sup> The apparent problem here is that the denotation type of topic semantic value, i.e. a set of questions cannot be assigned to such examples.

- (3) John wa Mary wa Bill ni wa shookai-shi-ta.  
           CT          CT          to    CT  introduction-do-Past  
       ‘John<sub>CT</sub> introduced Mary<sub>CT</sub> to Bill<sub>CT</sub>.’

## 2.2 CT as a focus-sensitive operator

### 2.2.1 Lee (1999, 2006) & Hara (2006)

The other approach takes CT to be a focus-sensitive operator on a par with particles like English *even*, *only*, and *also*, or their counterparts in the other languages. Lee (1999, 2006) and Hara (2006) proposed the following analysis of CT:

- (4) Semantics and Pragmatics of CT as a Focus-Sensitive Operator  
 a.  $CT(\langle \beta, \alpha \rangle)$  (semantic representation)  
 b.  $\beta(\alpha)$  (assertion)  
 c.  $\exists x[x \neq \alpha \wedge \neg[\beta(x)]]$ . (conventional implicature)

A word is in order about the notations in (4). First, in (4a), which is the semantic representation of a sentence with a CT,  $\langle \beta, \alpha \rangle$  is the structured meaning of the sentence with  $\beta$  and  $\alpha$  being the background and the focus parts, respectively. Second, in (4b), which is the assertion of the sentence,  $\beta(\alpha)$  is the result of function-applying  $\beta$  to  $\alpha$  or  $\alpha$  to  $\beta$  whichever is possible, being the ordinary semantic meaning of the sentence. The part of (4c) is supposed to capture the so-called “Reversed Polarity Implicature” (henceforth RPI) of CT; a sentence with a CT-marked constituent tends to imply a “contrasting” sentence with the constituent replaced with an alternative and of the opposite polarity. However, the matter of fact is that the alleged implicature can be absent as seen in (5), which should not be the case if it were really a conventional implicature.

- (5) John wa kita ga sonohokano hito ni-kanshite wa shira-nai.  
           CT  came but the other people about CT know-not  
       ‘[John]<sub>CT</sub> came, but as for the other people, I don’t know whether they came.’

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<sup>1</sup>Noah Constant (p.c.) informed me that in English, he can think of examples that have two CT’s without a focus, but he hasn’t seen any examples with three CT’s.

### 2.2.2 Oshima (2002)

The above problem, in fact, can be got around by Oshima's (2002) variant in which the pragmatic feature of a CT sentence is not a conventional implicature, but the presupposition that there is some alternative to the CT-marked constituent such that it is not known that it has the property denoted by the background part, formalized as in (4c').

- (4) c'.  $\exists x[x \neq \alpha \wedge \neg[\beta(x)]]$  (presupposition), where  $\neg$  is a weak negation in three-valued logic.

However, it is doubtful that (4c') is a presupposition of a CT-sentence. Consider the following question-answer dialog:

- (6) Q: Dare-ga paatii-ni ki-mashi-ta ka.  
who-Nom party-to come-Polite-Past Q  
'Who came to the party?'

- A: Jon-wa ki-mashi-ta (kedo).  
John-CT come-Polite-Past (but)  
'John<sub>CT</sub> came.'

According to (4c'), at the time of the utterance of (6A), it would be presupposed that somebody other than John is not known to have come to the party or not. From which it follows that the questioner would be required to have the presupposition. However, the matter of fact is that simply, the utterance of (6A) is perfectly felicitous in contexts where she does not have the presupposition, or is rather more natural without the presupposition.

Independently of Oshima (2002), Hara & van Rooij's (2007) proposed a very similar analysis. They proposed that CT should have as its pragmatic component the following implicature, which is reformulated in our terms as in (4c'')

- (4) c''.  $\exists x[x \neq \alpha \wedge \neg K_{sp}[\beta(x)]]$  (implicature)

In (4c''),  $K_{sp}$  is an epistemic operator and ' $K_{sp}\phi$ ' is read as "the speaker knows that  $\phi$ ". (4c'') is different from (4c') only in that the absence of the relevant knowledge is required only of the speaker and the requirement is a conventional implicature, not a presupposition. However, it is as easy to find counterexamples for Hara & van Rooij's version as for Oshima (2002). Consider the following scenario. A test was administered to

a class of pupils, the teacher knows of all the pupils who passed the test or not, and the father of Mary, a pupil, who is rather nosy, asks the teacher who passed the test. To the question, the teacher can answer perfectly felicitously as in (7).

(7) Mary-wa goukakushimashi-ta ga,  
Mary-CT pass (the test)-Past but

(hokano seito nikanshite-wa iemase-n.)  
other pupils as-to-CT can-tell-not

‘Mary<sub>CT</sub> passed the test, (but I can’t tell as to the others if they passed it or not).’

In (7), the speaker, i.e. the teacher knows of all the students including Mary if they passed the test or not, but she can felicitously utter “Mary<sub>CT</sub> passed the test”, which is contradictory to Hara & van Rooij’s prediction. The use of CT in (7) is not so much characterized as ignorance on the part of the speaker as confidentiality, or secrecy.

The fact that the implicational/presuppositional features of CT sentences are very elusive, or hard to identify, I claim, suggests that they are not inherent attributes of the meaning of CT, but epiphenomena arising from some unique feature of CT in conjunction with their particular uses. Along the line of this view, I will propose a novel approach to CT in the following section. Before we move on to the new approach, let us review that CT sentences like (3) are problematic to the currently reviewed approach as well.

Let us summon (3) again.

(3) John wa Mary wa Bill ni wa shookai-shi-ta.  
CT CT to CT introduction-do-Past

‘John<sub>CT</sub> introduced Mary<sub>CT</sub> to Bill<sub>CT</sub>.’

In the current approach, which views CT as a focus-sensitive operator, (3) will necessarily be taken to have three instances of the operator, so the semantic representation will be alleged to be something as in (8).

(8) CT( $\langle\lambda x$ .CT( $\langle\lambda y$ .CT( $\langle\lambda z$ .INTRDUCED-TO(x, y, z), bill)), mary)), john))

Simply, it is by no means clear what (8) would mean in any of the analyses along with

the current approach, or more seriously what implicature or presupposition (8) would be associated with.

In the next section, we will propose an alternative approach to CT that can capture the insights of both of the existing approaches, yet will be free from the problems to them.

### **3. Alternative Approach: Partition Semantics and Pragmatics of Contrastive Topic**

#### *3.1. Partition Semantics and Pragmatics of Question and Answer: Groenendijk (1999), Groenendijk & Stokhof (1984)*

In this section, we will briefly review a semantic framework in which our current analysis of CT will be couched. It is a dynamic-semantic analysis of question and answer; specifically, one presented in Groenendijk (1999). The gist of the analysis is that not only indicative sentences but also interrogative sentences are interpreted as context change potentials (CCP). To accommodate interrogative sentences, contexts cannot be simply sets of possible worlds as in Stalnaker (1978); instead, they are now defined as equivalence relations on a set of possible worlds as follows:

(9) Definition (*Context*)

A context is an equivalence relation on a subset of the set of possible worlds.

To define the CCP of an interrogative sentence we first specify the *abstract*, or *predicate* meaning of the interrogative sentence.

(10) Definition (*Abstract, or Predicate Meaning of an Interrogative*)

The predicate meaning of an interrogative sentence is a lambda abstract binding the variables substituted for the WH-phrases in the interrogative sentence. (When there is no WH-phrase, i.e., the interrogative sentence is a YES-NO question, the predicate meaning is a proposition denoted by the corresponding declarative sentence.)

The predicate meanings of interrogative sentences will be illustrated with the following examples:

(11)

<u>Interrogative sentences</u>	<u>Predicate meanings</u>
a. ‘Who came to the party?’	$\lambda x.\text{came-to-the-party}'(x)$
b. ‘Who bought what?’	$\lambda y\lambda x.\text{bought}'(x, y)$
c. ‘Who ate what at which place?’	$\lambda z\lambda y\lambda x.\text{ate-at}'(x, y, z)$
d. ‘Did John come to the party?’	$\text{came-to-the-party}'(j)$

In general, when there are  $n$  WH-phrases in an interrogative sentence, the predicate meaning of the interrogative sentence is an  $n$ -place predicate; notably, when there is no WH-phrase, i.e., the interrogative sentence is a YES-NO question as in (11d), the predicate meaning is a 0-place predicate, i.e. a proposition. In terms of structured meaning approach to focus, the predicate meaning of an interrogative sentence coincides with the background part of the background-focus meaning.

Now that contexts and predicate meanings of interrogative sentences have been defined, we can proceed to define CCPs of interrogative sentences.

(12) Definition (Context Update by Interrogatives)

Suppose that  $\lambda\bar{x}\phi$  is the abstract meaning of an interrogative and  $C$  is a context. The update of  $C$  by the interrogative, denoted  $C + \lambda\bar{x}\phi$  is defined as follows:

$$C + \lambda\bar{x}\phi = \{\langle w, w' \rangle \in C : \llbracket \lambda\bar{x}\phi \rrbracket^w = \llbracket \lambda\bar{x}\phi \rrbracket^{w'}\}.$$

In words, given a context  $C$  and an interrogative sentence whose predicate meaning is  $\lambda\bar{x}\phi$ , updating  $C$  with the utterance of interrogative sentence turns  $C$  into an equivalence relation between possible worlds with respect to their extensions of  $\lambda\bar{x}\phi$ . In terms of partition,  $C$  will be partitioned into the cells of possible worlds such that every possible world in each cell has the same extension of  $\lambda\bar{x}\phi$  with one another.

Let us illustrate how the update works diagrammatically. Suppose that  $C$  is a context in which  $w_1$ ,  $w_2$ , and  $w_3$  are compatible with what has been known so far, i.e.,  $C = \{\langle v, u \rangle : v, u \in \{w_1, w_2, \text{ and } w_3\}\}$ , which is represented as in (13).

(13)

$$C = \left\{ \begin{array}{ccc} \langle w_1, w_1 \rangle & \langle w_2, w_1 \rangle & \langle w_3, w_1 \rangle \\ \langle w_1, w_2 \rangle & \langle w_2, w_2 \rangle & \langle w_3, w_2 \rangle \\ \langle w_1, w_3 \rangle & \langle w_2, w_3 \rangle & \langle w_3, w_3 \rangle \end{array} \right\}$$

Suppose, furthermore, that John came to the party in worlds  $w_1$  and  $w_2$  and he didn't in  $w_3$ . Then, the update of  $C$  with the utterance of 'Did John come to the party?', whose predicate meaning is **came-to-the-party'(j)** results in the following context,  $C'$ , which is diagrammed as in (14).

$$(14) \quad C + \text{came-to-the-party}'(j) = C' = \left\{ \begin{array}{ll} \langle w_1, w_1 \rangle & \langle w_2, w_1 \rangle \\ \langle w_1, w_2 \rangle & \langle w_2, w_2 \rangle \\ & \langle w_3, w_3 \rangle \end{array} \right\}$$

In the form of partition,  $C'$  is diagrammed as in (15).

$$(15) \quad C + \text{came-to-the-party}'(j) = C' = \begin{array}{|l} \hline \text{(the set of possible worlds where} \\ \text{John came to the party} \\ \hline \text{(the set of possible worlds where} \\ \text{John didn't come to the party} \\ \hline \end{array}$$

Having reviewed how a context is to be updated with an interrogative sentence, let us move on to the case of indicative sentence. The CCP of an indicative sentence is defined as in (16).

(16) Definition (Context Update by Indicatives)

Suppose that  $\psi$  is the meaning of an indicative sentence and  $C$  is a context. The update of  $C$  by the indicative sentence denoted  $C + \psi$  is defined as follows:

$$C + \psi = \{ \langle w, w' \rangle \in C : \llbracket \psi \rrbracket^w = \llbracket \psi \rrbracket^{w'} = 1 \}.$$

What the utterance of an indicative sentence does to a context is to eliminate from  $C$ , the ordered pairs of possible worlds such that the indicative sentence is false in one or both of the possible worlds. In terms of partition, it eliminates from a partition, the cells of possible worlds in which the indicative sentence is false.

Let us illustrate the update of a context with the utterance of an indicative sentence as defined in (16) going over some examples. Recall context  $C'$ , which has been updated with 'Did John come to the party?', i.e. (14), a set of ordered pairs of possible worlds, or equivalently, (15), a partition of a set of possible worlds. The update of  $C'$  with e.g. (17) '(Yes,) John came to the party' (**came-to-the-party'(j)**) will be illustrated as in

(18) and (19), where John came to the party in possible worlds  $w_1$  and  $w_2$ , but not in  $w_3$ .

(17) (Yes,) John came to the party:  $\text{came-to-the-party}'(j)$

(18)

$$C': \left\{ \begin{array}{cc} \langle w_1, w_1 \rangle & \langle w_2, w_1 \rangle \\ \langle w_1, w_2 \rangle & \langle w_2, w_2 \rangle \\ & \langle w_3, w_3 \rangle \end{array} \right\} + (17) = \left\{ \begin{array}{cc} \langle w_1, w_1 \rangle & \langle w_2, w_1 \rangle \\ \langle w_1, w_2 \rangle & \langle w_2, w_2 \rangle \end{array} \right\}$$

(19)

$$C': \begin{array}{|l} \hline \text{John came to the party} \\ \hline \text{John didn't come to the party} \\ \hline \end{array} + (17) = \begin{array}{|l} \hline \text{John came to the party} \\ \hline \end{array}$$

Next, let us go over the case of a WH-question. In the following, we will solely adopt the partition format for the ease of illustration. Suppose that  $C$  is to be updated with e.g. (11a), an interrogative sentence with one occurrence of WH-phrase, which will be reproduced here as (20), resulting in  $C''$  in (21). There, it is assumed that John and Mary are the only relevant people to consider whether they came to the party or not, and the block with  $\{a_1, a_2, \dots, a_n\}$  represents the cell for the set of possible worlds in which  $a_1, a_2, \dots, a_n$  and only  $a_1, a_2, \dots, a_n$  came to the party.

(20) 'Who came to the party?':  $\lambda x.\text{came-to-the-party}'(x)$

(21)

$$C'' = \begin{array}{|c|c|} \hline \{John, Mary\} & \{John\} \\ \hline \{Mary\} & \emptyset \\ \hline \end{array}$$

The results of updating  $C''$  with e.g. (22) and (23) will be as shown in (24)<sup>2</sup>.

(22) Meari to Jon ga ki-mashi-ta.

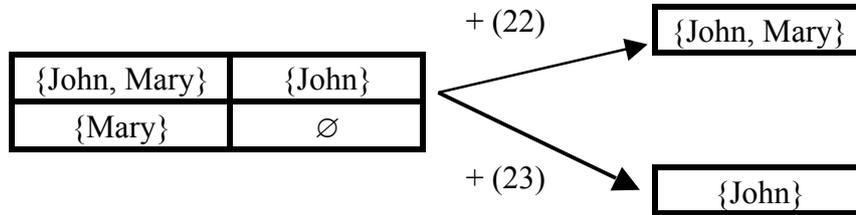
Mary and John Nom come-Polite-Past

'Mary and John came.'

<sup>2</sup>Here it is assumed that sentences (22) and (23) are interpreted exhaustively as they share the same focus structure with (20).

(23) Jon ga ki-mashi-ta.  
 John Nom come-Polite-Past  
 ‘John came.’

(24)



Following is the case of a WH-question with two WH-phrases:

(25) Dare ga nani o tabe-mashi-ta ka.  
 who Nom what Acc eat-Polite-Past Q  
 ‘Who ate what?’

Suppose that the domains of the eaters and the eatees relevant here are {John, Mary} and {hamburger, salad}, respectively. Then, the context resulting from updating C with (25) will be something as in (26) in terms of partition, where each cell represents the set of possible worlds in which for each ordered pair, the person of the first coordinate ate the foods of the second coordinate and no other eating events obtained.

(26)

$\langle j, \{h, s\} \rangle, \langle m, \{h, s\} \rangle$	$\langle j, \{h\} \rangle, \langle m, \{h, s\} \rangle$	$\langle j, \{s\} \rangle, \langle m, \{h, s\} \rangle$	$\langle j, \emptyset \rangle, \langle m, \{h, s\} \rangle$
$\langle j, \{h, s\} \rangle, \langle m, \{h\} \rangle$	$\langle j, \{h\} \rangle, \langle m, \{h\} \rangle$	$\langle j, \{s\} \rangle, \langle m, \{h\} \rangle$	$\langle j, \emptyset \rangle, \langle m, \{h\} \rangle$
$\langle j, \{h, s\} \rangle, \langle m, \{s\} \rangle$	$\langle j, \{h\} \rangle, \langle m, \{s\} \rangle$	$\langle j, \{s\} \rangle, \langle m, \{s\} \rangle$	$\langle j, \emptyset \rangle, \langle m, \{s\} \rangle$
$\langle j, \{h, s\} \rangle, \langle m, \emptyset \rangle$	$\langle j, \{h\} \rangle, \langle m, \emptyset \rangle$	$\langle j, \{s\} \rangle, \langle m, \emptyset \rangle$	$\langle j, \emptyset \rangle, \langle m, \emptyset \rangle$

### 3.2. Partition Semantics and Pragmatics of Contrastive Topic

Now that we have reviewed the partition semantics of questions and answers presented in Groenendijk (1999), I will propose to apply it for a novel analysis of contrastive topic. The thesis is intuitively as follows. The use of a sentence with contrastive topics “pre-supposes” a question under discussion (QUD), explicit or implicit; however, the sentence does not directly answer the QUD, but a “sub-question” derived from the QUD by

restricting the values of the WH phrases to the denotations of the contrastive topics. The implicational/presuppositional features observed surrounding CT are to be attributed to reasons why the speaker opts to answer the sub-question instead of the QUD.

Following is our analysis of the semantics and the pragmatics of CT. First is the semantic component:

(27) *Semantics of CT*

Suppose that

- (i)  $\gamma$  is a sentence with CT marked phrases,
  - (ii)  $?\text{-}\gamma$  is the interrogative sentence directly corresponding to  $\gamma$  in that only the focused phrases are replaced by the corresponding WH-phrases and if there are no focused phrase,  $?\text{-}\gamma$  is a polar interrogative sentence,
  - (iii) the sequence of the semantic representation of the CT-marked phrases and that for the variables for the WH-phrases are denoted  $\vec{t}$ , and  $\vec{x}$ , respectively,
  - (iv) the predicate meaning of  $?\text{-}\gamma$  is  $\lambda\vec{x}.R$ ,
  - (v)  $wh\text{-}\gamma$  is the interrogative sentence resulting from  $\gamma$  by replacing the CT marked phrases as well as the focused phrases if any with the corresponding WH-phrases,
- and,
- (vi) the sequence of the variables for the WH-phrases corresponding to the CT marked phrases is denoted  $\vec{y}$ .

Then,

- (vii) the predicate meanings of  $wh\text{-}\gamma$  is  $\lambda\vec{y}\lambda\vec{x}.R[\vec{t}/\vec{y}]$ , where  $R[\vec{t}/\vec{y}]$  is the result of replacing  $\vec{t}$  in  $R$  with  $\vec{y}$ .

Next is the pragmatic component:

(28) *Pragmatics of CT*

Sentence  $\gamma$  explicitly or implicitly assumes interrogative sentence  $wh\text{-}\gamma$  as QUD;

however, the answerer, or the utterer of  $\gamma$  opts to answer  $?-\gamma$  instead of *wh- $\gamma$*  for some reason.

Let us illustrate the current analysis by going over (1), which is reproduced here as (29).

- (29) a. Who kissed whom?
- b. Well, who did Larry kiss?
- c. [Larry]<sub>CT</sub> kissed [Nina]<sub>F</sub>

Let us recall the original observation about the congruity among the sentences in (29) made by Roberts (1996). That is, (29c) directly answers (29b), and (29b) is a “sub-question” of (29a), or to use Roberts’ terms, (29b) is part of “strategy of inquiry” aimed at answering (29a). And we have reviewed Kadmon’s account of the congruity with reference to CT in terms of Büring’s *topic meaning* and Rooth’s *focus meaning*. The account roughly went as follows. The focus meaning of (29c) and the ordinary meaning of (29b) are identical, which makes (29c) a congruent “direct” answer to (29b). The ordinary meaning of (29b) is an element of the topic meaning of (29c), whose generalized union is identical to the ordinary meaning of (29a). This warrants (29b) to be a sub-question of (29a).

The above account of CT as a discourse-regulator based on *focus* and *topic* meanings seems quite reasonable for what I call “canonical” examples of CT, i.e. sentences with exactly one instance of CT phrase and exactly one instance of focused phrase. However, as we have demonstrated with example (3), in Japanese, there are commonly sentences in which more than one instance of CT phrase and no apparent focused phrase occur. To those “non-canonical” examples of CT sentences, Roberts-Büring-Kadmon’s line of analysis cannot be extended.

Now let us go back to our current analysis and see how it can account for the workings of CT in relation to the congruity displayed in discourse (1). The CT sentence in question here, (29c) is  $\gamma$  in (27). Thereby, (29b) and (29a) correspond to  $?-\gamma$  and *wh- $\gamma$*  in (27), respectively. For the characterization that (27c) is a “direct” answer of (27b) and (27b) is a “sub-question” of (27a), there have already been relevant notions worked out in the theory which the current analysis is couched in, i.e. the semantic theory of questions and answers by Groenendijk & Stokhof (1984) and Groenendijk (1999). The relevant notions are *complete answer* and *partial answer*. Given a partition of the set of possible worlds induced by the predicate meaning of an interrogative sentence as in (12),

each block of the partition as a proposition represents a *complete* (and exhaustive) answer to the question, while the union of some but not all blocks is a *partial* answer, eliminating some blocks as not being the case. In terms of those semantic notions of answerhood, the following fact holds of  $?-\gamma$  and  $wh-\gamma$ :

(30) Every complete answer to  $?-\gamma$  is a partial answer to  $wh-\gamma$ .

It is reasonable to take *complete answer* to be a formal rendition of “direct answer” and to define that question  $Q_1$  is a “sub-question” of  $Q_2$  when every complete answer to  $Q_1$  is a partial answer to  $Q_2$ . From this and (30), it follows that  $\gamma$  (as interpreted exhaustively) is a direct answer to  $?-\gamma$  and  $?-\gamma$  is a sub-question of  $wh-\gamma$ ; in particular, (29c) is a direct answer to (29b) and (29b) is a sub-question of (29a). In this sense, the current semantic analysis of CT is as adequate as Roberts-Büring-Kadmon’s in characterizing the congruity among the sentences in (29). In fact, I contend that the current analysis is superior in that it is applicable to the “non-canonical” examples of CT sentences like (3) as well. Note that in the semantic rules of CT in (27), there is no restriction on the number of CT phrases (other than at least one) or of focused ones in a sentence. Thus, CT sentences with more than instance of CT and no apparent focused phrase like (3) will pose no problems to the current analysis, unlike to the Roberts-Büring-Kadmon’s. For example, (3) will be analyzed as  $\gamma$  with  $?-\gamma$  and  $wh-\gamma$  being ‘Did John introduce Mary to Bill?’ and ‘Who introduced who to whom?’, respectively.

We have shown that our current analysis of CT can capture Roberts’ original insights of CT as a discourse-regulator as adequately as Roberts-Büring-Kadmon’s; in fact, it is superior in that it can deal with the “non-canonical” examples as well as the “canonical” ones. Next, we will see how the current analysis fares with the other existent approach to CT, specifically, how it can account for the implicational/presuppositional features surrounding CT. In Section 2.2, we have reviewed the existing analyses along the line of the approach to CT that takes CT to be a focus-sensitive operator with some implicature or presupposition attached. For any of them, we have demonstrated that it is easy to find a counterexample to the alleged implicational/presuppositional contents, or that they are cancelable. Although, of course, the fact alone does not invalidate the approach per se, we also have pointed out that “non-canonical” examples of CT sentences will be problematic to the approach in question as well because it is by no means clear what their associated implicatures or presuppositions will be like.

In the current approach we take the position that there is no implicational or pre-

suppositional content that is hard-wired in the meaning of a CT sentence. Rather, we propose that what seems to be implicational or presuppositional features characteristic of CT be actually conversational implicatures arising from the use of a CT sentence instead of the corresponding non-CT version of the sentence. The clause relevant here is (28), *Pragmatics of CT*, which says that the use of a CT sentence indicates that instead of answering a QUD, the speaker opts to answer one of its sub-questions for some reason. Our contention is that what has been observed and claimed to be (conventional) implicatures and presuppositions of CT sentences is actually conversational implicatures due to particular reasons why the speaker chooses to answer a sub-question instead of the QUD itself. At this point, I don't know if there is any fixed number of reasons for the use of CT sentence or if there is, how many of them there are. We will not attempt to resolve this issue, for this is not directly relevant to the point of the paper. In the following we will put forward some, but enough reasons to cover what has been proposed to be the implicational/presuppositional features of CT in the literature.

For illustration, let us use the following CT sentence and interrogative sentences for  $\gamma$ , *wh*- $\gamma$ , and  $?$ - $\gamma$  in (27) as a case example.

- (31)  $\gamma$ : Jon-wa paatii-ni ki-mashi-ta.  
 John CT party-to come-Polite-Past  
 'John<sub>CT</sub> came to the party.'
- (32) *wh*- $\gamma$ : Dare-ga paatii-ni ki-mashi-taka ka  
 who-Nom party-to come-Polite-Past Q  
 'Who came to the party?';  $\lambda x$ .came-to-the-party'(x)
- (33)  $?$ - $\gamma$ : Jon-wa paatii-ni ki-mashi-taka ka  
 John-CT party-to come-Polite-Past Q  
 'Did John come to the party?'; came-to-the-party'(j)

According to the current theory, the utterance of (32) "presupposes" interrogative sentence (32), or the question denoted by it as QUD; however, instead of directly answering the question, the speaker answers interrogative sentence (33) for some reason. As in Section 3.1, suppose that the relevant domain of discourse is {John, Mary} and assume the diagrammatic conventions for partitions adopted there. Then, the partition representing the context updated with (32) is  $C''$  in (21), which is reproduced in (34).

(34)

$$C'' = \begin{array}{|c|c|} \hline \{John, Mary\} & \{John\} \\ \hline \{Mary\} & \emptyset \\ \hline \end{array}$$

On the other hand, the partition for the context updated with (33) is  $C'$  in (15), which is equivalently reproduced as in (35) to highlight its contrast with  $C''$ . In  $C'$ , the upper block and the lower one represent the set of possible worlds where John came to the party and that where John didn't, respectively and both of the blocks are non-committal about whether the other people, in this case, Mary came to the party or not.

(35)

$$C' = \begin{array}{|c|c|} \hline \{John, Mary\} & \{John\} \\ \hline \{Mary\} & \emptyset \\ \hline \end{array}$$

The question here is why the speaker opts to resolve the issue represented by  $C'$  instead of that by  $C''$ .

*Possible Reason 1: Lack of Information*

As to John, the speaker knows for sure that he came to the party, but for the other people, in this case, Mary, she doesn't know if they came to the party. So she restricts her assertion only to that John came, shying away from the issue as to whether the other people came to the party or not. This will nicely account for the continuation displayed in (36).

- (36) Jon-wa/#ga paatii-ni kita ga,  
John-CT/Nom party-to came but  
sonohokanohito nikanshitewa shira-nai.  
the-other-people about know-not  
'John<sub>CT</sub> came to the party, but I don't know about the other people.'

This feature of CT, i.e. that it can be used when the speaker doesn't have enough information to resolve the original question under consideration, is what Oshima's (2002) analysis and Hara & van Rooij's, (2007) took a special notice of and tried to capture. If the answerer uttered (37) instead of (31) in the state of information described above, she

would be taken by the hearer to imply that no other people came to the party due to the exhaustification mechanism (See van Rooij & Schulz 2006 for a formal formulation), which would violate the Maxim of Quality.

- (37) Jon-ga paatii-ni ki-mashi-ta.  
 John-Nom party-to come-Polite-Past  
 ‘John came to the party.’

*Possible Reason 2: Secrecy, or Confidentiality*

When the issue under discussion is who came to the party and furthermore, the answerer is willing to proffer only the information about John keeping secret, that about the other people. What she can do in terms of question and answer will be that instead of answering question ‘Who came to the party?’, she will answer a restricted version of the question in that ‘who’ is restricted to ‘John’, i.e., ‘Did John came to the party?’. This is exactly what the current theory specifies a CT sentence to be used for. The proposed use of CT in conjunction of secrecy is motivated by the natural continuation observed between the first and the second sentences in examples like (38).

- (38) Jon-wa/#ga paatii-ni kita ga,  
 John-CT/Nom party-to came but  
  
 sonohokanohito nikanshitewa ie-nai.  
 the-other-people about can-tell-not  
 ‘John<sub>CT</sub> came to the party, but I can’t tell about the other people.’

The counterexample presented above against Hara & van Rooij’s theory, i.e. (7) is just another example of the use of a CT sentence motivated by secrecy, or confidentiality.

*Possible Reason 3: Extension Specification by Positive and Negative Instances*

When the extension of a one-place predicate is asked by an interrogative sentence like (32), one way to specify the extension is to specify the positive instances of the extension and let the exhaustification (See again van Rooij & Schulz, 2006) imply that the rest of the domain is in the negative extension of the predicate. Another way is to specify both the positive and the negative instances of the extension (not necessarily exhaus-

tively) separately. Specifically, for the positive instances of the predicate, the answerer specifies that it is true that they are in the extension of the predicate, and for the negative instances, she specifies that it is not true that they are in the extension the predicate. This can be seen as an act of answering a WH-question by answering two Yes-No questions. To use (31) as an example, in our current analysis, (31) can be seen as the part of specifying the positive instances by answering the (implicit) question ‘Did John come to the party?’ in the two-part way of specifying the extension of the predicate under discussion. Then, (31) is expected to be followed by a sentence specifying some of the negative instances. For example, suppose that John, but not Mary came to the party. In terms of partition of  $C''$  in (39), the speaker could choose the shadowed block to be the case by uttering (37) plus exhaustification, ‘Only John came to the party’, or ‘John and nobody else came to the party’.

(39)

$$C'' = \begin{array}{|c|c|} \hline \{John, Mary\} & \{John\} \\ \hline \{Mary\} & \emptyset \\ \hline \end{array}$$

Alternatively, she can utter first (40a) and then (41a) to choose the shadowed blocks in (40b) and (41b), respectively to the same effect as designating the shadowed block in (39) to be the case directly.

(40) a. Jon-wa ki-ta.  
 John-CT come-Past  
 ‘John<sub>CT</sub> came.’

b.

$$C' = \begin{array}{|c|c|} \hline \{John, Mary\} & \{John\} \\ \hline \{Mary\} & \emptyset \\ \hline \end{array}$$

(41) a. Mearii-wa ko-naka-tta.  
 Mary-CT come-not-Past  
 ‘Mary<sub>CT</sub> didn’t come.’

b.

$$C'' = \begin{array}{|c|c|} \hline \{John, Mary\} & \{John\} \\ \hline \{Mary\} & \emptyset \\ \hline \end{array}$$

This use of CT sentences, i.e. that a CT sentence is used for specifying the positive instances being followed by a separate CT sentence for the negative instances or vice versa in identifying the extension of a predicate, is considered to be a feature of CT sentences that was discussed as Reversed Polarity Implicature (RPI) in section 2.2.1.

In the above, we have examined what the current theory of CT can say about the implicational/presuppositional features of CT that have been taken to be essential properties of CT in the approach that views CT as focus-sensitive operator. We have demonstrated those features can be seen as conversational implicatures arising as the addressee infers the reason why given a QUD, *wh*- $\gamma$ , by uttering a CT sentence,  $\gamma$ , the speaker opts to answer a sub-question, *?- $\gamma$*  instead of *wh*- $\gamma$ .

#### 4. Conclusions

We have reviewed two representative existent approaches to CT: one that views CT as an information-structural discourse-regulating device, specifically, it characterizes a CT sentence as an direct answer to a sub-question of a QUD, and the other takes a CT to be a focus-sensitive operator with conventional implicatures or presuppositions. The former approach, or strictly speaking, the particular analysis on the approach, we have demonstrated, is not general enough as a theory of CT because it cannot be extended to the so-called “non-canonical” examples of CT sentences, which has more than one instance of CT phrase and/or no focused phrase, and it does not address the implicational/presuppositional features of CT. As for the latter approach, the alleged implicatures and the presuppositions for CT proposed in the literature have all been shown to be easy to find counterexamples to or to be cancellable, which strongly suggests that those are not hard-wired in the pragmatics of CT. Furthermore, the non-canonical examples have turned out to be problematic to the approach as well in that it is not clear what their projected implicatures or presuppositions would be like.

We have proposed a new analysis of CT couched in the partition semantics of question and answer presented in Gronendijk & Stokhof (1984) and Gronendijk (1999) and demonstrated that the new analysis can capture the insights of both of the above

approaches and is yet free from the problems for them. That is, the new analysis can characterize a CT sentence as a direct answer to a sub-question of a QUD whether it is a ‘canonical’ or ‘non-canonical’ example and will analyze the implicational/presuppositional features of CT as conversational implicatures arising as the addressee infers the reason why the speaker opts to answer the sub-question instead of the QUD. In this sense, the current analysis can be said to have the best of both worlds of the existent approaches and more.

There are certainly many things about CT that have not been touched upon in this paper, among which is the fact that CTs can also occur in other types of sentences than declarative sentences at least in Japanese: interrogative, imperative, exhortative, and performative, as was pointed out by Tomioka (2007). The issue whether the current analysis can be extended to the occurrences of CT in non-declarative sentences is left for future research.

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# *Almost et al.: Scalar adverbs revisited*

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## Abstract

The division of labor between semantic and pragmatic aspects of the meaning of *almost* and other proximatives has been controversial since Sadock's (1981) proposal that *a almost  $\phi$ 'd* is true if *a* in fact  $\phi$ 'd: *Chris almost died* entails that Chris approached dying but only conversationally implicates that Chris didn't die. Given that *barely  $\phi$  = almost not  $\phi$* , *Dana barely survived* would likewise implicate, not entail, that Dana survived. While additional support has been marshaled for this "radical pragmatic" line, one persistent problem acknowledged by Sadock and not dispelled since is the non-cancelability of the *almost  $\phi \rightarrow$  not  $\phi$*  implication. New evidence for and against Sadock's approach and competing analyses is considered and a solution presented.

## 1. The proximal and the polar

Thirty years ago, the young leader of a fanatical cadre of radical pragmaticists circulated an underground manifesto calling for the overthrow of the bourgeois analysis of *almost*. In the published version of his manifesto, Sadock (1981: 257) posed the central question this way:

A sentence of the form *almost P*, in which *almost* is a verb phrase modifier, is used as if it meant, among other things, "not P." For example, someone who says *Sam almost died* would be taken as indicating that Sam didn't die...But what is the nature of the connection between the English word *almost* and the negative proposition?

The starting point for any analysis of *almost* is the recognition that my uttering (1) commits me in some sense to (1a) and (1b). But how?

- (1) It almost rained.  
a. It came close to raining.  
b. It did not rain.

Following the practice of Sevi 1998 and Horn 2002a, I shall refer to these aspects of the meaning of *almost* sentences as the proximal and polar components respectively. But are these implications created equal? Sadock offers three, or 3½, answers to his question, the traditional symmetricalist view in (2A), the moderate asymmetricalist view in (2B) (available in two flavors), and the radical asymmetricalist view in (2C):

- (2) A. (1b) is *entailed* by (1); (1) = (1a) & (1b) and is F if (1b) is false.  
B<sub>1</sub>. (1b) is (logically) *presupposed* by (1); (1) is neither T nor F if (1b) is false.

- B<sub>2</sub>. (1b) is *conventionally implicated* or pragmatically presupposed by (1); (1) is “strictly speaking true” but inappropriate if (1a) is true and (1b) known to be false.
- C. (1b) is *conversationally implicated* by (the utterance of) (1); (1) is T but misleading if (1a) is true and (1b) false. The inference from (1) to (1b) is a scalar implicature.

It is the radical pragmatic view in (2C) that Sadock endorsed: if you know (1b) is false, it’s misleading to assert (1), given the maxim of quantity. Hence, it is (*mirabile dictu*) true that 2+2 almost equals 4. I will argue here that in some respects Sadock’s approach is too radically pragmatic and in others not radically pragmatic enough.

## 2. Proximatives: what has (almost) been learned

I now turn to a review of some of what has been learned in the thirty years since Sadock’s manifesto—and what has been unlearned. We begin with a brief note on the problems surrounding the characterization of the proximal component. Typically it is viewed in terms of reference to possible worlds: *almost P* entails that P is ‘not far from being true’ (Ducrot 1973), that it is ‘true in a possible world not very different from the real world’ (Sadock 1981), or true in ‘a world which is almost not different from’ the actual world’ (Rapp & von Stechow 1999). But note the problem with circularity (is (1a) really distinct from (1)?) and consider the problems posed for any possible worlds account by sentences like *Planets travel in almost circular orbits* (Atlas 1984: 357) or *0.3333 almost equals 1/3* (Sevi 1998: 18)—or, most eloquently, by Sadock’s observation that *961 is almost a prime number*

might be adjudged true because the only blot on 961’s record as a prime number is the sad fact that it is the square of 31. If this one little fact were not true, then 961 would be a prime number. The imaginary world in which 961 is a prime number is not very different from the real world in the nontechnical sense that only one proposition has to changed to gain access to it, but of course it is *very* different from our world in the technical sense than it is an inconsistent world and lacks mathematics. (Sadock 1981: 259)

Two more bits of standard wisdom on *almost* that appear periodically in the literature are its role in arguments for lexical decomposition and intervention in polarity licensing. But while the varying scope possibilities for *almost* has been used to argue for decomposing causatives as in *I almost killed John* based on the availability of separate readings like ‘I almost did something that caused John to die’, ‘I did something that caused John to become almost dead’, etc. (Morgan 1969, McCawley 1973), Dowty (1979: §5.4) finds the evidence unconvincing and Rapp & von Stechow (1999) reject the corresponding scope argument for German *fast*. The common wisdom is that *almost* co-occurs with universals but not indefinites or existentials and thus serves as a reliable diagnostic for free choice as opposed to than NPI *any*. Such claims date back to Carlson 1981 and have been since entered received wisdom:

As pointed out by Horn (1972), free choice *any*, like other universal determiners, may be modified by adverbs like *almost* or *nearly*.

(Hoeksema 1983: 409)

We know that in general, FC-*any* can be modified by *almost* (just as other universal quantifiers can). Crucially, such modification...is rejected in downward entailing contexts like negation.

(Zepter 2003: 234)

More recently, Penka cites the purported impossibility of *\*I didn't see almost any student* (2006: (2b), (31), (35)) as evidence for an intervention constraint blocking NPI licensing across *almost* (cf. Horn 2000b: §III). Along the same lines, *almost* is periodically claimed to be a positive polarity item blocked from the scope of negation (e.g. Klein 1997: 87; Rapp & von Stechow 1999: 197; Horn 2000b: 87). But in fact, as noted in Horn (2005: 198-99), clauses with *doesn't {know/have} almost any, don't like almost any, NEG almost a single CN*, et al. are readily googlable:

- (3) In a story that didn't see almost any coverage here,...
- Global warming: we didn't see almost any snow in the winter
  - I didn't see almost any of the movies so I'm going by who I think is a good actor
  - I'm in the 5th week and i didn't see almost any results.
  - I don't pay almost a single cent for any of my art work
  - I do not know almost a single individual of talent who is not too busy...

*Almost* is often assumed, at least tacitly, to share its semantics (whatever they are) with its adverbial its adverbial “kin”; in particular the distribution of *almost* is taken to be essentially identical to that of *nearly*, *just about*, *damn near*, *virtually*, or *pretty much* (Sadock 1981, Morzycki 2001, Horn 2002a). But in fact, *nearly* is largely excluded from taking negative focused expressions (cf. van Dongen 1921 on *{Almost/#Nearly} nobody was there*); other differences between *almost n* and *nearly n* (for cardinal *n* focus) seem to involve speaker expectations (Sadock 2007).

Another standard assumption—e.g. by Morzycki 2007 and Atlas 2007, following (2A)-type symmetricalists, lexicographers, and butchers—is to equate *almost* with *not quite*. The *American Heritage Dictionary*, as endorsed by Atlas, glosses *almost* as ‘slightly short of, not quite, nearly’. The ‘nearly’ gloss doesn't quite work, but is ‘not quite’ at least nearly successful? As the marketing slogan for Boar's Head deli meats puts it, “Almost Boar's Head Isn't Boar's Head”—presumably, more exactly, it isn't *quite* Boar's Head even when it pretends to be. But as Sadock (1981: 263) pointed out, *almost but not quite* is not as redundant it would be if the two adverbials were synonymous; indeed, as Sadock also recognized, the *but* of contrast here indicates that *almost* and *not quite*, so far from mutual paraphrases, are at odds. This is reinforced by the frequently encountered tendency to repeat an *almost* to register the contrast with the *not quite*:

- (4) a. I almost felt sorry for Sonterra. Almost but not quite.  
(Linda Lael Miller (2003), *Don't Look Now*, p. 223)
- b. “You almost make it sound all right.”  
“Almost. Not quite.”  
(exchange on Law & Order, NBC-TV, about shading the truth)

- c. [Following a day of breathtaking adventures including an encounter with the Pope, Herr Doktor Professor Moritz-Maria von Igelfeld reflects that...]  
 the life of a diplomat, or even a schismatic if it came to it, could be almost as fulfilling as life as a professor of Romance philology. Almost, but not quite.  
 (Alexander McCall Smith (2004), *The Finer Points of Sausage-Dogs*)

Now we come to the interdefinability of *barely* with *almost not*, assumed in many treatises on proximatives (Ducrot 1973, Sadock 1981, Horn 2002a) but challenged in many others (Atlas 1997, Amaral 2007, Ziegeler 2008) on cross-linguistic grounds and the basis of the differential role played by expectation for the two proximatives. This issue aside, both adverbs have been assigned similar conjunctive (2A)-style expansions in the literature, as seen in (6), either or both of which are endorsed, *mutatis mutandis*, by Hitzeman (1992), Atlas (1997), Sevi (1998), and Rapp & von Stechow (1999). (For a tabular display of the various descriptive options advocated, cf. Horn 2002a: 60.)

- (6) a. *Lee almost passed*:  $\neg[\text{Lee passed}] \wedge \text{CLOSE-TO} [\text{Lee passed}]$   
 b. *Lee barely passed*:  $[\text{Lee passed}] \wedge \text{CLOSE-TO} \neg[\text{Lee passed}]$

### 3. Problems with (a)symmetry

The primary argument for a conjunctive analysis of the polar implication has always been its apparent non-cancelability. The contrast in (7) (= Sadock 1981: (23), (25))

- (7) a. ?Not only did Bill almost swim the English Channel, he did swim it.  
 b. Not only did Bill eat some of the cake, he ate all of it.

does render an implicature-based analysis problematic. On the other hand, the conjunctivist must cope with the troublesome fact that *barely VP* (despite its positive polar component) licenses negative polarity items, while *almost VP* (despite its negative polar component) does not:

- (8) a. She barely {budged/slept a wink/touched a drop/spoke to anyone}.  
 b. #She almost {budged/slept a wink/touched a drop/spoke to anyone}.

But notwithstanding its NPI-licensing ability, *barely* cannot be a downward entailing or non-veridical operator, given its polar entailment, i.e. the fact that *It barely rained* entails *It rained*. Note that cancellation is difficult, even with an epistemic rider:

- (9) a. #It barely rained and in fact (it's possible) it didn't.  
 b. #It almost rained and in fact (it's possible) it did.

The resolution of this conflict I have urged elsewhere (Horn 2002a, to appear) is to accept that while the polar component of the meaning of *barely VP* and *almost VP* is indeed entailed, it is not asserted—assertorically inert—predicting the quasi-negative behavior of the relevant clauses. Thus, the conjunctive analysis (2A) is correct...almost.

A particularly dramatic illustration of the contrast between asserted and non-asserted entailments comes from Sadock's contrast between *almost* and *not quite*, two approximatives that on the current view are equivalent at the level of what they entail

while differing as to what they assert. This is displayed in the table in (10), adapted from Schwenter (2002), who extends the distinction and analysis to Spanish.

(10) *almost* vs. *not quite*:

	Entailed	Asserted
Proximal Component <i>(almost)</i>	+	+
Polar Component <i>(almost)</i>	+	–
Proximal Component <i>(not quite)</i>	+	–
Polar Component <i>(not quite)</i>	+	+

Thus consider the difference between *It's too bad you almost died* (—now you'll need a long difficult recovery) and *It's too bad you didn't quite die* (—now I'll have to finish you off...). Given that what is relevant for negative polarity licensing is not downward entailment as such but downward *assertion* (with inert entailments disregarded), we predict the contrast in (11):

(11) I {never quite/\*almost} made it all the way through any of those papers.

The rhetorical negativity of *barely* and positivity of *almost*, as posited by Ducrot (1973) and supported by Sadock (1981) and Jayez (1989), is left unexplained by a pure (2A)-type symmetricalist analysis. Thus it's *good* news if my laptop is *almost* working and *bad* news if it's *barely* working, even though it's in the latter case that it actually functions. Similarly, compare:

- (12) a. The tank is almost half full—so {let's drive on/#we'd better stop for gas}.  
 b. The tank is barely half full—so {we'd better stop for gas/#let's drive on}.

although the tank in (12a) has less gas in it than the one in (12b).

Another asymmetry between polar and proximal components, as Ziegeler (2000) observes, is that the former cannot support causal explanation. Thus in (13), the kimchi could only have been an insufficient lure for me, not the ultimate deterrent.

(13) I almost moved to Korea because of the kimchi.

As for *barely*, its behavior as an NPI licenser derives from its downward assertive character: the polar entailment is transparent to polarity licensing. In fact, as the usenet posting in (14) shows, NPI licensing correlates with the invocation of a negative scale.

(14) The typical airline bathroom barely accommodates one person, much less two.

The rhetorical negativity of *barely* thus stands in opposition to its veridicality, whence the force of adversative *but* to mark this opposition while reversing the rhetorical direction of the utterance, as seen in (15a) (from a 2006 Luanne Rice novel *Sandcastles*) and in the “*barely but* sandwich” in (15b) (from “Grey’s Anatomy”, ABC TV, 5/08).

- (15) a. Sissela meowed from the bed above and Agnes barely heard. But *Brendan* did and after another kiss he pulled slightly away to look up.  
 b. He's alive. Barely, but...he's alive.

#### 4. Inverted readings and the permeable polar membrane

The polar component of *almost* and *barely* clauses is more peripheral to the primary force of the proximative, learned later than the proximal component (Amaral 2007) and more evanescent. In particular, the polar (negative) component is subject to flip-flopping in some contexts to yield “inverted” readings while the proximal component never is (Horn 2002a: 65, Schwenter 2002, Amaral & Schwenter 2007, Amaral 2007: 25; cf. also Ziegeler 2006: §4.7.1 and especially Amaral 2007 on the role of context).

Inverted readings were first recognized in the case of the Mandarin Chinese particle transliterated as *cha-yidiar* or *chadianr* and literally glossed as ‘miss-a-little’ (Li 1976, Biq 1989). While its ordinary interpretation is ‘almost’, when it scopes over a negative predicate it can be rendered as either ‘almost not’ (= ‘barely’) or as ‘almost’, with the negation essentially pleonastic, as in (16(ii)):

- (16) *Wo chadianr mei chi.* (i) ‘I almost didn’t eat’, ‘I barely ate’  
 I miss-a-little not eat (ii) ‘I almost ate’ [= *Wo chadianr chi le*]

The non-compositional pleonastic reading is the only one emerging in certain contexts:

- (17) *Wo chadianr mei zhuangdao qiang.* (i) #‘I almost didn’t bump into the wall’  
 I miss-a-little not bump-to wall (ii) ‘I almost bumped into the wall’

Similarly, in Spanish (Schwenter 2002, Pons Bordería & Schwenter 2005), negation under *por poco* ‘almost’ can—and in certain contexts must—be interpreted pleonastically, as in (19b(ii)), rather than compositionally, as in (19b(i)):

- (18) a. *Por poco sale.* ‘She almost left’  
 b. *Por poco no sale.* ‘She almost didn’t leave’  
 (19) a. *Por poco se mata.* ‘She was almost killed’  
 b. *Por poco no se mata.* (i) #‘She almost wasn’t killed’  
 (ii) ‘She was almost killed’

In general, *casi* ‘almost’ does not permit the inverted readings of *por poco*; Pons Bordería & Schwenter (2005) attribute this to diachronic differences in the history of the two approximatives and subtle pragmatic distinctions in expressiveness between them. In any case, Valencian Spanish contains a limited use of “inverted” *casi* explored by Schwenter (2002). Someone trying to squeeze out of her car after parking on a narrow street is forced to wait as many cars go past. When she’s finally able to escape, she sighs “¡*Casi salgo!*”—literally, ‘I almost get out’, but meaning ‘I barely/finally got out.’ Someone else, impatiently awaiting his friend at the auditorium door, sees her arrive a minute before the session starts and exclaims *¡Casi llegas!* ‘You just barely made it!’ (lit., ‘You almost arrive!’). In such cases, all restricted to simple present tense and utterance-initial occurrence, *casi p* clearly does not entail  $\sim p$ , since the truth

of *p* is obvious in the context, but is essentially equivalent to *apenas* ‘barely’. In other words, *casi p* here = canonical *casi + no (p)*, as in the standard Spanish expostulations *¡Casi no salgo!*; *¡Casi no llegas!*

Thus too, Swiss German *fasch* is normally equivalent to the standard *fast* ‘almost’, but also has an inverted ‘barely’ sense emerging in relevant contexts. And in English, a *near miss* can be either a goal barely missed or a disaster barely averted, i.e. nearly a non-miss, as in the case of air traffic collisions. Prescriptivists lambaste this latter, non-compositional interpretation, as in William Safire’s objection to “the overuse of *near*” in his 2 Jan. 2005 “On Language” column in the New York Times Magazine:

It became controversial with *near miss*, a nonsensical version of *near thing*; some of us patiently but uselessly pointed out that the writer meant “near hit.” *Near miss* has since entrenched itself as an idiom. (Idioms is idioms, and I could care less.)

Similarly, Bill Pidto referred on ESPN’s SportsCenter (24 Aug. 2001) to “Greg Norman, best known for his massive collapse in ‘96 and his other near misses.” But elsewhere, depending on the context, a near miss *is* nearly a miss:

[Headline:] Martin’s **near miss**

Great Britain curling skip Rhona Martin almost missed the [Salt Lake City] Winter Olympics because of a stomach problem...

(<http://news.bbc.co.uk/winterolympics2002/hi/english/curling>)

Finally we come to *the* permeable polar membrane represented by the distribution of the *un-noun* (Horn 2002b, 2005). These come in two flavors, the first of which is the Class A un-noun. A Class A unX is a non-member of the category X which, while lacking one or more criterial properties of category members, nevertheless shares salient functional attributes with them and effectively coerces a superset category of which both X and unX are members. The “sponsor” item for this class is the *un-cola*, introduced in a 1967 advertising campaign for the soft drink 7-Up; its intended interpretation posits a set (i.e. that of soft drinks) encompassing both colas and 7-Up, which is why *un-cola* wouldn’t have been as successful for promoting chocolate milk or beef jerky, which are by any definition not colas. Additional examples of Class A un-nouns appear in (20)

(20) The *Class A un-noun*: a Class A unX is *Almost* an X

*un-hit*

*Un-hit* of the week: Cardinals pitcher Garrett Stephenson came into last Saturday’s game with Atlanta 1 for 36 at the plate. Then he lined what looked like a single to right. But Brian Jordan charged, fielded it and threw him out at first.

(Baseball “Week in Review” column by Jayson Stark at espn.com, 11 Aug. 2000)

*unmartini*

Photo caption: *UNMARTINI* -- A Ginger Citrus Snap, with pomegranate seeds, at Tabla (*New York Times* 20 Jan. 1999, F1, “The Aperitif Moment: Sip or Flinch”)

*unpotato*

Photo caption: THE *UNPOTATO*: Jerusalem artichokes are roasted with thyme at Craft. (*NYT* 14 March 2001, F3)

*unpublications*

The main *unpublications* of H. P. Grice  
(Heading for column in bibliographic addendum to Grandy & Warner's 1986 festschrift for Grice, facing page listing 'The publications of H. P. Grice')

*unturkey* (and *unbird*)

The Great *UnTurkey*. Let One of Now & Zen's featherless friends be the centerpiece of Your Holiday table! This impressive creation is completely vegan and offers 5 solid pounds of boneless eating (enough for 8 hungry adults)! Made of delicately flavored tender seitan, dressed in a delectable "skin" made from yuba (beancurd skin), ...this innovative creation will delight vegetarians and non-vegetarians alike. This frozen "*unbird*" comes fully cooked, and needs only reheating to be enjoyed. (ad for Now & Zen, San Francisco, November 1999)

If a Class A un-X is almost (but not quite) an X, a Class B un-X is an X, but not a particularly good representative of its category. Note that whatever we think of the designated *un-place* New Jersey, it is most certainly a place, just as un-sheets are sheets.

(21) The *Class B un-noun*: a Class B unX is *Barely* an X

*uncollege*

Even though many Mids [= Midshipmen, i.e. U. S. Naval Academy undergraduates] refer to their school with bemused affection as "the *uncollege*", it remains one of the great bastions of "old college spirit" in its pristine form. (*Washington Post*, 22 Nov. 22, 1977, D1, "Navy Revives College Spirit For The Game")

*unbank*

Banking on the *Unbanks*: Tellerless Wonders Are Reinventing Small-Business Lending (Headline, *NYT* February 4, 1999)

*un-place* [referring to E.B. White's essay "Here is New York"]

And what he made just as clear was that any place else was just, well, any place else. Or perhaps an *un-place*. The closest of these is New Jersey. (Charles Strum, "Garden State? The Image is Closer to Crab Grass", *NYT Arts Section*, 27 Oct. 1996, p. 33)

*unsheets*

Now that the big names in bedding—Cannon, Fieldcrest and J. P. Stevens—are bringing out their own versions of *unsheets*, suggestible types can go see natural [unbleached, untreated cotton sheets] displayed...in department stores around town. (Liz Logan, "New Bed Linen," *NYT* 10 Oct. 1991, Home p. 1)

*unwoman*

label for infertile women, feminists, lesbians, nuns, etc. in Margaret Atwood's 1985 dystopian novel *The Handmaid's Tale* who are exiled to the colonies as slave labor

Summarizing, we can say that an *A*-class unX is not an X ( $\approx$  is almost/not quite an X), while a *B*-class unX is technically an X (but just barely an X). In some cases, however, it's hard to tell: is an *unbreakfast* (e.g. an eel and egg sushi roll consumed at 7:00 a.m.) a breakfast (because of its timing) if just barely, or almost a breakfast but not quite (given its structure)? What of the politician's sleazy illocution in "If I've offended anybody, I apologize?" or "I'm sorry if I hurt the feelings of anyone who can't take a joke"? Lakoff (2000: 31) employs *un-apologies*, "*apologies*" (with scare quotes), and *apologies* (without them) to refer interchangeably to this phenomenon. And, speaking of politics, what of those infamous disputed Floridian ballots? Americans of both blue and red stripe may have acknowledged that these were not ideal exemplars of their class, but the 2000 (un)election hinged on whether those dimpled, chad-hung *unvotes* were in fact votes or (as it turns out) not.

As we have seen, while proximatives entail and assert their proximal component, the polar component is more of a semi-permeable membrane. An early account of this variable permeability is given by P. Harder & C. Kock (1976), who insightfully invoke Ducrot's notion of argumentation theory for dealing with the negative orientation of *barely*, but—like the *almost = not quite* brigade—succumb to the temptation of dictionary-hugging. Of sentences like (22a) they write,

- (22) a. Roderick barely kissed Honoria.  
 b. Roderick kissed Honoria.

In terms of truth conditions, *barely* is strangely ambiguous. The *Shorter Oxford English Dictionary* lists as one of extant meanings "Only just; hence, not quite...". According to this description, *barely* entails, in [22a], either that Roderick kissed Honoria, or that he did not kiss her—we do not know which. The serious consequences of this confusion would be even more obvious, e.g., in a criminal case where Roderick was charged with rape, and where a witness made the statement *Roderick barely raped Honoria*. (Harder & Kock 1976: 28)

But any such ambiguity is far more plausible for *hardly* (cf. Amaral & Schwenter 2007) as in *Roderick hardly kissed Honoria*, than for *barely*. Harder & Kock find that it is "in any case clear that [22a] is always argumentatively stronger than [22b]", but this is untenable without a specification of what conclusion these statements are presented as arguments *for*. It appears that despite its promise, the Harder-Kock theory can hardly penetrate the polar membrane. We turn now to other perspectives on the slippery status of the polar component of proximatives.

## 5. The implicature line revisited

We now review one non-argument *for*, and offer one new argument against, the (2C)-type conversational line on the polar component.

### 5.1. The non-redundancy argument

A second fact that lends support to the idea that "not *P*" is a conversational implicature [of *almost P*] is that it can be reinforced—it can be made explicit without producing redundancy. Consider [22] as an answer to the question *Did Bill swim the English Channel?* (Sadock 1981: 263; cf. Sadock 1978: 293)

(22) Almost, but not quite.

But, as shown in Horn 1991 and contra Sadock 1978, informationally redundant propositions can be asserted as long as they introduce a rhetorical opposition (Anscombe & Ducrot 1983), typically signaled as above by *but*. Thus, we have (23a-d), where the *but* clause is semantically entailed/presupposed yet felicitously assertable:

- (23) a. I don't know why I love you, but I do.  
b. Obama barely won the nomination, but he did win.  
c. It's odd that dogs eat cheese, but (eat cheese) they do.  
d. I'm sorry I said it, but (say it) I did.

This doesn't show that *almost P-ing* is semantically distinct from *not quite P-ing*, but it does vitiate Sadock's non-redundancy argument for the implicature analysis.

## 5.2. The subset diagnostic

For a new argument for why the relation between *almost P* and *not P* can't be (just) conversational implicature, pace Sadock (1981) and Ziegeler (2000, 2006, 2008), consider the distribution of reduced assertions in a variety of cases. When dealing with clear instances of conversational implicature, we get the inclusive readings.

- (24) a. 20 students tried to solve the problem. [includes those who succeeded]  
b. 20 students solved most of the problems. [includes whoever solved them all]  
c. 20 students don't drink much. [includes any who don't drink at all]

Thus, if 5 students managed to solve the problem, they constitute 5 of the 20 who tried to solve it, if 5 students solved them all, the total is again 20, and if 5 are teetotalers, again we have just 20 in all. But now compare the case of proximatives, or the related example with *only* (see Horn 2002a, to appear b, and discussion below):

- (25) a. 20 students almost solved the problem. [excludes those who succeeded]  
b. 20 students barely passed the test. [excludes those who failed]  
c. 20 students solved only the last problem. [excludes any who solved none]

If (25a) is true and 5 students solved the problem, we have a total of (at least) 25 students—the 5 who succeeded and the 20 who almost did; (27b) and (27c) are parallel. This supports the view that conversational implicature does not suffice for the polar component of proximatives. What of conventional implicature (as on the (2B<sub>2</sub>)-style analysis of *almost/presque* in Jayez & Tovenà 2008)? While it is difficult to find testable examples, it is instructive that the 20-student set in (26a) includes the subset of masochistic students who deliberately seek out food they find painful to eat, and that in (26b) includes the subset who were given the answers ahead of time, suggesting that neither variety of implicature suffices to handle the polar implication.

- (26) a. 20 students find kimchi painfully spicy but attended CIL 18 anyway.  
b. 20 students managed to pass the test.

## 6. Scales vs. rank orders: the coercion effect

As we have seen, there is a palpable distinction between the behavior of the polar implication and that of classic scalar implicatures:

- (27) a. ?Not only did Bill almost swim the English Channel, he did swim it.  
 b. Not only did Bill eat some of the cake, he ate all of it.
- (28) A: It almost rained yesterday.      (29) A: It's likely it will rain tomorrow.  
 B: #Yes, in fact it did rain.              B: Yes, indeed it's certain it will.

This asymmetry is a problem for the claim that *almost P : P :: some : all*. But what if *almost P : P :: sick : dead*? We would be dealing then not with a true scale but a rank order (cf. Horn 2000a and references cited therein). See (30) for a notational differentiation and (31) for additional examples of rank orders:

- |                             |                           |
|-----------------------------|---------------------------|
| (30) <i>true scales:</i>    | <i>rank orders:</i>       |
| <scalding, hot, warm>       | «felony misdemeanor tort» |
| <certain, likely, possible> | «win place show»          |
| <loathe, hate, dislike>     | «dead sick»               |
- 
- |  |                            |
|--|----------------------------|
| (31) «general colonel lieutenant sergeant private» | «married engaged»          |
| «full professor associate prof. assistant prof.»   | «full house flush»         |
| «senior junior sophomore freshman»                 | «A B C D F»                |
| «a φ'd  a almost φ'd»                              | «a didn't φ  a barely φ'd» |

In a scale of the form <Y, X>, ...Y... unilaterally entails ...X...: if it's hot, it's warm; in a rank order <<Y, X>>, ...Y... unilaterally entails ...¬X...: if they're married, they're *not* engaged; if he's a colonel, he's *not* a lieutenant. Similarly, if she's a full professor, it's false that she's an assistant professor—although it's true that she's *at least* an assistant professor. Similarly, compare these exchanges between players in (non-wild card) poker, where having a full house outranks but precludes having a flush:

- (32) A: Do you have a flush?  
 B: {No/#Yes} (in fact) I have a full house.
- (33) A: Do you have at least a flush?  
 B: {Yes/#No} (in fact) I have a full house.

*Not only* (as opposed to *not just*) distinguishes between true scales (as in (27b) and rank orders, as in (34):

- (34) a. #Not only are we engaged, we're married.  
 b. This is not {just/#only} a one-night stand, it's true love.

As noted above, *S is at least P* differs crucially from *S is P* in its truth conditions and illocutionary potential. Thus consider the exchanges in (35) and (36):

- (35) a. Is your daughter a sophomore?  
 b. No/#Yes, (in fact) she's a junior.

- (36) a. Is your daughter at least a sophomore?  
 b. Yes/#No, (in fact) she's a junior.

The fact that *Amy is a sophomore* can be false when *Amy is least a sophomore* is true is consistent with the account of Geurts & Nouwen 2007, on which *A[my] is at least a sophomore* is assigned the logical form in (37)

$$(37) \quad \square [\text{sophomore (a)} \vee \text{junior (a)} \vee \text{senior (a)}] \wedge \diamond [\text{junior (a)} \vee \text{senior (a)}]$$

The effect of *at least* is to coerce a rank order into an acting (virtual) scale; (36a), unlike (35a), induces a disjunction between the item in question and “higher”/“better” alternative values = *Is your daughter a sophomore-or-more?*

This effect is the other side of the coin from the effect of focus in cases of “pragmatic intrusion”, the tendency for pragmatically derived “enriched” meanings within an embedded context to contribute compositionally to what is said (cf. Cohen 1971, Levinson 2000, Carston 2002, Recanati 2004). It is argued by Horn (2004, 2006, to appear a), King & Stanley (2005), and Geurts (in press) that in such cases as (38), originally from Levinson 2000,

- (38) a. Eating *some* of the cake is better than eating *all* of it.  
 b. Because the police recovered *some* of the missing gold, they will later recover it *all*.  
 c. Because the police recovered *some* of the missing gold, the thieves are expected to return later for the *rest*.

the double processing or retroactive accommodation is triggered by the role of focus on the scalar elements and by the minimal contrast. While *some* is normally compatible with *all* (to eat all of the cake is *a fortiori* to eat some of it), in the context of (38) the two are placed in opposition, and *some* is taken as amounting to *some but not all*. Focus alone is not enough to trigger reprocessing, as seen in (39):

- (39) a. #Because the police recovered *some* [i.e. only some] of the missing gold, the thieves are expected to return later.  
 b. #Because it's *warm* out [i.e. warm but not hot], you should still wear a shirt.  
 c. #Because you ate *some* of your gruel [i.e. and not all], you get no dessert.

In cases like (38), focusing a weak scalar item in a contrastive context can effectively coerce scales into rank orders, just as *at least* coerces rank orders into ordinary scale, whence the contrast between being at least almost finished (which is compatible with finishing) and being almost finished (which is not). Or is it?

## 6. On being almost dead vs. almost ready for dinner

“You thought something would change?”

“She almost died.”

“Almost dying changes nothing. Dying changes everything.”  
—exchange on “House”, ABC TV, 17 Dec. 2008

As we have seen, the paraphrase relation between *almost* with *not quite* assumed by some lexicographers and even some linguists and philosophers fails to account for the rhetorical difference between the two proximatives (see §3 above). On the account supported here, this difference is attributable to the fact that *almost* and *not quite* share their entailments but differ at the level of what they assert. Now consider the contrast between them in the context of (40):

- (40) A: So dinner is {(?)almost/#not quite} ready, right?  
B: Yes, in fact it *is* ready.

Accounting for the impossibility of *not quite* here is not the problem: to assert that dinner is not quite ready is to assert that it's not ready, whence the contradiction. But if the statement that dinner is almost ready *entails* (even though it does not *assert*) that it is, why is the positive response at least marginally possible (if not impeccable) in this case? Similarly, many speakers have no problem with the exchange in (41), while the apparently parallel cases in (42) and (43) seem far less acceptable.

- (41) A: Is your dissertation almost ready to file?  
B: (?)Yes, (in fact) {it *is* ready/it's *completely* ready}.
- (42) A: Is Fredo almost dead?  
B: #Yes, (in fact) he's *totally* dead.
- (43) A: Did you almost kill Sollozzo at the restaurant?  
B: #Yes, (in fact) I *did* kill him.

And, as we might expect, the cancellation facts yield a similar contrast:

- (44) A: (?)Dinner is almost ready, and in fact it *is* ready. (cf. (7a) above)  
B: #Fredo is almost dead, and in fact he *is* dead.

While there are several factors affecting the robustness of the polar implication and its cancelability, including the aspect of the predicate and the desirability of the outcome (cf. Ziegeler 2006, 2008, Amaral 2007), one consideration is that if dinner is almost ready in the actual world, it will be ready soon in all the inertia worlds determined in the context (cf. Dowty 1979: 148), while death is not similarly projectible from near-death as a default future. Furthermore, it must be acknowledged that at least in our culture, whether a dinner or a dissertation is ready or not is of considerably less import than the metabolic difference between being dead vs. not dead. Thus *almost P* is sometimes (virtually) compatible with *P* and sometimes incompatible with *P*, depending in part on the significance of the distinction (as the waggish Paul Grice might have put it) between *P*-ing and not *P*-ing.

## 6. A not so distant cousin: the pragmatic asymmetry of *only*

Disputes on the relative status of the two components of *only* clauses predate the related questions for the proximatives by a millennium or so. Since the 13<sup>th</sup> century, symmetricalists from Peter of Spain to Atlas (1993 et seq.), for whom (45a) essentially unpacks into the conjunction of (45b+c), have squared off against asymmetricalists (Geach, McCawley, Horn, et al.), for whom (45a) entails the negative (exclusive) component (45c) but at most presupposes or implicates the positive (prejacent) component (45b); cf. Horn 1996, Atlas 1996 for history and references.

- (45) a. Only love counts.  
b. Love counts.  
c. Nothing distinct from love counts.

Like the polar component of *barely/almost VP*, the prejacent of *only NP* is entailed, pace Ippolito (2006, 2008) and van Rooij & Schulz (2007):

- (46) a. #Only Sue passed the test, and (possibly) even she didn't.  
b. #Only the President can end the war—indeed, nobody can.

While semantically conjunctive and non-downward-entailing, however, *only XP* and *only n CN* phrases license NPIs (pace Atlas 1993 et seq., Giannakidou 2006), triggers subject-aux inversion, and produces scale reversal, very much like its proximate cousin *barely*:

- (47) a. \*(Only) Dana {would ever eat any of that stew/drank a drop/slept a wink}.  
b. \*(Only) in stories does a dropped glass betray agitation. [Graham Greene]  
c. \*(Only) a fool would even eat a bite of that jellyfish risotto.

The semantic and pragmatic parallel between cross-categorial *only* and VP-modifying *barely* is especially striking here. The scale reversal attested in (47c) and in (48) is a diagnostic of the rhetorically negative character of semantically non-monotonic particles.

- (48) *Patient's boyfriend*: "You can't do this. We lived together. We were going to have kids. You barely even know her."  
*Patient's mother*: "Apparently neither did you." ["House" episode, 9/07]

Even the *barely but* sandwich of (15b) has a partial analogue with *only*, as Galway Kinnell illustrates in his 1985 poem "Prayer" (formatting in original):

Whatever happens. Whatever  
*what is* is is what  
I want. Only that. But that.

Another parallel property shared by the polar component of proximatives and the prejacent of *only* is their predilection for taking wide scope with respect to complement-embedding emotives, i.e. the Karttunen & Peters (1979) diagnostics (but see Atlas 2002, 2007 for another view). What I just discovered in (49) is that Gore came close to winning, or Bush to losing, or that the tax cuts won't help the non-wealthy. The propositions that Gore lost, that Bush won, or that the wealthy benefit scope out of the discovery. Similarly, what's bemoaned in (50) is the near thing or the exclusion, not the polar or prejacent implication.

- (49) a. I just discovered that {Gore almost won/Bush barely won} the 2000 election.  
 b. I just discovered that the tax cuts will help only [<sub>F</sub>the wealthy].
- (50) a. It's too bad that {Hillary almost won/Barack barely won} the nomination.  
 b. It's too bad that the tax cuts will help only [<sub>F</sub>the wealthy].

On the assertoric inertia account (Horn 2002, to appear b), it's downward asserting, not downward entailing, environments that license NPIs—or at least *ever*, polarity *any*, and the minimizers. The Karttunen & Peters (1979) scopal diagnostics for presupposition or conventional implicature can be redefined as diagnosing material outside the scope of assertion. For Giannakidou (2006), on the other hand, *only* and emotive factives are “renegade” NPI licensers in languages like English. This conclusion is based partly on the fact that in such as Greek, NPIs are not licensed in these contexts (Giannakidou 1998, 2006):

- (51) *Monon i Theodora idhe {ti Roxani/\*kanenan}*.  
 only the Theodora saw-3SG the Roxanne/anybody  
 ‘Only Theodora saw {Roxanne/anybody}’ (Giannakidou 1998: 154)

In addition, Giannakidou stresses the fact that *only* clauses are veridical and the fact that they don't license all NPIs. But first, as we have seen with *barely*, veridicality is not a deal-breaker as long as the relevant entailment is assertorically inert (cf. also Horn to appear b), and second, licensing isn't a binary thing, as has been recognized at least since Horn 1970. Indeed, even those restrictive polarity items that Giannakidou sees as requiring overt negative licensers (the examples in (52) are reproduced from her (43)) do not always require them, as seen in (59):

- (52) a. \*Only Bill came either.  
 b. \*Only Bill is all that intelligent.  
 c. \*Only Bill arrived until Friday.
- (53) a. Few of *my* friends could make it here either.  
 b. If he's all that smart, why isn't he rich?  
 c. I'll be damned if I'll quit until I absolutely have to.

Do languages like Greek require downward entailment as opposed to downward assertion to rule out (52) and similar sentences? No—for two reasons. First, DENess isn't necessary for licensing in Greek. Disjunctive and *want*-contexts permit unstressed

*kanenas*, as Giannakidou (1998) has documented; cf. e.g. (54), courtesy of Jason Merchant (p.c.)

- (54) *I bike kanenas mesa i afisame ta fota anamena.*  
lit. ‘Either n-one came in or we left the lights on’

(Note the impossibility of the corresponding sentence in English: \**Either anyone came in or...*).

Second, DEness isn’t always sufficient. *At most n*, unlike *only n*, establishes a true downward entailing environment: if at most 5 students passed, then at most 5 students got A’s. (Notice that this is a question of actual DEness, not the Strawson DEness proposed for *only* in von Stechow 1999.) Yet the equivalent expression to *at most* fails to license even weak NPIs in Greek (Anastasia Giannakidou, p.c.):

- (55) \**To poli pende fitites ipan tipota.* ‘At most 5 students said anything’

Thus, we see that in Greek, *at most n* and *only n* are equivalently *non*-licensors, while in English they’re equivalently (medium-strength) licensors (cf. De Decker et al. 2005), so it can’t be DEness as such that’s relevant in either case.

On their conjunctive epistemic analysis of *at most n*, Geurts & Nouwen (2007) would unpack (56a) into a conjunction of (56b) and (56c).

- (56) a. At most 30 people have proved this theorem.  
b. It is (epistemically) possible that 30 people have proved this theorem  
c. for  $n > 30$ ,  $\neg$ [It is possible that  $n$  people have proved this theorem]

The obvious question arises under this analysis: Why is *at most n* an NPI licensor, given the conjunctive and hence apparently non-monotonic expansion in Geurts & Nouwen 2007? Notice that as seen in (57), the quasi-negative behavior of *at most n* nominals is shared by that of the upper-bounding proposition in (56c) but not by that of the positive epistemic proposition in (56b).

- (57) a. At most 30 people have *ever* proved this theorem.  
b. \*It is possible that 30 people have *ever* proved this theorem.  
c. It is not possible that more than 30 people have *ever* proved this theorem.

The key, as with the cases of *almost*, *barely*, and *only*, is to recognize that symmetry in the semantics may conceal a crucial asymmetry at the level of what is asserted. Because the entailment in (56b) is assertorically inert, *at most n* asserts only the negative proposition in (56c) and thus counts as effectively downward monotonic.

## 7. Concluding remarks

For Stalnaker (1979), an assertion is a proposal to change the context: a potentially controversial move to reduce the context set—the set of possible worlds constituting the “live options”—or equivalently a proposal to add the content of what is asserted to the common ground. I have proposed here, and in more detail in Horn (2002a), that the apparent tension between the evidence for the semantic symmetry of *almost* and *barely*

and the evidence for their rhetorical asymmetry can be resolved by distinguishing what is (simply) entailed from what is (not just entailed but) asserted. Material in the former category counts as inert, and as transparent with respect to a wide range of linguistic diagnostics, including the “subset” diagnostic introduced in §5.2 above.

In his important thesis on proximatives, Aldo Sevi (1998) defends a formally symmetric (2A)-style conjunctive analysis for the proximal and polar components: *almost p* entails (and asserts) *not p* and *barely* entails (and asserts) *p*. At the same time, he acknowledges, the polar assertion is “somehow ‘backgrounded’ or less ‘prominent’” than the proximal assertion (1998: 32). That is, “*almost* is ‘positive’ and *barely* is ‘negative’ in some sense” (1998: 34). But how, and in what sense? This is the question we have sought to address here, both for the proximatives and their exclusive cousin.

Like *barely*, *only NP* on the proposed account is neither downward entailing nor non-veridical. This would predict it shouldn’t license NPIs, and indeed it doesn’t in Greek, but in English its veridicality and non-monotonicity are overridden by downward assertion (in which assertorically inert components are disregarded), a property that is evidently irrelevant for Greek. Disjunctions, on the other hand, are not NPI triggers in English, where non-veridicality is insufficient for licensing NPIs. We thus obtain a parameterized account of polarity licensing to allow for cross-linguistic variation: (non-)veridicality must be invoked to account for the distribution of polarity items in some languages (Greek, Bengali), while downward assertion is relevant in others (English, Swedish).

Sentences based on *almost VP*, *barely VP*, *only NP*, *at most n CN*, and other quasi-conjunctive expressions entail both conjuncts of the relevant expansion but assert only one of those conjuncts (the other being *assertorically inert*). Recognizing this asymmetry at the pragmatic level enables us to capture asymmetries reflected (inter alia) by NPI licensing, scalar orientation, and discourse negativity while avoiding the contradictions incurred by a semantically asymmetric account. Like Atlas (2002: 12), I “remain as unconvinced as ever that downward entailment can explain the distributional data of NPI licensing”, but the fault, I have argued, lies not in the *downward* but in the *entailment*.

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# Scales and non-scales in (Hebrew) child language

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## Abstract

This paper reports adult and child knowledge of the generalized scalar implicature (GCI) of disjunction, the non-scalar 'Allover' GCI and the particularized No-contrast implicature. The contributions of scales, generalization and relational complexity to the developmental difficulty of phenomena at the semantic-pragmatic interface are discussed. Results show that children as old as 9-years do not demonstrate adultlike knowledge of the scalar GCI of disjunction or the No-contrast PCI, while the 'Allover' GCI is demonstrated at 5 years. We conclude that the quaternary-level relational complexity of the later developing implicature and the ternary-level complexity of the earlier developing implicature, as analyzed by Halford, Wilson and Phillips' (1998) Relational Complexity Metric can account for this developmental pattern, and not scales or generality.

**Keywords:** first language acquisition, semantic-pragmatic interface, implicatures, relational complexity.

## 1. Introduction

This paper reports results from experiments on adult and child knowledge of one type of scalar implicature (based on the *<and, or>* scale) and two types of non-scalar implicatures (the No-Contrast implicature based on the reference set *{but, and}* and the second on reference sets of attributes – the 'Allover' Implicature). The results show that even at the age of 9;6 Hebrew speaking children do not yet have adultlike knowledge of either the scalar or non-scalar implicatures of coordination. However, they do calculate the non-scalar 'Allover' Implicature from the age of 5 years. We argue that for children, it is the relational complexity of the semantic and pragmatic relations involved (as measured by the relational complexity metric suggested by Halford, Wilson and Phillips, 1998) that determines the age of calculation of a given implicature.

When investigating children's performance on conversational implicatures, we examine three issues which we consider to influence the developmental difficulty of each implicature. The first is the participation of a scale in the implicature: is there a difference in the difficulty of scalar and non-scalar implicatures? Cross-linguistically, the majority of investigations into child acquisition of implicatures have been into scalar implicatures with relatively late ages being reported (e.g. Papafragou and Musolino, 2003). Note however, that at least one non-scalar implicature has also been found to develop relatively late (e.g. Noveck and Chevaux, 2002).

The second issue is the generalized versus particularized nature of the implicature. Levinson (2000) expands the Gricean concept of Generalized Conversational Implicatures (GCIs), defining these inferences as the default interpretation of an utterance, as opposed to Particularized Conversational Implicatures (PCIs) which are dependent on specific contexts. In the current investigation we examine the relative difficulties of GCIs versus PCIs. Cross-linguistically, the majority of implicatures which have been investigated are GCIs. Note that there are difficulties which arise in investigating the development of PCIs due to their non-uniform appearance in adult communication (Paltiel-Gedalyovich, 2008).

The third and final issue bearing on the acquisition of implicatures is the complexity of processing the specific implicature phenomena. Differences in the age of acquisition of various implicatures may be independent of scalar involvement or of generalization and dependent on the complexity of the specific implicature as expressed by the relation which

it involves. Crosslinguistically, allusion has been made to processing difficulty of various implicatures resulting from the processing of reference sets (e.g. Reinhart, 1999), however, no detailed explanation has been provided for differences in the difficulty of various phenomena. We make use of Halford, et al's (1998) relational complexity metric to provide a detailed analysis of the complexity of each implicature investigated, and thus predict and account for differences in developmental ages. We argue that non-adultlike child behavior is not related to the involvement or non-involvement of a scale, nor to whether the implicature is particularized or generalized, but rather to the complexity of the specific implicatures

We view adult behavior as a crucial factor in interpreting child acquisition data. Adult behavior serves as the reference point for determining 'correct' (= adultlike) and 'incorrect' (= non-adultlike) responses. We therefore report and discuss adult as well as child data.

## 2.0 Scales versus non-scales

We take scalar implicatures to be those implicatures that are calculated based on Horn's entailment scales (Horn, 1976), while non-scalar implicatures include those calculated based on reference-sets or non-scales (e.g. Levinson, 2000). Entailment relationships existing between the members of the set determine whether the set is a scale or not. In scales, there is a unidirectional entailment relationship between the members of the reference set. In non-scales, there is either no entailment relationship or a bidirectional entailment relationship between set members. Thus, the scalar implicature calculated with the use of disjunction involves rejection of the truth of conjunction based on the scale *<and, or>*, where disjunction entails conjunction but not vice versa.

The non-scalar No-Contrast implicature calculated from the use of the non-contrastive *and* involves rejection of contrast based on the reference set *{but, and}*. This is a non-scale; although *but*, which includes contrastive meaning, is more informative than *and*, the truth of either of the members of the set entails the truth of the other.

The use of a bare attribute, say the color *blue*, gives rise to an implicature 'blue all over' (Harnish, 1991). This implicature is calculated by considering a set of unordered alternates *{blue, red, green, yellow...}*. The use of one member of the set in an utterance implicates that the other members of the set are false, i.e. uttering *blue* gives rise to the implicature that none of the other colors are true of the described object. So *red* will be false and therefore, *blue and red* will be false.

There is no specific developmental prediction which arises directly from the involvement of non-involvement of an entailment scale. Accounts which discuss the complexity of processing reference sets (e.g. Reinhart, 1999), do not distinguish between the difficulty in processing an ordered set of the type representing a scale versus processing a non-ordered set of the type representing a non-scalar reference set.

## 3.0 Generalized versus particularized implicatures

We adopt Levinson's (2000) version of the theory of Generalized Implicatures. According to this theory, GCIs are default interpretations arising with every utterance of a term which evokes the implicature. Cases in which the GCI is not apparent in the interpretation are considered to be the result of a cancellation of the GCI. (Note that some researchers, working for instance within the context of Relevance Theory, have challenged the default nature of implicatures which have hitherto been taken to be generalized, e.g. Bott and Noveck, 2004).

The implicature arising with the use of disjunction is considered to be a generalized conversational implicature or GCI (Levinson, 2000), while we take the No-contrast implicature to be a particularized conversational implicature (PCI), since the absence of contrast in *and* is context dependent and not part of the default interpretation. Uses of *and*

may give rise to many other implicatures, for example an implicature of sequence based on the maxim of manner giving the interpretation that the first conjunct precedes the second conjunction chronologically. This is shown in (1). *And* can also give rise to an implicature of causality as demonstrated in (2).

- (1) Implicature of sequence arising from conjunction  
'The boy put on a coat *and* went outside.'  
Implicature: he put on his coat before he went outside.
- (2) Implicature of causality arising from conjunction  
'The boy slipped and fell.'  
Implicature: slipping caused the fall

Levinson (2000) suggests that the 'Allover' implicature may also be a GCI and we adopt this view.

Here, too, there is no specific developmental prediction which arises from the theory of GCIs. There is no apparent reason to predict that a GCI will be harder or easier than a PCI. However, there are three points which should be considered. First, the variable nature of PCIs may provide children with less exposure to them and inconsistent evidence regarding when they arise. Second, determining adultlike performance in children for PCIs may prove difficult since the adults themselves will calculate these implicatures inconsistently and the target for child development will be therefore unclear. Finally, children's inconsistent calculation of GCIs may reflect their miscategorization of the implicatures as PCIs.

#### 4.0 Relational complexity of (some) implicature phenomena

The relational complexity of each of these implicatures may be determined using the relational complexity metric proposed by Halford, et al (1998). According to this metric the complexity of a given skill is determined by the number of elements which must be processed simultaneously. A developmental sequence indicating at which age each level of relational complexity is mastered is suggested and presented here in (3).

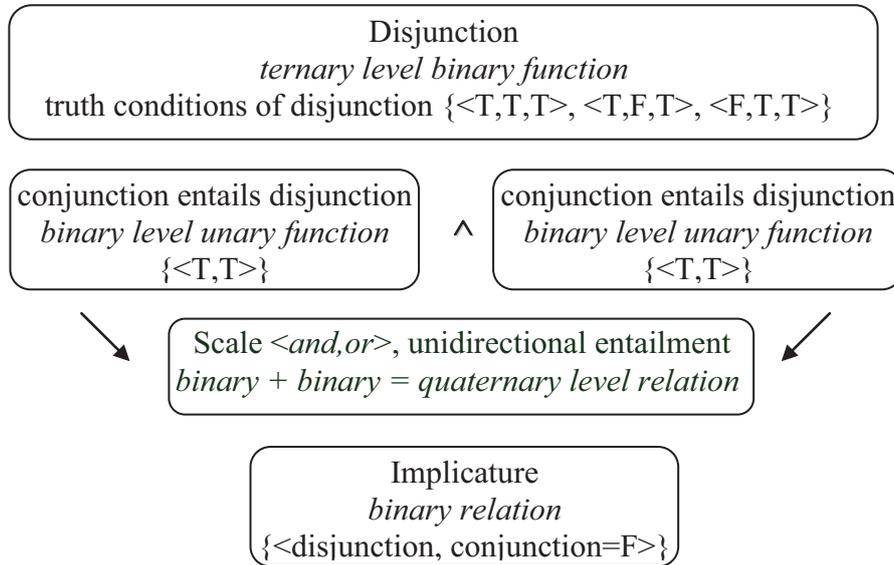
- (3) Ages of mastery of different levels of relational complexity

<i>Level of relational complexity</i>	<i>Age of mastery</i>
Unary	1 year
Binary	2 years
Ternary	5 years
Quaternary	11 years

##### 4.1. Relational complexity of the scalar implicature of disjunction

Within this framework, the scalar implicature based on the scale *<and, or>* is assigned quaternary level complexity, a level hypothesized by Halford, et al (1998) to be acquired only by age 11 years. The application of the relational complexity metric to this scalar implicature is illustrated in (4).

(4) Processing of scalar implicature based on *<and,or>*



If we apply the model given in (4) to the utterance *Bigbird is wearing a coat or a scarf* the result is as follows. The utterance itself is a *ternary* level binary function as interpretation involves application of the truth conditions of disjunction, the set of ordered sets {<T,T,T>, <T,F,T>, <F,T,T>} to the truth values of the conjuncts involved (*Bigbird is wearing a coat* and *Bigbird is wearing a scarf*).

The next step involves the scale *<and, or>*. We have unidirectional entailment which is the conjunction (a *ternary* level binary function based on the truth conditions of conjunction, the set of ordered sets {<T,T,T>}) of 'conjunction entails disjunction' and the negation of 'disjunction entails conjunction'. Entailment can be seen as *binary* level relation based on the ordered set <T,T> where the truth of one sentence (a disjunction) yields a guarantee of the truth of a second sentence (a conjunction). In order for the entailment relation to be unidirectional, the second condition must also hold, namely the negation of an entailment relationship such that conjunction entails disjunction. Negation is seen as a *binary* level unary function, as represented by the set of ordered sets {<T,F>, <F,T>}. Thus we have binary level negation having scope over *binary* level entailment.

The *ternary* level conjunction of the *ternary* level binary function of disjunction couples with the *ternary* level binary function of the unidirectional entailment yields a *quaternary* level relation.

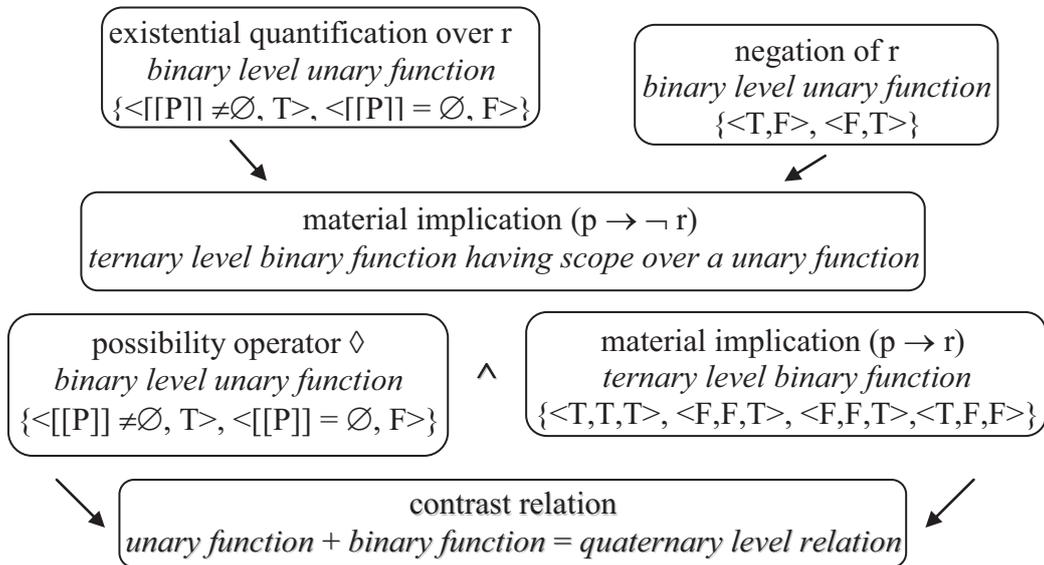
4.2. *The relational complexity of the NO-contrast implicature of and*

The relational complexity of the non-scalar No-contrast implicature based on {*but, and*} is quaternary because the relational complexity of the contrast relation of *but* is in itself quaternary. This application of the relational complexity metric is based on Winter and Rimón's (1994) analysis of *but*, shown in (5).

(5) Winter and Rimón's (1994:370) analysis of the contrast of *but*  
*presupposition of but: p implies not (r) and q implies r*

The application of the relational complexity metric to this analysis is given in (6).

(6) Processing of the contrast relation of *aval/but*



If we consider the utterance *The man hates cucumbers but eats a lot*, the analysis of the complexity of the utterance based on (6) would be as follows.

The utterance itself as conjunction is a *ternary* level binary function based on the set of ordered sets  $\{<T,T,T>, <T,F,F>, <F,T,F>, <F,F,F>\}$ , the truth conditions of conjunction.

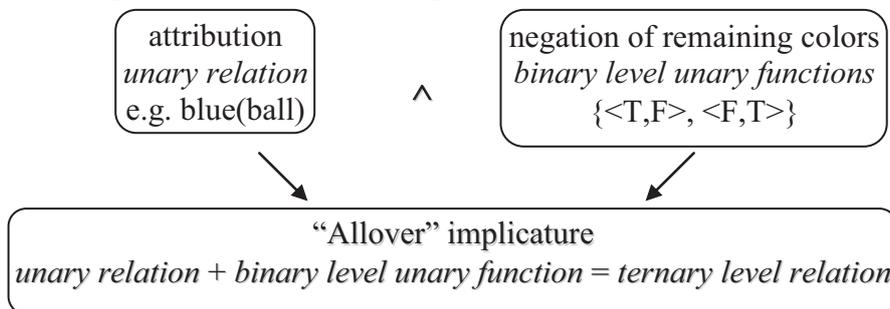
In addition, there is an expectation arising from the first conjunct, *The man hates cucumbers* of a material implication, specifically, 'if the man hates cucumbers then it is not the case that he eats a lot of cucumbers'. This material implication is a *ternary* level binary function, the set of ordered sets  $\{<T,T,T>, <T,F,F>, <F,T,T>, <F,F,T>\}$ .

The conjunction of the *ternary* level binary function, the conjunction and the *ternary* level binary function of the implication yields (at least) a *quaternary* level relation.

4.3 The relational complexity of the Allover implicature

Finally, the relational complexity of the Allover Implicature calculated with the use of attributes is ternary as shown in (7).

(7) Relational complexity of the Allover implicature



Following the analysis given (7) the relational complexity of the non-scalar implicature arising with the use of an attribute expression such as "the blue ball" will be as follows. The phrase itself involves attribution a unary relation (blue(x)). The remaining attributes in the set are negated. This involves multiple negation of the remaining colors, multiple binary

level unary functions based on the truth conditions of negation (the set of ordered sets  $\{ \langle T, F \rangle, \langle F, T \rangle \}$ ). These assertion of attribution of one attribute is conjoined in a ternary level binary function (based on the truth conditions of conjunction,  $\{ \langle T, T, T \rangle, \langle T, F, F \rangle, \langle F, T, F \rangle, \langle F, F, F \rangle \}$ ). Thus, the implicature is considered to have ternary level complexity. Ternary level relations are predicted to be acquired by 5 years (Halford, et al, 1998).

## 5.0 Experimental predictions

Returning to the three issues which arose in the introduction (above), we can formulate experimental predictions in each area.

First, consider the question of scale versus non-scale. As far as adult behavior is concerned, there are no discriminating predictions based on this issue. For the children, the presence/absence of a scale itself may not predict developmental difficulty. The processing of any kind of implicature scalar or non-scalar requires the comparison with some sort of reference set. There is no reason to suppose on face value that a scalar reference set requires greater processing ability than a non-scalar contrastive reference set. Note however, that a scale is analysed as quaternary (requiring the quaternary level conjunction of entailment and negation of entailment constituting unidirectional entailment). Since quaternary level processing is considered to be mastered only at 11 years, we can formulated the predictions in (8) regarding scales and non-scales.

- (8) Predictions for adult and child processing of scales and non-scales
- a) There will be no difference in the frequency of adults' calculation of the scalar implicature of disjunction (as evidenced by their rejection of disjuncts as descriptions of pictures where both disjuncts are true), and the frequency of adults' calculation of the non-scalar implicatures of No-contrast (as evidenced by their rejection of the use of neutral *and* in cases where there is no contrast between the conjuncts) or the Allover implicature (as evidenced by their preference for a wholly attributed object over a partially attributed object).
  - b) (i) Children's calculation of the quaternary level scalar implicature (as evidenced by their rejection of disjuncts as descriptions of pictures where both disjuncts are true) will not reach adultlike levels until the age of 11.  
 (ii) Children's calculation of the non-scalar implicatures cannot be predicted based solely on the absence of the scale, although in general all other things being equal this calculation should occur earlier than for scalar implicatures since the processing of a scale is quaternary.

Now consider the question of the generalized nature of implicatures. According to theory of GCI, GCIs are the default, typical interpretation of an expression in the absence of a special context, while PCIs arise only in specific contexts. The implicature associated with disjunction is considered to be a GCI, arising in all uses of disjunction and only canceled in particular contexts. As described above, we hypothesize that the Allover Implicature, like the scalar implicature of disjunction, is a GCI, while the No-Contrast Implicature of conjunction is a PCI. For adults there is a clear prediction that their performance on tasks requiring the calculation of a GCI will be very consistent, far more consistent than their performance on PCIs. These predictions are summarized in (9).

- (9) Predictions for adults:
- a) Adults will reject violations of the scalar GCI close to 100% of the time

- b) Adults will interpret use of a bare attribute as completely attributed, calculating the non-scalar Allover GCI close to 100% of the time
- c) Adults will show variability in rejection of violations of the No-Contrast PCI

For children, the consistency of the adult responses provides a very clear developmental target. Otherwise the generalized or particularized nature of an implicature should have no bearing on the developmental difficulty of the implicature. In the present case, the GCI of disjunction being quaternary will be predicted to develop only at 11 years while the Allover GCI will be predicted to develop by 5 years. The No-Contrast PCI of non-contrastive conjunction will also be predicted to develop only at 11 years, as this implicature is also quaternary. In short, we hypothesized that the acquisition of implicatures would be dependent on the relational complexity of the implicatures and be independent both of the nature of the reference set and whether the implicature is generalized or particularized, resulting in the predictions in (10).0

(10) Predictions for children:

- a) Children are not predicted to reject violations of the quaternary level scalar GCI before the age of 11 years
- b) Children are predicted to interpret use of bare attribute as completely attributed, calculating the ternary level non-scalar 'Allover' GCI from the age of 5
- c) Children will not reject violation of the quaternary level non-scalar No-Contrast PCI before the age of 11 years

The third and final issue we raised was the question of the relational complexity of the implicature phenomena involved. As is clear from the discussion to this point, we find this to be the crucial point in formulating developmental predictions for the implicatures. If we momentarily disregard the questions of scales and generalization we can derive the predictions given in (11).

(11) Predictions for children based on relational complexity alone

- a) Children are not predicted to reject violations of the quaternary level No-Contrast implicature consistently before the age of 11 years.
- b) Children are not predicted to reject violations of the quaternary level implicature associated with disjunction consistently before the age of 11 years.
- c) implicature before the age of 5 years.

We now turn to the experiments developed to test these predictions.

## 6.0 The experiments

### 6.1. Experiment 1 - Investigating the scalar implicature associated with disjunction

#### 6.1.1 Procedures

In order to test predictions knowledge of the GCI of disjunction and the No-contrast PCI, we carried out a variant of the Truth-Value-Judgment Task (Crain and Thornton, 1998). Children participated in individual sessions in their homes or kindergarten/school settings. Adults participated in individual sessions in their homes. A total of 141 typically developing monolingual Hebrew speaking children aged 2;7 to 9;6 and 17 monolingual Hebrew-speaking adults were asked to judge the acceptability of a puppet's descriptions of pictures prepared using the Creative Wonders Sesame Street ArtWorkshop (Henson Productions, Inc., 1995).

One condition tested calculation of the GCI based on the scale <and, o>.<sup>1</sup> There were 10 target items and 5 filler items. The target items were true descriptions of the stimulus pictures using *o* with both disjuncts true. The filler items were false disjunctions. In each case the experimenter described the picture to the participant and to the puppet and then asked the puppet to describe the picture. The participant was then asked to judge the appropriateness of the puppet's description. For descriptions judged to be unacceptable, the participant was asked to 'teach' the puppet the correct description. The items were mixed with two other conditions and organized in two different random presentation orders with approximately half of the participants presented with each presentation order. Sample target and filler items appear in (12) and (13) respectively.

(12) Target item eliciting calculation of the scalar GCI based on scale <and, or>:

Picture stimulus: Cookie Monster eating cookies and holding a balloon.

Experimenter description: *hine ugifletset. hu maxzik balon. hu oxel ugijot.*  
 Here Cookie-monster.he holds balloon. He eats cookies.  
 'Here's Cookie-monster. He's holding a balloon. He's eating cookies.'

Puppet's description: *ugifletset maxzik balon o oxel ugijot*  
 Cookie-monster holds balloon or eats cookies  
 'cookie monster is holding a balloon or eating cookies.'

(13) Filler item

Picture stimulus: Bigbird standing near a table which holds a drink and a sandwich.

Experimenter description: *hine tsiporet. hi lo shota mits, hi lo oxelet senvich.*  
 Here Bigbird.she no drinks juice she no eats sandwich  
 'Here's Bigbird. She's not drinking juice, she's not eating a sandwich.'

Puppet's description: *tsiporet shota mits o oxelet senvich.*  
 Bigbird drinks juice or eats sandwich  
 'Bigbird is drinking juice or eating a sandwich.'

### 6.1.2 Results and discussion

As predicted, adults consistently rejected true picture descriptions violating the scalar GCI associated with disjunction (97.1% of the time). This supports the prediction that as a GCI, this implicature will be consistently calculated by adults. The scalar nature of the implicature was not predicted to influence the consistency of the adults' responses and therefore will be discussed by comparison with performance on non-scalar implicatures below. In terms of complexity, the complexity of the implicature was analyzed as quaternary, within the predicted processing abilities of adults.

Even the oldest children failed to calculate the GCI with adult level consistency. Their rejection of the stimulus items ranged from 11% rejection for the 3 year olds, increasing gradually to 50.5% rejection for the 9 year olds. Even the oldest children's responses differed significantly from the adult responses ( $F(7,115)=13.07$ , MS error=11.623,  $p < 0.05$ ). The fact that the adults calculated this implicature as a GCI provides a clear target for child acquisition such that the children's inconsistent performance can be interpreted as immature language development. The source of the children's difficulty is predicted by the complexity of the specific implicature, analyzed as quaternary, and thus predicted to develop only at 11 years. The involvement of a scale in the implicature in itself did not lead to a prediction of non-adultlike behavior, and therefore in itself does not account for this result.

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<sup>1</sup> This was part of a larger experiment into semantic and pragmatic knowledge of coordinators. Only the relevant conditions are reported here.

## 6.2. Experiment 2- Investigating the non-scalar implicature associated with non-contrastive conjunction

### 6.2.1 Procedures

A further condition of this same experiment testing calculation of the non-scalar, No-Contrast PCI based on the set {*but, and*}. This second condition deals with the non-scalar particularized implicature based on the non-scale of contrastive conjunction represented in Hebrew by *aval*, and what we may call neutral, conjunction, the Hebrew *ve*. Participants and materials were the same as for the previous condition, however, this time the target items involved the use of *ve* to coordinate two contrasting conjuncts while the filler items used *aval* to coordinate two contrasting conjuncts. Examples of target and filler items appear in (14) and (15) respectively.

(14) Target item the No-Contrast PCI based on reference set {*but, and*}:

Picture stimulus: Hungry dog walking away from bone

Experimenter's description:

*hine kelev. hu raev. hu ohev etsem. hu mashir et haetsem. muzar!*

here dog. he hungry. he likes bone. he leaves 'et' the-bone. strange.

'Here's a dog. He's hungry. He likes bones. He leaves the bone. Strange!'

Puppet's description: *hakelev raev ve mashir et haetsem*

The-dog hungry *and* leaves 'et' the-bone

'The dog is hungry *and* leaves the bone.'

(15) Filler item

Picture stimulus: Man eating a large pile of cucumbers.

Experimenter's description:

*hine ish. haish sone melafefonim. hu oxel harbe melafefonim. muzar!*

here man. The-man hates cucumbers. he eats many cucumbers. strange.

'Here's a man. The man hates cucumbers. He eats lots of cucumbers. Strange!'

Puppet's description: *haish sone melafefonim aval oxel harbe.*

The-man hates cucumbers *but* eats many.

'The man hates cucumbers but eats alot.'

### 6.2.2 Results and discussion

As predicted, adults rejected, the adults rejected the use of the less informative *ve/and* when the contrast allowed the use of the more informative *aval/but*, but only 50 % of the time, thus demonstrating that they calculate the implicature based on the non-scale PCI optionally. This does not indicate chance levels, but rather individual differences with individual participants consistently (> 80% of the time) calculating/failing to calculate the implicature. This is consistent with prediction that the No-contrast implicature is a PCI.

The majority of the children failed to demonstrate knowledge of the contrastive nature of *aval/but* in that they accepted the use of *aval/but* in non-contrastive coordinations. Thus, they showed no preference for the more informative *aval/but* in contexts where contrast was indicated (20% rejection of the less informative *ve/and*). The children's failure to calculate the non-scalar No-Contrast PCI we interpret as, a product of the difficulty of calculating the contrastive meaning of *aval/but* which is considered quaternary. In this case, the children do not see *aval/but* as more informative than *ve/and* and no implicature is calculated. Of those children who did demonstrate knowledge of the contrast of *aval/but*, only one (of 5) calculated the No-Contrast PCI. Conclusions about children's knowledge of particularized implicatures such as this are difficult to draw due to the inconsistency of adult calculation of these implicatures.

## 6.3. Investigating the 'Allover' implicature associated with some adjectives

### 6.3.1. Procedures

In order to test knowledge of the 'Allover' implicature associated with some adjectives, we carried out a pointing task with 38 typically developing monolingual Hebrew-speaking children aged 2;11-12;0 and 12 adults on their knowledge of non-scalar conversational implicatures in a pointing task. Participants heard target picture descriptions in two sets. The first set included 10 items using colors and the second set included 18 items using other attributes. The target items were equally divided between two experimental conditions: in the first the target picture was a completely attributed object compared with a partially attributed object and two other distracters, in the second the target picture was a partially attributed object compared with 3 distracters. Each set also included filler items where the items were different object of different colors/attributes were depicted. Children were pre-tested for knowledge of the colors and attributes before testing. Examples of experimental items for the 'allover' and 'partially' appear in (16) and (17) respectively, while a sample filler item appears in (18).

(16) Target item for Non-scalar 'Allover' GCI – 'allover' condition

Picture display of four balls: blue striped ball, all blue ball, all green ball, blue middle changing to green border

Stimulus: *tari li et hakadur hakaxol*  
show me 'et' the-ball the-blue  
'show me the blue ball.'

(17) Target item for partially condition

Picture display of four shirts: red shirt with yellow circle, green shirt with red circle, red shirt gradually changing to blue, green shirt with floral square on one shoulder

Stimulus: *tari li et haxultsa hapirxonit*  
show me 'et' the-shirt the-flowery  
'Show me the flowery shirt.'

(18) Filler item

Picture display of four objects: red ball, black giraffe, black parakeet, green hat

Stimulus: *tari li et ha-d iraffa ha-xamuda*  
show me 'et' the-giraffe the-cute  
'Show me the cute giraffe.'

### 6.3.2 Results and discussion

As predicted, adults calculated the 'Allover' GCI consistently for colors, selecting the completely attributed object picture 100 % of the time, and slightly less consistently for attributes, selecting the completely attributed object picture 99% of the time. The consistency of the Allover Implicature supports the existence of at least one type of default non-scalar implicature, much the same as that of default scalar implicatures (cf Levinson, 2000).

Children in the 5-6 year old age group exhibited adultlike preference for a completely attributed object 90% for attributes and 95% of the time for colors. The result for colors did not differ significantly from the adults' results ( $p > 0.05$ ), however, for the other attributes, this result was marginally significantly different from the adults ( $p = 0.57$ ) and adult consistency was only obtained by the 7-8 year old group ( $p > 0.05$ ). The later acquisition of the attribute adjectives is attributed to the later lexical acquisition of these types of adjectives (see e.g. Berman, 2004).

## 7.0 General discussion and conclusions

The first question we asked related to the scalar versus non-scalar nature of implicatures: Are scalar implicatures more difficult and therefore later acquired than non-scalar implicatures, simply because scales themselves are difficult to process? In the studies

reported here, for adults, the fact that an implicature includes a scale rather than a non-scale, or vice versa, does not appear to have an effect on the pattern of calculation of the implicature since one scalar and one non-scalar implicature were calculated consistently. In other words, even if scales are more difficult than non-scales, their difficulty is well within the abilities of adults.

As for children, is it the presence of a scale that makes an implicature difficult for children? In the studies reported here, one scalar (that of disjunction) and one non-scalar (the No-contrast) implicature were not mastered even by the oldest children participating in the study (the 9 year old group). There was also evidence from the non-scalar 'Allover' implicature that at least one type of non-scalar implicature is acquired relatively early. Taking these two points together we may conclude that the presence of a scale suggests a more difficult implicature, but the absence of a scale in itself does not guarantee that the implicature will be easy/early developing. For non-scalar implicatures the difficulty of the relations involved in the lexical/semantic content of the utterance appears to determine the difficulty and age of acquisition. The late development of the No-contrast implicature can be explained in terms of the late development of the underlying (semantic) contrastive meaning of the coordinator *aval*/but. The later age of calculation of the 'Allover' implicature for denominal and resultative adjectives. In terms of the implicature, there is no difference in the difficulty of calculation of the 'Allover' implicature for color adjectives and for denominal and resultative adjectives. The greater difficulty of calculating the implicature for these adjectives, results from the greater difficulty of the adjectives themselves. This is evidenced by the later comprehension and spontaneous use of these types of adjectives in Hebrew child language (e.g. Berman, 2004). For scalar implicatures, even given relatively simple lexical/semantic content, such as the semantic meaning of conjunction/disjunction, the implicature itself is complex.

The second question we asked regarded the acquisition of generalized versus particularized implicatures. This question was found to distinguish adult behavior. GCIs were calculated far more consistently than PCIs. There was primarily variation between individuals such that adult participants could be divided into two groups: those who consistently calculated the PCI and those who consistently failed to calculate the PCI. Yet, there was also some (20%) variation within individuals. This amount of variation although clearly not at chance levels differs from the approximately <5% variation found in the calculation of the GCIs.

The implications for the child data are not clear. We found that one GCI and one PCI were acquired relatively late with adultlike behavior not obtained even by the oldest participants, while one GCI was mastered at a relatively young age (5-6 years). At first glance this may appear to suggest that PCIs are mastered late while the mastery of GCIs is variable, dependent on some other factor. It is possible that PCIs are more difficult to acquire just because of their inconsistent nature. The input to children regarding the calculation of these implicatures will be inconsistent and even contradictory, and therefore more difficult to learn. Furthermore, regarding the inconsistent calculation of the GCI, it could be argued that the children know the implicature but are not aware that it is generalized and therefore calculate it only optionally. We find this explanation to be contradictory since it results in inconsistent particularized implicatures being both easier and harder at the same time. Thus, we consider that the generalized or particularized nature of an implicature is insufficient to predict its difficulty or age of acquisition.

Thus, viewing our data in terms of the first two questions yields equivocal results. We now turn to our third question. Is the determining factor in the acquisition of implicatures the complexity of the relations involved? Of the three implicatures studies, two were considered to have quaternary relational complexity, as determined by Halford, et al's (1998) Relational Complexity Metric. As predicted by their high complexity level, these implicatures were not demonstrated to be calculated by the oldest children participating in the studies, aged 9 years. Similarly, the implicature which was demonstrated by 5-6 year olds is analyzed as having ternary level complexity, a complexity level predicted to be mastered by 5 years. Thus, of the three possible factors we suggested as possible

explanations for the developmental pattern for three implicatures, the relational complexity of the implicature phenomena provides the best account for the children's data.

We cannot explain the late acquisition of the No-contrast PCI in terms of a specific difficulty with scales or with GCIs so we suggest that either the processing of the quaternary level relation is too difficult for these children (and note the difficult step in the process is the unilateral entailment). As far as the non-scalar PCI of contrastive conjunction, we saw individual differences within the adult group. For children, it appears that the problem here is not with non-scales being difficult, or of a PCI versus a GCI, but rather related to difficulty due to specific complexity of the contrastive meaning, before the stage of implicature calculation. This explanation is supported by the fact that for those children who did demonstrate knowledge of the contrastive meaning the results were very similar to the adults. Finally, the difficulty the children under the age of 5 showed appears to be related to the ternary complexity of the relation. Ternary level relations are predicted to be mastered by 5 years. Of course, here, too, it could be argued that they are not aware of the generalized nature of the implicature, but since the age matches the prediction based on the relational complexity metric, the processing difficulty explanation seems more likely.

In summary Hebrew speaking adults consistently calculate generalized implicatures, both scalar implicatures such as that of disjunction and non-scalar such as the 'allover' implicature. Furthermore, Hebrew speaking adults calculate far less consistently a particularized implicature. Lastly, the consistency of the adult responses does not appear to be related to the involvement of a scale in the implicature.

For children, the age at which they master calculation of implicatures appears to be a result of the relational complexity of the phenomenon and not related to the participation of a scale, or to the generalized or particularized nature of the implicature

Concluding, the results from these experiments exemplify the calculation of quantity implicatures using both entailment scales and non-scales; however, the consistency of calculation of the GCIs is much greater than the calculation of PCIs. Children's knowledge of these implicatures are argued to be adultlike dependent upon the complexity of the relations involved. The ages of acquisition found are consistent with the complexity of the skills being acquired as determined by Halford et al's (1998) relational complexity metric given above, 5 years for the ternary non-scalar GCI and 11 years for the quaternary scalar GCI and No-Contrast PCI.

But there are many questions which remain to be answered. Some of these relate to the limited number of implicatures investigated to date. Are there scalar implicatures which can be demonstrated in the preschool years? If so, this would challenge the analysis of the scale as contributing quaternary level complexity to scalar implicatures. What is the complexity of other implicatures? Particularly, we need more investigations of non-scalar implicatures. Regarding the generality of implicatures, which implicatures show cross-linguistic generalization and which do not, and why? And regarding the complexity of various implicatures, is the complexity of some implicatures so great as to account for adult inconsistency? At what age do children actually become adult-like in their calculation of the more complex implicatures? We need data from older children – and we are in the process of collecting these data for the implicatures investigated here.

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# Negative Implicatum, Positive Implicatum

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## Abstract

Positive polarity items (PPIs) can co-occur with the anti-additive quantifier *no N* if intonation or enriched context makes it a contrastive negation or denial: the anti-licensing fails due to a positive implicatum (PI) that performs pragmatic licensing and it is to this PI that PPIs contribute their meaning. Similarly, the licensing of negative polarity items (NPIs) by *only* is due to the negative implicatum (NI) of the sentence and it is to this NI that NPIs such as *any*, *ever* and minimizers contribute their domain widening (Kadmon and Landman 1993) function. However, the PI related with *no N* is a conversational implicature, whereas the NI related with *only* is a conventional one and part of the sentence's truth conditions.

**Keywords:** explicature, implicature, focus operator, double-propositional, truth-conditional.

The study of polarity effects in natural language goes back at least as early as Bolinger (1960). There have been many fruitful results ever since, but none of them is perfect or exhaustive in its explanatory force. In this paper, we will compare two special cases in terms of polarity licensing, namely, one where the anti-additive quantifier *no N* fails to anti-license positive polarity items (PPIs) and the other where *only* licenses negative polarity items (NPIs). The central thesis is that polarity items can be pragmatically licensed, 'pragmatically' meaning beyond the logic of a single proposition, either by discourse or by the lexical pragmatics of the licensors.

In the first section, we will discuss to what extent the parallelism between NPIs and PPIs is (un-)justified. In the second section, we propose that if *no N* is used as contrastive negation or denial, a positive implicatum (PI) arises in discourse that renders the presence of PPIs possible. Our PI proposal is inspired by Linebarger's (1987) NI (negative implicatum) theory for NPI licensors such as *only*, where a purely semantic account or more accurately, a one-propositional semantics fails. The third section is all about *only*. We assume a double-propositional semantics for an *only* sentence and the two propositions contrast with each other in their logical properties, one being

downward-entailing (DE) and the other non-DE. This difference in polarity between the two propositions is the cause of all the complications that arise with *only* licensing NPIs. Fintel's (1999) Strawson-DEness does not account for this fact, but is a consequent of it. Our assumptions actually echo Atlas-Horn's two-entailment approach for *only*. However, we argue for a solution without turning to Horn's (2002) assertion/assertion inert distinction, namely, by admitting that NPIs such as *any, ever, lift a finger* update a sentence's truth conditions by domain widening (Kadmon and Landman 1993), but only of the DE proposition in the case of *only*. It follows that *only* and *no N* license NPIs and PPIs respectively, the former by its complex (discourse-oriented) lexical meaning and the latter by its collaboration with discourse into an un-anti-licensing context. A comparison between them and universal quantifiers is made in the fourth section. The last section offers concluding remarks. Throughout the paper, examples are in English or in German.

## 1. NPI-PPI (A)symmetry

NPIs are items that tend to only occur in negative contexts and PPIs are items that tend to only occur in positive contexts. For example, as (1) shows, the NPI *either* needs licensing by negation, as otherwise it would be unlicensed and the sentence would be ungrammatical; the PPI *too* is fine in an affirmative sentence, and would be anti-licensed by negation and the sentence would be at least odd. In all examples henceforth, boldfaced words are NPI licensors and underlined words are either NPIs or PPIs.

(1) a. *The King of France is \*(**not**) bald, either.*

b. *The King of France is (\***not**) bald, too.*

NPIs and PPIs also show oppositional behaviors towards Karttunen and Peters' (1979) contradiction negation or what Horn (1989) calls metalinguistic negation. In (2), negation is not used descriptively/truth-functionally, but metalinguistically to cancel the presupposition of the definite NP 'the King of France', namely, that there is a king of France, therefore, the NPI *either* is not licensed and the PPI *too* is not anti-licensed.

(2) a. *The King of France is **not** bald, \*either - (because) there is no king of France.*

b. *The King of France is **not** bald, too - (because) there is no king of France.*

Due to this symmetry, NPI-licensing contexts are often taken as potential anti-licensors of PPIs. However, extending the theories of NPIs to PPIs does not always succeed, because these two categories do differ in certain nontrivial aspects, two of which we will discuss here.

First, many works on NPIs attempt to generalize the key logical property of their licensing contexts that include not only negation but a variety of other semantic or pragmatic environments. The most influential proposal is made by Ladusaw (1980), who marks NPI licensing contexts as downward entailing (DE), which covers *not*, *n*-words (*nobody*, *nothing*, *never*), *few*, *hardly*, *without*, conditionals, etc. (3) contains a formal definition with an example: *few*, as a function  $\lambda u.few(u, call)$ , is downward entailing as law students is a subset of students and (3a) entails (3b).

- (3) *f* is downward entailing iff for all *x*, *y* such that  $(x \subseteq y) \rightarrow (f(y) \subseteq f(x))$
- a. ***Few students called.***  $\rightarrow$
  - b. ***Few law students called.***

However, the DEness seems to be just necessary but insufficient to anti-license PPIs. As Szabolcsi (2004) points out, it is not DEness but anti-additivity (AA) that PPIs detest. (4) provides a formal definition and an illustration with the AA operator *no one*. In the examples cited in (5), *few* and *at most n* are both DE quantifiers while *not* and *no one* are both AA: they show different co-occurring possibilities with the PPI *someone*.

- (4) *f* is anti-additive iff for all *x*, *y* such that  $f(x \cup y) = f(x) \cap f(y)$
- a. ***No one sang or danced.*** =
  - b. ***No one sang and no one danced.***
- (5) a. \**John didn't call someone.*  
 b. \****No one called someone.***  
 c. ***Few people called someone.***  
 d. ***At most five boys called someone.*** (Szabolcsi 2004: 414)

The second aspect where NPIs and PPIs differ is that sentences with unlicensed NPIs are ungrammatical and not repairable, as (6) shows, whereas sentences with anti-licensed PPIs are often only pragmatically odd such as (7a) and (8a) and therefore repairable by intonation or enriched context, as shown by (7b) and the dialogue in (8b).

- (6) a. \**John ever came.*  
 b. \**John is handsome at all.*
- (7) a. ?*John did **not** already come.*  
 b. *John did **not** already come. In fact, he is quite late.*
- (8) a. ?*John is **not** pretty handsome.*  
 b. A: *John is pretty handsome.*  
 B: *He is **not** pretty handsome. He is very handsome.*

The co-occurrence of some PPIs with AA contexts seems not to be ruled out categorically: PPIs do appear with contrastive negation or denial. It is exactly these cases that the next section focuses on.

## 2. No N, Positive Implicatum and PPIs,

The intuition that a purely semantic approach would not work for PPIs is based on the observation that as (9) and (10) show, although *kein N / no N* and *niemand / nobody* are both AA operators, they show different behaviors in terms of PPIs (anti-)licensing. In both (9) and (10), the second sentence sounds more natural than the first sentence.

(9) a. *Nobody would rather stay at home.*

b. *No girl would rather stay at home.*

(10) a. *Niemand bekräftigte die Notwendigkeit des Klimaschutzes.*

nobody asserted the necessity of the climate protection

‘Nobody asserted the necessity of climate protection.’

b. *Kein Politiker bekräftigte die Notwendigkeit des Klimaschutzes.*

no politician asserted the necessity of the climate protection

‘No politician asserted the necessity of climate protection.’

We propose that *kein N V* ‘no N V’ asserts  $[\neg\exists x(N(x) \wedge V(x))]$  and can induce a positive implicatum (PI)  $[\exists x(\neg N(x) \wedge V(x))]$  that derivatively licenses the PPI in the V position. The PI is a conversational implicature and thus cancelable. It obtains for example by intonation or through enriched context such as contrastive negation in (11).

(11) a. *No [girl] would rather stay at home. [Boys] do.*

b. *Kein [Politiker] bekräftigte die Notwendigkeit des Klimaschutzes,*

no politician asserted the necessity of the climate protection

*einige [Wissenschaftler] allerdings schon.*

some scientists though yet

‘No politician asserted the necessity of climate protection, but some scientists did.’

Szabolcsi (2004) keeps contrastive negation or denial out of her generalization about PPIs: “PPIs do not occur in the immediate scope of a clausemate anti-additive operator AA-Op, unless [AA-Op > PPI] itself is in an NPI-licensing context” (Szabolcsi 2004: 419). This at least covers the three cases in (12): the PPI adverb *durchaus* ‘absolutely’ is anti-licensed in (12a). It is shielded from anti-licensing in (12b), as it is embedded in the adjective phrase and therefore not in the affective domain of the anti-additive operator *niemand* ‘nobody’. This is what Szabolcsi means by clausemateness. We want to point out one step further that if we compute the logical form of (12b), it is clear that the PPI is scopally higher than the negative element. In the case of double negation such as (12c), they cancel each other out so that the PPI verb *bekräftigen* ‘assert’ still sounds fine in the sentence.

(12) I. Anti-licensing

a. \***Niemand** war mit dem Ergebnis durchaus zufrieden.

nobody was with the result absolutely happy

‘Nobody was absolutely happy with the result.’

II. Shielding:  $[\exists x(\dots \text{PPI}\dots) \rightarrow \exists y(y \text{ was happy at } x)]$

b. **Niemand** war mit dem durchaus brauchbaren Ergebnis zufrieden.

nobody was with the absolutely useful result happy

‘Nobody was happy with the absolutely useful result.’

III. Double negation

c. **Niemand** bekräftigte **nicht** die Notwendigkeit des Klimaschutzes.

nobody asserted not the necessity of the climate protection

‘Nobody did not assert the necessity of climate protection.’

Nevertheless, she mentions Horn’s (1989) analysis of denial as metalinguistic negation and Giannakidou’s suggestion that “denial counts extraclassical negation” (Szabolcsi 2004: 413). All in all, this leads to the conclusion that to account for cases such as (9)-(11), we need discourse logic involving either a preceding utterance (or a presupposed expectation) and the denial of it, or two utterances contrasting in polarity at the topic position. This means that although the PPI appears in a negative sentence, it should be interpreted in the logical form of a corresponding positive sentence. To put it informally, in (11b) the presence of the PPI verb *bekräftigen* ‘assert’ is justified as the event of asserting does exist although the agent is not any politician but some scientists. Similarly, in (11a) the predication *would rather stay at home* is attributed to *boys*.

We revise Szabolcsi’s generalization in (13). (13i) covers the case of double negation. (13ii) is about pragmatic licensing of PPIs, for example by denial or contrastive negation. (14a) and (14b) show that if a contrastive focus (CF) intonation is applied to the NP, both sentences sound better than before as the speaker either denies, for instance, a presupposed utterance or an expectation that ‘Students would rather speak Swabian’ or ‘Heidi Klum is absolutely pretty’, or else implicates that some people other than students would rather speak Swabian or someone other than Heidi Klum is absolutely pretty.

(13) A PPI does not occur in the immediate scope of a clausemate AA operator, unless:

- i. there is another negative operator available to cancel out the AA operator, or
- ii. there is a positive implicatum available to perform derivative licensing.

(14) a. **Kein**[**Student**]<sub>CF</sub> spricht lieber Schwäbisch.

No student speaks rather Swabian.

‘No student would rather speak Swabian.’

b. [Heidi Klum]<sub>CF</sub> ist **nicht** durchaus hübsch.

Heidi Klum is not absolutely pretty

‘Heidi Klum is not absolutely pretty.’

We will now move to the case of *only* licensing NPIs and show that the mechanism involved there is very similar to that with contrastive negation un-anti-licensing PPIs, namely, both involve two propositions that contrast with each other in polarity at the topic position.

### 3. *Only* and NPI Licensing

*Only* is among the most notorious cases for polarity licensing. In this section, we will discuss some available attempts and take our own standpoint, namely that an *only* sentence expresses two propositions, one (by the rest of the sentence, which we call the ‘explicature’ henceforth) being non-monotonic and the other (by a syntactically unpronounced element) is a negative conventional implicature. It is due to the second proposition that *only* is capable of licensing NPIs. However, this just holds when no extra negation intervenes of course.

#### 3.1. Strawson-DE and Veridicality

(15) a. **Only** John ate vegetables for breakfast.  $\neg$ -> **Only** John ate kale for breakfast.

b. **Only** John ever ate any kale for breakfast.

As (15) shows, *only* is not DE but does license NPIs. Fintel (1999) proposes that *only* is Strawson-DE as a remedy for the DE theory. “A function  $f$  of type  $\langle \sigma, \tau \rangle$  is Strawson-DE iff for all  $x, y$  of type  $\sigma$  such that  $x \Rightarrow y$  and  $f(x)$  is defined:  $f(y) \Rightarrow f(x)$ ” (Fintel 1999: 104). To put it informally, (16a) Strawson-entails (16c), as the entailment holds only when what is usually taken as the presupposition – what we call the explicature – of (16c), that is, (16b), also holds true.

(16) a. **Only** John ate vegetables for breakfast.

b. John ate kale for breakfast. (presupposition of the conclusion)

$\therefore$  c. **Only** John ate kale for breakfast.

However, despite the elegance of this proposal, it stays unclear whether *only* licenses NPIs due to its Strawson-DEness (which also leads to a further question whether DEness is the defining property for NPIs licensing).

It must be mentioned that Giannakidou (1998) proposes nonveridicality (Zwarts 1995) as the necessary NPI licensing condition because NPIs also occur in non-DE contexts such as questions, modals, and disjunctions. DEness is a subset of nonveridicality; in other words, in terms of negativity, the former is stronger than the latter. The entailment in (17a) does not hold since the proposition-embedding predicate *doubt* is a nonveridical operator: following Giannakidou's insights, the fact that it licenses the NPI *lift a finger* proves the relevance of nonveridicality to NPI licensing.

(17) *f* is nonveridical if  $f(x) \text{ -/→ } x$ .

a. I **doubt** that *John lifted a finger to help*. -/→ *John helped*.

Yet, this is irrelevant for the case of *only*, as it is not a nonveridical operator but rather a veridical one, at least regarding its explicature.

(18) a. **Only** *John ate any kale for breakfast*. → *John ate kale for breakfast*.

b. **Only** *John has ever been to the Nile*. → *John has been to the Nile*.

c. **Only** *John lifted a finger to help*. → *John helped*.

Therefore the explanation has to lie somewhere else.

### 3.2. Negative Implicatum

Linebarger (1987) claims that the focus operator *only* licenses NPIs through a conventional implicature that is 'negative':  $[\forall x(\neg G(x) \rightarrow \neg F(x))]$  and the NPI is contained in the F (topic) position. As she claims, this not only explains the fact that *only* licenses NPIs outside its focus but also that *only* licenses NPIs within its focus, that is, in the G position as well, as (19) illustrates.

(19) **Only** *those who have ever been to China know the complexity of the country*.

Our proposal is inspired by Linebarger's account but we propose a different NI for *only* as its lexical pragmatics. For simplicity, we assume that *Only a is F* and *Only Gs are F* have the same semantics and pragmatics, except that *only* induces a set of individuals as the set of the alternatives in the former, and a set of sets (properties) as the alternative set in the latter. We interpret the former as  $[F(a)]$  plus the implicature  $[\exists x(\neg(x=a) \wedge \neg F(x))]$  and the latter as  $[\exists x(G(x) \wedge F(x))]$  plus the implicature  $[\exists x(\neg G(x) \wedge \neg F(x))]$ . In other words, *only* has a two-component lexical meaning, differing in polarity, one we get explicitly and the other implicitly. But both are parts of truth conditions, as the implicature is conventionalized and not cancelable. Using Karttunen and Peters' (1979) labels, we present the entire meaning of an *only* sentence as  $\langle \phi^e, \phi^i \rangle$ :  $\phi^e$  is the explicature and  $\phi^i$  is the conventional implicature. We'll discuss the idea in more detail below.

### 3.2.1. *Only the Doppelgänger*

Combining the two components we worked out above, we get the entire meaning of the sentence *Only Gs are F* as in (20).

(20) Meaning of the (contrast) focus operator *only*:

$$[[\textit{Only Gs are F}]] = \langle [\exists x(G(x) \wedge F(x))], [\exists x(\neg G(x) \wedge \neg F(x))] \rangle$$

That is, as a contrastive focus operator, *only* expresses two propositions that contrast with each other at both the focus and the topic positions. The extensions of  $G$  and  $\neg G$  form together the entire target domain of foci; the contrast at the topic position  $F$  is one of polarity. We call *only* the Doppelgänger as the affirmative and the negative parts of its meaning always go hand in hand. *Only* is therefore only and always halfway negative. When negation intervenes in the first proposition such as *Only Gs are not F*, the other proposition turns positive at the topic position, that is  $\langle [\exists x(G(x) \wedge \neg F(x))], [\exists x(\neg G(x) \wedge F(x))] \rangle$ .

What follows are arguments for why we render both parts of meaning for *Only Gs are F* an existential closure instead of a universal one, as is often assumed in the literature.

3.2.1.1.  $\phi^e = \exists x(G(x) \wedge F(x)). \forall x(F(x) \rightarrow G(x))$ , as some linguists take as the logical equivalent of an *only* sentence, is too strong to be the explicature, or one of the two entailments or the “positive contribution” (van Rooij and Schulz 2007) of the sentence *Only Gs are F*, because the domain that *only* pins down in its focus is contextually dependent, and thus ambiguous. We exemplify with proper names at the focus position for simplicity.

(21) Scenario: I invited Peter, Markus, Tom and Tom’s wife and children and I say *a*.

a. ***Only Tom came.***

b. ***Only Tom came and nobody else.*** (Tom was the only person who came.)

c. ***Only Tom came. His wife and children did not.*** (Tom was the only person of his family who came.)

It can be argued that if (21a) is uttered to mean (21c), then Peter and Markus are simply outside the targeted domain and it is indeed the case. However, the crucial point is that this is not something that the hearer could get from hearing (21a), that is, the domain restriction is not lexically conventionalized and therefore we will not take a universal closure as part of the explicature, but rather an existential one. Therefore, the explicature of (21a) is  $\exists x(x=\text{tom} \wedge F(x))$  or  $F(\text{tom})$  instead of  $\forall x(F(x) \rightarrow x=\text{tom})$ , which presents rather the meaning of *Tom was the only person who came*, that is, (21b).

3.2.1.2.  $\phi^i = \exists x(\neg G(x) \wedge \neg F(x))$ . For similar considerations, we render the NI an existential closure because the universal closure in Linebarger's  $\forall x(\neg G(x) \rightarrow \neg F(x))$ , which is logically synonymous to  $[\forall x(F(x) \rightarrow G(x))]$  as  $a \rightarrow b \equiv \neg a \vee b \equiv b \vee \neg a \equiv \neg b \rightarrow \neg a$  (this makes the following arguments appear redundant), can be cancelled through contextual enrichment, whereas the existential one can not and conventional implicatures are not cancellable (Levinson: 1983).

(22) A: **Only** Ross came to the sandwich party yesterday.

B: Really? I heard Joey was there too.

A: Yeah, but Joey never misses a sandwich party anyway.

The domain of the contrastive foci, that is, the set of alternatives that *only* places in contrast with the rest of the sentence, is subjective. It is not always clear to the hearer whether the speaker means by (22A) that Ross was the only person in the universe who showed up at the party or the only person of a restricted domain. However, although the speaker can restrict the set from being universal/exhaustive, it should never be reduced to be empty. For this reason, it would be odd to say *Only Ross came to the sandwich party yesterday and all the others as well*, as we would have nothing there to contrast with Ross in polarity at the topic position.

To sum up, the truth conditions of the sentence *Only a is F* is  $\langle [\exists x(x=a \wedge F(x))], [\exists x(x \neq a \wedge \neg F(x))] \rangle$ , whereas  $\langle \forall x(F(x) \rightarrow x=a), \forall x(\neg F(x) \rightarrow x \neq a) \rangle$  is the truth conditions of the sentence *a is the only one who is F*.

3.2.1.3. *Extension of the Focus Domain*. The extension of G and  $\neg G$  is of existential/non-exhaustive nature, on which the speaker/hearer should agree, as this is the conventional meaning of *only*. The extension of G will be explicated, for example, it is Tom in (21a) or a set having at least Tom as its member but how about the set of  $\neg G$ ? What rules guide the speaker and the hearer concerning the use and the interpretation of *only*?

Despite the fact that *only* can be used even when we have for example just two individuals in the focus domain to compare with, it is often applied as an economic tool to save linguistic efforts and this is why in the first two scenarios of (24) it would be odd to use the b sentence instead of a. (23) is a rule that an ideal speaker should obey in communication.

(23) Productive Economy:

Maximize the contribution of the context and minimize linguistic efforts.

(24) I. Scenario: Tom didn't come. Mary didn't come. John came.

a. **Only** John came.

b. ?**Only** Tom and Mary didn't come.

II. Scenario: Tom came. Mary came. John didn't come.

a. **Only** John didn't come.

b. ?**Only** Tom and Mary came.

The interpretation of a linguistic utterance works differently though, in that the hearer is supposed to count mostly on the literal meaning of the utterance. That is, more generally, once linguistic efforts have been made (by the speaker), they should be maximally applied (by the hearer) for communicative purposes. Kennedy's rule of Interpretive Economy that he formulates in his recent paper on the vagueness of gradable adjectives seems to be able to support what we want to say here.

(25) Interpretive Economy:

Maximize the contribution of the conventional meanings of the elements of a sentence to the computation of its truth conditions. (Kennedy 2007: 36)

As (26) shows, the conventional meaning of an *only* sentence has two parts, in this case (26a) and (26b). The hearer always gets both of them for free, 'for free' meaning contextually independently and therefore both are part of the sentence's truth conditions.

(26) **Only** John didn't come.  $\Rightarrow$

a. John didn't come.

b. Someone other than John did come.

This certifies that *only* only guarantees the non-emptiness of the contrastive focus domain  $\neg G$  but exactly what goes into the domain is beyond the semantics and thus contextual.

### 3.2.2. *Even*

A natural question arises here, namely, since *only* can license NPIs by its negative conventional implicature, why cannot for example *even* do so as well? In (27) examples are cited from Karttunen and Peters (1979). From (27), we can infer a, b' and b'', the latter two being conventional implicatures.

(27) *Even* Bill likes Mary.

a. Bill likes Mary.

b'. Other people besides Bill like Mary.

b''. Of the people under consideration, Bill is the least likely to like Mary.

This shows that the conventional implicatures of an *even* sentence are more complicated than that of an *only* sentence, which has a clear-cut opposite polarity at the topic position to that of the contrasting explicatured proposition.

(28) a. *I am disappointed that even Bill likes Mary.*  $\rightarrow$

*I am disappointed that Bill likes Mary.*

b. *I am disappointed that only Bill likes Mary.* -/->

*I am disappointed that Bill likes Mary.*

The entailment in (28a) shows that (27b') and (27b'') are only implicated but not asserted. *Only*, however, is different. As (28b) shows, *Bill likes Mary* is not part of the states of affairs that the speaker is disappointed with but rather the part that counts as the conventional implicature. Does it mean that what we call the conventional implicature of *only* is the real assertion and that *Bill likes Mary* is what Horn calls the presupposition (Horn 1969) or what he calls more recently the inert assertion (Horn 2002)? Consider (29) before we talk more about Horn's idea in 3.3.

(29) a. *I got to know that even Bill likes Mary.* →

I got to know that Bill likes Mary.

b. *I got to know that only Bill likes Mary.* →

I got to know that Bill likes Mary.

### 3.3. Assertoric Inertia

For Horn among others, *only* is semantically conjunctive and non-DE. The two conjuncts, using his examples (Horn 2008), (30a) and (30b), are both entailments of (30), but only one, namely, in this case, (30b) is asserted while (30a) is "assertorically inert".

(30) **Only** love counts.

a. Love counts.

[Prejacent]

b. Nothing distinct from love counts.

[Exclusive]

The reason why *only* licenses NPIs, as he claims, is because "It's DOWNWARD ASSERTING, not DOWNWARD ENTAILING environments that license NPIs, or at least NPI *any/ever* and the minimizers" and *only* is downward asserting, as is the assertion (30b). That is to say, there is only a pragmatic asymmetry between the two entailments, namely one as asserted and the other as "assertorically inert". Manfred Krifka pointed out (during the discussion of Horn's invited talk at CIL18) that this pragmatic asymmetry can be considered in terms of information packaging. The basic idea is, in brief, that the negative contribution is prominent in the meaning of *only* and it is this part of meaning that licenses NPIs.

Therefore, our two-propositional semantics of *only* and Horn's double-entailment with differences in assertoric prominence, as we capture them, only differ in the pragmatic ordering of the two entailments indeed. What we call the explicature

corresponds to Horn’s “inert assertion” and our implicature is his assertion. Our motive for wanting to apply the distinction of explicature/implicature is that it captures the meaning of *only* by distinguishing what is said explicitly and implicitly, both as parts of an *only* sentence’s truth conditions, and thus both of its semantics. Below, we will suggest a solution without turning to Horn’s (2002) assertion/inert assertion distinction (our suggestion is not exactly against Horn’s idea, but we cannot decide yet how to relate the two or in what sense his or ours is more advantageous to the other), basically by admitting that NPIs that occur in an *only* sentence are licensed by the implicitly entailed negative proposition and it is to this proposition that these NPIs contribute truth-conditional meaning by what Kadmon and Landman (1993) call domain widening.

### 3.4. Polarity Items and Truth Conditions

The major trick of our proposal is to assume that polarity items contribute to the truth conditions of a sentence. NPIs such as *any*, *ever* and minimizers update the truth conditions of a sentence by domain widening (Kadmon and Landman 1993), by which they create a strengthening effect in the relevant utterance. With this assumption, (31a) is truth-conditionally not equivalent to (31b), as the presence of the NPI *any* widens the domain of what counts as breakfast. A glass of orange juice does not usually count as breakfast, but can possibly, and therefore (31c) is fine but (31d) is odd.

- (31) a. *George didn’t have breakfast today.*  
 b. *George didn’t have any breakfast today.*  
 c. *George didn’t have breakfast today, but drank a glass of orange juice.*  
 d. *?George didn’t have any breakfast today, but drank a glass of orange juice.*

Similarly, since the presence of NPIs such as *ever* widens the interval of reference time, the truth conditions of the sentence are changed, as (32) shows.

- (32) a. *Kim hasn’t had soup for breakfast, but only once in Korea ages ago.*  
 b. *Kim hasn’t ever had soup for breakfast, \*but only once in Korea ages ago.*

The truth-conditional contribution by polarity items such as *already/yet*, *either/too*, *still/anymore* is a different story, namely, both elements of each pair contribute by their lexical pragmatics one and the same conventional implicature (or presupposition) that we maintain should be part of the sentence’s truth-conditions.

- (33) a. *Peter is already here.* <p, q>  
 b. *Peter is **not** here yet.* <¬p, q>  
 p: Peter is here.  
 q: Peter is supposed to be here.

(34) a. *Peter is still here.* <p, q>

b. *Peter is **not** here anymore.* <¬p, q>

p: Peter is here.

q: Peter was here.

(35) a. *Peter is here, too.* <p, q>

b. *Peter is **not** here, either.* <¬p, r>

p: Peter is here.

q: Someone other than Peter is here.

r: Someone other than Peter is not here.

Each sentence expresses two propositions in its truth conditions. Take *already/yet* for example, (33a) and (33b) differ truth-conditionally in the polarity of the first proposition, but not in the second one. The same is with *still/anymore*. It is a bit more complicated with *too/either*, in that their conventional implicatures, (35q) and (35r) respectively, differ in polarity. The two propositions can be negated separately and thus there could be four possible results <p, q>, <¬p, q>, <p, ¬q> and <¬p, ¬q>. The third possibility obtains when negation is used metalinguistically to deny the conventional implicature. The last combination is unavailable, as negation cannot be used truth-functionally and metalinguistically at the same time, in other words, the two propositions must be negated separately if they are to. *Only* licenses NPIs of the *any-ever-lift a finger* type but not those of the *yet-either-anymore* type.

(36) a. **Only** *Kim had any soup for breakfast.*

b. **Only** *Kim has ever had soup for breakfast.*

c. **Only** *Kim lifted a finger to help with the cleaning up.*

d. \***Only** *Kim had breakfast yet.*

e. \***Only** *Kim had breakfast, either.*

f. \***Only** *Kim is crazy about kimchi anymore.*

As we have already argued above, the first type of NPIs all contribute to truth conditions of the sentence by domain widening. In the case of *only*, the truth-conditional update by these NPIs only occurs in the second, conventionally implicated, proposition.

(37) a. **Only** *Kim has had soup for breakfast.*

b. **Only** *Kim has ever had soup for breakfast.*

(37b) semantically expresses two things <Kim has had soup for breakfast; Someone other than Kim hasn't ever had soup for breakfast>. The first conjunct is not DE but the second is. Therefore, (37a) and (37b) actually entail (38a) and (38b) respectively.

(38) a. <Kim has had soup for breakfast;

Someone other than Kim hasn't had kimchi soup for breakfast.>

b. <Kim has had soup for breakfast;

Someone other than Kim hasn't ever had kimchi soup for breakfast.>

With these data and arguments, we want to show that the Strawson-DEness of *only* is the consequence of the fact that two propositions expressed by an *only* sentence logically differ from each other, namely one is non-DE and the other is DE. The mechanism involved there, namely to put the 'presupposition' (our explicature) of the conclusion sentence into the premises as in (16) is but to make the first proposition DE so that both turn downward entailing. However, it is not a necessary move as NPIs are not licensed by the first conjunct anyway. Therefore, the Strawson-DE of *only* is logically right but it is not an explanation.

Let's elaborate on the idea further:

(39) **Only** *Peter ate any vegetables.*

a. \*<Peter ate any vegetables; Someone other than Peter didn't eat vegetables.>

b. \*<Peter ate any vegetables; Someone other than Peter didn't eat any vegetables.>

c. ?<Peter ate vegetables; Someone other than Peter didn't eat vegetables.>

d. <Peter ate vegetables; Someone other than Peter didn't eat any vegetables.>

Only the NPI reading of *any* is relevant for the discussion here. (39a-b) are clearly wrong as the truth conditions of the sentence. (39c) is not quite wrong but it is rather the truth conditions of *Only Peter ate vegetables*. Similarly, as the dialogue that runs perfectly well shows: *After the party I was very disappointed that only Peter lifted a finger to help. In fact, he did most of the cleaning-up*, the domain widening by *lift a finger* does not target the proposition that Peter helped and in fact he could have been a big help. In other words, the NPI affects the negative proposition, namely *someone else didn't (or nobody else did) help, not even lifted a finger to help and I was very disappointed at this*.

The most likely reason why *yet*, *anymore*, *either* do not work the same way, as we speculate, is that they are different from NPIs *any*, *ever* and *lift a finger* in relation to negation. It is definitely not a question of their strength as PPIs, as *lift a finger* is a stronger NPI in English as *yet*, therefore, von der Wouden's (1997) classification fails to be explanatory here. Sentences such as *Anna is here yet/anymore/, either* are unavoidably ungrammatical as these NPIs require the modified propositions to be negative, in other words, these NPIs want grammatical licensing. The NPIs *any/ever/lifted a finger*, though, can be licensed pragmatically, for example in adversatives such as *It is amazing that Kim has ever had any soup for breakfast*, and these NPIs are used to turn a negative utterance stronger in the assertoric tone. In brief,

*yet/either/anymore* presuppose a negative proposition while *any/ever/lifted a finger* strengthen a negative proposition. Moreover, take the minimizer *lift a finger* for example, if Peter helped, it follows that he at least lifted a finger to help. In other words, from the sentence *Only Kim lifted a finger to help*, *Kim lifted a finger to help* is trivially true, although the sentence is usually not assertable except in its literal meaning. As for *any* and *ever*, we don't know whether the fact that they can appear in the explicature without contributing the domain widening function to the proposition has anything to do with their free choice reading. It is worth repeating that historically, *ever* did appear quite frequently in affirmative sentences as an intensifier. We will say no more than this, as sadly, the puzzle rises beyond the scope of the author's intelligence.

The DENess of the implicature gets lost if negation intervenes. The explicature turns DE but on the whole the DE still doesn't follow, so (40) does not entail that *Only Peter didn't eat any kale*. For the same reason as for (39c), (40c) is not really wrong but represents more accurately the truth conditions of *Only Peter didn't eat vegetables*.

(40) **Only Peter didn't eat any vegetables.**

- a. \*<Peter didn't eat vegetables; Someone other than Peter ate any vegetables.>
- b. \*<Peter didn't eat any vegetables; Someone other than Peter ate any vegetables.>
- c. ?<Peter didn't eat vegetables; Someone other than Peter ate vegetables.>
- d. <Peter didn't eat any vegetables; Someone other than Peter ate vegetables.>

(41), however, entails *Not only Peter didn't eat any kale*. It is DE on the whole as both propositions it expresses as in (41a) are DE *per se*. This means that the proper negation of a sentence such as *Only Peter ate vegetables* is *Not only Peter didn't eat vegetables*. Truth-conditionally speaking, (41) is synonymous to *Someone besides Peter didn't eat any vegetables, either*. Analogously, *Not only Peter ate vegetables* is truth-conditionally equivalent to *Someone besides Peter ate vegetables, too*. (42) is not a grammatical sentence, because neither proposition as in (42a) is able to accommodate the NPI *any*.

(41) **Not only Peter didn't eat any vegetables.**

- a. <Peter didn't eat any vegetables; Someone other than Peter didn't eat any vegetables.>

(42) \***Not only Peter ate any vegetables.**

- a. <Peter ate vegetables; Someone other than Peter ate vegetables.>
- b. \*<Peter ate vegetables; Somebody other than Peter ate any vegetables.>
- c. \*<Peter ate any vegetables; Somebody other than Peter ate vegetables.>
- d. \*<Peter ate any vegetables; Somebody other than Peter ate any vegetables.>

Still something has to be said about the contrast between (43a) and (43b).

(43) a. *I was disappointed that only Peter lifted a finger to help.* -/→

I was disappointed that Peter helped and somebody else didn't lift a finger to help.

d. *I got to know that only Peter lifted a finger to help.* →

I got to know that Peter helped and somebody else didn't lift a finger to help.

Horn's assertion/assertion inert seems more explanatory for cases such as (43a), where the negative assertoric tone with *only* (of the assertion) licenses NPIs. We are curious how it could also account for the difference between the two embedding predicates, one expressing a negative attitude as *be disappointed* and the other having a neutral tone as *got to know*. We haven't had any groundbreaking thoughts about this yet that could serve as an explanation.

#### 4. *Only, no and all*

*No N* works quite like the focus operator *only Ns*, except that *no N* expresses a negative proposition [ $\lambda P.\lambda x.\neg\exists x(N(x)\wedge P(x))$ ] and when used as contrastive negation, it can implicate a PI whereas *only* explicates a positive proposition and always implicates an NI, in case the rest of the sentence has no extra negation.

(44) *Shall we start the wedding?*

a. **Only** *the bride is here.*

b. **No** *bridegroom is here.*

To a question such as (44), both (44a) and (44b) can serve a felicitous answer, namely, the wedding cannot be started due to the absence of the bridegroom. However, we don't think that we can apply the same analysis for *no N* and *only Ns*. First, the answerer of (44a) has to know both that the bride is here and the bridegroom is not here but that of (44b) has to know that the bridegroom is not here, not necessarily knowing whether the bride is here or not. Therefore, the information conveyed by the two sentences (44a-b) is not the same.

This is to certify that the NI induced by *only* is a conventional implicature (context-independent) while the PI by *no N* is a conversational (context-dependent) one. The latter is cancelable while the former is not. Consider:

(45) *Shall we start the wedding?*

a. **Only** *the bride is here.* \**The bridegroom is here as well.*

b. **No** *bridegroom is here.* *The bride is not here, either.*

This is why both the positive/negative components of meaning for *only* should be of truth conditions, which is not the case with *no N*. However, as we already argued, the extension of the contrastive foci in the NI for *only* is contextually independent in the sense that it is of existential nature, that is, it should be a non-empty set but it is context-dependent in the sense that exactly what goes into the set is contextually variant.

Coming back to the contrast between *no N* and *nothing/nobody* that we discussed in the second section, the reason why *nothing* or *nobody* tends not to induce such a PI like *no N* is that the N node presupposes the existence of an N-set or a contrastive  $\neg$ N-set. This is an insight from Atlas (1996: 272): “*All Fs* seems to ‘presuppose’ that there are Fs, while the absolute individual quantifier NP *Everything* does not”, which he attributes to Strawson (1952). Therefore, *nothing/nobody* always serve an exhaustive answer concerning a certain domain of foci, while *no N* can but not necessarily. Observe (46):

(46) *Who came?*

- a. ***Nobody*** came. \**But some students came.*
- b. ***Nobody*** came. \****No*** professor, either.
- c. ***No*** professor came. *But some students came.*
- d. ***No*** professor came and ***nobody*** else, either.

Analogously, in a discourse, *All Fs are Gs* or *Every F is G* does not exclude  $[\exists x(\neg F(x) \wedge (\neg G(x) \vee G(x)))]$ , while the same thing will be redundant to follow *everything/everybody* due to their exhaustivity regarding the targeted domain of foci.

(47) *Who came?*

- a. ***Everybody*** came. \**Some professors came as well.*
- b. ***Everybody*** came. \**Some professors didn't come.*
- c. ***All*** students came. *Some professors came as well.*
- d. ***All*** students came. *Some professors didn't come.*

*All students came* can serve an exhaustive answer if the domain of foci only contains a set of students, or an inexhaustive one if the domain of foci contains more than a set of students. If (47) is meant to ask about both students and professors, simply saying *All students came* can implicate that *not all professors came*, and for this reason (47c-d) are both coherent. However, such an implicative potential is much weaker than with *only Ns* or *no N*, as the latter two have negativity in their meaning which is normally parasitic on their corresponding positive contrast, while a positive utterance with *all Ns* does not have to take a negative correlate.

By comparison, *only* derivatively licenses NPIs both outside and inside its focus while *all Ns* does so only in its restriction but not in its scope, because the latter, i.e. G, is not DE and not even such at the derivative level (undefined in its polarity). Compare

(48) with (19):

(48) \**All Students have ever read the book.*

Concerning the fact that both NPIs and PPIs are fine in the restriction of universal quantifiers, we believe that *all* in *all Ns*, also a quasi-focus operator, licenses NPIs not because of its DEness, but because the part it indicates as the focus (the relative clause) carries a negative implicatum.

(49) *All the students who had ever/already read the book attended the lecture.*

In fact, the relative clause in (49) with the PPI *already* sounds more like part of the background information; in comparison, the relative clause with the NPI *ever* is salient. With *ever*, we get a stronger NI that there are students who did not read the book (whether they attended the lecture or not), while with *already*, we get a stronger PI that there are students who read the book (earlier than expected). The relative clause with *already* can function as the non-restrictive appositive, but not that with the NPI *ever*, which has to be in the restrictor of universal quantifiers.

(50) a. *All my students, who had already read the book, attended the lecture.*

b. \**All my students, who had ever read the book, attended the lecture.*

To sum up, *all Ns* licenses both NPIs and PPIs, because it is not *all Ns* alone that contributes the NI, but the combination of *all Ns...NPI*, whereas the combination of *all Ns...PPI* does not necessarily do so. In other words, NPIs strengthen the existence of an NI while PPIs strengthen that of a PI. The same is true with *no N...PPI* vs. *no N...NPI*, but the other way around, namely, due to the presence of PPIs, the former strongly implicates a positive content, a preceding utterance or an expectation for instance.

(51) a. *No student has already read the book on phonology.*

b. *No student has ever read the book on phonology.*

More generally, licensing and anti-licensing are not just a matter of the licensors' logical properties and the licensees' sensitivity, but also an effect of the two combined with each other. As (51b) indicates, an utterance with the NPI adverb *ever* is more emphatic than one without: this strengthening effect obtains due to the combination of a domain widening NPI in the affective domain of a negative element. NPIs such as *yet*, *anymore*, *either* do not have the same function although they need licensing by negation as well.

## 5. Conclusion

To conclude, polarity items can be pragmatically licensed, 'pragmatically' meaning

that they can appear in one sentence but be licensed by another one with appropriate logical properties. NPIs are licensed both in and outside the focus of *only* due to its negative alter ego, or what we call the implicature (vs. the explicature) or Horn’s asserted entailment (vs. the assertorically inert entailment), which is negative both at the focus and the topic positions. PPIs in anti-licensing such as AA contexts can be rescued through a PI, but only when the AA contexts are appropriate, that is, when they have the pragmatic force like *no N* (often with the help of intonation/discourse contrast) to induce such a PI, which is strengthened again by PPIs themselves.

(52) The meaning of *only Ns*, *no N* and *all Ns*

	Explicature	Implicature
<i>Only Gs are F.</i>	$\exists x(G(x) \wedge F(x))$	Always implicates: $\exists x(\neg G(x) \wedge \neg F(x))$
<i>No G is F.</i>	$\neg \exists x(G(x) \wedge F(x))$	Strongly implicates: $\exists x(\neg G(x) \wedge F(x))$
<i>All Fs are G.</i>	$\forall x(F(x) \rightarrow G(x))$	Weakly implicates: $\exists x(\neg F(x) \wedge (\neg G(x) \vee G(x)))$

In the case of *only*, it is a conventional negative implicatum that performs the licensing of NPIs, whereas in the case of *no N*, it is a conversational positive implicatum that performs the licensing or more accurately, the rescuing of PPIs. In the case of *all Ns*, the occurrence of NPIs in its restriction renders the weak (negative) implicature more prominent, whereas that of PPIs does not. This argues for a bi-directional view on polarity effects (at least for NPIs such as *any*, *ever*, *lift a finger*), that is, there is a pragmatic effect, e.g. the strengthening of a conversational (in the case of universal quantifiers *all Ns*) or a conventional (in the case of *only*) negative implicature by NPIs. As most research on polarity items focuses on sentence-level licensing, we want to call for future research at the discourse-level, especially regarding how the presence of polarity items in discourse affect communicative reasoning.

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# Topic, Focus, and Exhaustive Interpretation

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## Abstract

In this paper I will defend the claim that both focus and topic should be interpreted exhaustively, but that topic gives rise to an additional inference as well. To defend the first claim, a notion of ‘dynamic exhaustification’ is crucial. It is shown that on the basis of the second claim, an alternative explanation can be given for Büring’s (1997) scope data.

**Keywords:** Topic, focus exhaustive interpretation

## 1 Introduction

Consider the following sentence with a typical topic-focus, or hat-contour:

- (1) [John]<sub>T</sub> ate [broccoli]<sub>F</sub>.

In this paper I argue that the (strong) pragmatic interpretation of this sentence is as follows:

- (a) Focus should be interpreted exhaustively: John ate only broccoli.

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\*The ideas in sections 1-4 and 6 of this paper were presented during the 2007-Contrastiveness and Scalar Implicatures workshop of CIL 18 in Seoul. The ideas and even the writing of sections 2-5 date back to 2004. It is built on ideas developed together with Katrin Schulz. The ideas presented in section 6 were developed in cooperation with Yurie Hara to improve on some ideas of Hara (2004) and discussed in a joint draft that was never published. I would like to thank both Katrin Schulz and Yurie Hara for their ‘intellectual’ contribution to this paper.

- (b) Topic must be interpreted exhaustively: Only John ate (only) broccoli.
- (c) The speaker takes it to be possible (or even knows, if he is competent) that at least one alternative of the form ‘ $x$  ate  $y$ ’ not entailed by (1) is true. From (a) it follows that this alternative cannot be ‘John ate  $y$ ’, with  $y$  different from broccoli; from (b) it follows that this alternative cannot be ‘ $x$  ate broccoli’, with  $x$  different from John. Thus, the alternative must be something like ‘Mary ate the beans’.

In section 2 of this paper I will propose how to interpret focus exhaustively. In section 3, I will defend claim (a), despite the existence of sentences like ‘[Some boys]<sub>T</sub> ate [broccoli]<sub>F</sub>’, by making use of *dynamic exhaustivity*: exhaustive interpretation is sensitive to the denotation of discourse referents. In section 4 I will defend (b) mainly on empirical grounds. But I also suggest that claim (b) already makes sense for conceptual reasons. Section 5 deals with topic accent and the economic encoding of information. Section 6 discusses claim (c), and it will be shown that in terms of it we can account for all the scope-inversion data in Büring (1997), without giving rise to some of the problems of the latter analysis. Section 7 concludes this paper.

## 2 Bare focus, Circumscription, and Exhaustivity

Consider the following sentence:

- (2) John introduced [Bill]<sub>F</sub> to Sue.

In this sentence the item *Bill* is focussed. In what types of contexts can we appropriately use a sentence like (2) with this focal accent, and what is its effect? The central intuition implemented by most theories of focus (e.g. Jackendoff 1972, Rooth 1984) is that (2) can only be used appropriately in a context in which the question expressed by *Who was introduced by John to Sue?* was at issue and in which (2) was not yet common ground. Many theorists (e.g. Rooth 1992, Krifka, 1995) have proposed that focal stress gives, in addition, rise to Gricean Quantity implicatures. In case of example (2) to the implicature that for none of the other individuals under discussion it is true (as far as the speaker knows) that John introduced this other individual to Sue.

There are two popular theories of focus-dependent interpretation on the market that can account for these intuitions: Rooth’s (1984, 1992) alternative semantics, and the structured meaning approach of Jacobs (1984), von Stechow (1990) and Krifka (1995).<sup>1</sup> To start with the latter, assume that a sentence is represented as a Background-Focus pair  $\langle B, F \rangle$ , and that the item in focus gives rise to a set of alternatives  $Alt(F)$ . The background  $B$  indicates that a question of the form *Who has property B?* is at issue. Then we can describe Krifka’s analysis in terms of Jacob’s assertion operator as follows:<sup>2</sup>

- (3)  $\llbracket \mathbf{Assert}(\langle B, F, Alt(F) \rangle) \rrbracket = \llbracket B(F) \rrbracket$  iff  $B(F)$  is assertable and for all  $F' \in A(F)$  such that  $B(F') \neq B(F)$ , the speaker has reasons not to assert  $B(F')$ .

Krifka explicitly states that there might be various reasons for not asserting alternative propositions  $B(F')$ : it might be that  $B(F')$  is weaker (entailed by)  $B(F)$ , or that the speaker may know that  $B(F')$  is false or lacks sufficient evidence for it. In particular, it might be that  $B(F')$  is stronger than (entails)  $B(F)$ , and that the speaker knows that this stronger proposition is false. In the latter case, Krifka notices that the assertion operator can account for many scalar implicatures. This is such an important special case of the assertion operator that he defines it as a special operator called ‘Scal.Assert’:

- (4)  $\llbracket \mathbf{Scal.Assert}_1(\langle B, F, Alt(F) \rangle) \rrbracket = \{w \in \llbracket B(F) \rrbracket \mid \neg \exists F' \in Alt(F) : w \in \llbracket B(F') \rrbracket \wedge B(F') \models B(F)\}$

According to this interpretation rule, any world that verifies the sentence is excluded for which there is an alternative  $F'$  in  $Alt(F)$  such that replacing  $F$  in the sentence by  $F'$  gives rise to a statement that is true in this world and more informative than the actual assertion given. Obviously, for this analysis to have any effect for a sentence like (2), Krifka has to assume that denotations of conjunctive noun phrases like “Bill and Mary” can be alternatives to (the denotation of) “Bill”, and that the background predicate  $B$

<sup>1</sup>Only later we will discuss another theory that is perhaps not so popular.

<sup>2</sup>This rule slightly differs from the one given explicitly by Krifka in that we assume that  $Alt(F)$  is closed under conjunction (group-forming), instead of Krifka’s assumption that  $F'$  can be any subset of  $Alt(F)$ . This doesn’t seem to make any difference, though.

is *distributive* in nature. But if we do so, we can conclude from (2) that John didn't introduce  $d$  and Mary to Sue, for any  $d \neq$  Bill, which, in combination with the semantic interpretation of (2), gives rise to the intuitively correct prediction that John introduced only Bill to Sue.

Another nice feature of interpretation rule (4) is that it predicts correctly for an example such as (5):

(5) John introduced [Bill and Mary]<sub>F</sub> to Sue.

In particular, it doesn't rule out the truth of (2) just because there are alternatives to "Bill", namely "Mary" and "Bill and Mary", for which the sentence is true as well.

Krifka's analysis is stated in terms of a Background-Focus structure. A very same rule can be stated, of course, in terms of Rooth's (1984, 1992) alternative semantics as well.<sup>3</sup>

(6)  $\llbracket \text{Scal.Assert}_2(\phi) \rrbracket = \{w \in \llbracket \phi \rrbracket \mid \neg \exists \psi \in \text{Alt}(\phi) \mid w \in \llbracket \psi \rrbracket \wedge (\llbracket \psi \rrbracket \subset \llbracket \phi \rrbracket)\}$

The only difference between (4) and (6) is that for the latter we don't assume that the operator 'Scal.Assert' has immediate access to its focussed and backgrounded parts. Instead, it is assumed that we can give a recursive definition of the set  $\text{Alt}(\phi)$ . As far as the analysis of examples like (2) is concerned, it doesn't matter whether we take (4) or (6), as long as also for the latter case we limit ourselves to distributive predicates, and assume that  $\text{Alt}(\phi)$  is closed under conjunction.

Unfortunately, even if we limit ourselves to distributive predicates, the pragmatic interpretation rules (4) and (6) have some serious flaws. They give rise to wrong predictions if the item in focus is of a disjunctive or existential form. Both interpretation rules have the effect that (7-a) and (7-b) denote the impossible proposition.

(7) a. John introduced [Bill or Mary]<sub>F</sub> to Sue.  
 b. John introduced [one person]<sub>F</sub> to Sue.

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<sup>3</sup>In this rule, and later, we could replace  $\text{Alt}(\phi)$  by a contextually given subset of  $\text{Alt}(\phi)$  as suggested by Rooth (1992), Roberts (1996), and others. We will leave these changes to the reader.

The reason is that one can infer from neither the semantic meaning of (7-a) nor that of (7-b) that any of the standard alternatives is true. Therefore (4) predicts that all these alternatives are false, resulting in the impossible proposition. Assuming that in these cases the alternatives involve generalized quantifiers obviously doesn't help: the original alternatives remain alternatives when we make this shift, and the problems remain as well.

It is easy to see that changing (4) and (6) to interpretation rule (8) doesn't really help.

$$(8) \quad \llbracket \mathbf{Scl.Assrt}_3(\phi) \rrbracket = \{w \in \llbracket \phi \rrbracket \mid \forall \psi \in \mathit{Alt}(\phi) : w \in \llbracket \psi \rrbracket \rightarrow (\llbracket \phi \rrbracket \subseteq \llbracket \psi \rrbracket)\}.$$

Also this interpretation rule gives rise to the false prediction that (7-a) and (7-b) denote the impossible proposition: neither the alternative that John introduced Bill to Sue nor the alternative that John introduced Mary to Sue is entailed by (7-a) and both are thus predicted to be false.

We have seen that it is wrong to assume that disjunctive sentences rule out worlds where the *stronger* propositions obtained by the disjuncts themselves are false, and assuming that now (suddenly) these disjuncts are not alternative propositions anymore also doesn't seem to be natural. According to us, Gricean reasoning should just rule out worlds where more of the relevant alternative propositions are true than demanded to verify the sentence. This intuition is directly expressed in the following interpretation rule. For reasons to become obvious soon, we will call this interpretation rule one of *exhaustive interpretation*.

$$(9) \quad \llbracket \mathit{Exh}(\phi) \rrbracket = \{w \in \llbracket \phi \rrbracket \mid \neg \exists v \in \llbracket \phi \rrbracket : \{\psi \in \mathit{Alt}(\phi) \mid v \in \llbracket \psi \rrbracket\} \\ \subset \{\psi \in \mathit{Alt}(\phi) \mid w \in \llbracket \psi \rrbracket\}\}$$

Notice that (9) doesn't give rise to any of the (potential) problems discussed above for sentences (5), (7-a), and (7-b). It is predicted that the sentences can be true in worlds in which John introduced Bill to Sue, because such worlds are among the ones that verify the embedded clauses that make only a minimal number of elements of  $\mathit{Alt}(\phi)$  true. For (5) they are predicted to be the only ones, while (7-a) and (7-b) allow other worlds as well. But (9) predicts that (7-a) and (7-b) are only true in worlds in which John introduced only one person to Sue.

Obviously, if we define the following (partial) ordering relation between worlds, ' $<_{\mathit{Alt}(\phi)}$ ' in terms of the sets of alternative sentences that are true in

those worlds,  $v <_{Alt(\phi)} w$  if and only if  $\{\psi \in Alt(\phi) : v \models \psi\} \subset \{\psi \in Alt(\phi) : w \models \psi\}$ , we can define (9) equivalently as  $\llbracket Exh(\phi) \rrbracket = \{w \in \llbracket \phi \rrbracket \mid \neg \exists v \in \llbracket \phi \rrbracket : v <_{Alt(\phi)} w\}$ . Suppose now that  $\phi$  is of the form ‘ $P(\alpha_F)$ ’ and that we define  $Alt(\phi)$  in terms of predicate  $P$  as follows:  $Alt(\phi) =_{def} \{P(\mathbf{d}) \mid d \in D\}$ , with  $\mathbf{d}$  a name for  $d$ . In that case (9) comes down to interpretation rule (10):

$$(10) \quad \llbracket Exh(\phi, P) \rrbracket = \{w \in \llbracket \phi \rrbracket \mid \neg \exists v \in \llbracket \phi \rrbracket : P(v) \subset P(w)\}$$

In van Rooij & Schulz (2004) and Schulz & van Rooij (2006) it is explained that if we would additionally assume a *ceteris paribus* condition for considering alternative worlds, (10) actually comes down to Groenendijk & Stokhof’s (1984) principle of exhaustive interpretation, or to McCarthy’s (1980) rule of predicate circumscription.

Interpretation rules (9) and (10) make strong predictions. For (2) for instance, it predicts that John introduced no-one else to Sue than Bill. A complaint often heard against interpretation rules like (4), (6), and also (10) has it that all we can conclude by standard Gricean reasoning is that the speaker *only knows* of Bill that he was introduced by John to Sue, leaving it open that he doesn’t know that anyone else was so introduced as well.<sup>4</sup> The Gricean interpretation of  $\phi$  that the speaker only knows  $\phi$  can be formalized by the following interpretation rule  $\llbracket \mathbf{Grice}(\phi) \rrbracket = \{w \in \llbracket \square\phi \rrbracket \mid \forall \psi \in Alt(\phi) : w \in \llbracket \square\psi \rrbracket \rightarrow (\llbracket \phi \rrbracket \subseteq \llbracket \psi \rrbracket)\}$ , with ‘ $\square\phi$ ’ meaning that the speaker knows that  $\phi$ . The strengthening from *not know* to *know that not* is then mostly contributed to the extra assumption that the speaker knows who John introduced to Sue. We fully agree with this intuition, and in Spector (2003), van Rooij & Schulz (2004), and Schulz & van Rooij (2006) it is even shown how exhaustive interpretation rules (9) and (10) can be inferred and thus motivated by this type of Gricean reasoning.

### 3 Exhaustive interpretation and discourse referents

It is standardly assumed that the focal phrase of a sentence is marked phonologically by falling intonation. But phrases can also receive a rising intonation

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<sup>4</sup>This complaint goes back at least to Soames (1982) and has been taken up by recent defenders of the Gricean picture such as van Rooij & Schulz (2004), Sauerland (2004), and Spector (2003).

and the use of this intonation also seems to have interpretational effects. The denotation of the phrase with rising intonation was called the ‘independent focus’ by Jackendoff (1972), but is more often referred to as the (sentence, or contrastive) *topic* of the sentence, as in the work of Büring (1997, 2003), Roberts (1989), Kadmon (2001) and others. In this section we will say that such phrases have topical accent and limit ourselves to example sentences with a *hat*-contour, or a bridging accent, i.e., examples with both topical and focal accentuated phrases. Before we discuss how to interpret phrases with topical accents, however, it will prove instructive first to discuss a problem observed by Eckhardt (1995) for the analysis of focus hitherto assumed.

Consider a sentence like (11)

(11) [Half]<sub>T</sub> of the children wore [green]<sub>F</sub> shorts.

Intuitively, this sentence is true if half of the children wore green shorts, and the other half red shirts. Unfortunately, as noted by Eckhardt, this does not come out if we interpret the focal expression exhaustively by using a strong notion of exhaustivity. For if we would do so in the straightforward way, we would predict that for all alternative colors C to ‘green’, the sentence ‘Half of the children wore shorts with color C’ has to be false, which we don’t want.

We have noticed in the previous section that interpreting focal accent in a strongly exhaustive way does not always correspond with the facts, and that in general we should interpret focus in a weaker way, saying that of the alternative sentences the speaker does not know that they are true. Perhaps the problem disappears when we assume this weaker notion of exhaustivity. Indeed, in that case we would rightly predict that (11) can still be used truthfully in the situation sketched above. Unfortunately, however, this can not be the whole solution to the problem. To see this, notice that a speaker might naturally answer a question like ‘What kind of shirts did the children wear?’ with (11) immediately followed by (12):

(12) and the [other half]<sub>T</sub> of the children wore [red]<sub>F</sub> shorts.

And now we don’t want to conclude after (11) that the answerer does not know that (12) is true. Thus, even if we assume that focus should be interpreted in a weakly exhaustive way we would end up with a wrong prediction.

From Eckhardt’s discussion it might seem that the problem discussed above is due to the very particular quantificational expression ‘half’. In fact, however, the problem is of a very general nature. Consider sentences like

(13-b) and (13-c) as answers to question (13-a).

- (13) a. What did the boys eat?  
b. [Some boys]<sub>T</sub> ate [broccoli]<sub>F</sub>.  
c. [One boy]<sub>T</sub> ate [broccoli]<sub>F</sub>.

If we would interpret ‘broccoli’ in a strong exhaustive way, and ‘some’ or ‘one’ as ‘at least some/one’, it would mean for (13-c) that for all alternatives  $x$  distinct to broccoli, the sentence (*at least*) *one boy ate x* has to be false. But this gives the wrong result that from (13-b) we can conclude that *none* of the boys ate anything else than broccoli (replacing ‘one’ in (13-c) by ‘some’ gives the same result). Again, weakening exhaustive interpretation by interpreting it as ‘minimal knowledge’ doesn’t really help: it would falsely predict that one cannot continue answer (13-c) by something like ‘and two boys ate the beans’.

In the discussion above we completely ignored the fact that in the sentences that gave rise to the problems the ‘quantified’ expression received a topical accent. Taking this into account, one obvious solution to the problem seems to be that (at least) in topic-focus constructions, the expression with focal accent should not receive an exhaustive interpretation. But notice that this would be a pity! Among others, we would have to give up the general rule that the item with focal accent should always be interpreted exhaustively.

In contrast to the above suggestion, in this paper we would like to argue that focus should *always* be interpreted in an (at least weakly) exhaustive way, and that the above observations indicate that topical expressions should be interpreted somewhat differently than standardly assumed.

To discuss the standard theories of topical accent, let us take a look at the following dialogue.

- (14) a. Who ate what? What did Larry eat?  
b. [Larry]<sub>T</sub> ate [broccoli]<sub>F</sub>.

Just as it is standardly assumed that by our use of focal, or falling, accent we indicate something about the context in which the sentence is used (i.e., what is the question under discussion) and about how the sentence should be interpreted (i.e., exhaustive with respect to the focal accent), something similar is standardly taken to be the case for our use of rising, or topical accent. First of all, also our use of topical accent is taken to indicate that a set of alternatives is relevant, and that some kind of (general) question

is under discussion. Second, it is generally agreed that the topical accent indicates that the sentence that contains the topical phrase does not by itself completely resolve the relevant question for all alternatives under discussion. We share those intuitions, but we do not think that the ways these intuitions are accounted for are fully appropriate.

The perhaps best-known theory of topical accent is due to Büring (1997, 2003). Büring builds his theory of topic on top of Rooth's theory of focus. Just as Rooth (1984) assumed that any sentence  $\phi$  has a focus-semantic value,  $\llbracket\phi\rrbracket^F$ , the value that we denoted so-far by  $Alt(\phi)$ , Büring assumes that all sentences also have a *topic-semantic value*,  $\llbracket\phi\rrbracket^T$ . Consider sentence (14-b). We know already that its focus semantic value,  $Alt((14-b))$ , is the following set of propositions:  $\{\lambda w\llbracket\text{Larry ate } f \text{ in } w\rrbracket : f \in F\}$ , where  $F$  is the set of relevant kinds of food. Hamblin's (1973) identifies this set of propositions as the meaning of the question '*What did Larry eat?*'. Büring (1997) proposes that the topic-semantic value of (14-b) is the following set of Hamblin-questions:

- (15) a.  $\llbracket(14-b)\rrbracket^F = \{\llbracket\text{Ate}(\text{larry}, f)\rrbracket : f \in F\} \approx \text{What did Larry eat?}$   
 b.  $\llbracket(14-b)\rrbracket^T = \{\llbracket\text{Ate}(d, f)\rrbracket : f \in F\} : d \in D\}$   
 $\approx$  For each individual of set  $D$ , what did that individual eat?

To account for the first intuition discussed above, Büring proposes that (14-b) can be used appropriately only if both questions (15-a) and (15-b) are under discussion. Obviously, this immediately explains the felicity of the sequence (14-a)-(14-b): the second question of (14-a) is identical to (15-a), while if one wants to know the complete answer to the first question of (14-a), one has to address all questions in (15-b). To account for the second intuition that all relevant issues are not fully resolved by a sentence like (14-b), Büring demands that the interpretation of (14-b) leaves open some issues addressed in (15-b). And this comes out appropriately as well in case  $D$  contains other elements than 'Larry': whether we interpret the focus in (14-b) exhaustively or not, the sentence only *partially* addresses (15-b) and leaves open the possibility that Bill, for instance, ate something else than broccoli.

Although Büring notices that topical accent many times gives rise to a partitive reading, he does not suggest that as a consequence we should interpret phrases with topical accent in a non-standard way. But, as we saw above, if we interpret the phrases with topical accent in (11), (13-b)

and (13-c) in a standard quantificational way, the analysis makes the wrong predictions for these examples once we interpret focus exhaustively. As for (11), Eckhardt herself provided us already with the right intuition: what gives rise to the problem is the assumption that the noun phrase ‘half of the children’ should be interpreted *quantificationally*, and this not only in the sentence (11) itself, but also in all the focal-alternatives that are supposed to be excluded by exhaustive interpretation. Instead, she suggests, we should look at the actual set of children that constitute this half, and assume that by exhaustification it is excluded that any of the other children also were green shorts.

One natural way to account for this intuition is to assume that the speaker had a particular group of children in mind when she used (11), and referred to this group by her use of the topical noun phrase ‘half of the children’. In this paper we don’t want to be committed to such a referential analysis of certain noun phrases, and we want to show that using any form of dynamic semantics will already help us to solve this problem.

Instead of looking at Eckhardt’s original example, we will consider the examples (13-b) and (13-c). What we want to account for is the intuition that the (contrastive) topical accent on ‘Some/One boy(s)’ in (13-b) is used to indicate that more than some boys (one boy) are (is) under discussion, with the result that (13-b) and (13-c) can at most be *partial* answers to question (13-a). Following the suggestion of Eckhardt, we propose that in (13-c), for instance, we have to exhaustify the focal expression not with respect to the quantifier ‘one boy’, but with respect to the *denotation* of the discourse referent introduced by ‘one boy’.<sup>5</sup> Thus, if this denotation is *S*, the alternatives that are excluded by exhaustive interpretation are all of the form ‘*S* ate *f*’, where *f* is some kind of food different from broccoli. The easiest way to state exhaustive interpretation when discourse referents are crucial, we feel, is by using exhaustification rule (10) or its weakly epistemic variant. In that case we can represent (13-c) simply as something like (16).<sup>6</sup>

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<sup>5</sup>The suggestion that for the interpretation of topical accent, we need to make use of discourse referents is not new. Vallduví & Zacharski (1994), for instance, claim that “[...] the internal structure of information states which is, in fact, crucially exploited by the different information-packaging strategies used by speakers in pursuing communicative efficiency is at least a system of file cards connected by pointers.”

<sup>6</sup>In this explicit representation, ‘*Exh*’ is used as an operator that can be used freely in the representation of the sentence. This way of representing things here is only for convenience, however. In Schulz & van Rooij (2006) a *dynamic exhaustivity operator* is

$$(16) \quad \exists X[Boy(X) \wedge Exh(card(X) = 1 \wedge Ate(X, Broccoli), \lambda y.[Ate(X, y)])]$$

Sentence (13-c) is now predicted to mean that one boy ate broccoli, and, depending on whether the speaker is taken to be competent on the subject matter of discourse, either that this one boy is known to have eaten nothing else, or that the speaker doesn't know that this one boy ate anything else. As a consequence, the idea to interpret topical quantificational expressions with respect to denotations of discourse referents allows us to interpret (as a default) focus exhaustively also in hat-contours without the undesired consequence: it is still possible that non-members of the denotation of the discourse referent  $X$  ate something else than broccoli, i.e. beans.

Combining the ideas that focal phrases be interpreted exhaustively and topical phrases referentially has an extra appealing consequence. Representing (17-a) by (17-b):

$$(17) \quad \begin{array}{l} \text{a.} \quad \text{and [three boys]}_T \text{ ate [pizza]}_F \\ \text{b.} \quad \exists Z[Boys(Z) \wedge Exh(card(Z) = 3 \wedge Ate(Z, Pizza), \lambda y.[Ate(Z, y)])] \end{array}$$

we correctly predict that if the speaker indicates that he is knowledgeable about the subject matter of the discourse and that the answer is complete after sequence (13-c)-(17-a), that 4 boys were under discussion. Thus, we predict that the topical phrases have *disjoint* denotations, as is natural in partitive constructions. The reason is that if all members of  $X$  have only property  $P$  (among the relevant ones) and all members of  $Y$  only property  $Q$  and  $P \neq Q$ , it follows that  $X$  and  $Y$  have mutually disjoint denotations. Notice that this doesn't follow solely from our proposal to interpret the topical phrases in (13-c) and (17-a) 'referentially', as the interpretation of a discourse referent, we needed the extra assumption that the focal phrases be interpreted exhaustively as well.

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defined that takes scope over the whole sentence (and in particular over the existential quantifier), but is interpreted just as (16) should intuitively be interpreted. Thus, our proposal is still completely compatible with a Gricean *global* analysis of implicatures.

## 4 Exhaustive interpretation of topics

Eckardt (2003), however, shows that topical phrases do not always have mutually disjoint denotations. Consider the following sequence:

- (18) a. At different days of my measles, an increasing numbers of red spots appeared on my face:  
b. [One spot]<sub>T</sub> had appeared by [Monday]<sub>F</sub>,  
c. [two spots]<sub>T</sub> by [Tuesday]<sub>F</sub>,  
d. and [three spots]<sub>T</sub> had appeared by [Wednesday]<sub>F</sub>.

Now we don't conclude that we are talking about 6 different spots. The reason is, intuitively, that in contrast to (13-c) and (16) the only thing that is crucial for the interpretation of the numerical expressions here is the *quantity* of spots involved, not their identity. In accordance with many others making use of dynamic semantics, we suggest that phrases like *one N* can have both a '*referential*' reading – where discourse referents are introduced immediately –, and a '*quantificational*', one, where discourse referents are introduced only after the interpretation of the whole sentence. An exhaustive reading of the focal expressions in (18-b) now doesn't have the effect that the specific spot introduced had appeared only by Monday, but rather just that only on Monday one spot had appeared. This has the result that the topical expressions in (18-b) and (18-c) need not denote mutually disjoint sets of spots anymore.

But the resulting proposal that at least some numeral expressions with topical accent receive a quantificational interpretation gives rise to some wrong predictions. First, and worst, we are back to our original problem: on a quantificational reading of *one spot* (and the assumption that focus should be interpreted exhaustively) we falsely predict from (18-b) that on all other days than Monday no spot appeared. Second, the analysis doesn't predict the inappropriateness of a sequence like (13-c) followed by (19):

- (19) and [three boys]<sub>T</sub> ate [broccoli]<sub>F</sub>.

Intuitively, sequence (13-c)-(19) is out because the speaker could have coded the expressed information more economically by just saying that *all* boys ate broccoli. But the proposal under discussion has to stipulate an extra constraint to account for this. Similarly, we don't account for the intuition that (18-b) implicates that on Monday *only* one spot appeared.

To account for these problems we propose/suggest that in sentences with a hat-, or bridge-contour, not only the item with focal accent, but also the one with topical accent should (by default) be interpreted exhaustively (with respect to the relevant domain).

There are at least two reasons why a uniform analysis of focal and topical accent is at least *prima facie* desirable. First, it would be unnatural to propose quite different meaning contributions to a supposed phonetic distinction that can hardly, if at all, be observed experimentally.

How much ‘meaning’ do you have to attach to specific accent types, if it turns out that it is hard to make a phonetic distinction among them?

Experiments have shown that every speaker realizes a sentence in a different fashion. However, hearers *are* able to determine whether a phrase is accented or not [...]. Our working hypothesis, then, is that it does not matter *what* accent is used by a speaker, but *that* he uses an accent. (Krahmer and Swerts, 2007)

A second reason for why a uniform analysis of focal and topical accent is desirable is given by Féry (1992, p. 60): “As a matter of fact, it is nearly always possible to replace a hat pattern by a sequence of two falling accents”. But she mentions two restrictions, however, for when this replacement is appropriate. First, the replacement is in order only if the two accents have approximately the same prominence. Second, the hat pattern is necessary and cannot be replaced by a sequence of two falling accents in case of explicit contrast and gapping. To illustrate the case of contrast, Féry (1992) claims that (20-a) is acceptable, but (20-b) is not:

- (20) a. John is often sick, [Mary]<sub>T</sub> [never]<sub>F</sub>.  
b. \*John is often sick, [Mary]<sub>F</sub> [never]<sub>F</sub>’.

For a simple sentence with a hat-contour like (14-b) our proposal that not only the item with focal accent, but also the one with topical accent should (by default) be interpreted exhaustively means that in case the speaker is taken to be competent about the subject matter of discourse, it is interpreted not only as saying that Larry ate only broccoli, but also that only Larry ate (only) broccoli. When the topical phrase is of a more complex nature, like in (13-c), with a denotational reading of ‘one boy’, the proposed analysis predicts that (the speaker knows) only (of) the boy introduced (that he)

ate only broccoli, while (18-b), with a quantified reading, implicates that on Monday (as far as the speaker knows) only one spot appeared. Note that we also make the intuitive correct prediction for

- (21) a. A: Did your wife kiss other men?  
b. B: [My wife]<sub>T</sub> [didn't]<sub>F</sub> kiss other men.

Just as Büring (1997) we predict that the reply (21-b) gets the reading that the speaker knows only of his own wife that she didn't kiss other men, suggesting that he is not so sure of A's wife.

In general we predict that not only topical phrases that are interpreted referentially, but also the ones we interpret quantificationally gives rise to *contrastive* readings. The prediction that topical phrases involve a contrast is behind almost any analysis of topical accent. According to Bolinger (1986),

[...] contrast involves cases where one or more individual items are singled out from a larger (but limited) set as being true regarding some relationship whereas others in the same set are untrue.

There are some doubts, however, whether not only focal, but also topical accent really has this strong contrastive effect. We have seen already that we predict such a contrastive reading only in case we take the speaker to be competent about the subject matter. But even then this seems to be a too strong prediction. First, it seems possible that one can answer question (22-a) appropriately by a sequence like (22-b)-(22-d):

- (22) a. Who ate what?  
b. Let's see.... [Larry]<sub>T</sub> ate [broccoli]<sub>F</sub>.  
c. [John]<sub>T</sub> ate [broccoli]<sub>F</sub>.  
d. And [Bill]<sub>T</sub> had [the beans]<sub>F</sub>.

We agree, but are also convinced that this can be done appropriately only in case the speaker has to check for herself with respect to each individual (Larry, John, and Bill) what he ate, and does so just before she uttered (22-b), (22-c), and (22-d) respectively. Thus, we think that the answerer cannot have uttered (22-b) appropriately when she already had the plan, or strategy, to continue the answer with (22-c) and (22-d). But in that case the sequence is not a counterexample to our assumption that both focal and topical expressions should be interpreted exhaustively also in topic-focus sentences: if we interpret both exhaustively with weak epistemic force, we

receive the correct prediction (or so we feel) that at the moment the speaker utters (22-b), she does not know yet whether someone else (i.e. John) also ate (only) broccoli.

A second, though very similar, kind of example that seems problematic for our assumption that topical accent involves a strong form of contrast that follows from our proposal that also topical phrases be interpreted exhaustively are sequences like (23-a)-(23-b).

- (23) a. Where can I find find the cutery?  
 b. The [forks]<sub>T</sub> are in [the cupboard]<sub>F</sub>, and the [knives]<sub>T</sub> and [spoons]<sub>T</sub> too.

At first it seems that these examples cannot be ‘explained away’ in a similar way as we dealt with (22-a)-(22-d): the topical phrases are now mentioned in the same sentence. Still, we feel that there is something special about (23-b): if one wants to give an answer like this, one is *required* to use an additive focus particle like *too* in the second conjunct (cf. recent work of Henk Zeevat). Indeed, it seems that an answer like (23-b) without the focus particle is fully inappropriate. We would like to suggest here that this is because by the use of such an additive focus particle in the second conjunct, the speaker suggests that the hearer is not allowed to interpret the first conjunct exhaustively, i.e., that he should *cancel* the implicature induced by exhaustive interpretation.

Although we propose that both topical and focal expressions should be interpreted exhaustively, this doesn’t mean that we predict that it is irrelevant how a phrase is accentuated, as long as it is accentuated. If we would claim that, we would end up with the wrong prediction that there is no difference in meaning between sentences with bridging accent and sentences with double focal accent. We propose, however, that the function of using the second topical accent, instead of a second focal accent, is that the sentence should receive an exhaustive reading with respect to *two predicates* (or two sets of alternative sentences), and not with respect to *one relation*, which would (or at least could) be the result if the sentence contains a double focal accent.<sup>7</sup> To illustrate, for a double focal example such as [Larry]<sub>F</sub> ate [pizza]<sub>F</sub>, we only minimize the sentence *one* time, with respect to relation *ate*, and conclude that (as far as the speaker knows) only one eating event took place and that the answer was complete; for bridging accent with a topical accent

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<sup>7</sup>This seems compatible with Féry’s first constraint on when we can replace a hat-pattern with two times focus accent.

on ‘Larry’, however, we minimize with respect to focus *and* topic. In the latter case we end up with the interpretation that only Larry ate only pizza, and it is left open whether Bill, for instance, ate broccoli. The double focus sentence is interpreted as (24-a), the topic-focus sentence as (36):

- (24) a.  $Exh(\text{John ate Pizza}, \lambda xy[Ate(x, y)])$   
 b.  $Exh(Exh(\text{John ate Pizza}, \lambda y[Ate(j, y)]), \lambda x[Exh(Ate(x, p), \lambda y[Ate(x, y)]))]$

Notice that as a consequence we predict that in contrast to a sentence with a double focal contour, a sentence with bridging contour is allowed if the speaker only *partially* answers the question under discussion. In section 6 we will discuss whether giving a partial answer should be associated with topical accent.

## 5 Strategic economic encoding

According to the above analysis, topical and focal items are both interpreted exhaustively, but we exhaustify the topical expression ‘later’ than the focal one.<sup>8</sup> What is the reason for this difference? We believe that it reflects the strategy of how to *economically encode* the to be transmitted information.

Roberts (1996), Kadmon (2001), and Büring (2003) correctly propose that a topical accent indicates that a set of questions is under discussion and that a *strategy* is at stake. However, we feel that they underestimate the role of the answerer. It is the *answerer* who has to decide how to economically encode the complete information she has to convey such that the hearer can still process it. In this section we want to propose that the information structure of the sentence, or its topic-focus structure, reflects the strategy of the speaker to economically encode the information to be transmitted.

Consider multiple *wh*-question (25).

- (25) Who ate what?

Let us adopt a partitional analysis of questions. If we now assume that

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<sup>8</sup>This doesn’t mean that as a result the topical expressions should always have wide scope. If so, it would give rise to the prediction that  $[Alle]_T \text{ Politiker sind } [nicht]_F \text{ korrupt}$ . receives the small-scope reading of negation, which is wrong as made clear by Büring’s (1997). We will come back to this example in the next section.

only John and Mary and only broccoli and pizza are under discussion, it follows that the semantic meaning of (25) is identical to the intersection of the semantic meanings of (26-a) and (26-b), and also to the intersection of the semantic meanings of (27-a) and (27-b).

- (26) a. What did John ate?  
 b. What did Mary ate?
- (27) a. Who ate broccoli?  
 b. Who ate pizza?

More concretely, if we denote the partition that represents the meaning of interrogative sentence  $S$  by  $\llbracket S \rrbracket$ , and if we define  $Q \sqcap Q' = \{q \cap q' : q \in Q \ \& \ q' \in Q' \ \& \ q \cap q' \neq \emptyset\}$  for two partitions  $Q$  and  $Q'$ , we see that  $\llbracket (25) \rrbracket = \llbracket (26-a) \rrbracket \sqcap \llbracket (26-b) \rrbracket = \llbracket (27-a) \rrbracket \sqcap \llbracket (27-b) \rrbracket$ . Now suppose that John ate only broccoli, and Mary only pizza. We believe that (25) can in these circumstances equally well be answered by the sequence (28-a)-(28-b) as by the sequence (29-a)-(29-b) with the respective topic-focus patterns:

- (28) a.  $[\text{John}]_T$  ate  $[\text{broccoli}]_F$ ,  
 b. and  $[\text{Mary}]_T$  ate  $[\text{pizza}]_F$ .
- (29) a.  $[\text{broccoli}]_T$  was eaten by  $[\text{John}]_F$ ,  
 b. and  $[\text{pizza}]_T$  was eaten by  $[\text{Mary}]_F$ .

Roberts (1996) proposes that a sentence like (28-a) presupposes both (30-a) and (30-b), while Kadmon (2001) and Büring (2003) argue that it rather presupposes both (30-a) and (30-c)

- (30) a. What did John eat?  
 b. For each individual, what did that individual eat?  
 c. Who ate what?

Notice that although (30-b) and (30-c) differ in that whereas the former denotes a set of questions, the latter denotes only one questions, on a partitional analysis of questions the two are closely related: as we have seen above,  $\llbracket (30-c) \rrbracket$  is just the intersection of the set of questions denoted by (30-b), i.e.  $\llbracket (26-a) \rrbracket \sqcap \llbracket (26-b) \rrbracket$ .

Similarly, a sentence like (29-a) presupposes both (31-a) and (31-b) according to Roberts (1996), while it presupposes both (31-a) and (30-c) according to Kadmon (2001) and Büring (2003):

- (31) a. Who ate broccoli?  
 b. For each kind of food, who ate it?

Obviously, also here it holds that if these questions have a partition semantics, and if we take the intersection of the whole set of questions, then both (30-b) and (31-b) will correspond with the question (30-c).

Now suppose that John and Mary are still the only relevant individuals, but they not only had a main dish, but also a desert, either an ice cream or a cake. Then, we think, the only natural way to answer (25) is to ‘go by individuals’:

- (32) a. [John]<sub>T</sub> ate [broccoli and an icecream]<sub>F</sub>,  
 b. and [Mary]<sub>T</sub> had [a pizza and a cake]<sub>F</sub>.

One might think that this is just because ‘going by individuals’ is more natural than ‘going by food’. This doesn’t seem to be the crucial factor, however, because we observe the same effect with a question of the form *Who kissed whom?* where only individuals are involved. How this latter question is typically answered also typically depends on how many kissers versus kissed ones there are. A more natural reason why in the above case we answer question (25) by ‘going by individuals’ is because of the form of the question: ‘who’ was mentioned before ‘what’ in (25). What has to be explained now, though, is why the questioner didn’t ask (33).

- (33) What was eaten by whom?

We believe that (33) should be asked instead of (25) if there were more people than kinds of food, because in that case the answer can most economically be given by first mentioning the food, as in answers like:

- (34) a. [broccoli]<sub>T</sub> was eaten by [John, Paul and Mary]<sub>F</sub>,  
 b. and [pizza]<sub>T</sub> was eaten by [Bill, Sue, and Peter]<sub>F</sub>.

Our suggestion is related to a proposal made recently by Komagata (2003). Komagata proposes that the information structure of a sentence is a means to *balance* the information load carried by the theme (topic) and the rheme (focus) of an utterance. It is natural to measure the information load of a question as the average information load of its answers. Using information theory and a natural balancing principle, he shows that the ordering of an expected theme followed by a surprising rheme is more desirable than the

ordering of a surprising theme followed by a expected rheme.<sup>9</sup> We will not make use of information theory in this paper to make Komagata’s suggestion more precise. But already our informal description explains why the natural way to answer (25) is to ‘go by individuals’ if John and Mary are the only relevant individuals, but they not only had a main dish, but also a desert, either an ice cream or a cake. If, however, there are more people than kinds of food, Komagata’s balancing principle explains why the answer to (25) should ‘go by food’.

## 6 Topical implicatures

We have not yet discussed Büring’s (1997) demand that the use of topical accent implicates the existence of an open question. As is well-known, it is in terms of this extra constraint that he explains a number of interesting scope data as observed, among others, by Féry (1992). Let us inspect the best-known example, (35), which in principle could have 2 readings, (35-a) and (35-b):

- (35) [Alle]<sub>T</sub> Politiker sind [nicht]<sub>F</sub> korrupt.  
 all politicians are not corrupt.  
 a. It is not the case that all politicians are corrupt. ( $\neg\forall$ )  
 b. No politician is corrupt. ( $\forall\neg$ )

The empirical observation is that only the first reading is observed. It is worthwhile to see that we cannot yet explain this observation. A natural explanation would be that only one of the readings is compatible with the exhaustive inferences we have proposed above. It is easy to see how the implicatures of the  $\neg\forall$  reading are computed: exhaustive interpretation due to ‘[nicht]<sub>F</sub>’ doesn’t give rise to any additional inference (because the alternative ‘ $\forall x[P(x) \rightarrow C(x)]$ ’ is already entailed to be false), but exhaustive interpretation due to ‘[Alle]<sub>T</sub>’ leads to the implicature that (the speaker thinks it is possible that) at least some politicians are corrupt (the alternative ‘ $\neg\exists x[P(x) \wedge C(x)]$ ’ is not (known to be) true). This implicature is consistent with the assertion, meaning that there is nothing to prevent (35)

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<sup>9</sup>However, if the theme is totally predictable (i.e., has zero entropy), the ordering does not affect the information balance. Examples like *Q: Who knows the secret? A: Peter<sub>F</sub> knows it*, which are problematic for more naive ‘old things first’-hypotheses, can now be accounted for.

to receive the  $\neg\forall$  reading. On first thought it seems that for the  $\forall\neg$  reading, on the other hand, a problem will occur, because now one of the exhaustivity inferences will be in conflict with what is asserted. The exhaustive interpretation due to  $[\text{Alle}]_T$  leads now to the implicature that it is not the case that (the speaker knows that) there is a politician who is not corrupt ( $\neg\Box\exists x[P(x) \wedge \neg C(x)]$ , or equivalently  $\Diamond\forall x[P(x) \rightarrow C(x)]$ ), which is incompatible with what is asserted (on the  $\forall\neg$ -reading). On second thought, however, this is not really the case: the alternative  $\exists x[P(x) \wedge \neg C(x)]$  is already entailed by (and thus weaker than) what is asserted (if it is presupposed that there are politicians), so this sentence is *not* implicated to be (possibly) false. So, nothing is implicated that is inconsistent with the  $\forall\neg$  reading, and we cannot yet explain the observation that this reading does not exist.

Just as Büring (1997), we propose to explain these empirical observations by an extra implicature triggered by the topical accent. However, we won't adopt Büring's proposal, because that gave rise to the so-called 'last-answer problem'. Instead, like Wagner (2007), we make a *weaker* proposal, namely that a contrastive topic used in hat-contour comes with the following felicity condition.

(36) Topic Felicity Condition:

There exists at least one alternative that is derived from substituting topic and focus values for other salient objects that is (i) not entailed by the assertion, and (ii) compatible with what the speaker knows.

In case the speaker is taken to be knowledgeable, condition (ii) is strengthened from  $\Diamond\psi$  to  $\Box\psi$ . Notice that condition (36) gives rise to the pragmatic inference, or implicature, that some non-entailed alternative has to be (possibly) true, and in terms of this implicature we propose to account for Büring's (1997) scope data. To see the working of condition (36), consider the example I started out with:

- (37) a. Who of John and Mary ate broccoli and pizza?  
 b.  $[\text{John}]_T$  ate  $[\text{broccoli}]_F$  and  $[\text{Mary}]_T$  ate  $[\text{pizza}]_F$

The first conjunct of (37-b) gives rise to the focus-exhaustive inference that John didn't eat pizza, and the topical-exhaustive inference that Mary didn't eat broccoli.<sup>10</sup> On the strong version of our new felicity condition of topic

<sup>10</sup>The most obvious way to formally our extra topical inference of  $\phi = "[\text{John}]_T$  ate  $[\text{broccoli}]_F$ " is as follows:  $\exists\psi \in \{Ate(x, y) : x \in T \ \& \ y \in F \ \& \ \phi \not\models Ate(x, y)\} : \Diamond\psi$ ,

marking, it must be the case that one of the following alternatives must be true:  $\{\text{Ate}(j,p), \text{Ate}(m,b), \text{Ate}(m,p)\}$ . Because the first two are ruled out by the focus- and topic-exhaustive inferences, it immediately follows that the last one has to be true: Mary ate pizza.

But if this is the inference, why is it still appropriate to assert the second conjunct of (37-b)? The reason is that exhaustive interpretation is based on (i) standard *Gricean interpretation*, and (ii) the assumption that the speaker is (maximally) *competent*. In general, the competence assumption cannot be assumed, and all that is left is the Gricean interpretation. According to the Gricean interpretation, the first conjunct of (37-b) gives rise to the focus-based inference that it is not known that John ate pizza, and to the topic-based inference that it is not known that Mary ate broccoli. The felicity condition is weaker as well: at least one of the following alternatives is not ruled out:  $\{\text{Ate}(j,p), \text{Ate}(m,b), \text{Ate}(m,p)\}$ . Notice that in this case all three of them are still possible, which means that the second conjunct from (37-b) cannot yet be derived from the first conjunct and its (weak) pragmatic implicatures. Only in case it is assumed that the speaker is competent – i.e. knows the extension of the question-predicates of ‘what did John eat’ and ‘who ate broccoli’ –, we can derive from the first conjunct of (37-b) given as answer to question (37-a) that Mary ate pizza, and thus that the second conjunct is superfluous.

As already indicated above, Büring’s (1997) original proposal of how to interpret topical accent gives rise to the *last answer problem*. If it is assumed that after the interpretation of a clause with a topical accent there still must be an open question, it is predicted that after the second conjunct of (37-b) is asserted, it should be an open question what John ate, or an open question whether Mary ate broccoli. Intuitively, however, this is not the case: after the second conjunct of (37-b) is interpreted we know exactly who ate what. Despite the fact that our proposal is very close to Büring’s (1997) analysis, it

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with  $T$  and  $F$  the set of topical and focal alternatives to John and broccoli, respectively. However, there are reasons to prefer the following formulation of basically the same idea:  $\exists\psi \in \{\text{Ate}(x,y) : x \in (T - \{j\}) \ \& \ y \in (F - \{b\}) \ \& \ \phi \neq \text{Ate}(x,y)\} : \Diamond\psi$ . The main reason for preferring this alternative is that in this way we can easily explain why a sentence like “John did [not] <sub>$T$</sub>  eat [five] <sub>$F$</sub>  apples” seems to implicate that John ate at least one apple (without it being required that he ate exactly four apples). The reason is that the predicted topical inference is now that the speaker thinks it is possible that John ate at least one apple, which after strengthening gives the desired result.

is easy to see that this ‘last answer problem’ does not arise on our analysis.<sup>11</sup> The reason is that we predict only that (at least) *one* possibility statement must be true, which is weaker than Buring’s requirement that an issue is unresolved, meaning that (at least) *two* possibility statements must be true. In our case, the topical condition predicts that the second conjunct of (37-b) can be felicitously uttered only if one of the following propositions must be (possibly) true: {Ate(j,b), Ate(j,p), Ate(m,b)}. But this condition is obviously satisfied, because it is explicitly asserted by the first conjunct of (37-b) that the proposition expressed by the first element of this set is true.

Let us now return to the scope-data, and in particular to (35). We have seen already before that none of the exhaustivity implicatures can rule out one of the two possible readings of this sentence. However, the new topical implicature *can* do so. The new topical implicature for both readings of the sentence will now be that (the speaker thinks it is possible that) at least some politicians are corrupt ( $\diamond\exists x[P(x) \wedge C(x)]$ ). This implicature is compatible with the  $\neg\forall$  reading of the sentence, but *incompatible* with its  $\forall\neg$  reading. For this reason, or so we propose, example (35) doesn’t have the latter reading.

Our approach can also account for further German data discussed by Buring (1997). (38), for instance, is predicted to be infelicitous since it fails to have any extra topical-implicature in any scope ordering. Thus, condition (i) of rule (36) is not met.

- (38) \* $[Alle]_T$  Politiker sind  $[immer]_F$  betrunken.  
all politicians are always drunk

Both orderings (all>always and always>all) are semantically equivalent. The assertion in either ordering entails all the alternatives. Hence, (38) cannot be uttered with the topic-focus contour.

The following example, (39), is claimed to have only the surface (No>always) reading.

- (39)  $[Kein]_T$  Politiker ist  $[immer]_F$  betrunken.  
no politician is always drunk

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<sup>11</sup>Of course, the problem doesn’t show up in Buring’s (2003) newer analysis either. But the explanation in this latter paper is rather different from the one adopted in Buring (1997), while the one we proposed is very similar in spirit to this earlier proposal, it is just weaker.

In the non-surface reading (always>no) the extra topical inference that (the speaker thinks it is possible that)  $\exists t \exists x [P(x) \wedge B(x, t)]$  is incompatible with what is asserted ( $\forall t [\neg \exists x [P(x) \wedge B(x, t)]]$ ), and thus is ruled out. On the other hand, the surface reading (No>always) is available, because this time the extra topical inference is compatible with and not entailed by what is asserted. Intuitively, (39) uttered with a topic-focus contour indeed induces an interpretation that some politicians are sometimes drunk. The predicted implicature is attested.

By similar reasoning, one can show that we predict in accordance with Büring (1997) that (40) and (41) are ambiguous between their two scopal readings: the proposed extra topical implicature that (the speaker thinks it is possible that) some politicians are sometimes drunk is not entailed but still compatible with what is asserted on both of their readings.

(40) [Kein]<sub>T</sub> Politiker ist [nie]<sub>F</sub> betrunken.  
no politician is never drunk

(41) [Alle]<sub>T</sub> Politiker sind [selten]<sub>F</sub> betrunken  
all politicians are rarely drunk

What this shows is that our analysis can predict the scope data discussed in Büring (1997).

## 7 Conclusion

In this paper we proposed that a sentence like (1), [John]<sub>T</sub> ate [broccoli]<sub>F</sub>, should pragmatically be interpreted as follows:

- (a) Focus should be interpreted exhaustively: John ate only broccoli.
- (b) Topic must be interpreted exhaustively: Only John ate (only) broccoli.
- (c) The speaker takes it to be possible (or even knows, if he is competent) that at least one alternative of the form ‘ $x$  ate  $y$ ’ not entailed by (1) is true. From (a) it follows that this alternative cannot be ‘John ate  $y$ ’, with  $y$  different from broccoli; from (b) it follows that this alternative cannot be ‘ $x$  ate broccoli’, with  $x$  different from John. Thus, the alternative must be something like ‘Mary ate the beans’.

In section 2 we argued in favor of an exhaustivity rule that differs somewhat from some better-known standard alternatives. In sections 3 and 4 we considered some problems for this rule, and argued that exhaustive interpretation should be sensitive to discourse referents and that also topics should be interpreted exhaustively. This holds for topical expressions in general, whether they have a ‘referential’ or a ‘quantificational’ reading. Our unified interpretation of topical and focal expressions does not predict that the accents are interchangeable: in section 5 we argued that the different kinds of accents reflect the way the speaker economically encodes the information she wants to communicate, while in section 6 we proposed that topical accent gives rise to an extra implicature on top of the one due to exhaustive interpretation. It is shown that this extra topical implicature is weaker than a similar implicature proposed by Büring (1997), but still can account for relevant scope data.

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# A Scope Theory of Contrastive Topics

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## Abstract

Contrastive Topics (CTs) in Japanese mimic foci more than topics in many ways. Their prosodic properties are essentially the same as the pattern found with foci, and information structurally, they can correspond to new information. Based on my previous analysis of CTs, in which CTs always involve contrasted speech acts, I will iron out some wrinkles I left behind earlier; in particular, how a focus and a CT are distinguished when they appear simultaneously in one sentence. I argue that a focus is subjected both to the exhaustifying operation at the level of proposition and to the set-generating operation at the level of speech act whereas a CT must be spared from being subjected to the exhaustification below speech act. The differentiation is achieved via the ‘selective binding’ approach to association with focus proposed by Wold (1996).

**Keywords:** topic, focus, contrast, scalar implicature, speech act, selective binding

## 1. Contrastive Topics and Contrasted Speech Acts

Contrastive Topics (CTs, henceforth) are a multi-faceted phenomenon that cannot be analyzed comprehensively in a small project like the current paper. I would like to begin, therefore, by defining what the scope of the paper is and where the limitations lie. First of all, I will focus almost exclusively on CTs in Japanese; contrasted expressions that come with the particle *wa*. CTs in Korean are, to a large extent, comparable but not totally identical to the Japanese counterpart. While I certainly do not intend to proclaim that my account should be unconditionally extended to Korean, I hope that it will provide some guideline for the Korean cases. Cross-linguistic variations beyond Japanese and Korean must wait for another occasion. I have expressed my general view on

CTs as contrasted speech acts in Tomioka (to appear), and the main topic of this paper is one of the unresolved issues in that paper, namely the interactions between foci and contrastive topics. My working hypothesis is that a CT is actually nothing but an instance of focus. The primary difference between a CT and a garden-variety (free) focus is the levels at which their focus values (sets of alternatives) are ‘used up’. Hence, I call my analysis a scope theory of CT. This paper examines a variety of consequences of this thesis.

My proposal for Japanese CTs can be summarized as follows. The focal accent on a CT generates a non-singleton focus value in the sense of the traditional Alternative Semantics for Focus (cf. Rooth 1985, 1992, Kratzer 1991 among others). These focus alternatives of a CT are preserved until the computation goes beyond the speech act level, which, following Krifka (2001, 2002), I assume to be explicitly represented in syntax. The preservation of the focus values is the primary function of the topic marker *wa*. The presence of alternative speech acts encourages the hearer to speculate why the speaker didn’t carry out any speech acts among the alternatives other than the very act that she engaged in. The pragmatic effect of uncertainty, non-finality, and/or incompleteness is the result of the hearer’s speculation on alternative speech acts.

The analysis is based on a variety of empirical facts of Japanese CTs, some much discussed in the past and others new. They are in many ways epitomized by an example like (1).

- (1) Trying to give an advice on where to visit in Japan, one might say;

*KYOOto-ni-wa/KYOOto-ni-WA iki-nasai*  
 Kyoto-to-TOP/Kyoto-to-TOP go-imperative  
 ‘(At least) go to KYOto.’

First, as the parenthesized *at least* in the English translation suggests, (1) elicits scalar implicature or a pragmatic effect close to it. CTs are often connected to such pragmatic weakening (cf. Jackendoff 1972, Carlson 1983, Büring 1997, Lee 1999, Hara 2006 among others), and Japanese CTs are no exceptions. Second, Japanese CTs do not receive special prosody distinct from focus. It is hard, therefore, to motivate a theory of CTs that makes crucial use of two distinct accents (e.g. Büring 1997, 2003, Kadmon 2001). Furthermore, a CT can be the sole focal element in a sentence. In other words, a CT in

Japanese can but need not be accompanied by another focal expression. In (1), for instance, the predicate *iki-nasai* ‘go-imperative’ does not get focal accent; on the contrary, its pitch is dramatically reduced as a result of the ‘post-focal reduction’ process (cf. Ishihara 2003 among others), which lowers the pitch range of the material that linearly follows a focused item. These facts do not sit well with an analysis that treats a CT as a thematic topic that is contrastive (e.g. Valduvi and Vilkuna 1998). Another obvious point in the example (1) is its sentence form: It is an imperative sentence, and Japanese CTs indeed appear in sentences of various speech acts; assertions, interrogatives, imperatives, exhortatives (*let’s do X*), volitionals (*I shall do X*), and performatives. While the pragmatic weakening of a CT is often associated with the knowledge state of the speaker, the use of a CT can be independent of it. For instance, the speaker may utter a sentence with CT out of politeness, intentionally leaving out the information that is known to the speaker but is judged inappropriate or impolite by the speaker. This is a challenge to a knowledge-based account, most notably Hara (2006) and Hara and van Rooij (2007). The speaker’s knowledge is not necessarily relevant to CTs in non-assertion sentences, such as the imperative example in (1), and the theory cannot easily be extended to those cases of CTs where politeness is the main motivation for their uses. Finally, one cannot miss the morphology; the same particle is used for a CT and a so-called thematic topic (a TT).

In my analysis, a CT is treated as an instance of focus, and no special semantic function, apart from generating alternatives, is associated with it. It is not a topic in the sense of the Topic-Focus articulation, and there is nothing that prevents a CT from corresponding to new information. There is also no reason to suppose that CTs are limited to assertion sentences, and with alternative speech acts, one is invited to speculate all sorts of reasons for the alternative acts being left out. Although the speaker’s knowledge being partial may often be the most salient in our reasoning, some contexts encourage us to seek out reasons other than the speaker’s knowledge. Finally, the role of the particle is argued to be the guarantor of the preservation of the focus value of a CT until the speech act level. This is where a CT and a TT converge. If there is any linguistic expression that can take scope beyond the speech act level, the most likely candidate is a TT. In one branch of theories of sentence topics, first advocated by Jacob (1984) and later elaborated by Krifka (2001), Endriss (to appear) and Endriss and Hinterwimmer. (to appear), a topic selection is regarded

as a speech act of its own. A sentence topic, therefore, lies outside of the scope of the speech act operated on the main sentence. This ‘outside of a speech act operator’ is the common denominator for a CT and a TT.

The bottom line of the idea is that a CT is just an instance of focus whose focus value (a non-singleton set of alternatives) happens to be ‘resolved’ or ‘used up’ at the level higher than a proto-typical focus. In the following section, we will see how the possible interpretations of a CT are restricted by the presence of the focus option. More concretely, the two focalizing strategies compete, and due to the stronger meaning associated with focus, the focus option is preferred to the CT option. It is also vital for a theory like mine to have a proper way to distinguish two focal expressions, and Section 3 will be devoted to this issue. I will examine a sentence that contains both a CT and a focus and demonstrate that focus sensitive operators are selective binders. Adopting Wold’s (1996) analysis of nested foci, I suggest that a focus is bound twice; once by the exhaustive operator that generates a strong meaning and second time by the set-generating operator at the speech act level. A CT, on the other hand, gets caught only by the higher operator over speech acts.

## 2. Focus vs. Contrastive Topic

### 2.1. Focus Wins

The necessity of considering focus in determining possible interpretations of CTs is exemplified by an example like (2), where a measure expression is marked for a CT.

- (2) How many people will come to the party?

*ZYUU-Nin-wa/ZYUU-nin-WA kuru-desyoo.*

TEN-CL-top/Ten-CL-TOP come-evid

‘(At least) Ten people will come, (as far as I can tell).’

This sentence elicits a set of alternative assertion acts of the form ‘assertion that X-many people will come,’ and the hearer is invited to think about possible reasons for the speaker’s not making any other than ‘the assertion that 10 people will come.’ The reason for 9 and under is obvious: Asserting 9 (or less)

people will come when you know that at least 10 people will come would not be considered cooperative since you are asserting a proposition that is weaker and hence less informative. The story is different for over 10. One could speculate that the reason for the speaker's not asserting 11 (or more) people will come is because she knows that such a proposition is false. If we allow this kind of reasoning, then, we would arrive at the conclusion that the speaker meant that exactly 10 people will come. This is not right. (2) never receives the 'exactly 10' interpretation.<sup>1</sup> I argued that we can keep out the strong reading for a measure phrase CT by letting the focus strategy compete with the CT marking. In exactly the same situation as in (2), one could have said (3).

(3) How many people will come to the party?

*ZYUU-Nin kuru-desyoo*  
 TEN-CL come-evid  
 'Ten people will come.'

In this example, the measure expression is without the particle and is interpreted as the focus of the sentence. As is typically the case of a focused numeral, it carries the 'exactly N' implicature. Since this strategy is always available for the

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<sup>1</sup> Chung-min Lee (pc) pointed out to me that this is not entirely true. I speculate that he may have in mind a case like (i).

(i) I have ten cousins, and...

ROKU-NIn-wa nihon-ni sunde-imasu-ga (nokori-no) YO-NIn-wa  
 SIX-people-Top Japan-in live-prog-but rest-gen FOUR-people-top  
 kaigai-ni imasu  
 abroad-in be

'(Of my ten cousins), SIX of them live in Japan, and the remaining FOUR live abroad.'

It is certainly true that there is no scalar meaning associated with the CT numerals in (i), in which the two (proportional) numbers are overtly contrasted with each other. When a CT numeral is used as an answer to a *how many/much* question, however, it necessarily induces the 'at least' implicature.

speaker, the hearer must take it as a part of his/her reasoning for a CT. Specifically, the hearer must find a reason why CT is chosen over focus, which would lead to a stronger implicature. Therefore, the hearer does not assume that the speaker knows/believes that it is false that 11 or more people will come. This in effect keeps the ‘exactly 10’ interpretation out from the hearer’s speculation and leads to the ‘at least 10’ interpretation.

## 2.2. *Focus Wins: More Case Studies*

As supporting evidence for the competition between focus and CT, I presented in Tomioka (to appear) the case of the infelicitous CT-marking of a universal quantifier in an affirmative sentence. This fact was noted by Hara (2006), who provided an account based on a scalar presupposition specifically tailored for a CT. I have shown that, by letting the CT strategy compete with focus, we can explain the phenomenon without any special presuppositions. In this section, I would like to add two more facts that are easily explained if we assume that focus and CT compete.

If the pragmatic weakening of a CT is due to the existence of a focus strategy as an alternative option, then we would predict that no weakening takes place when the focus strategy is independently blocked. This prediction is borne out. Consider (4).

- (4) Did both Erika and Ken pass?

*ERika-wa/ERika-WA ukat-ta*  
Erika-CT/Erika-CT pass-past  
“[Erika]<sub>CT</sub> passed.”

While it is still possible to speculate that the speaker doesn’t know the outcome for Ken, the strong meaning is not blocked. In other words, we can entertain the possibility that the speaker implied that Ken didn’t pass. The reason for the survival of the strong meaning is the unavailability of focus. In the context of (4), (5) is not an appropriate answer.

(5) Did both Erika and Ken pass?

#*ERika-ga ukat-ta*  
Erika-nom pass-past  
“[Erika]<sub>F</sub> passed.”

Therefore, no competition arises, and the strong meaning survives.<sup>2</sup>

The second piece of evidence comes from CT-marking of disjunctive NPs. Imagine the following discourse.

(6) Who passed?

[*ERika-ka KEn*]-*ga ukat-ta*  
Erika-or Ken-nom pass-past  
“[Erika or Ken]<sub>F</sub> passed.”

The answer is doubly exhaustive. As a complete answer to the question to *who passed?*, it carries the implicature that no one other than Erika or Ken passed. At the same time, the disjunction *ka* ‘or’ brings out the typical scalar implicature that not both of them passed. If the disappearance of a stronger, exhaustive meaning with a CT is tied to its competition with focus, then, it would be predicted that the CT counterpart of (6) eliminates the focus-related strong meaning but preserves the ‘not-both’ meaning. This is precisely what happens in (7).

(7) Who passed?

[*ERika-ka KEn*]-*wa/WA ukat-ta*  
Erika-or Ken-CT pass-past  
“[Erika or Ken]<sub>CT</sub> passed.” can mean “One of them passed, but I am not sure if people other than Erika or Ken passed.”

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<sup>2</sup> It is important to note that the option of using *-dake* ‘only’ does not come into play. We are in a situation very similar to the implicature associated with a numeral. In order to obtain the ‘exactly N’ reading for a numeral, we cannot consider the expression *exactly N* as an option.

So far so good. The range of possible interpretations of a CT is influenced by the availability of the focus strategy. Since focus is more informative, whenever the two strategies are compared, the focus wins over the CT if the speaker knows enough or feels confident to use it. But how do we ensure that focus is stronger? Do we not also evoke a similar sense of alternative speech acts when we use focus, instead of CT? If so, where does the difference between the two strategies lie? These are the questions that I will address in the following section.

### 3. Grammar of (Anti-)Exhaustivity

#### 3.1. Exhaustive Operator in Syntax

How does the exhaustive meaning of focus come about? One idea is found in Krifka (1995), who proposes that so-called ‘free’ focus is actually an instance of association with focus; the operator it associates with is Assertion Operator. I follow the idea that focus is always associated with some operator, but the relevant operator is not a Speech Act operator but one that specifically derives exhaustivity. Fox (2006), for instance, advocates the view that the exhaustivity associated with disjunction and other scalar items is derived via the exhaustivity operator (Exh).<sup>3</sup>

$$(8) \text{ Exh } (A_{\langle \text{st}, \triangleright \rangle})(p_{\text{st}})(w) = p(w) \ \& \ \forall q \in \text{NW}(p, A): \neg q(w) \quad (= \text{Fox 2006, (15)})$$

Notes:  $A_{\langle \text{st}, \triangleright \rangle}$  = a set of (scalar) alternatives

$\text{NW}(p, A)$  = a set of alternatives that are not weaker than  $p$

Although Fox does not specifically discuss the exhaustivity associated with contrastive focus, its potential to be extended to contrastive focus is quite obvious.<sup>4</sup> So, focus gets caught by the Exh operator while a CT is spared from it and the alternatives generated by it move up to the speech act level. How could this distinction be made?

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<sup>3</sup> (8) is not the final version that Fox endorses, but it is simpler and serves out purpose perfectly well.

<sup>4</sup> Fox himself is quite receptive to this possibility (Fox 2006, footnote 13).

### 3.2. Focus Index and Selective Binding

The issue becomes crucial when a CT is accompanied by a focus. While a CT can be the sole focalized element in a sentence, it can appear with an additional focus.

(9) Who ate what?

*ERika-wa MAME-o tabe-ta (kedo)*  
 Erika-top beans-acc eat-past (but)  
 ‘Erika ate beans (but ...)’

This sentence receives the interpretation very similar to the English A-/B-accents (cf. Jackendoff 1972, Büring 2003) and the German Rise-Fall contour Büring 1997, Krifka 1998). From the meaning specified in (8), it is obvious that the Exh operator sits at the level of proposition (or more generally, at the level of sentence radical). Since a CT is structurally lower than this operator, it becomes crucial to prevent the focus value of the CT from being accidentally caught by the Exh operator. LF movement of a CT over the Exh operator seems like a reasonable option. However, I have expressed skepticism about this option in Tomioka (to appear), and as it will become clear later, the movement turns out to be quite problematic. If one opts for a different solution, then, the best candidate is Kratzer’s (1991) idea of focus indices. Furthermore, we postulate that focus-sensitive operators, such as the Exh operator, are indexed so that, for any given focus-sensitive operator, only the co-indexed focus expressions are computed. Specifically, I adopt the system of ‘selective binding’ of focus indices that Wold (1996) developed. First, I assume the following LF for (10).

(10)[Op<sub>1</sub> [<sub>Speech Act P</sub> Assert [<sub>IP</sub> Exh<sub>2</sub> [<sub>IP</sub> [ERika-wa]<sub>1</sub> [MAME-o]<sub>2</sub> tabeta ]]]]

The first operator Op<sub>1</sub> is a simple alternative generating operator without any quantificational meaning whereas Exh<sub>2</sub> is an index-sensitive version of our previous Exh. Their meanings are represented as below.

(11)a.  $\llbracket \text{Exh}_i \alpha \rrbracket^g = \lambda w. \llbracket \alpha \rrbracket^g(w)=1 \ \& \ \forall p \in \text{NW}(p, \{\llbracket \alpha \rrbracket^g \cup \langle i, x \rangle : x \in D\tau\})$

$$[p(w)=0]$$

$$b. \llbracket \text{Op}_i \alpha \rrbracket^g = \{ \llbracket \alpha \rrbracket^g \cup \{ \langle i, x \rangle \} : x \in D\tau \}$$

Another important ingredient in Wold's analysis is the Novelty Condition on focus indices:

(12) For a focus-sensitive operator  $\Omega$   $\llbracket \Omega_i \alpha \rrbracket^g$  is defined only if  $i \notin \text{Dom}(g)$

In other words, beyond the constituent that contains  $\Omega$  and its sister,  $g(1)$  is not defined. With (11) and (12), the semantic values of (10) are computed as follows.

- (13)a.  $\llbracket \llbracket \text{IP Exh}_2 \llbracket \text{IP [ERika-wa]}_1 \llbracket \text{MAME-o} \rrbracket_2 \text{ tabeta} \rrbracket \rrbracket \rrbracket^g = \lambda w. \text{ Erika ate beans in } w \text{ and for all } p \in \text{NW}(p, \{ \lambda w. \exists x. P(x) \text{ and Erika ate } x \text{ in } w : P \in D_{\langle e, t \rangle} \}), p(w)=0. \text{ The proposition that Erika ate beans (and nothing else).}$
- b.  $\llbracket \llbracket \text{Op}_1 \llbracket \text{Speech Act P Assert} \llbracket \text{IP Exh}_2 \llbracket \text{IP [ERika-wa]}_1 \llbracket \text{MAME-o} \rrbracket_2 \text{ tabeta} \rrbracket \rrbracket \rrbracket \rrbracket \rrbracket^g = \{ \text{assertion that } x \text{ ate beans (and nothing else)} : x \in D_e \}$

This is obviously not right. (13b) is a set of assertions of the form 'assert that  $x$  ate beans (and nothing else)', which would lead to the uncertainty/incompleteness implicature that the speaker may not know whether the other people did the exclusive eating of beans. What we need is the implicature that the speaker may be unsure what the other people ate.

### 3.2. Double Indexing of Focus

To amend the selective binding analysis, let us go backward and try to understand what kind of alternative speech acts are needed. Instead of (13b), we should have (14).

(14)  $\{ \text{assertion that there is } x \text{ such that } P(x) \text{ and } y \text{ ate } x : x \in D_e, P \in D_{\langle e, t \rangle} \}$

We can get (14) by letting the alternative generating Op at the speech act level bind both the CT and the focus. Since the focus needs to be bound by the Exh operator at the IP level, we assign two indices to the focus.

(15) [Op<sub>1,2</sub> [Speech Act P Assert [IP Exh<sub>3</sub> [IP ERika-wa<sub>1</sub> [[MAME-o]<sub>2</sub>]<sub>3</sub> tabeta ]]]]

This may look a little exotic, but a case like this is not unknown. Krifka (1991) points out that one focused expression can be bound by two distinct focus-sensitive operators.

- (16)a. I once only drank [WIne]<sub>F</sub> .  
 b. I also once only drank [[WATer]<sub>F</sub>]<sub>F</sub>

(16b) means that, in addition to the exclusive drinking of wine at some point, I also had an experience of exclusive drinking of water at another occasion. Wold (1996) revisits this example and proposes the double-indexing on *water*.

(17) I also<sub>1</sub> once only<sub>2</sub> drank [[WATer]<sub>1</sub>]<sub>2</sub>

At the point where the smaller VP *only<sub>2</sub> drank [[WATer]<sub>1</sub>]<sub>2</sub>* is interpreted, the index 1 is not in the domain of *g*, so we ignore it. The indexed *only<sub>2</sub>* introduces the index 2 to the domain of *g*, and the object *[[WATer]<sub>1</sub>]<sub>2</sub>* is now replaced with a variable. This variable is the basis of generating the alternative VP meanings over which *only<sub>2</sub>* quantifies. When we proceed beyond the VP level, the index on the *only<sub>2</sub>* (i.e., the index 2) is no longer in the domain of *g*, according to the Novelty Condition specified in (12). When the larger VP *also<sub>1</sub> once only<sub>2</sub> drank [[WATer]<sub>1</sub>]<sub>2</sub>* is interpreted, the index 1 is added to the domain for *g*, *[[WATer]<sub>1</sub>]<sub>2</sub>* turns into a variable that is to be bound by *also<sub>1</sub>*.

With the double-indexing and the novelty condition on focus indices, we now have the following computations for (15).

- (18)a.  $\llbracket [IP\ Exh_3\ [IP\ [ERika-wa]_1\ [MAME-o]_2]_3\ tabeta\ ] \rrbracket^g = \lambda w. \text{Erika ate beans in } w \text{ and for all } p \in NW(p, \{ \llbracket [IP\ [ERika-wa]_1\ [MAME-o]_2]_3\ tabeta\ ] \rrbracket^g \cup \langle 3, P \rangle : P \in D_{\langle e, t \rangle} \}) , p(w)=0.$   
 $= \lambda w. \text{Erika ate beans in } w \text{ and for all } p \in NW(p, \{ \lambda w. \exists x. P(x) \text{ and Erika ate } x \text{ in } w : P \in D_{\langle e, t \rangle} \}) , p(w)=0. \quad [= (13a)]$
- b.  $\llbracket [Op_{1,2}\ [Speech\ Act\ P\ Assert\ [IP\ Exh_3\ [IP\ [ERika-wa]_1\ [MAME-o]_2]_3\ tabeta]]] \rrbracket^g$   
 $= \{ \llbracket [Assert\ [IP\ Exh_3\ [IP\ [ERika-wa]_1\ [MAME-o]_2]_3\ tabeta\ ] \rrbracket^g \cup \langle 1, x \rangle \cup \langle 2, P \rangle : x \in D_e, P \in D_{\langle e, t \rangle} \}$

= {assertion that there is x such that P(x) and y ate x:  $x \in D_e, P \in D_{\langle e, t \rangle}$ } [= (14)]

(18b) correctly generates the kind of alternative speech acts that would lead to the implicature that the speaker may be unsure what people other than Erika ate.

### 3.4. Consequences and Implications

The conclusion we reached above is that a focus is bound twice whereas a CT is always spared from being bound by the Exh operator at the level of proposition. Double indexing on focus seems independently needed, and there are no reasons to suppose that the same strategy should not be exploited in the focus/CT co-occurrence case. The proposal nonetheless raises several questions. (19) is a non-exhaustive list of issues and questions that arise in connection with the current analysis.

- (19) a. What does the operator at the speech act level do? Is it possible to consider it as a kind of Exh operator that applies to speech acts?
- b. While we must assume that the Exh operator at the IP level is a selective binder, the operator at the speech act level can be unselective.
- c. When a focus and a CT co-occur, a focus is bound by the speech act level operator, as well as by the Exh. What about a focus without a CT? Does it also get bound twice?

(19a) is a distinct possibility. It has been pointed out in the literature (e.g., Krifka 2008, citing John Searle's work on speech acts) that 'negation' of a speech act is typically weak. The effect can be seen by the negation of a performative sentence; *I do not promise to leave* is weaker than *I promise not to leave* while *I do not want to leave* and *I want not to leave* are often interchangeable. If the operator at the speech act level is an Exh, and we use 'speech act negation' as a part of its meaning, the result is the implicature that the speaker engaged in the ordinary value speech act but did not engage in any other (stronger) speech acts among the alternatives. The current version, on the other hand, simply generates a set of alternative speech acts, and the existence of such a set itself is supposed to guide the hearer to the inference that the Exh would have licensed. Unfortunately, I cannot think of any empirical facts that favor one approach over the other.

(19b) and (19c) are intimately interconnected. It seems certainly possible to regard the focus operator at the speech act level to be unselective in the sense that it binds all

focus variables in its scope. If that is the case, the operator is not something specifically made available for interpreting CTs. Then, it is natural to suppose that the same operator is present even when a sentence contains a focus but not a CT. This in turn means that focalization, either as a focus or a CT, always lead to the generation of alternative speech acts. With focus, however, the Exh operator also binds the focus, and the structure always involves double indexing.

(20) [Op<sub>1</sub> [Speech Act P [IP Exh [IP ... [[focus]<sub>1</sub>]<sub>2</sub> ... ]]]]

The strong meaning that results from the Exh severely limits the range of speculation on the hearer's part, however. Unlike cases with CTs, we are not allowed to entertain different reasons for not engaging the alternative speech acts. With assertion acts, practically the only reasoning possible is that the speaker knows/believes that the alternative propositions are false.

### 3. Closing Remarks and Remaining Issues

Extending my previous analysis of CTs, I have examined how foci and CTs interact. The availability of using focus carves out possible interpretations of the CT counterpart as a consequence of the competition between the two strategies. I have also proposed a way to differentiate two focal expressions by adopting Wold's idea of selective binding and double indexing of focus.

In Tomioka (to appear), I left behind many issues as my homework. The focus/CT interaction and the mechanism of differentiating the two strategies was one of them, and I hope that I made a small progress here. The (non-exhaustive) list of remaining issues are crosslinguistic variations (including micro-variations between Japanese and Korean), CTs in complex sentences, such as conjunctions and embedding under attitude verbs, and a variety of syntactic positioning effects (cf. Vermeulen 2008). Although I believe that satisfactory accounts for these issues within the current proposal are possible, I will have to leave them for other occasions in the future.

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# Scalar Implicatures, Presuppositions, and Discourse Particles: Colloquial Russian *–to*, *že*, and *ved'* in Combination<sup>i</sup>

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## Abstract

This paper tackles the problem of interaction between multiple discourse particles in the same utterance. It examines how presuppositions and/or implicatures contributed by individual particles are combined to account for connotations which arise in utterances containing multiple particles. The subject of study is two-way combinations of set-evoking colloquial Russian particles *–to*, *že*, and *ved'*. The data are drawn from constructed minimal discourses. The study integrates the theories of information structure (Vallduví 1992), scalar implicatures (Hirschberg 1985/1991), and discourse organization (Büring 2000). The current approach to decomposing the meaning of particles by examining them in combination sheds new light on the context-independent interpretations of the particles and makes another step towards understanding their complex roles in discourse.

**Keywords:** discourse particles, colloquial Russian, scalar implicature, presupposition.

## 1. Introduction

There has recently been a growing interest in formalizing the meaning of *discourse* (alternatively, *modal*, or *pragmatic*) *particles* in various languages, especially in German, Dutch, and Russian. (For cross-linguistic studies see, for example, volumes edited by van der Wouden et al. 2002, and Fischer 2006; for German and Dutch particles see Zeevat 2000, 2002, Karagjosova 2001a/b, Eckardt 2006, etc.; for the colloquial Russian particles see Bitextin 1994, Parrott 1997, Feldman 2001, McCoy 2001, Hagstrom and McCoy 2003, Post 2005, etc.) However, the problem of interaction between multiple particles in the same utterance has not yet been adequately addressed (for a notable exception see Parrott 1997).

The subject of this paper is three colloquial Russian particles *–to*, *že*, and *ved'* and the goal is to examine how presuppositions and/or implicatures contributed by

individual particles are combined to account for connotations which arise in utterances containing multiple particles. The study integrates the theories of information structure (Vallduví 1992) and discourse organization (Roberts 1996, Büring 2000).

For the purpose of comparing the contributions of each particle first in isolation and then in combinations, let us hold the discourse setting as constant. Speakers A and B are discussing a particular book, for example, some bestseller that everybody else in the group has read, except for A and B. Speaker A recommends that B read this book, while B utters (1) – a sentence containing either a single particle *–to*, *že*, or *ved'* or a combination of these particles:

- (1) Situation: A recommends that B read a particular book. B replies:  
Ty *–to/že/ved'* eë ne čital!  
You *Particle(s)* it NEG read  
'You haven't read it!' [+ *additional meaning(s) contributed by the particle(s)*]

All of the resulting sentences share the same assertion (i.e., *the hearer has not read the book*). However, each of them is unique in the set of implicatures and/or presuppositions that arise due to the particular particle(s) being used.<sup>1</sup>

The paper is structured as follows: Section 2 summarizes context-independent meanings of each of the three particles. Section 3 discusses possible combinations of *–to*, *že*, and *ved'* and examines how their invariant meanings are preserved and combined with each other. Finally, Section 4 comments on the nature of the additional meaning contributed by the particles.

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<sup>1</sup> The decision to draw data from a constructed discourse rather than natural language corpora is motivated by the need to isolate and compare the contribution of each particle without accounting for multiple variables that are necessarily present in recordings of natural speech. (For a study based on data drawn from colloquial Russian corpora, see McCoy 2001.)

Furthermore, the presence of negation in the tested sentence should not affect conclusions on the contributions of each particle. The constructed discourse situation could be reversed: A and B could be talking about a bestseller that nobody in the group except A has read; and B would be soliciting A's advice by uttering a sentence which asserts *You have read it* and contains the particle(s). However, I am finding this situation slightly more unnatural than in (1) above, especially with particles *že* and/or *ved'* which add the tone of contradiction to the utterance. This issue is worth discussing in more detail in the future.

## 2. Background on the Colloquial Russian Particles *-to*, *že*, and *ved'*

This section draws primarily on the insights developed in McCoy 2001 and Hagstrom and McCoy 2003, where the particles *-to*, *že*, and *ved'* are analyzed as set-evoking (or set-generating or “kontrastive,” after Vallduví & Vilkuna 1998) lexemes (for other approaches, in addition to references in McCoy 2001, see Marshall 2002, Bolden 2005). The use of such a particle by the speaker makes the hearer generate a set of alternatives, essentially in the same way as Focus alternatives (in the sense of Rooth 1985) are generated in English by the use of certain intonation contours. The particles, however, differ with respect to the types of sets that are being evoked, which we turn to next.

### 2.1. The particle *-to*

The particle *-to*, as in (2), cliticizes to a contrastive theme/topic (or “kontrastive” link, after Vallduví 1992 and Vallduví & Vilkuna 1998), shown in (3), and marks **a set of sets of propositions** (same as **a set of questions**), shown in alternative ways in (4-5).

(2) Ty-*to* eë ne čital!

You *-to* it NEG read.

‘As for you [*compared to the other people*], you haven’t read it [*although you may have done something else with it, such as browsed through it/bought it/etc.*].’

(3) [+K/Link You] (*-to*) [+K/Rtheme haven’t read] it

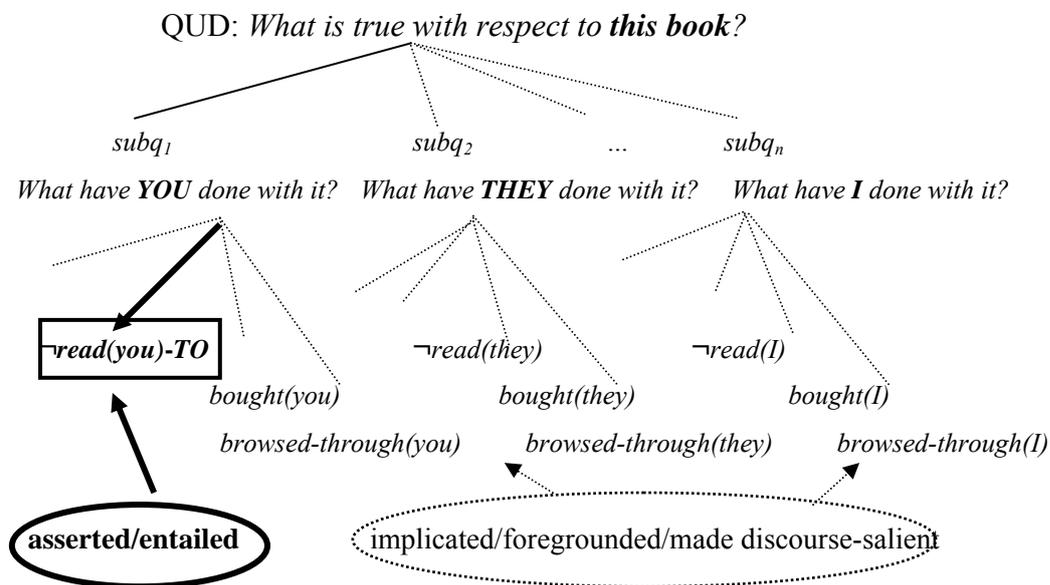
(4) M(*-to*) = { { **You haven’t read it**; You’ve browsed through it; You’ve bought it; }  
 { They haven’t read it; They’ve browsed through it; They’ve bought it }  
 { I haven’t read it; I’ve browsed through it; I’ve bought it; ... } }

(5) M(*-to*) = { { What have **you** done with it? }  
 { What have **they** done with it? }  
 { What have **I** done with it? }; ... }

Sentences with *-to* generate scalar implicatures in the same way as sentences with contrastive topics do (see, for example, Lee 2006). Essentially, *-to* creates two points of contrast: *you* vs. *they/I/etc.* and the property of *not having read the book* vs. other

context relevant properties, such as *browsing through it* or *buying it*.<sup>2</sup> The latter set forms a pragmatic, contextually relevant, scale:  $\langle \textit{read the book}, \textit{browse through the book}, \textit{buy the book} \rangle$  (following Hirschberg 1985/1991). While it is asserted that the truth value of the proposition *read-it(you)* is false, the truth values of the other propositions are not determined. However, the discourse could naturally proceed in that direction or truth values of some propositions could already be part of common ground. This is graphically represented in (6), which utilizes the Question Under Discussion (QUD) discourse model (Roberts 1996, Büring 2000):

(6) D-tree for an utterance with *-to*, (2):



<sup>2</sup> The position of *-to* in the sentence is determined by which element plays the role of a contrastive topic/theme/link: if, for example, *-to* were cliticized to *eē* 'it/this book,' the generated set of questions (or the set of sets of propositions) would be organized around the contrast on *this book* vs. *that book* or *this book* vs. *this article* vs. *this dissertation* and the respective properties of each of these entities (the property of *not having been read by you* vs. other relevant properties).

## 2.2. The particle *že*

The particle *že*, as in (7-8), is the sentential *že* (in the sense of Parrott 1997, as opposed to the phrasal *že*): even though it can appear in different positions, the resulting sentences have the same meaning.

- (7) Ty *že* eë ne čital!  
'But you HAVEN'T read it!  
[even though you believe and/or act as if the opposite is true]'

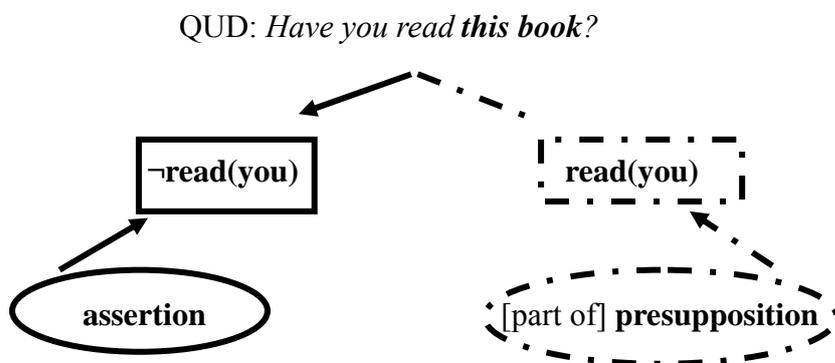
- (8) Ty (*že*) eë (*že*) ne čital (*že*)!

This particle has been analyzed as a so-called *verum focus marker*: it creates contrast on the polarity of the proposition. Thus, in (7-8) the proposition *the hearer has not read the book*, uttered by the speaker, is contrasted with the contextually relevant proposition *the hearer has read the book*, which may be attributed (possibly erroneously) by the speaker to be true of the hearer on the basis of the hearer's behavior and/or presuppositions or implicatures of the hearer's previous utterances. To elaborate on the discourse situation in (1) when A recommends that B read a particular book: what may have made B utter (7) is B's knowledge that A has just bought this book and, therefore, has not had any time to read it. While the fact of A's buying the book is true, B's conjecture that A has not read the book may or may not be true (a couple of possible scenarios: A had previously read a library copy of the book and decided to buy a copy to own; or A already owns a copy and has read it and is buying another one for a gift to somebody else, etc.). The natural way for the discourse to proceed is in the direction of finding out which of the two mutually exclusive propositions is true: either *the hearer has read the book*, or *the hearer has not read the book*.

To summarize, the set evoked by *že* in (7) consists of two propositions, only one of which can be true, as shown in (9). Proposition *p* marked with *že* asserts *p* and presupposes that the hearer believes, or acts like,  $\neg p$  (cf. Hagstrom and McCoy 2003). The discourse tree for (7) is shown in (10).

- (9) M(*že*) = {**You haven't read it;** *You've read it*}

(10) D-tree for the utterance with *že*, (7):



### 2.3. The particle *ved'*

Researchers agree that while *že* is perceived as a verbal attack on the addressee, *ved'* (11-12) is less argumentative and more of a polite reminder or advice to the addressee (see references in McCoy 2001).

(11) Ty *ved'* eë ne čital!

‘You haven’t read it, you know! [*I’m reminding/advising you to do so*]

(12) (*ved'*) Ty (*ved'*) eë (*ved'*) ne čital (*ved'*)!

The discourse situation in (1) can be elaborated in the following way to make for the felicitous use of the particle *ved'*: A recommends B to read some bestseller; B knows that A hasn’t read it yet but takes A’s recommendation as echoing or endorsing the opinion of others (if it is a bestseller, it should be good).

The particle *ved'* evokes the same set of mutually exclusive propositions as *že* does (see 9-10). However, *ved'* lacks the presupposition that the hearer believes or acts as if  $\neg p$  is true. Instead, by using *ved'* the speaker indicates that s/he is aware that the hearer knows  $p$  but is not thinking about it at the moment (cf. Parrott 1997, McCoy 2001).

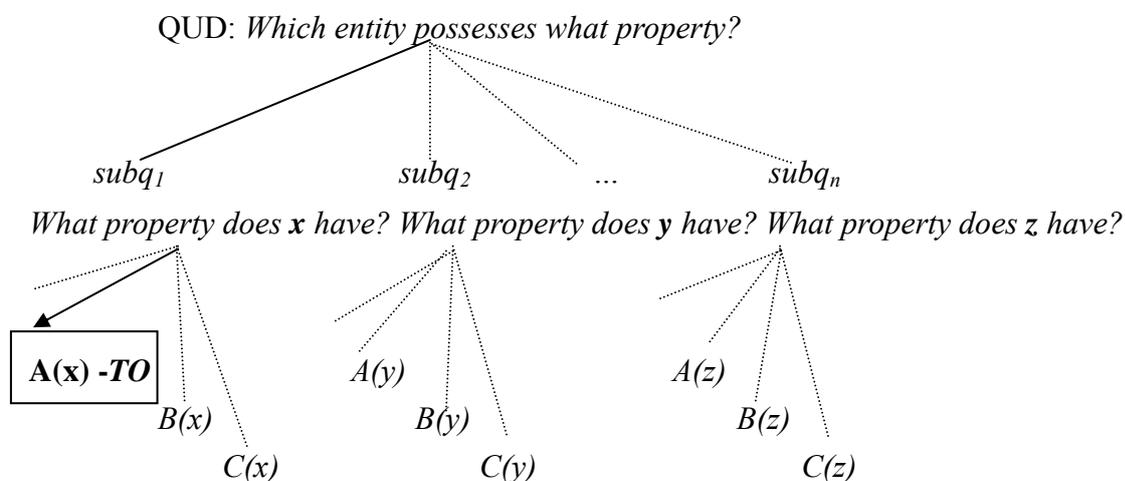
2.4. Summary on the particles *-to*, *že*, and *ved'*

The particle *-to* generates a set of sets of propositions, or alternatively, a set of questions, shown in (13-15), in which the proposition marked by the particle *-to* is asserted, while the other propositions are implicated, foregrounded, or made discourse-salient:

$$(13) M(-to) = \{ \{ \mathbf{A(x)}, B(x), C(x), \dots \}; \\ \{ A(y), B(y), C(y), \dots \}; \\ \{ A(z), B(z), C(z), \dots \}; \dots \}$$

$$(14) M(-to) = \{ \text{What is true of } x?; \\ \text{What is true of } y?; \\ \text{What is true of } z?; \dots \}$$

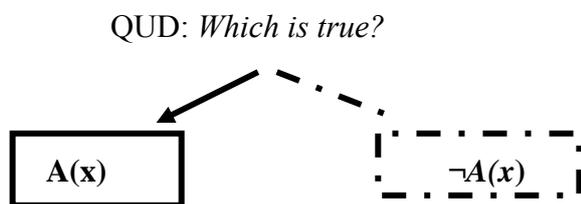
(15) D-tree for utterances with *-to*:



The particles *že* and *ved'* generate a set of mutually exclusive propositions, only one of which could be true, shown in (16-17). The proposition marked by *že* or *ved'* is asserted by the speaker, the other proposition is attributed by the speaker to be a part of the addressee's knowledge or belief set:

$$(16) M(\textit{že/ved}') = \{ \mathbf{A(x)}; \neg A(x) \}$$

(17) D-tree for utterances with *že* or *ved'*:



Now let us proceed to examine whether these context-invariant meanings of the particles are preserved in utterances containing combinations of these particles.

### 3. Particles in Combination

If two particles are used in the same clause, one of them assumes “scope” on a term, while the other one takes “scope” over the proposition.

#### 3.1. A combination of *-to* + *že*

In this combination, as in (18), the particle *-to* is cliticized to the term which functions as a contrastive topic/theme/link, while *že* takes a wider, sentential, scope:

- (18) Ty-*to* (*že*) eě (*že*) ne čital (*že*)!  
 ‘As compared to the others, you HAVEN’T READ it!’  
 [*Other activities you may have done with it do not count; what is relevant is that you haven’t read it - but the others may have!*]

The result of adding the *že*-type of contrast to the set of sets of propositions evoked by *-to* is the following: in the ‘you’-subset, the asserted proposition *You haven’t read the book* is contrasted with the proposition *You have read the book*, which is a part of the *že* presupposition [*you believe or act as if you have read the book*]. This, however, has a consequence for certain propositions in the remaining subsets within the *-to* implicature set, namely those that share the property of *having read the book*: *read-it(they)* and *read-it(I)*, which become foregrounded. This accounts for the connotations of utterances with *-to* + *že*: the most salient contrasts in (18) are between  $\neg$ *read-it(you)* and *read-it(they)*:

- (19) M(-to+že)= { **You've read it; You haven't read it;** You've bought it;}  
 {*They've read it;* They haven't read it; They've bought it}  
 {*I've read it;* I haven't read it; I've bought it;...} }

### 3.2. A combination of *-to* + *ved'*

Similarly to the *-to* + *že* combination, the particle *-to* here cliticizes to the contrastive topic/theme/link and *ved'* takes a sentential scope, as in (20). The resulting *-to* + *ved'* set in (21) is identical to the *-to* + *že* set in (19).

- (20) (*ved'*) Ty-*to* (*ved'*) eě (*ved'*) ne čital (*ved'*)!  
 'As compared to the other people involved, you haven't READ it, you know!'  
 [*My advice is that you should!*]

- (21) M(-to+ved')= { **You've read it; You haven't read it;** You've bought it;}  
 {*They've read it;* They haven't read it; They've bought it}  
 {*I've read it;* I haven't read it; I've bought it;...} }

A legitimate question arises: if there is no difference in the set membership, then what accounts for the difference in connotations between (18) and (20)? One possible explanation is the different presuppositions the two particles carry.

Another way to explain the phenomenon is to examine it from a completely different perspective (which is beyond the scope of this paper), i.e., the cognitive statuses of referents marked by the two particles and, specifically, the speaker's assessment of the hearer's state of knowledge and the set of matters of current concern (in the sense of Yokoyama 1986; for a detailed treatment of these two particles see Parrott 1997). Thus, in (18), *že* marks the proposition *You haven't read this book* as the one that should have been activated/present in addressee's set of matters of current concern (thus, the tone of aggressiveness, impatience, contradiction, confrontation, etc.). A possible continuation of the discourse for (18) is:

- (22) Ty-*to že* eě ne čital! Počemu *že* ty s nimi sporiš'?  
 'But as for you, you HAVEN'T READ it yet. Why on earth are you arguing with them?'



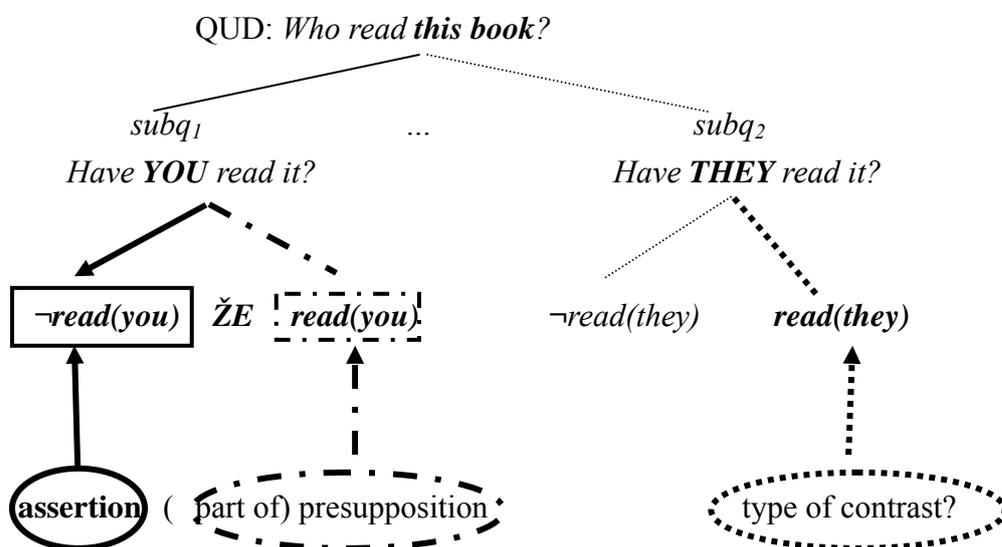
*že* + *že*, shown in (27), consists of two pairs of propositions with opposite polarity values inside each pair – *You have (not) read it* and *They have (not) read it* – and the two pairs of propositions differ in one term: *you* vs. *they*. Notice that this *že* + *ved’/že* set and its corresponding Discourse tree (28) differ in important ways from the *-to* + *že/ved’* set in (19/21) and its D-tree in (24):

(25) (*ved’*) Ty *že* (*ved’*) eĕ (*ved’*) ne čital (*ved’*)!  
 ‘As opposed to the other party involved, you haven’t read it, you know!  
 [*while they have!*]

(26) Ty *že* (*že*) eĕ (*že*) ne čital (*že*)!  
 ‘As opposed to the other party involved, you HAVEN’T read it!  
 [*but they have!*]

(27) M(*že* + *ved’/že*) = { { **You haven’t read it**; *You’ve read it* }  
 { They haven’t read it; *They’ve read it* } }

(28) D-tree for an utterance with *že* and *že/ved’*:



besides its occurrence in emotional speech and the flavor of being somewhat substandard. She also calls attention to the existence of the marginal colloquial form *žež* (which is common in Belorussian).

#### 4. Conclusion

This paper has examined three colloquial Russian particles *-to*, *že*, and *ved'* and has demonstrated that the context-invariant meaning of individual particles is preserved in sentences containing particle combinations.<sup>4</sup> With respect to sets evoked by combined particles, the result is not a simple intersection or union of sets, due to the fact that one of the particles assumes a narrow scope on a kontrastive/focused term, while the other takes a wide, sentential, scope. The sets evoked by the particles individually are:

- *-to*: a set of sets of propositions;
- *že/ved'*: a set of two propositions contrasting in polarity (with different presuppositions/implicatures).

The sets evoked by the combination of particles are the following:

- *-to + že/ved'*: a set of sets of propositions, which includes two mutually exclusive propositions;
- *že + ved' / že + že*: a set containing two pairs of mutually exclusive propositions.

However, some issues have not yet received adequate treatment and have to be left for future research. The present treatment of the relationships among the propositions within the evoked sets is still on a rather intuitive level and would benefit from further formalization. The difference between the particles *že* and *ved'* needs to be examined in greater detail with respect to the evoked sets.

It would also be illuminating to sort out layers of connotations and determine their exact nature; i.e., whether these added meanings are actually presuppositions (see Hagstrom and McCoy 2002 for the discussion of *že*), or conversational implicatures (Grice 1975), or conventional implicatures (Potts 2005), or some combination of the above. Thus, the idea of utilizing the notion of scalar implicature (Hirschberg 1991) with respect to the connotations that arise with the use of the particle *-to* sounds promising.

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<sup>4</sup> A combination of all three particles is not only possible but rather frequent in colloquial speech. The membership set evoked by *-to + že + ved'* should be similar, if not identical, to the sets in (19/21) and its discourse tree should be the same as in (24). However, the limits of this paper do not allow me to go into further detail here.

This data would also benefit from being examined from another angle, i.e., with respect to the notion of contrast that is currently being developed (Molnar 2001, de Hoop and de Swart 2004, etc.). Contrastiveness within closed sets (*že, ved'*) vs. that operating in open sets (*-to*) and the properties that result from the intersections of these sets (the particle combinations) lend themselves well to the discussion on the nature of contrast.

Finally, the findings would benefit from being tested on native speakers and/or confirmed by natural language corpus research.

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# Adversative Predicates: With Reference to Nonveridicality and Expletive Negation<sup>1</sup>

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## Abstract

This paper aims to characterize weakly negative adversative predicates (AP) with reference to nonveridicality and expletive negation (EN). Some may be weaker licensers of NPIs which even evade nonveridicality. Emotive predicates are not nonveridical (Lee (1999)) but they license weak NPIs, whereas some nonveridical desiderative predicates have a partial licensibility of NPIs. Following Kadman and Landman (1993) and Lee (1999), we argue that those emotive predicates are the weakest licensers of NPIs, yielding a ‘settle for less’ interpretation or more broadly a ‘concessive type of begging’ in the speaker’s attitude. We can subdivide APs according to their negative force: they are classified into two categories by the possibility of triggering EN in the complements (Van der Wouden 1994). We claim that APs which can trigger EN in some languages are relatively weak in negative force and that they bear the feature [+nonveridical], although they vary in negative force. We show that some APs triggering EN are not strong enough to be anti-additive and instead are just DE or nonveridical at most. We also extract the predicates of apprehension *e.g. fear/afraid* and the predicates of dubitation *e.g. doubt (whether)* in Korean and in Japanese because they clearly show that the EN marker *anh(K)/nai(J)* can be triggered in the complement only if they have a non-factive interrogative complementizer such as *-(u)lkka* or *-ci(K)/-ka(J)* ‘whether,’ which we assume is a lexical realization of the feature [+nonveridical] in the matrix predicate. In contrast, when they lack the feature, they act as factive-like predicates, taking the quasi-factive complementizer *-kes* ‘that,’ showing neither DE nor nonveridicality.

**Keywords:** nonveridicality, emotive factive predicate, adversative predicate, expletive negation, predicate of apprehension, predicate of dubitation

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## 1. Introduction

This paper starts from two questions concerning nonveridicality and adversative predicates (APs henceforth) such as the following:

- (1) How can we handle emotive factive predicates (EFP) *e.g. lucky* which license NPIs and some nonveridical predicates *e.g. hope*, which partially license NPIs?
- (2) Can APs be treated as one category though there are intuitive differences of negative force among them?

The introduction of nonveridicality (Zwarts 1995, Ladusaw 1996, Giannakidou 1997, Lee 1999) has been a helpful guideline making up for the deficiency of Downward Entailment (henceforth DE), yet it still has unsolved puzzles as mentioned in (1). In addition, no clear attempt was made about the differences between APs such as *dislike*, *hate* and those such as *hinder*, *fear* as a licenser of NPIs until Van der Wouden (1994) first pointed it out in connection with expletive negation (henceforth EN).

This paper is organized as follows: Section 2 starts with a quick review of previous researches on NPI licensing contexts. Section 3 shows counter-examples to nonveridicality and treats them as the weakest licensers related to pragmatic licensing. Section 4 deals with two types of APs and their meaning templates correlated with EN in the complements. We also show that APs which can trigger EN are not strong enough to be anti-additive, instead they are DE. Section 5 will exclusively treat predicates of apprehension and of dubitation which are nonveridical but sometimes fail to be even nonveridical and act as factive predicates.

## 2. Previous Researches on Licensing Contexts of NPIs

Since Ladusaw (1979) proposed ‘downward entailing’ (or ‘monotone decreasing’) as a function of NPI licensing, more accurate properties (Zwarts 1993, Van der Wouden 1994, Nam 1998 for Korean) were proposed, creating a hierarchy of negative expressions. The following are three negative functions which largely show three types of NPIs in negative force: Weak, strong and the strongest. Weak NPIs are licensed by downward entailing, strong NPIs by anti-additive and the strongest NPIs by anti-morphic function.

(3) Three negative functions (examples are from Lee 1999)

- (a) A functor  $f$  is downward entailing iff for any  $a_1, a_2 \in A$ , if  $a_1 \leq a_2$ , then  $f(a_2) \leq f(a_1)$ . *e.g. at most (weak).*
- (b) A functor  $f$  is anti-additive iff  $f(X \vee Y) = f(X) \wedge f(Y)$ . *e.g. no, before, every (strong).*
- (c) A functor  $f$  is anti-morphic iff  $f$  is anti-additive and additionally  $f(X \wedge Y) = f(X) \vee f(Y)$ . *e.g. not (the strongest).*

The stronger functions form proper subsets of the weaker functions. Thus, anti-morphic function is a proper subset of anti-additive function and anti-additive function is a proper subset of downward entailing function. However, DE is not perfect enough to predict the distribution of NPIs since there are many non-DE contexts where NPIs are licensed (Zwarts 1995, Giannakidou 1997, 2002). Moreover the behaviors of NPIs do not exactly correspond to the negative functions in natural languages (Lee 1999). For instance, there are hardly any NPIs cross-linguistically that are exclusively licensed by the strongest functor, a sentential negation (Lee 1999). In order to account for non-DE contexts, Zwarts (1995) adopts a weaker function, which is ‘nonveridicality’, and Giannakidou (2002, 2007) developed it with Greek subjunctive mood. Zwarts' (1995) definition about nonveridicality, as simplified, is as follows:

(4) Nonveridicality

Let  $O$  be a monadic sentential operator.  $O$  is said to be veridical just in case  $Op \Rightarrow p$  is logically valid. If  $O$  is not veridical, then  $O$  is nonveridical. A nonveridical operator is called averidical iff  $Op \Rightarrow \sim p$  is logically valid.

Zwarts claims that NPIs are sensitive to nonveridical contexts. As shown above, overt negation *not* is averidical and belongs to nonveridicality at the same time. We also take the view that nonveridicality is an extension of DE (Giannakidou 2002). Thus DE forms a proper subset of nonveridicality. In this respect, nonveridicality appears to cover all the licensing contexts of NPIs. However, there are two problems, i.e., over-generation: there are nonveridical predicates such as *dream* that do not license NPIs, and under-generation: some predicates such as emotive factive predicates even evade nonveridicality. In addition, some nonveridical predicates partially license NPIs. These will be treated in the next section.

### 3. Unsolved Puzzles with Nonveridicality

#### 3.1. Emotive Factive Predicates

Emotive factive predicates (EFP) in Korean such as *tahayng-i-ta* 'lucky', *nollap-ta* 'surprising' and *hwuhoyha-ta* 'regret', license the weak NPI form *amwu-i-ra-to* 'any', as Lee (1999) observed.

- (5) *amwu phyo -i -ra-to kuhay-ss-uni tahayng -i- ta.*  
any ticket -be-DEC-even get-PAST-since luck -be -DEC  
“(I) am lucky that (I) got any tickets (at all).”

Kadmon and Landman (1993, henceforth K&L) explain the licensibility of NPIs in EFPs with a ‘settle for less’ interpretation. *Any* is licensed just in case a ‘surrogate wish’ is satisfied. That is, though the speaker's ‘real wish’ is not satisfied, he is willing to settle for less and be glad about the ‘surrogate wish’.

Lee (1999) is sympathetic with ‘settle for less’ by K&L and argues that EFPs can license NPIs when they yield a ‘concession type of begging’ interpretation. According to him, the phenomenon of negative polarity and free choice is one and the same phenomenon based on the *wh*-indefinites plus concessive indicator cross-linguistically (Lee 1997). The concession in NPIs and FCIs can be interpreted variably depending on different contexts. The categories of strong NPIs and FCIs belong to the concession type of ‘betting’ and the category of weak existential NPIs belongs to the concession type of ‘begging.’ Although the English NPI *any* does not show the strong - weak distinction on surface, *any* in EFP complements is a weak existential NPI type and most typologically distinct languages from English have the weak form manifested on surface. To yield the concession type of begging, the speaker's real motivation behind the phenomenon should be considered. Example (5) implicates that the speaker did not expect to get *any* ticket and (s)he feels lucky in a concession to this expectation though (s)he couldn't get the very ticket or preferable tickets (s)he wanted. This argument can be supported by Giannakidou (2002) as she proposes a ‘pragmatic licensing’ for a solution of the EFPs, rather than a purely semantic account.<sup>2</sup> Although the semantic/pragmatic boundary is

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<sup>2</sup> Giannakidou (2006) uses the term ‘indirect licensing’ as a secondary condition to nonveridicality, arguing that *any* can be in the scope of veridical expression if this expression generates a nonveridical inference. She distinguishes her notion of ‘indirect licensing’ from that of Linebarger's in that her notion makes appeal to the global context of sentence, which contains the assertion (entailments and presuppositions) and implicatures (conventional as well as conversational) while Linebarger just allows a

controversial, this kind of licensibility of weak NPIs is not universally witnessed, when cross-linguistically examined. *Content* ‘content’ in French, for instance, does not license NPIs (Lee 1999).

(6) \**Je suis content d'avoir obtenue quelque ticket que ce soit.*

I am content to have got any ticket that it be (sub.)

“I am happy to get any ticket.”

From the examples above, we argue that EFPs should be considered as the weakest licensers of NPIs because (i) the negative implicature behind the speaker’s motivation and concessive interpretation for this implicature should be considered, which belong to the pragmatic domain, and (ii) licensibility of weak NPIs in EFPs shows cross-linguistic variation.

Another interesting point on EFPs is that factive presupposition in this predicate is weaker than assertive force, as Moeschler & Reboul (1994) argue.

(7) *C'est vrai que Max est linguiste.*

“It is true that Max is (ind.) a linguist.”

(8) *Il est surprenant que Max soit linguiste.*

“It is surprising that Max is (sub.) a linguist.” (Moeschler & Reboul 1994)

For Moeschler & Reboul (1994:251-2), the proposition ‘Max is a linguist’ in (7) must be true in order for the whole sentence to be true. But this is not required for (8). ‘Max is a linguist’ might be false and the entire sentence will be considered as true, only if ‘the fact that Max is a linguist is surprising’ is true. The use of ‘subjunctive mood’<sup>3</sup> with EFPs in French also supports our argument that the complements of EFPs are weaker in assertiveness; they can be associated with a negative implicature more easily. As Lee (1999) already mentions, these subtleties must be taken care of to account for all different sorts of NPIs.

On the other hand, the distinction between ‘emotive adversative predicates’ e.g. *sad*, *surprising* and ‘emotive non-adversative affective predicates’ e.g. *lucky*, *glad* should be made, because it seems that *sad*, *surprising*, *ashamed* are a little more permissive with *any* than *lucky*, *glad* (e.g. *He was glad to take some money*, Klima

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negative conversational implicature.

<sup>3</sup> Traditionally indicative represents the act or state as an objective fact while subjunctive expresses subjective actions such as will/wanting, emotion, doubt, possibility, necessity, judgment, comparatives.

1964). Still another group is positive: *sure, smart, anxious, in favor of*, not licensing NPIs.

(9) I am surprised/sorry/ashamed that he ever said anything.

(10) a. I'm glad/\*sure that I ever met him.

b. I'm glad/\*sure I said anything. (K&L 1993)

Concerning this problem, Linebarger (1987, cited by K&L 1993) maintains that sentences with APs have a negative implicature. Let's take examples ((11)-(13), modified from K&L):

(11) I am sad that he had to feel any survivor's guilt about living while others died.

(11') I want for him not to have to feel any survivor's guilt.

(12) *ku-ka amwu chinkwu i -ra -to iss-ta -ni nollap-ta.*  
he-NOM any friend -be-DEC-even have-DEC-since surprising-DEC

"It's surprising that he has any friend."

(13) *C'est surprenant que quoi que ce soit résiste à une réinstallation de Mac OS X.*

"It is surprising that anything is resistant to reinstall Mac OS X."

Sentence (11) is said to implicate sentence (11'). However, (11') does not seem to be a mere conversational implicature, because emotive affective predicates can also be affected by speaker's conversational implicature. K&L argue that there is a special connection between (11) and (11') and this connection is an entailment determined by lexical semantics. However, if emotive APs have a negative entailment in its lexicon, why do they always take weak NPIs as shown in the Korean and French examples of (12), (13), while some other APs take strong NPIs? This observation leads us to conclude that a negative proposition inferred by an emotive AP may not be a negative entailment in its lexicon, but rather, something weaker, and we tentatively suggest that the connection between (11) and (11') be a conventional implicature. Emotive APs will be treated as weak NPI-licensing APs along with the predicates of apprehension and of dubitation which will be presented in section 5.

### 3.2. Nonveridical Predicates

The second problem about nonveridicality: nonveridical fiction predicates such as *dream, imagine* do not license NPIs, whereas nonveridical desiderative predicate *hope*

in English licenses NPIs for a very limited population of native speakers. Observe:

- (14) a. %I hope there is *any* food left. (Lee 1999, from Giannakidou 1999 via Horn, p.c. and S. Strauss, p.c.)<sup>4</sup>  
b. In Korean, a weak NPI *amwu umsik-i-ra-to* ‘any food’ is fully licensed in the same context as (14a) with the verb *para-ta* ‘hope.’

Example (14) shows that *hope* or its Korean equivalent can license a weak NPI only if the speaker's negative implicature is evoked in the context. As for (14), it is acceptable only if we imagine that the speaker expects or is worried that there is no food left in some possible world. The verb *hope* as well as other desiderative verbs such as *want*, *desire* is a nonveridical and intensional verb which can be affected by speakers' pragmatic attitudes at the time of utterance. If the speaker believes that the argument proposition of these verbs has the possibility of realization the verbs do not license NPIs. If the speaker tends to believe the impossibility of realization of the argument proposition and yields a concessive type of ‘begging,’ then they do license NPIs. Thus, we treat *hope* as the weakest type of NPI licenser along with emotive (non-adversative) factive predicates. In the mean time, *dream*, *imagine* are fiction verbs, so their argument proposition is always realizable in the speaker's specific world. For this reason, they do not license NPIs.

The counter-examples presented above show that nonveridicality is neither a necessary nor a sufficient condition of licensing NPIs. Nevertheless, the notion of nonveridicality is useful to figure out weak licensers of NPIs among APs to be dealt with shortly.

#### 4. Two types of Adversative predicates

##### 4.1. Adversative Predicates and Expletive Negation

In this section, we deal with the adversative predicates (APs), which have been treated without any clear distinction in their negative force. To define ‘adversative predicate’ is not easy and only few studies have been made of this. Espinal (1991, cited by Van der Wurff 1999) describes APs as “certain lexical items which trigger [...] some

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<sup>4</sup> In French, a volitional verb *souhaiter* does not license the weak type of NPI *quoi que ce soit*.  
(1) \**Je souhaite qu'il y ait quoi que ce soit de laissé.*  
“I hope that there is anything left.”

sort of negative import”. Hoeksema and Klein (1995), using the term ‘negative predicates’, explain that the truthfulness of their complements may be called into doubt and existential entailment may be canceled. The definitions are vague and raise a question why APs show differences both in licensing EN and types of NPIs in the complements. Van der Wouden (1994) characterizes APs as correlated with EN. We, deriving ideas from his observation, will draw a distinction between strong and weak APs by their licensibility of strong and weak types of NPIs in section 4.2.

The contexts where EN appears show cross-linguistic diversity. EN shows up in the embedded clause of some APs and also in two more environments: comparatives of inequality and certain conjunctions related with time. The following are the contexts where the EN marker *ne* appears in French, which is one of the languages having diverse contexts triggering EN.

(15) The contexts where the EN marker *ne* appears in French

- a. Adversative Predicates or Expressions: *avoir peur* ‘to be afraid’, *craindre* ‘to fear’, *douter* ‘to doubt’, *empêcher* ‘to prevent’, *nier* ‘to deny’, *de peur que* ‘for fear that’, *de crainte que* ‘for fear that’.
- b. Comparatives of inequality: *autre* ‘other’, *meilleur* ‘better’, *mieux* ‘best’, *moins* ‘less’, *pire* ‘worse’, *plus* ‘more’, *plutôt que* ‘rather than’.
- c. Conjunctions: *à moins que* ‘unless’, *avant que* ‘before’, *sans que* ‘without’.

Let’s take a look at the example of (15a).

(16) *Je crains qu’il ne dise quoi que ce soit qui offenserait les banques.*

I fear that he EN say(sub.) anything which offend(cond.) the bank

“I fear that he **ne** might say anything which would offend the banks.”

The issue of whether *ne* in Modern French is or is not inherently negative does not come to a firm conclusion (Rowlett 1998). In this paper, we suggest that French *ne* is not inherently negative but it expresses a most widely nonveridical context, namely, not a thoroughly veridical context. French *ne* negates verbs with other reinforcing adverbs such as *pas*, *point*, *plus*, *jamais* etc, but *ne* alone cannot mark negation except with very restricted expressions.<sup>5</sup> Besides, *ne* is often dropped in spoken French and

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<sup>5</sup> Pseudomodal verbs such as *savoir* ‘to know’, *oser* ‘to dare’, *pouvoir* ‘to be able’ and some frozen expressions in French can be fully negated with pre-verbal *ne* alone. For these cases he assumes that there is non-overt operator (OP[+NEG]) in SpecNegP (Rowlett 1998).

*pas* alone negates a sentence. Also *ne* has an expletive use. The EN *ne* is called a ‘non-negative *ne*’ because it is usually regarded semantically redundant and does not affect the sentence meaning, being optionally used. However, when the EN *ne* is triggered by APs, the speaker’s attitude of undesirability toward an uncertain phenomenon is expressed, whereas the sentence without EN shows the speaker’s neutral attitude. In example (16), the speaker expresses his or her attitude that uncertain event in the complement is undesirable, by triggering EN.

Within the Guillaumian framework (Martin 1987), EN *ne* is interpreted as a sign of possibility as a movement going from the positive to the negative. That is, EN *ne* catches the negative movement in the speaker’s psychology. In this sense, the contexts which trigger EN have an uncertain or a weakly negative meaning.

We can notice in (16) that the verb *craindre* ‘fear’ licenses both EN *ne* and weak NPI *quoi que ce soit* with the subjunctive. However, the three contexts above in (15) allowing EN in French should not be collapsed into one category, as Van der Wurff (1999) claims, since there are other languages having EN only in some more limited contexts. (15b, c) and some of (15a) are regular DE contexts licensing strong or weak NPIs depending on different languages. Moreover, the contexts in (15a, c) can trigger EN *ne* in the complements with the subjunctive but the subjunctive is not required in (15b). Therefore, the contexts triggering EN intersect with the subjunctive in French. In this respect, this paper focuses exclusively on those limited APs in (15a) rather than all contexts licensing EN as in French.

#### 4.2. Analyzing Expletive Negation under Adversative Predicates

Van der Wouden’s (1994) attempt to correlate adversative predicates (AP) with EN provides a formal fingerpost over most linguists’ intuitive presumptions. He regiments APs into two categories by lexical meaning templates. The template of the APs triggering EN is given as ‘V THAT NOT X’ while that of the other APs is ‘NOT V THAT X’ (Van der Wurff 1999). From the templates, we can see that EN is involved in the indirect (and often weak) negation of the embedded proposition. Examples (17) and (18) are the analyses of meanings of *fear* and *hinder* which trigger EN in languages that have it (Van der Wouden 1994).

(17) HINDER X = CAUSE X NOT TO BECOME THE CASE

(18) FEAR X = BELIEVE THAT X WILL BE THE CASE AND HOPE THAT X  
WILL NOT BE THE CASE

Progovac (1992) points out that APs can license NPIs only in their complement position.<sup>6</sup> She suggests that NPIs can be licensed by a polarity operator in the complementizer position of a clause governed by APs whose function is to make the truth value of the clause indeterminate.

Espinal (1991, 1992 cited by Van der Wurff 1999) focuses on EN and proposes that the specifier position of NegP will be filled not by a negative element but by a truth value operator that is not negative. NegP has a head that is negative, yet the negative meaning of the NegP is absorbed by the matrix predicate so NegP remains expletive.

Concerning French *ne*, Rowlett (1998:34-5) assumes that *ne* is licensed in two ways; it is licensed by (indirect) selection or it can be licensed by spec-head agreement. The EN *ne* is licensed by the first way. According to him, the availability of EN *ne* is determined by the immediately superior predicate. Thus EN *ne* is accompanied by neither overt operator such as *pas* nor non-overt operator<sup>7</sup>. That is, when EN *ne* is triggered, there is no operator bearing the feature [+NEG] to transmit it to Neg° where *ne* is located, unlike in Espinal.

From their arguments, we can notice that a polarity or truth value operator is not negative, and an operator bearing [+NEG] does not exist when EN *ne* appears at Neg° in French. The reason we are alluding to this is that they are affected by the feature [+nonveridical] in the matrix predicate. In the case of APs which can trigger EN such as *deny*, *prevent/hinder*, *fear*, *doubt* in French, they presuppose the non-factivity of the complements. According to the definition of nonveridicality in (4), if Op--/-->p, O is nonveridical. In this respect, we suggest that APs triggering EN bear the feature [+nonveridical], although there is a hierarchy in negative force among them.

Hoeksema and Klein (1995) show that strong NPIs *ook maar-indefinites* ‘any-indefinites at all’ in Dutch can be licensed only in the complements of APs and explain this by mapping types of NPIs and types of APs with Partee’s type shifting. But they just treat monotone-decreasingness of APs and do not mention relative degree of their negative force. Choi & Lee (1998) show that APs such as *samka-ta* ‘refrain from’ and *kecelha-ta* ‘refuse’ are anti-additive and license a strong NPI *te-isang* ‘anymore’ in Korean<sup>8</sup>.

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<sup>6</sup> Hoeksema and Klein (1995) give a list of English negative predicates which trigger NPIs with four different argument types.

<sup>7</sup> Please refer to footnote 4.

<sup>8</sup> Choi & Lee (1998) argue that APs which license *te-isang* are **anti-additive**. For example, *hate* in Korean licenses *te-isang* and is anti-additive. Sentences (2) and (3) show mutual entailment relation.

(2) Mary hates raising dogs or cats. ↔ (3) Mary hates raising dogs and Mary hates raising cats.

In this paper, we will treat APs which trigger EN. We have already mentioned that EN expresses the speaker's attitude of undesirability toward an uncertain phenomenon with APs. This also corresponds to our argument that APs triggering EN bear the feature [+nonveridical], namely, the truth value of the clause is not determinate. We assume that they are relatively weak in negative force.

As shown in the examples of (19) and (20), *puinha-ta* 'deny', *panghayha-ta* 'hinder,' which trigger EN in some languages (but not in Korean) do not license a strong type of NPI *te-isang* 'anymore' in Korean.

- (19) \**John-un te-isang ku-lul manna-l-kes ul puinhay -ss -ta.*  
 J -TOP anymore him-ACC meet FUT-COMP deny -PST-DEC  
 "John denied that he would meet him anymore." (OK in English)
- (20) ?\* *ku-nun nay-ka te-isang ppang-ul mek -ki lul panghayha-n-ta.*  
 He-TOP I-NOM anymore bread-ACC eat -COMP hinder-PRES-DEC  
 \* "He hinders me from eating the bread anymore."

However, the other APs such as *phokiha-ta* 'give up', *eryep-ta* 'difficult', *silheha-ta* 'dislike' license *te-isang* in the complements (See Choi & Lee 1998 for further examples).

- (21) *Kiho-nun te-isang ku-ekey mal-ul kel -ki ka erye -wess -ta.*  
 K -TOP anymore him-to word-ACC talk-COMP difficult-PST -DEC  
 "It was difficult for Kiho to talk to him anymore."

Moreover, *puinha-ta* 'deny' can license only the weak type of NPI *amwu-N-i-ra-to* 'any N' but not the strong type *amwu-N-to* 'any N'<sup>9</sup> whereas *eryep-ta* 'difficult'<sup>10</sup> can license both of them.

- (22) *Joe -nun amwu-phyo\*(-i-ra)-to sa-ss-ta -nun kes ul puinhay-ss-ta.*  
 J -TOP any ticket-be-DEC-even buy-PST-DEC-Comp deny-PST-DEC  
 "Joe denied that she bought any ticket."
- (23) *John-un amwu(-i-ra)-to manna-ki eryep-ta.*  
 J -TOP anyone meet -Comp difficult-DEC.

<sup>9</sup> Existential weak type NPIs are also licensed in verbs such as *panghayha-ta* 'hinder' in (20).

<sup>10</sup> The strongest type of NPI *amwu-to* 'anyone' or *amwu-N-to* 'any N' are licensed in the verbs such as *phokiha-ta* 'give up' and *silheha-ta* 'dislike' as well. These predicates do not trigger EN in any language. However *amwu-to* shows more restricted distribution than *te-isang*.

“It is difficult for John to meet anyone.”

The difference between (22) and (23) is the availability of EN in the complements. *Puinha-ta* ‘deny’ in (22) triggers EN (in some languages) and cannot license a strong type of NPI *te-isang*, not to mention the strongest type of *amwu N-to*. By contrast, *eryep-ta* ‘difficult’ in (23) does not trigger EN and license even the strongest type of NPI in Korean. We have shown that the contexts which license *te-isang* are anti-additive. Therefore, APs in (19)-(20) are not strong enough to be anti-additive. Instead, they are DE as shown in (24)-(25).

(24) |pizza| ≤ |food|

a. Jane prevented me from buying food.

-->b. Jane prevented me from buying pizza.

(25) a. John denied that I ate food.

--> b. John denied that I ate pizza.

Sentence (24a) and sentence (25a) respectively entail (24b) and (25b), therefore they can license *any* as DE, e.g. *Jane prevented me from buying any food*. We summarize the classification of APs according to their negative force in Table 1.

Table 1. Two Types of Adversative Predicates

EN; Strong/Weak NPI	Meaning Template	Negative Force	Examples
EN not triggered Strong NPI	Not V that X	Anti-additivity	<i>silheha-ta</i> ‘dislike’ <i>eryep-ta</i> ‘difficult’ <i>phokiha-ta</i> ‘give up’
EN triggered Weak NPI	V that Not X	DE	<i>puinha-ta</i> ‘deny’ <i>panghayha-ta</i> ‘prevent/hinder’

We should point out that all APs triggering EN are not as weak as to be nonveridical in negative force, though they bear the feature [+nonveridical]. However, they show relatively weak negativity comparing to the other APs. As example (22) shows, only a weak NPI is licensed in this DE context. If the postulated negative were directly associated with the complement S, a strong NPI must be licensed in it because of the locality condition on strong NPIs, which is not the case.

In fact, EN shows considerable variation not only cross-linguistically but also lexically. In the next section, we will show weaker APs such as *fear* or *doubt* with data

in Korean and Japanese because they are good examples triggering EN with a non-factive interrogative complementizer which requires the feature [+nonveridical].

5. *Predicates expressing apprehension or dubitation: a weaker type*

We have shown that APs such as *prevent/hinder* and *deny*, which trigger EN in some languages are relatively weak in negative force, falling under DE, but not anti-additive. Among the APs, an apprehensive predicate is the most widely exemplified context as an AP triggering EN in many languages. *Fear* in Yiddish also triggers EN as in (26).

- (26) *di tsvey hob-n moyre ge-ha-t es zol im nit shat-n zum gezunt.*  
 the two have-3PL fear have-PTCP it shall he.DAT EN harm-INF to.DEF.ART health  
 “Both of them were afraid that it would harm his health.” (Bjoern Hansen, Ms)

Also, predicates expressing apprehension and dubitation can trigger EN in Korean and Japanese as well.<sup>11</sup> (K stands for Korean and J for Japanese.)

- (27) a. *ney -ga kamki-ey keli ci -nun anh ass-ul kka kekceonha-go iss-ta.*(K)  
 you-NOM cold-ACC catch -TOP (do) -EN -Comp fear -PROG-DEC  
 (a, b) “(I) fear that you might catch cold.” ((28b) is from Kinoshita 1998)
- (28) a. *ku-ka param-i-ra-to phiwu-ci -nun anh ass -ul kka uysimha-ko iss-ta.*  
 He-NOM cheat -be-DEC-even do -TOP EN PST -Comp doubt-PROG-DEC  
 “(I) doubt that he cheated on me.” (K)
- b. *watashi-wa kare ga usotsuki de-wa nai -ka to utagatte-i-masu.*  
 I -TOP he NOM liar DEC-TOP EN Comp doubt-PROG  
 “I doubt that he is a liar.” (J)

We observe that these two predicates can take two different types of complementizer in Korean and Japanese which are *-(u)lkka* or *-ci(K)/-ka* (J) ‘whether’ as in (27-28) and

<sup>11</sup> An EN marker is also shown with the DE conjunction *before* and its equivalents, which license NPIs and in particular a strong NPI in Korean (example (4d) is from Kinoshita 1998). Observe:

(4) a. *?etuwe cici -anh ki cen-ey tora-wa-ra..* (K)  
 b. *kuraku nara -nai mae-ni kaette-kuru no-desuyo.* (J)  
 dark become -EN before return -IMP.  
 “Please come back before it gets dark.”

-kes(K) /-koto or-no(J) ‘that’ as in (29-30).

- (29) a. *na-nun nay-ka tanci salm-ey hengmi-lul ilh-ess ta -nun kes-i twuryep-ta.*  
I-TOP I-NOM simply life-in interest-ACC lose-PST-DEC-Comp afraid-DEC.  
“I am afraid that I simply have lost all interest in living.” (K)
- b. *boku mo hito-o kizutsukeru -no ga kowaii.*  
I also person-ACC hurt -Comp afraid  
“I am also afraid of hurting a person’s feeling.” (J)
- (30) a. *na-nun John-i mihonnam-i-ra nun kes-i uysimsurep-ta.*  
I-TOP J-NOM bachelor-be-DEC Comp doubt -DEC  
“I doubt that John is a bachelor.” (K)
- b. *watashi-ga tamatama sono sennin ni atta -to iu -koto o utagau hito -ga iru.*  
I -NOM by chance that hermit meet-Quat. say -Comp doubt person-NOM exist  
“There is a person who doubts my saying that I met that hermit by chance.” (J)

However, the predicate of apprehension and dubitation can trigger the EN marker in complements, only when it takes *-(u)lkka* or *-ci(K)/-ka* (J) ‘whether’ as a complementizer in Korean and Japanese.

- (31) a. *na-nun etten silswu -i -ra -to ha -ci anh -ass -ul kka twuryep-ta.*  
I-TOP any mistake-be-DEC-even do- EN -PST -Comp afraid-DEC.  
b. *na-nun etten silswu -i -ra -to ha -ss -ul kka twuryep-ta.*  
(Lit.) a&b “(I) am afraid that I might have made any mistake.” (K)
- (32) a. *kare -ga shiken-ni ochiru- no de -wa nai -ka to shimpaishi-tei-ru.*  
He -NOM exam DAT fail Comp -TOP EN Comp worry-PROG-DEC  
b. ?? *kare-ga shiken-ni ochiru-ka shimpaishi-tei-ru.*<sup>12</sup>  
(Lit.) a&b “(I) am worried that he might fail the exam.” (J)

The meanings of (31a-b) and (32a-b) remain the same regardless of the existence of the EN marker. The expletive *anh* in (31a) often falsely invites a negative interpretation. If *anh* is used negatively here, the speaker is worried about not having made any mistake, which is absurd. A weak NPI is impossible.<sup>13</sup> Interestingly, the EN marker *-anh* can be triggered by the psychological verb *sip-ta* ‘seem’ in Korean, when

<sup>12</sup> In Japanese, when apprehensive verb is constructed with a negative expression such as *fail*, the usage of EN seems to be a frozen expression.

<sup>13</sup> If EN+interrogative complementizer ‘*-anh -ulkka*’ is followed by the auxiliary *po-a* ‘guess’, it receives negative interpretation.

it takes the non-factive interrogative complementizer *-(u)lkka* or *-na* as well. In that case, the verb *sip-ta*, as a typical nonveridical verb, can also license weak existential NPI.

- (33) *ku ai -ka amwu kes\*(-i-ra) -to mek -ci anh-ass -ulkka sip-ta.*  
 the boy-NOM any thing –be-DEC-even eat -EN -PST COMP seem-DEC.  
 “It seems (to me) that the boy ate something or other.”

On the other hand, the APs such as *panghayha-ta* ‘prevent’ and *puinha-ta* ‘deny’ in Korean cannot take *-(u)lkka* or *-ci(K)*.<sup>14</sup> They don’t trigger EN in Korean or Japanese. In this respect, data in Korean and Japanese clearly show that the predicates triggering EN always take non-factive interrogative complementizer. We claim that this complementizer is the lexical realization of the feature [+nonveridical] in the matrix predicate. A yes/no or verum (truth) question seeks either affirmation or denial, and a negative question in its long form (‘Isn’t it the case ---?’) or particularly a tag-question form (‘---, isn’t it?’ ‘---, didn’t it?’) tends to be the speaker’s strongly positively-biased agreement-seeking statement/question. In Korean, as in ‘*pi-ka w-ass-ci-anh-a!*?’ (It rained, didn’t it!), the post-tense contracted long-form negation is an affirmation-securing rhetorical marker. That’s why in Korean, in Japanese as well, the long-form negation in the interrogative complementizer became an EN marker.

In contrast, the negative marker *-an* is always used in a short-form negation and marks negation even with non-factive interrogative complementizer *-(u)lkka* or *-ci* ‘whether’.

- (34) *pi -ka an o -l kka kekchengtoyn -ta.*  
 rain-NOM NEG marker come -Comp fear -DEC  
 “I am afraid that it is not going to rain.”

Example (35) can get only one negative interpretation from the pre-verbal negative marker *an*, but not from EN *anh*, which is reflected in the English translation.

- (35) *pi -ka an o -ci anh -ulkka kekchengtoyn -ta.*  
 rain-NOM NEG marker come EN -Comp fear -DEC  
 “I am afraid that it is not going to rain.”

<sup>14</sup> The Japanese counterparts *hininsu-ru* ‘deny’ and *samatage-ru* ‘prevent’ cannot take the interrogative complementizer *-ka*, either.

In the mean time, the negative marker *anh* gains a negative power and changes the meaning of the whole sentence with the non-interrogative complementizer *-kes* ‘that’.

- (36) *pi -ka o -ci anh -l kes-i kekchengtoyn -ta*  
 rain-NOM come - NEG marker -Comp fear -DEC  
 “I am worried that it’s not going to rain.”

Lastly, we should mention that the EN licensibility crucially originates from the predicates of apprehension or dubitation with the interrogative complementizer. *Ahn* in (37) is interpreted as negation maker but not as EN when used in matrix interrogation.

- (37) *nayil pi -ka o -ci anh-ulkka?*  
 Tomorrow rain -NOM come -Comp NEG -Q  
 “Isn’t it going to rain, tomorrow?”

Then, what are the differences between the sentences with *-(u)lkka* or *-ci(K)/-ka* (J) ‘whether’ as in (27-28) and *-kes(K)/-koto or-no*(J) ‘that’ as in (29-30)? We will explain this with Korean examples. Hoeksema and Klein (1995) treat *fear* and *doubt* as DE. They show that *doubt* licenses NPI *any* in non-interrogative complements but do not deal with *doubt if/whether*. It also licenses an NPI, e.g. ‘She **doubted if** she would learn *anything* new from Bill. They only treat *fear/afraid* with extensional NP or gerundive complements.

However, in Korean when the predicates expressing fear and doubt take *-(u)lkka* or *-ci* ‘whether’ as a complementizer, they tend to be nonveridical but not monotone decreasing. In (38), we interpret the meaning of *-kka twuryep-ta* (‘Lit.) afraid whether’ as ‘afraid that something will/might happen’ since the English ‘afraid/fear’ cannot take ‘whether’ as a complementizer<sup>15</sup>.

- (38) |pizza| ≤ |food|  
 a. *Jane un nay-ka umsik-ul mek -ess -ulkka twuryeweha-n-ta. -/->*  
 Jane-TOP I-NOM food-ACC eat-PST -Comp afraid -PRES-DEC  
 “Jane is afraid that I might eat **food**.”

<sup>15</sup> In Korean, *-ulkka* is decomposed into *-ul*, the futurity/conjecture modal, and *-kka*, the interrogative component. In English, the idea of near future possibility of complement clause of ‘fear’ can be expressed by *will* or the modal verb ‘may’ or ‘might’. They are basically the same but ‘might’ is more appropriate for the less likely possibility.

b. *Jane un nay-ka sangha-n umsik-ul mek -ess -ulkka twuryeweha-n-ta.*

“Jane is afraid that I might eat **contaminated food.**”

(39) |Hyundai| ≤ |car|

a. *Jane un nay-ka cha-lul sa-ss -unu ci uysimha-go iss-ta. ? -/->*

Jane-TOP I-NOM car-ACC buy-PST -Comp doubt-PRES-DEC

“Jane doubts whether I bought a car”

b. *Jane un nay-ka Hyundai-lul sa-ss -unu ci uysimha-go iss -ta.*

Jane doubts whether I bought a Hyundai.

The Complementizers *-ulkka* in (38) and *-ci* in (39), both meaning ‘whether,’ as *wh*-complementizers, express the non-factivity of the complement. We have claimed that non-factive complementizer *-(ul)kka* or *-ci* ‘whether’ is a lexical realization of the feature [+nonveridical] in the matrix predicate. For this reason, we tentatively conclude that *twuryep-ta* ‘fear’ and *uysimha-ta* ‘doubt’ in Korean express nonveridical contexts with *-(ul)kka* or *-ci*, failing to be DE. For example, in (38), if Jane is afraid that I might eat food, Jane is afraid of the possibility of my eating food, wishing that I had eaten no food. What Jane is concerned about is exclusively the occurrence of my eating food regardless of the kind. In this respect, (38a) does **not necessarily** entail (38b). If Jane is afraid that I might eat food, it is possible that Jane is afraid that I might eat clean food or bad food, and so on. Thus, apprehension predicates are not DE in a strict sense.

The entailment inference with *-ci uysimha-ta* ‘doubt whether’ in (39a-b) is more or less controversial among Korean speakers. We maintain our claim that the Korean verb *uysimha-ta* ‘doubt’ bears the feature [+nonveridical] and can be realized with the non-factive complementizer. However, it seems to be true that *uyshimha-ta* ‘doubt’ provides the speaker’s psychological negative attitude more directly than *twuryep-ta* ‘fear’ as their meaning templates shows in (43-44). We will leave further investigation of this question for the future.

Concerning apprehensive predicates, we assume that it bears a [conjecture] modal operator in itself. The speaker conjectures that the object event of fear may happen readily or might have happened already in his or her mind when using apprehensive predicates. Since this [conjecture] operator is always associated with the complement proposition, apprehensive predicates always yield a nonveridical interpretation in any language. Notice that *conjecture* is nonveridical, regardless of the tense of proposition P, since it is possible to conjecture a past event.

(40) CONJECTURE P -/-> P

This conjecture operator licenses the non-factive complementizer *-(ul)kka* or *-ci* in Korean and modal auxiliary verbs like *will* and *might* in English. If the apprehensive predicate takes an extensional noun complement which presupposes the existence of the object, as in ‘I am afraid of that dog’, *-(ul)kka* or *-ci* is not licensed.

On the other hand, when the predicates *twuryep-ta* ‘fear’ and *uysimha-ta* ‘doubt’ take *-kes* ‘that’ as a complementizer in Korean, they are not nonveridical and act as emotive factive APs such as *nollap-ta* ‘surprised’/*sulphu-ta* ‘sad’, failing to be DE, either.<sup>16</sup> *-Kes* can be both a clausal complementizer ‘that’ and a general entity nominal ‘the thing’, and is used mainly with factive predicates in Korean. Although there are some verbs which do not presuppose the factivity with *-kes* (e.g. *tut-ta* ‘hear’), *twuryep-ta* ‘fear’ and *uysimha-ta* ‘doubt’ become factive with this *-kes* complementizer. Generally, the *-kes* complement tends to be externalized with emotive and psychological predicate and the existence of the state of affairs of the complement is presupposed.

In Korean, weak existential NPIs appear more naturally and freely with the *-(ul)kka* ‘whether’ complementizer than *-kes* ‘that’. In English, *afraid* shows a stricter distinction. *Afraid* can license (weak) NPIs only when it is combined with an NP and gerundive complements, as Hoeksema & Klein pointed out. The FCI reading, as in (41b), is possible because of the [conjecture] modal operator hidden in the apprehensive predicate. Observe:

- (41) a. \*I am **afraid that anyone** showed up. (Robert Fouser, Jeff Holliday p.c.)<sup>17</sup>  
 b. I am **afraid that anything might** happen.<sup>18</sup>
- (42) a. John, however, is bored with her and **afraid of forming any** permanent ties.  
 b. I should say the government led by congress prime minister, is **afraid to take any** decision.

*Afraid of* and *afraid to*, only in limited kinds of complements, as in (42a, b), license weak existential NPIs, but as shown above, *afraid that* in English does not license NPI

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<sup>16</sup> The same inference is given by Giannakidou (2006) and similarly by K&L.

(5) a. Larry {regrets/is surprised} that John bought a car. [Honda ≤ car]  
 b. Larry {regrets/is surprised} that John bought a Honda.

In Strawson DE, (5a) entails (5b), providing a presupposition that ‘John bought a Honda’. However this presupposition is given merely by the context independently of the sentence (5a). The presupposition we can infer from (5a) is only that John bought a car. Thus (5a) does not logically entail (5b). Consequently, *regret/surprised* are not DE.

<sup>17</sup> FCI reading is OK.

<sup>18</sup> The weak existential NPI meaning is possible with *-kes* ‘that’ in Korean, unlike in English

*any*. This supports our argument that apprehensive predicates are nonveridical but not DE. In case of *uysimha-ta* ‘doubt’, the licensibility of weak NPI with *-kes* ‘that’ seems to be more permissive both in Korean and English as in (43).

- (43) a. *na-nun amwu-i-ra-to w-ass-ta -nun kes i -uysimsureyp-ta.*  
 I-TOP anyone come-PAST-DEC-Comp -doubtful -DEC.  
 b. I doubt that anyone came.

Interestingly, the meaning templates of these verbs have close relations with ‘believe’.

- (44) fear that = believe X and want not X  
 (45) doubt that = believe not X

As Giannakidou (1997:111) mentioned, epistemic attitudes such as *believe* express relations between individuals and propositions are veridical and its complement proposition is true in an individual’s model world. If we really doubt that something is true, we believe that it is not true because we do not have evidence for its truth. That is, ‘doubt that’ presupposes the falsity of its complement in the *individual’s* world and shows his psychological state of mind whereas ‘doubt whether’ expresses uncertainty, making the complement non-factive. Likewise, ‘fear that’ with *-kes* presupposes the fact of its complement in the individual’s world, while it expresses the individual’s wonder whether something might happen and fear of possibility with a non-factive complementizer *-(u)lkka* or *-ci* ‘whether’ in Korean. Compare these predicates with the following emotive factive APs.

- (46) sorry that = know X and want not X  
 (47) surprised that = know X and expect not X

There are differences between *believe* and *know*. The epistemic *know* is veridical both in the individual’s world and the real world, whereas *believe* is veridical in an individual’s world but not necessarily in the real world (Giannakidou 1997).<sup>19</sup> This splitting argument may explain why apprehensive and dubious predicates can be interpreted as both veridical and nonveridical. From the data we have shown above, we discriminate weaker APs from weak APs in Table 2.

<sup>19</sup> For Montague and Zwarts, *believe* should be nonveridical since believe p  $\not\rightarrow$  p.

Table 2. Types of Adversative Predicates by Negative Force

EN; Strong/Weak NPI	Meaning Template	Negative Force	Examples
EN not triggered Strong NPI	Not V that X	Anti-additive	<i>silheha-ta</i> ‘dislike’ <i>leryep-ta</i> ‘difficult’ <i>phokiha-ta</i> ‘give up’
EN triggered; (Not in Korean) Weak NPI	V that Not X	DE	<i>puinha-ta</i> ‘deny’ <i>panghayha-ta</i> ‘prevent’
EN triggered; Weaker NPI	V X & V’ that Not X /V that Not X (V=believe)	Nonveridical With-(u)lkka/-ci ‘whether’	<i>twuryep-ta</i> ‘fear’/ <i>uysimha-ta</i> ‘doubt’
EN not triggered (in Korean)	V X & V’ that Not X (V= know)	Veridical With <i>kes</i> ‘that’	<i>uysimha-ta</i> ‘doubt’ <sup>20</sup> , <i>twuryep-ta</i> ‘fear’ <i>nollap-ta</i> ‘surprised’ <i>sulphu-ta</i> ‘sad’

## 6. Conclusion

In this paper, we characterized different types of adversative predicates by their negative force in relation to nonveridicality and EN.

We also touched on emotive factive and desiderative predicates which are presented as counter-examples to nonveridicality. The emotive non-adversative affective predicates such as *lucky* and some desiderative predicates such as *hope* can be affective by speakers’ pragmatic attitudes at the time of utterance. We claimed that the speaker can generate a negative conversational implicature and because of a ‘settle for less’ or ‘begging’ concession weak existential NPI is licensed. Moreover, their licensibility is not witnessed cross-linguistically, so we classify them as the weakest licensers of NPIs.

As for APs, we showed that some APs such as *deny* or *prevent/hinder*, which can trigger EN in some languages, are weakly negative. They are DE but not strong enough to be anti-additive while the other APs are anti-additive. In addition, we extracted the predicates of apprehension and of dubitation, since they show different characteristics, failing to be DE in its strict sense. We reached the solution with data in Korean and Japanese. The predicates expressing fear or doubt are the only APs triggering EN in Korean and Japanese and these predicates can take two types of complementizers.

<sup>20</sup> The meaning of *doubt* here is *question the truth of*.

When they take the non-factive *wh*-complementizer *-(u)lkka* or *-ci(K)/-ka(J)* ‘whether’, they do not assert/presuppose the existence of state of affairs of the complements, thus they are nonveridical and trigger EN. When they take *-kes(K)/-koto* or *-no(J)* ‘that’, they act as emotive factive adversative predicate. In this sense, we argue that the predicates of apprehension and dubitation are unique and weaker APs. Data from Korean and Japanese clearly show that the predicates triggering EN always take a non-factive complementizer, which requires the feature [+nonveridical] in the matrix predicate.

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# *Wh*-Constructions in Saisiyat

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## Abstract

This paper justifies three aspects of *wh*-constructions in (northern) Saisiyat: (a) it is a *wh*-in-situ language, (b) under the Lexical Merger Parameter hypothesis (Tsai 1994, 1999), it resorts to a mixed parameter setting, evidence coming from the formation of indefinite *wh* construals which is established either at the morphological domain through (partial) reduplication, or the clausal domain via unselective binding by a group of clausal operators, and (c) like Chinese, Saisiyat also displays the *how-why* alternation phenomenon, but there exist certain variations due to its own morphological nature.

**Keywords:** Saisiyat, Lexical Merger Parameter, *wh*-construction, indefinite *wh* construal.

## 1. Introduction

The purpose of this paper is to investigate syntactic patterns of *wh*-interrogatives and *wh*-indefinites in northern Saisiyat, one of the Austronesian languages spoken in Hsinchu, Taiwan.<sup>1</sup> The current population of Saisiyat is estimated to be around five thousand, but only a small number of them are fluent speakers. Due to historical and territorial factors, some older Saisiyat people are also speakers of Atayal (another Austronesian language), Mandarin Chinese, Japanese, or Taiwanese Southern Min.

The first point addressed in this study is the syntactic distribution of *wh*-phrases in *wh*-questions. It has been suggested by the literature that *wh*-words (in *wh*-questions) among western Austronesian languages appear in at least three patterns: clefting, *wh*-in-situ, and adjunct fronting (Guilfoyle, Hung & Travis 1992, Kroeger 1993, Huang et al. 1999, Potsdom 2006, inter alia). What I will show is that on the contrary, Saisiyat appears to be completely *wh*-in-situ, diverging from the general patterns above. Second, the indefinite *wh* construals (henceforth IWCs) in Saisiyat are found to be formed on

two grounds: morphological reduplication and long-distance licensing, based on the previous discussion that *wh*-words behave as syntactic variables in Saisiyat. Finally, I show that the so-called “*how-why* alternation” phenomenon (Tsai 2008) is also attested in this language, manifested particularly by the instrumental *wh*-adverbial *how*, which exhibits strict mapping at the syntax-semantics interface.

## 2. Saisiyat as a *wh*-in-situ language

According to the data collected from my own fieldwork, there are at least 18 *wh*-words found in northern Saisiyat, many of which contain ‘*ino*’ (see Table 1):

Table 1: *Wh*-words in northern Saisiyat

I. Adverbial Interrogatives		‘inay’ino’	‘from where’
		‘ila’ino’	‘to where’
<i>Wh</i> -word	Gloss	II. Nominal Interrogatives	
nak’ino’	‘how’		
‘inoan’	‘when (irrealis)’	<i>Wh</i> -word	Gloss
ka’inoan	‘when (realis)’	hiae’	‘who’
powa’	‘why (no tense)’	kano’	‘what’
‘ampowa’	‘why (irrealis)’	hayno’	‘which’
mampowa’	‘why (realis)’	piza’	‘how many’
nompowa’	‘for what (purpose)’	koza’	‘how much’
haw’ino’	‘where (far)’	Say’ino’	‘person from where’
ray’ino’	‘where (near)’	‘inak’ino’an	‘what kind’

As is mentioned, Saisiyat *wh*-elements stay in-situ in *wh*-questions, be they arguments or adverbial. Various examples are listed in (1)-(6):<sup>2</sup>

- (1) Argumental *wh*: *kano* ‘what’  
‘oebay Sebet<en> noka **kano**  
Oebay hit<PV> GEN **what**  
‘What was hit by Oebay?’
- (2) Argumental *wh*: *hi:ae* ‘who’  
‘oebay S<om>bet hi **hiae**

Oebay hit<AV> ACC **who**  
 ‘Who did Oebay hit?’

- (3) Argumental *wh*: *hayno* ‘which’

niSo ‘am ka **hayno**  
 GEN.2S want Acc **which**  
 ‘Which one do you want?’

- (4) Adverbial *wh*: *nak’ino* ‘how’

‘oebay **nak’ino** rima’ kilapa:  
 Oebay **how** go Kilapa:  
 ‘How did Oebay go to Kilapa:?’

- (5) Adverbial *wh*: *inoan* ‘when (irrealis)’

ka kawaS **inoan** ‘am kayzaeh  
 NOM sky **when.IRR** will good  
 ‘When will the weather be good?’

- (6) Adverbial *wh*: *nompowa* ‘for what (purpose)’

So’o rim’an **nompowa** rima’ kilapa:  
 NOM.2S tomorrow **for.what** go Kilapa:  
 ‘For what do you go to Kilapa: tomorrow?’

Quite obviously, (6)-(11) suggest that all Saisiyat *wh*-words stay in-situ. This does not change when they are inside an embedded clause (7) or a complex NP (8)-(9):

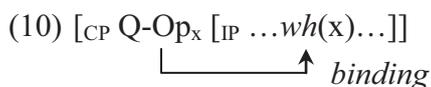
- (7) So’o komoSa’ waliSan **hayno** kayzaeh si’ael<en>  
 NOM.2S think boar **which** good eat<PV>  
 ‘Which boar do you think is delicious?’

- (8) yao hinoa’ s<om>i’ael ka -[<sub>NP</sub> t<in>alek ni **hiae**’ tatimaeh ]  
 NOM.1SG like <AV>eat ACC <PERF>cook GEN **who** vegetable  
 ‘What is x, x a person, such that you like to eat the vegetables cooked by x?’

- (9) So’o Sarara’ -[<sub>NP</sub> **inak’ino’an** nineme kayba’en ]  
 NOM.2SG like **what.kind** dye clothes

‘What is x, x a kind of dye, such that you like the clothes made with x?’

In this regard, *wh*-words (including both arguments and adverbials) in this language can be treated as polarity items, i.e. (syntactic) variables, which need to be bound by certain proper operators/licensers (see Cheng 1994 for a similar claim for Chinese). In interrogative sentences, such a licensor is the covert Q-operator (as the complementizer) which bears the [+WH] feature. The licensing of the *wh*-variable by the Q-Operator is thus accomplished at the clausal level, as it is in other *wh*-in-situ languages. The relation is schematized in (10):



### 3. Indefinite *wh* construals in Saisiyat

Tsai (1994, 1999) advocates a formal typological theory in terms of the Lexical Merger Parameter to account for a “parametrized” *wh*-dependency relation across languages. In this framework, the syntactic domains in which a proper licensor binds its variable can be divided into three levels: clausal, phrasal, and morphological. English, for instance, is argued to have the operator-variable pair at the morphological level, since the indefinite construals of *wh*-elements are spelled out by compound words like *some-how* or *what-ever*, where “*some-*” and “*-ever*” play the operator role. A relatively highly analytic language like Chinese, on the other hand, resorts to long-distance (i.e. clausal) licensing in forming IWCs. In such languages, *wh*-words can be interpreted with indefinite readings in-situ, as long as some proper clausal licensor is present.

In this section, I will show that concerning the IWCs, Saisiyat simultaneously practices these two approaches, namely the English-type strategy, where morphological reduplication plays an important role, and the Chinese-type strategy, where long-distance binding by sentential operators constitutes the licensing of indefinite *wh*’s.

#### 3.1 Morphologically licensed IWCs/quantifier formation

Morphological reduplication is a productive phenomenon in Saisiyat, contributing to various syntactic/semantic functions (Yeh 2000). As the examples below will indicate, this morphological-level operation in Saisiyat can turn interrogative *wh*-words into indefinite ones, which in a sense resembles English *what-ever* or *some-what* forms, only

differing in whether they are reduplication or not:

- '*ila'ino*' 'to where' → '*ila'ino'ino*' 'to anywhere'  
 (11) 'oebay rima' 'ila'ino~ino' ma' kayzaeh  
 Oebay go to.anywhere also good  
 'It is okay for Oebay to go anywhere.'

- kano*' 'what' → *kanokano*' 'anything/whatever'  
 (12) hizae' mae'y:aeh kano~kano' si'ael<en>  
 that person anything eat<PV>  
 'He is a person who eats anything.'

- piza*' 'how many' → *pizpiza*' 'few'  
 (13) hini' piz~piza' raromaeh  
 here few bamboo  
 'There are few bamboos here.'

- ray'ino*' '(at) where' → *ray'ino'ino*' '(at) anywhere'  
 (14) ray'ino'~ino' ma' '<in>aSkan<an>' ila  
 at.anywhere also <PERF>put<LV> ASP  
 '(It) has been placed anywhere.'

As these examples show, interrogative meanings of *wh*-words are replaced by indefinite readings, more specifically universal quantificational readings. What they imply is that the reduplicated part should be treated as the realization of morphological operators, which license the indefinite readings of the *wh* forms. Such hypothesis can be illustrated in (15a), which is largely in parallel with the structures of *wh-ever* or *some-wh* forms in English proposed in Tsai (1999:45-46), shown in (15b):

- (15a) Saisiyat morphological IWCs (15b) English morphological IWCs



In (15a), *kano*' is the manifestation of a variable, and its (partial) reduplication form,

RED<sub>x</sub> (*kano* in this case), functions as the operator/licenser for the indefinite reading, the binding occurring at the D<sup>0</sup> (morphological) domain. Thus, RED<sub>x</sub> corresponds to the existential operator *-some<sub>x</sub>*, and by the same token *kano*'(x) is the counterpart of *ind.*(x) such as *-at* or *-ere* in English. The only difference between Saisiyat and English, then, is the way their systems of lexicon take to overtly realize the operators: Saisiyat uses reduplication, presumably due to its own syntactic nature, whereas English has certain “specialized” elements (*some-/ever*) for them.

In addition, as Tsai (1994) has noticed, such morphological operator-variable pairs are not created solely for *wh*-words. In English, *al-* can also be regarded as some kind of prefix responsible for the quantificational forces of adverbs like *also*, *almost*, and *already*. This is in fact a natural consequence, if we treat it as another case of (15a) and (15b), i.e. quantifiers in English-type languages should also comply with the same morphological mechanism, at least in this case. This speculation gains support from (13), where the quantity adjective *pizpiza*' originates from the quantity *wh*-word *piza*'. We summarize the discussion in this section in Table 2:

Table 2: Morphological-level IWCs in Saisiyat (FCI = Free Choice Item)

Simple <i>Wh</i> -form	(Partial) Reduplication	Ind. Reading	Status
<i>kano</i> 'what'	<i>kanokano</i> 'anything'	Universal	FCI
<i>'ila'ino</i> 'to where'	<i>'ila'ino'ino</i> 'to anywhere'	Universal	FCI
<i>ray'ino</i> 'at where'	<i>ray'ino'ino</i> 'at anywhere'	Universal	FCI
<i>piza</i> 'how many'	<i>pizpiza</i> 'few'		Quantifier

Note further that since there is no overt licenser for *kanokano*', *'ila'ino'ino*' and *ray'ino'ino*', it is more reasonable to treat them as free choice items (which can occur in affirmative sentences) in opposite to polarity items.

In next section, we will see that Saisiyat also implements the licensing of IWCs at the sentential domain, a feature of Chinese-type languages.

### 3.2 Long-distance licensing of indefinite *wh* construals

To gain a better view, let us take a look at the IWCs in Chinese first. It is widely acknowledged that *wh*-phrases in Chinese can be analyzed as existential polarity items which are licensed in yes-no questions, conditionals, *dou*-quantifications, negations or possibility-indicating expressions (Huang 1982, Li 1992, Cheng 1994, Tsai 1994, Cheng and Huang 1996, Lin 1996, 1998). One well known construction evidencing this feature

in Chinese is the “bare-conditionals” (Cheng and Huang 1996), illustrated in (16a) and its logical representation (16b):

- (16) a. shei xian lai, shei xian chi  
 who first come who first eat  
 ‘If X comes first, X eats first.’  
 b.  $\forall_x [x \text{ is a person} \ \& \ x \text{ comes first}] (x \text{ eats first})$

What (16) shows is that both the *wh*-phrases in the antecedent (restriction) clause and consequence (nuclear scope) clause are treated as variables bound by the covert universal necessity operator ( $\forall$ ).

Such variable-like characteristic of *wh*-words is testified in Saisiyat as well. The following sentences (17)-(21) are instances of long-distance binding, where *wh*-phrases receive indefinite readings from their c-commanding operators:

*Universal conditional-concessive clauses*

- (17) a. ‘ana **kano**’ kita’<en> niSo ma’ panabaeh-ani yakin  
 no.matter **what** see<PF> GEN.2SG also tell-EMP ACC.1SG  
 ‘Tell me whatever you see.’  
 b. ‘oebay ‘ana rima’ **‘ila’ino** ma’ kayzaeh  
 Oebay no.matter go **to.where** also good  
 ‘It is fine for Oebay to go anywhere.’

*Conditionals*

- (18) a. So’o So Sarara’ **hayno**’ kapinao:’, payakai’ yakin  
 NOM.2SG if like **which** lady tell ACC.1SG  
 ‘If you like any lady, tell me.’  
 b. So **hiae**’ ‘okay s<om>i’ael ka pazay, payakai’ yakin  
 if **who** NEG <AV>eat ACC rice tell ACC.1SG  
 ‘If there is anyone who doesn’t eat rice, tell me.’

*Causal sentences*

- (19) a. sia s<om>i’ael **kano**’, ma’isa:’ ‘ayaeh  
 NOM.3SG <AV>eat **what** so ill  
 ‘He has (probably) eaten something, so (he) is ill now.’  
 b. korkoring **nak’ino**’, ma’isa:’ h<om>angih ila  
 child **how** so <AV>laugh ASP

‘Something has happened to the child, so (s/he) is crying.’

*Universal donkey sentences (bare conditionals)*

- (20) a. **hiae'** 'ima t<om><in>epeS **hiae'** Sebet<en> ma'an  
**who** Rel <AV><PERF>spit **who** hit<PV> GEN.1SG  
 'I will hit whoever spits.' (Lit.: 'Who spits, I hit who.')
- b. So'o **nak'ino'** <m>ayakay, yao ma' **nak'ino'** <m>atawaw  
 NOM.2SG **how** <AV>say NOM.1SG also **how** <AV>do  
 'I will do whatever you say.' (Lit.: 'How you say, how I do.')

*Negation*

- (21) a. 'okik ra:m **hiae'** <m>wai:' rini' kano' ketesnenan  
 NEG know **who** <AV>come here so door  
 h<in>awaeh  
 <PERF>open  
 '(I) don't know if someone came here, so that the door is opened.'
- b. hini' 'okik **piza'** raromaeh  
 here NEG **how.many** bamboo  
 'There are not many bamboos here.'

In (17), the morpheme *'ana* behaves pretty much like *no matter* in English or *wulun* in Mandarin, occupying a high syntactic position in essence. Although *'ana* seems to be attached to the *wh*-word in (17b), it can be separated from the *wh*-word by the verb 'go' as in (17b), hence a clausal-level operator. The conditional marker *So* in (18) plays the same role in licensing the IWCs. Things are a little bit different in (19), where there is a consequence marker *ma'isa:*' in the consequence clause, which apparently does not c-command the *wh*-words. Expecting the answer by further research, one tentative account at hand is to call for an LF-movement of the consequence clause. After the movement, *ma'isa:*' c-commands and thus properly licenses the *wh*-phrases. An alternative is to regard (19) as involving a covert modal that implements the IWCs. Either way, the *wh*-variables are bound by sentential operators, a typical feature in Chinese-type languages. Furthermore, it is existential readings that are assigned to the *wh*-words. Bare conditionals (20) resemble (16) in permitting the necessity operator ( $\nabla$ ) to bind multiple *wh*-phrases. Finally, negation also serves to be the licenser as well in (21), where *wh*-phrases are interpreted as existential.

On empirical ground, Saisiyat IWCs undoubtedly can take place in the clausal domain. That is, clausal operators can license indefinite *wh*-words in this language. I

summarize the above discussion below (see Table 3):

Table 3: Clausal-level IWCs in Saisiyat

Licensing Environment	Indefinite- <i>wh</i> Licensor	Ind. Reading
Universal conditional-concessive clauses	' <i>ana</i> 'no matter'	Universal
Conditionals	<i>So</i> 'if'	Universal
Causal sentences	<i>ma'isa:</i> 'so'	Existential
Bare conditionals	$\forall$ (necessity operator)	Universal
Negation	' <i>okik</i> 'not'	Existential

All the indefinite readings of *wh*-words above are licensed by clausal operators including conditional operator, necessity operator, or negation operator. Since these licensors constitute pairs with *wh*-variables neither at a morphological scale nor at a phrasal scale, we conclude that Saisiyat is featured as a Chinese-type language, allowing long-distance licensed *wh*-indefinites.

#### 4. *How-why* alternations in Saisiyat

Tsai (2008) observes that cross-linguistically, two *wh*-adverbials can “alternate” with each other at the syntax-semantics interface. Specifically, the comitative-oriented *how* is taken as a  $\nu$ P-modifier, which denotes the instrumental/manner reading. It can also occupy a higher position, scoping over a whole proposition and receives the causal interpretation, functioning as another *wh*-adverbial *why*. Such distinction is revealed in English by *how* and *how come*, as (22) shows:

- (22) a. How did John handle this matter? [instrumental/manner]  
 b. How come John arrived so late? [causal]  
 (Tsai 2008:84)

The syntax-semantics mapping is more transparent if we consider Chinese. With highly analytic nature, *how* in Chinese has the instrumental/manner reading at a  $\nu$ P-peripheral position, but has the causal reading at the CP-periphery, with certain syntactic operators as the “watersheds”:

- (23) a. tamen    **zenme(\*-yang)**    hui/keyi    chuli    zhe-jian shi?  
 they        **how(-manner)**    will/can    handle    this-Cl matter

- ‘How come they will handle this matter?’
- b. tamen hui/keyi **zenme(-yang)** chuli zhe-jian shi?  
 they will/can **how(-manner)** handle this-C1 matter  
 ‘By what means will/can they handle this matter?’  
 (Tsai 2008:95)

When *zenme(-yang)* follows the modals *hui/keyi* ‘will/can’, only the instrumental or manner interpretation is available, and the nominal-like element *-yang* is optional. But if it precedes the modals, only the causal reading is possible, *-yang* prohibited. In what follows, we will see that the *how* in Saisiyat has a very close pattern to this one.

#### 4.1 Three positions & interpretations of how

The interpretations of *how* in Saisiyat are subject to its syntactic positions: when preceding negation or occurring in a sentence without agentivity, we have a causal *how*, which has the similar meaning as *why*, as in (24); after a modal, only the instrumental or manner meaning is conceivable as in (25); and lastly, in the lowest position (after the verb) the *how* is assumed to be an argument (i.e. complement) of the verb, inquiring the result/resultative state of the subject’s hunting in (26):

(24) Pre-negation/non-agentive *how*:

- a. ‘oebay **nak’ino’** ‘okay rima’ kilapa: [causal]  
 Oebay **how** NEG go Kilapa:  
 ‘How come Oebay did not go to Kilapa:?’
- b. hini’ pongaeh **nak’ino’** ila minpongaeh ila [causal]  
 this flower **how** ASP bloom ASP  
 ‘How come this flower has come to bloom?’

(25) Post-modal *how*:

- rim’an So’o ‘am **nak’ino’** rima’ kilapa: [instrumental]  
 tomorrow NOM.2S will **how** go Kilapa:  
 ‘How will you go to Kilapa: tomorrow?’

(26) Post-verbal *how*:

- niSo ‘oemalep **nak’ino’** ila [resultative]  
 GEN.2SG hunt **how** ASP



Table 4: The family of *why* in Saisiyat

The <i>why</i> 's	Prefix	Interpretation
<i>powa</i> '	∅	why (not related to tense)
' <i>ampowa</i> '	' <i>am</i> 'will'	why (inquiring the cause of an event which has not happened yet)
<i>mampowa</i> '	<i>mam</i> (progressive marker)	why (inquiring the cause of an event which has already happened before)
<i>nompowa</i> '	<i>nom</i> 'for'	for what (purposive, not related to tense)

The semantic distinctions of the *why* family are subtle, since not all of my informants could distinguish the differences from one another. One informant told me that '*ampowa*' was the most frequently used word when expressing the meaning of *why*, all others of much lower frequency. This is likely to be a result of lexical competition, where one form of *why* ('*ampowa*') won out, others falling out of use.

Unlike *how*, it is not clear whether these complex *why*'s in Saisiyat also respect the same syntactic configuration. As (29) shows, the free distribution of the *why*'s does not display semantic distinctions, i.e. they have a freer word order without semantic differences, according to my major informant:

- (29) a. So'o rim'an '**ampowa**' rima' kilapa: [sentence-internal]  
**why.IRR**
- b. rim'an So'o rima kilapa: '**ampowa**' [sentence-final]  
**why.IRR**
- c. '**ampowa**' So'o rim'an rima kilapa: [sentence-initial]  
**why.IRR**
- d. So'o rim'an r ima' kilapa: **nompowa**' [sentence-final]  
**for.what**
- e. So'o rim'an **nompowa**' rima' kilapa: [sentence-internal]  
**for.what**
- f. So'o rim'an **mampowa**' rima' kilapa: [sentence-internal]  
**why.REA**
- g. So'o rim'an rima' kilapa: **mampowa**' [sentence-final]  
**why.REA**

If this is true, we then arrive at an asymmetry between *how* and *why*: *how* has a nearly

one-to-one corresponding relation between syntax and semantics, but *why* does not. Although details require further fieldwork and study, a first approximation toward this asymmetry is that the syntactic configuration is reduced to the morphology of *why*, since its variants can be teased apart by overt morphological elements. *How*, on the other hand, lacks the ability to “fuse” with other morphemes, and as a consequence it must reflect various interpretations by way of syntactic leveling. This is reminiscent of the loss of case markers in some Indo-European languages that resulted in the fossilization of word order, and it would be interesting to see if such phenomenon is also visible in other Austronesian languages.

## 5. Concluding remarks

Through preceding discussions we have seen that as a *wh*-in-situ language, northern Saisiyat happily embraces two approaches to build up its *wh*-dependencies: one is morphological reduplication, the other long-distance licensing/binding. By means of investigating IWCs, we see that morphological reduplication in Saisiyat patterns with *wh-ever* or *some-wh* forms in English which can be analyzed as operator-variable pairs. On the other hand, long-distance licensing is also possible for indefinite *wh*'s, which links sentential operators with *wh*-variables at a clausal scale. Finally, I have also discussed the “*how-why* alternation” in Saisiyat, which in a way resembles that of Chinese (cf. Tsai 2008), but at the same time diverging from Chinese in another, i.e. the *how* in Saisiyat behaves pretty much as the *how* in Chinese, while the *why*'s in these two languages differ from each other.

One may wonder how the two-way strategy (Chinese- and English-type) in Saisiyat is motivated. As Tsai (1997) has recognized, language evolution and language contact may both result in the change of parameter settings of Universal Grammar. It is therefore not unreasonable to say that the Chinese-type parameter in Saisiyat possibly results from the influence from Mandarin Chinese and/or Hakka, which are typical *wh*-in-situ languages spoken in its nearby territory. In another word, the mixed setting of Lexical Merger Parameter in this case supposedly turns out to be a reflection of language contact which triggered the Chinese-type parameter in Saisiyat. The English-type parameter, realized by the morphological mechanism, should be closer to the more original appearance of this language, under the current speculation.

Within the formal syntactic framework, this study not only contributes to the formal theory of linguistic typology, but also sorting out the language-internal structures

and functions of the *wh*-interrogatives and *wh*-indefinites. Future research on Saisiyat is expected to expand the scope and widen the view in this paper.

## Notes

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<sup>2</sup> Abbreviations in the glossary are listed as follows: NOM: nominative case, ACC: accusative case, GEN: genitive case, LV: locative voice, AV: agent voice, PV: patient voice, IV: instrumental voice, PERF: perfect, IRR: irrealis tense, REA: realis tense, 1S: first person singular, 2S: second person singular, 3s: third person singular, ASP: Aspect, EMP: emphatic marker, and NEG: negation.

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# The tension between language documentation and descriptive linguistics - the case of deictic motion verbs in Hocak

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## Abstract

It is the main goal of language documentation to create a representative corpus of texts of an individual language, which are processed in a way that they are easily accessible to non-speakers and non-specialists of the respective language. "Representative" in this context means that a selection of texts is included in the corpus covering the uses of language in the speech community. The hope which is silently implied is that such a text corpus would be representative also with respect to the language system. This, however, cannot be guaranteed. Often, the descriptive linguist has to broaden the range of linguistic data he/she has at hand from the corpus by various types of elicitation techniques applying his/her knowledge on linguistic notions and their typological variation and elaborating on categories, paradigms and constructions already found in the target language. The main conclusion to be drawn from the study of deictic motion verbs in Hocak is that there is no such thing as a pure principled documentation of an individual language, but that language documentation and language description go hand in hand to some degree. Good language documentation needs reference to descriptive linguistics.

**Keywords:** deictic motion verbs, language documentation, language description, Hocak (Siouan)

## 1. The Problem

Language documentation has been established as an autonomous linguistic activity independent from a super-ordinate purpose of language description. The ways to collect data in language documentation existed, of course, before. Descriptive linguists recorded texts, transcribed texts, glossed texts, and translated texts and even collected social and cultural knowledge for a better understanding of certain speech acts and parts of discourse all the time. However, the final purpose for these data collections was always to serve as a data base for grammatical or lexical description. Since the emergence of language documentation as a independent task, the collection of linguistic data was no longer subordinate to these descriptive ends, i.e. a good language documentation is no longer automatically good for the needs of language description, because the data are collected for another purpose, namely to be representative of the language in use. This is meant by the tension between language documentation and descriptive linguistics in the title of this paper. The problem will be further elaborated in §1.1, in §2 and §3, the problem will be illustrated with regard to the description of the system of deictic motion verbs in Hocak (a Siouan Language, still spoken in Wisconsin,

USA). We will finish with some conclusions and suggestions in §4 for a practical solution of this dilemma.

### 1.1. *What is language documentation: methods and goals*

Documentation of a language is an activity (and, derivatively, its result) that gathers, processes and exhibits a sample of data of the language that is representative of its linguistic structure and gives a fair impression of how and for what purposes the language is used. Its aim is to represent the language for those who do not have access to the language itself. (Lehmann 2001:88)

The natural manifestations of language are in texts in the broad sense. Language documentation consists of a representative corpus of texts (again in the broad sense). *Representative* in this context means that the sample of texts included in the corpus are examples of the variety of ways, functions, and purposes the language is used for in the speech community. Variation in the usage of a language can be found along the parameters which replicate the basic communicative functions of language (cf. Jakobson 1960; Lehmann 2001:94):

- a) Speech act participants: who speaks to whom
- b) Context of speech act: situation of speech
- c) Purpose: illocution, ritual, etc.
- d) Topic
- e) Medium: written, oral

The texts of a corpus of language documentation are linguistically processed in a way that they are accessible to non-speakers of the language. This includes:

- a) audio and video recordings (raw data),
- b) transcriptions (i.e. written representation),
- c) interlinear one-to-one morphemic glossing of the texts,
- d) free translation,
- e) notes which provide the background knowledge for the semantic, pragmatic and cultural interpretation of the utterances.

Since the mid-90ies, language documentation has been established in the literature as a purpose-independent and autonomous linguistic activity no longer subordinated to the interests of descriptive linguistics. The principle independence of language documentation from the specific scientific interests of descriptive linguistics or of any other sub-discipline of linguistics such as sociolinguistics, anthropological linguistics, psycholinguistics, etc. was in particular stressed by Himmelmann (1998:167), but also claimed in Lehmann (2001). The only *raison d'être* for language documentation is the broad and principled representation of the usages of a language and its accessibility to it for non-speakers of the language. But, and this was also stressed repeatedly too in the literature, a good language documentation should be useful for different disciplines (anthropology, sociology, etc.) and linguistic sub-disciplines

(discourse analysis, language acquisition, phonetics, ethics, language rights, field methods, corpus linguistics, educational linguistics, etc.).

## 1.2. *What is language description: the methods and goals*

Description of a language is an activity (and, derivatively, its result) that formulates, in the most general way possible, the patterns underlying the linguistic data. Its aim is to enable the user of the description to compare this language to other languages. (Lehmann 2001:88)

The description of a language consists of the identification of the linguistic units of a language, their meanings, and the rules of combination associated with them. The lexicon and the grammar are the basic components of a language description. These components may also serve other purposes than typological or comparative ones; for instance educational purposes as the basis for language teaching materials etc.

The parameters according to which variation in language usage can be determined are either extra-linguistic or semantic or pragmatic in nature. These parameters do not concern the structure of the language. There is one problem with the definition of documentation of a language given above: it is not clear in advance what the "linguistic structure" of the language is, in particular if we have to do with a previously undocumented language for which no grammatical description exists. However, with regard to descriptive linguistics, the hope is implicitly or explicitly maintained that a representative text corpus of language documentation would be representative also with respect to the language system. This, however, cannot be guaranteed (see also Lehmann 2001:92).

In well known languages which are already described linguistically in some depth, there may be ways to vary the functional dimensions in a way that presumably all systematic variation will be represented in the corpus. Yet, in languages which are poorly described or not described at all – and this is the usual case with small scale endangered languages - the documentary linguist cannot know in advance what structural variation the language has. It might be objected that a principled and exhaustive language documentation would cover all kinds of systemic variation; this, however, is an ideal situation beyond the capacities of human linguists. It is also doubtful whether this would be even in principle a possibility given the infinite character of language and language use.

And in addition: If it is a serious requirement of language documentation that it should serve the scientific interests of various sub-disciplines of linguistics, it is clear that the consequence would be that a language documentation cannot fit any of these purposes perfectly.

The consequence is that the descriptive linguist has to broaden the range of linguistic data he/she found represented in the text corpus by various types of elicitation techniques applying his/her knowledge on linguistic notions and their typological variation and elaborating on categories, paradigms and constructions already found in the target language.

Our conclusion so far is: A language documentation does not suffice for a future description of the grammatical and lexical structure of the language both in a theoretical

and in a practical perspective. If the purpose of a language documentation is to serve as empirical basis for a language description, language documentation has to be supplemented by the methods of language description with regard to language data. This conclusion is probably not controversial among documentary linguists, but often not taken seriously in the design of language documentation.

This tension between language documentation and language description will be exemplified in the remainder of this paper with regard to the set of deictic motion verbs in Hocak and their linguistic description.

## 2. COME and GO verbs in Hocak: what the text corpus reveals

Siouan languages all have a more or less complex system of deictic motion verbs (henceforth DMV). The first mention of DMV in Hocak can be found in Lipkind (1945:44); cf. Table 1.

**Table 1. Hocak DMVs as described by Lipkind (1945:44)**

phase \ motion	come	go	come back	go back
begin, start	<i>huu</i>	<i>ree</i>	<i>guu</i>	<i>keré</i>
arrive, end	<i>jii</i>	<i>hii</i>	<i>kirí</i>	<i>gii</i>
be on the way	<i>huhé</i>	<i>rahé</i>	<i>guhé</i>	<i>karahé</i>

Unfortunately no further explanation of the semantic categories encoded in the paradigm was given by Lipkind. We will see later that the English gloss **back** in Table 1 does not really provide a good semantic description of the semantic opposition encoded here.

Most of the verbs in Table 1 occur also in the corpus of texts collected by the members of the DoBeS project "Documentation of the Hocak language"<sup>1</sup>. The text corpus of this study consists of 41 texts. A variety of different text-types/ text genres is represented: personal narratives, ritual texts, speeches and prayers, descriptions, instructive texts, short humorous conversations, and one song. Most of the texts included in this corpus were recorded by the Do-Hocak team, some of the older ritual texts, however, were adapted from Paul Radin's field notes and publications (cf. Radin 1915, 1923, 1949, 1950). Unfortunately, everyday-like spontaneous conversations are underrepresented in this corpus; and we believe this holds for most of the DoBeS documentation projects. All texts have been translated or re-translated (old translations

<sup>1</sup> See the website of the documentation project at the University of Erfurt: [http://www.uni-erfurt.de/sprachwissenschaft/Vgl\\_SW/Hocank/index\\_frames.html](http://www.uni-erfurt.de/sprachwissenschaft/Vgl_SW/Hocank/index_frames.html)

are sometimes rather free) by our main and most reliable consultants. Table 2 summarizes the occurrences of the different DMVs in the Hocak text corpus. Given are the textual frequencies of the verbs ranked accordingly in the table and the various translations for the individual forms provided by the speakers of Hocak.

**Table 2. DMVs: their frequency and English translations in the corpus**

	DMVs	n=	English translations
1.	<i>hii</i>	117	'arrive', 'get there', 'arrive going'
2.	<i>ree</i>	71	'go', 'become', 'start going'
3.	<i>jii</i>	66	'get there', 'arrive coming', 'arrive'
4.	<i>kirí</i>	61	'return', 'arrive returning'
5.	<i>keré</i>	47	'go back', 'leave', 'depart'
6.	<i>gii</i>	34	'arrive returning',
7.	<i>guu</i>	24	'approach', leave returning',
8.	<i>huu</i>	10	'start coming'
9.	<i>rahé</i>	5	'be on the way going', 'become'
10.	<i>huhé</i>	3	'be on the way coming here'
11.	<i>karahé</i>	2	'going back', 'be on the way going back',
12.	<i>guhé</i>	1	'be on the way returning', 'coming back'

The paradigm of Hocak DMVs is quite complex compared to the quite simple English dichotomic paradigm with only two members, namely *come* and *go*. The Hocak DMVs are most commonly translated as "come" and "go" or "arrive" and "return" by the speakers. These translations, however, do not let the researcher comprehend the full meaning of the DMVs. In most cases, the speakers do not consider it necessary to give the extra information that the DMVs contain. They tend to keep their translations short, so that it is almost impossible to grasp the DMVs' full meaning when translations with periphrastic character are not given

The problem for the descriptive linguist is: on the basis of the English translations given in the text corpus of Hocak, it is extremely difficult if not impossible to identify and reconstruct the systematic character of the verbs listed in Table 2. The lexical glosses there are taken either from the translations of the speakers, or they are taken from Lipkind's grammar (1945), which, fortunately, already recognized the paradigmatic nature of the DMVs in Hocak. To be more specific, the problems are the following:

- 1) the glosses often do not represent the deictic nature of the verbs, e.g. in 1. *hii* = 'arrive', 4. *kirí* = 'return', 5. *keré* = 'leave', 'depart', 7. *guu* = 'approach'.
- 2) the aktionsarten category is not systematically represented in the English translations except for the progressive/ continuative verbs 'be on the way DMV', compare e.g. 2. *ree* = 'go', vs. 'start going', 4. *kirí* = 'return' vs. 'arrive returning', and so on.
- 3) the notion of base/ home lexicalized in the DMVs is either ignored or rendered in English by the adverbial 'back', which does not really correspond to it, compare for instance 5. *keré* = 'leave' vs. 'depart' vs. 'go back'.

The source of this translation problem is that the English verbs of COMING and GOING do not show the same semantic complexity as the DMVs in Hocak. If they are used as glosses for the translation, they conceal the semantic structure behind the Hocak

forms. In order to give a correct English translation for these verbs, long winded paraphrases would be necessary. This problem is almost unavoidable since English is the language used in the fieldwork with Hocak speakers.

The descriptive linguist cannot recognize the systematic character of the Hocak DMVs from the individual occurrences of DMVs in our texts. The descriptive linguist needs translations, which reflect the semantic complexity of these verbs. And the descriptive linguist even cannot decide on the basis of these data which of the forms in question are real deictic motion verb and which ones are just motion verbs.

The second major problem is that minimal pairs do not occur in the texts of the corpus. Minimal pairs allow the identification of the semantic structure. Therefore, additional data have to be elicited in a controlled fashion, in order to confirm or reject any hypothesis about the deictic nature of individual forms.

A third problem may lie in the selection of text genres and text types included in the Hocak corpus. In order to explore the semantics and functioning of deictic forms in a language, it is necessary to have various face-to-face conversations in the text corpus of the language documentation. Such text types are notorious difficult to evoke or to elicit from speakers, since they are considered highly unnatural. Our guess is that there is a significant asymmetry in the number and size of texts containing face to face conversations in all text corpora created by the DoBeS projects. This is not only a problem of the Documentation of the Hocak language. The result is that deictic forms in their prototypical usages are generally underrepresented in the language documentation. But, even if language documentation contains a number of real spontaneous conversations which have to do with traveling and movement etc. it is doubtful whether this will suffice for a language description. a) It is doubtful, whether all forms of the paradigm are used at least once in these conversations, and b) it is doubtful whether these occurrences are well enough glossed and translated to arrive at the generalizations the descriptive linguist searches for.

### **3. The system of deictic motion verbs in Hocak**

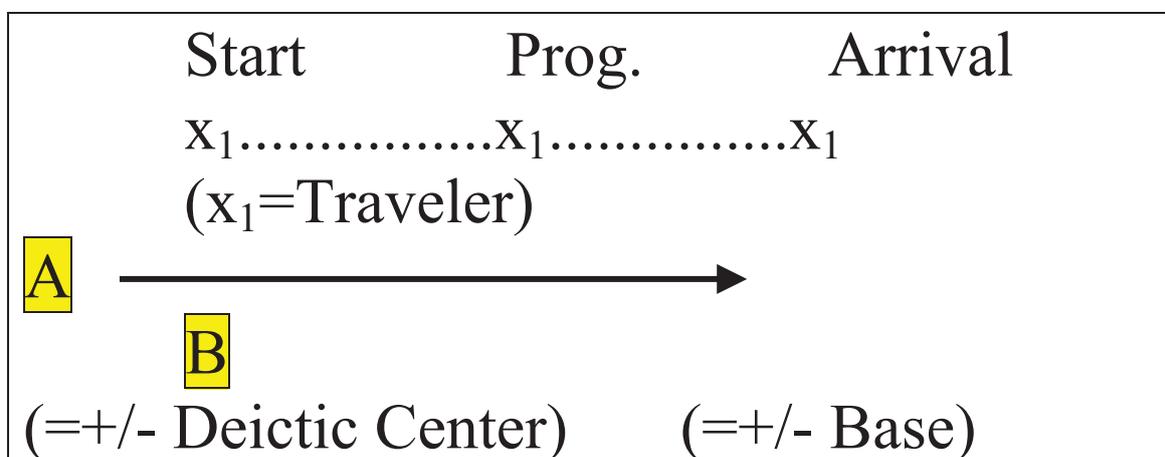
#### *3.1. The lexical paradigm: distinctive semantic features*

The twelve Hocak deictic motion verbs are comparable to and are often translated simply as *come* and *go* in English, but they have a much more complex inherent semantics. The first distinction is between motion toward or not toward the deictic center; the second distinction encoded is between motion toward a base/home versus not toward base/home; and the third distinction is between the aktionsarten start, departure, on the way/ in progress, and arrival. The semantic features are summarized in Table 3.

Table 3. Distinctive semantic features of DMVs in Hocak<sup>2</sup>

		phase of motion		
		start, depart	be on the way	arrive
-motion toward DC [GO]	-motion towards Base	<i>ree</i>	<i>rahé</i>	<i>hii</i>
	+motion towards Base	<i>keré</i>	<i>karahé</i>	<i>gii</i>
+motion toward DC [COME]	-motion towards Base	<i>huu</i>	<i>huhé</i>	<i>jii</i>
	+motion towards Base	<i>guu</i>	<i>guhé</i>	<i>kiri</i>

Table 4. The semantic structure of DMVs in Hocak



The semantic components and notions lexicalized in the DMVs are schematically represented in Table 4. Firstly, the defining notion of deictic motion verbs is the inheritance of a deictic center. The Deictic Center DC is usually the speaker, but may shift to other persons in particular in narrative texts with only third person participants. Secondly, the Traveler. The traveler is the individual whose movement is designated by the DMV. The traveler is the subject/actor of the DMVs. Thirdly, the Home/Base. The location to which the traveler belongs, or with which he/she is associated with habitually is the home/base of the traveler. This may be the home or the work place or may be of a less permanent character such as the gathering place. The Home/ Base can also be a place the Traveler just left before returning to it. In this case, the Home/ Base need not be the residential place of the traveler. Fourthly, the phase of the motion. Each deictic motion event is distinguished according to its aktionsart: start, or departure, in progress or on the way, and finally the arrival. Fifthly, the Apogee (Cumberland 2005:289). There is an additional notion which does not appear in the schema in Table 4, namely the apogee, which means the turning point in a journey. As

<sup>2</sup> Our account of the DMVs in Hocak owes much to the investigation of the cognate forms in Assiniboine by Linda Cumberland (2005:Chapter 8) in her PhD dissertation from Indiana University.

soon a journey is conceptualized as returning to the home base the verbs with the feature specification [+motion to home base] have to be used even, if there are other stops/goals which are arrived at in between.

The inherent semantics of the DMVs explains in part the different frequencies of their respective occurrence in the corpus (and the different abilities to combine with other verbs in complex verbal predicates); cf. the frequencies in Table 2.

a) All the morphologically complex progressive forms (<"start+he") are rare; they are formed on the basis of the inchoative forms. Morphologically the progressive forms are more complex than the [+start/inchoative] forms, i.e. they are the marked forms.

b) The two most frequent DMVs are unmarked with regard to [-DC, -B].

c) The three most frequent forms are unmarked with regard to [-B].

a), b) and c) comply very well with the prediction of markedness theory: the semantically less complex form is also more frequent and formally less marked. However, an interpretation of the figures in terms of the markedness theory has to be cautious - it is not really clear how the asymmetry with regard to the text types [narrative texts vs. face to face conversation] affects the frequency of occurrence.

d) RESULTATIVE/Arrival forms are used significantly more often than start/inchoative forms which shows that the endpoint of a movement, the result is more salient semantically than the initial point or the path.

### 3.2. *Additional data: psycholinguistic elicitation techniques*

In order to collect additional data that would show how the DMVs in Hocak are actually used, two video sessions using a psycholinguistic elicitation technique were recorded. Both sessions were recorded with the same native speaker of Hocak (Waac Hanažiga<sup>3</sup>). Each time the same simple map-like setting and the same four characters in the form of little plastic manikins were used as stimuli.

The characters used were:

- **Waac Hanažiga** (the native speaker participating in the session),
- **Kunu** (his imaginary son),
- **Hinu** (his imaginary daughter),
- **Teega** (his imaginary uncle).

Each one of these characters had their own home, which was marked down as on a map. Other positions on the map were places to which people go on a habitual basis:

- the store,
- the office,
- the school,

and one place, to which people do not go regularly (any more):

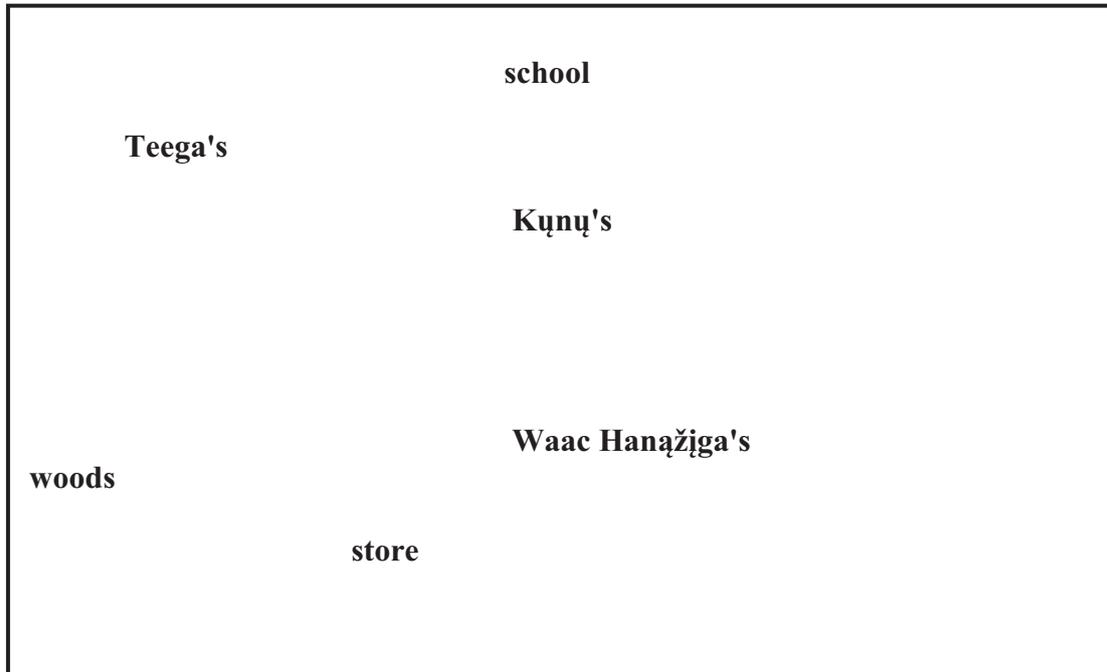
- the woods.

Figure 1 shows the map-like setting that was used in both recording sessions.

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<sup>3</sup> We would like to thank Waac Hanažiga (Cecil Garvin) for his participation and patience during these sessions.

**Figure 1. Map-like setting used in the elicitations**



The consultant was asked to imagine himself living and acting in this setting. The first recording session tried to elicit the use of the DMVs in a narrative-like context. Hence the researcher was telling a story in English and simultaneously moving the manikins around accordingly, while the consultant was asked to translate / tell the same story in Hocak. The whole conversation/narration together with the manipulation of the manikins was video-taped. All possible and expected semantic parameters in DMVs and their oppositions were integrated in a coherent story of movements. This allowed the situation to be considered more natural to the speaker. All possible configurations and combinations of semantic features [+/- Deictic Center and +/- Base] were thus tested and recorded. The design of this session was more oriented towards the onomasiological approach in linguistics.

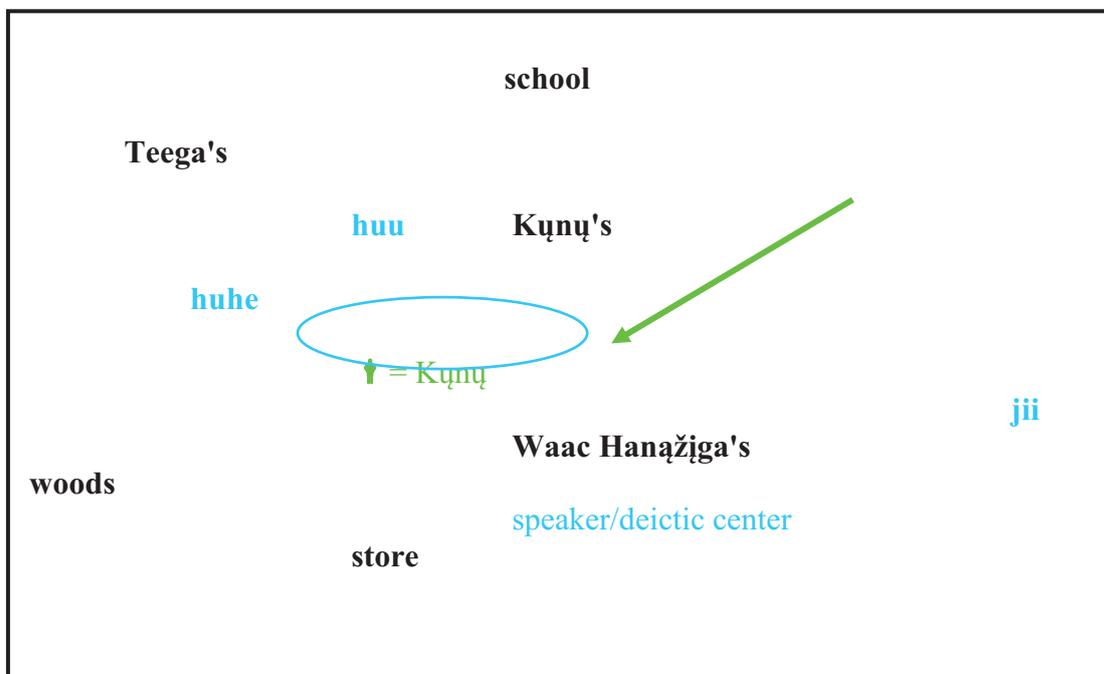
In the second session, which was recorded a day after the first one, the same speaker was asked to take a more active role and was now the one moving the manikins around. The same map-like setting was used, because now the speaker was already familiar with it. This time he was asked to tell a story himself with the given setting. The researcher participated in so far as to give the speaker a word (in this case an inflected form of one of the DMVs) and ask him to make up a sentence with it and show the movement of the characters on the map-like setting at the same time. For each sentence the researcher gave the speaker a new word that he'd be expected to use. Even though the DMVs were given in a specific form by the researcher, there were no instructions given as to which character the speaker should move, or which character the speaker would let speak at the time. This allowed the speaker to play a more creative part in the session. All DMVs in all their inflections were used during the session most of them were used more than once, so that later comparisons would be possible. They were given to the speaker in random order, so that he would have to react spontaneously

and could not anticipate what form or verb would be coming next. The design of this session was more oriented towards the semasiological approach in linguistics. Both sessions (overall over two hours of recordings) were then transcribed and compared by the researcher.

### 3.2.1 Minimal pairs

Figure 2 illustrates the use of the DMVs expressing the three different aktionsarten mentioned earlier in this paper (cf. videoclip CG1\_01). In this part of the session Waac Hanažiga was the deictic center. Kunu is the traveler moving towards the deictic center and away from his home base. Sentences E 1 a-c show how the DMVs were used by the speaker.

**Figure 2. The aktionsarten: START - PROGRESSIVE - ARRIVE**



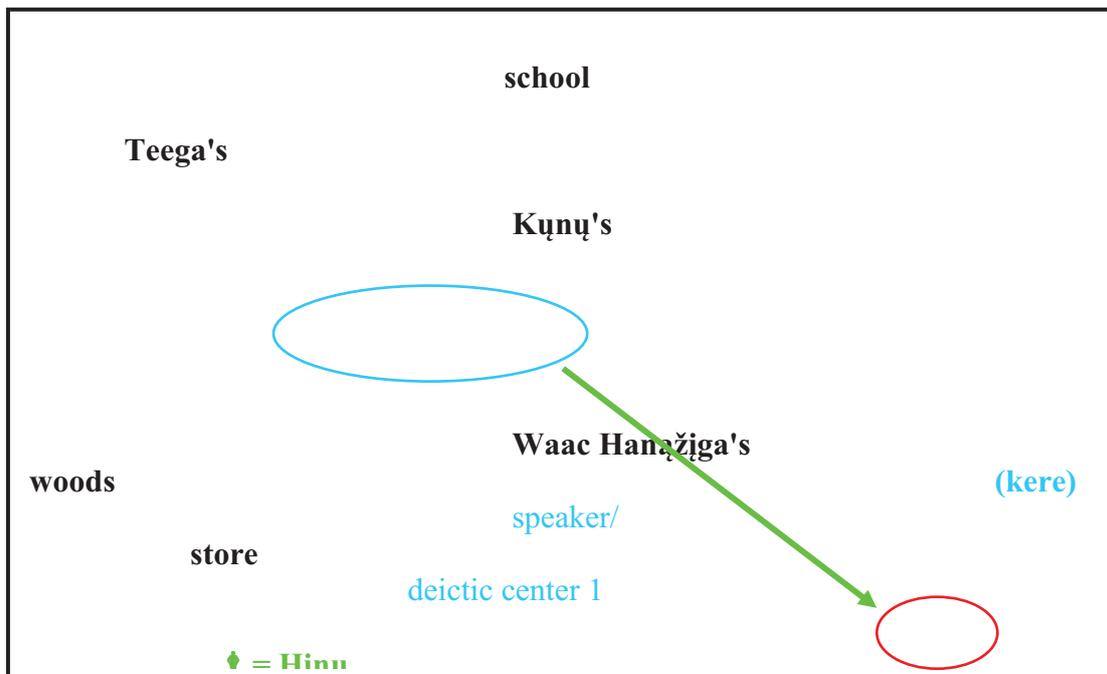
**E 1 (CGI\_01) Speaker+DC Waac Hanažiga:**

- a. Kunuğa huukjane.  
 Kunu-ğa **huu**-kjane  
 Kunu-PROP                    come(SBJ.3SG)-FUT  
 'Kunu is going to come (over to my place/here).'
  
- b. Kunuğa huhe.  
 Kunu-ğa **huhe**  
 Kunu-PROP                    be.coming(SBJ.3SG)  
 'Kunu is coming (over to my place/here).'

- c. Kunuḡa jii.  
 Kunuḡ-ga **jii**  
 Kunu-PROP arrive.here(SBJ.3SG)  
 'Kunu (just) got here.'

Figure 3 illustrates the expression of motion towards the deictic center versus that of motion away from the deictic center (cf. videoclip CGI\_05b). When Waac Hanaḡiḡa functions as the deictic center, asking Hinuḡ if she made it back home, he has to use the DMV *gii* [motion –DC, +Base]. When Hinuḡ replies (thus turning her into the DC), she has to use *kiri* [motion +DC, +Base]. Note that Hinuḡ is at her home Base when they talk about it. In English the difference would be expressed by using *there* vs. *here* (Did you get there? vs. I got here.).

**Figure 3. Motion towards Deictic Center and away from Deictic Center**



**E 2 (CG1\_05b) Speaker +DC Waac Hanaḡiḡa:**

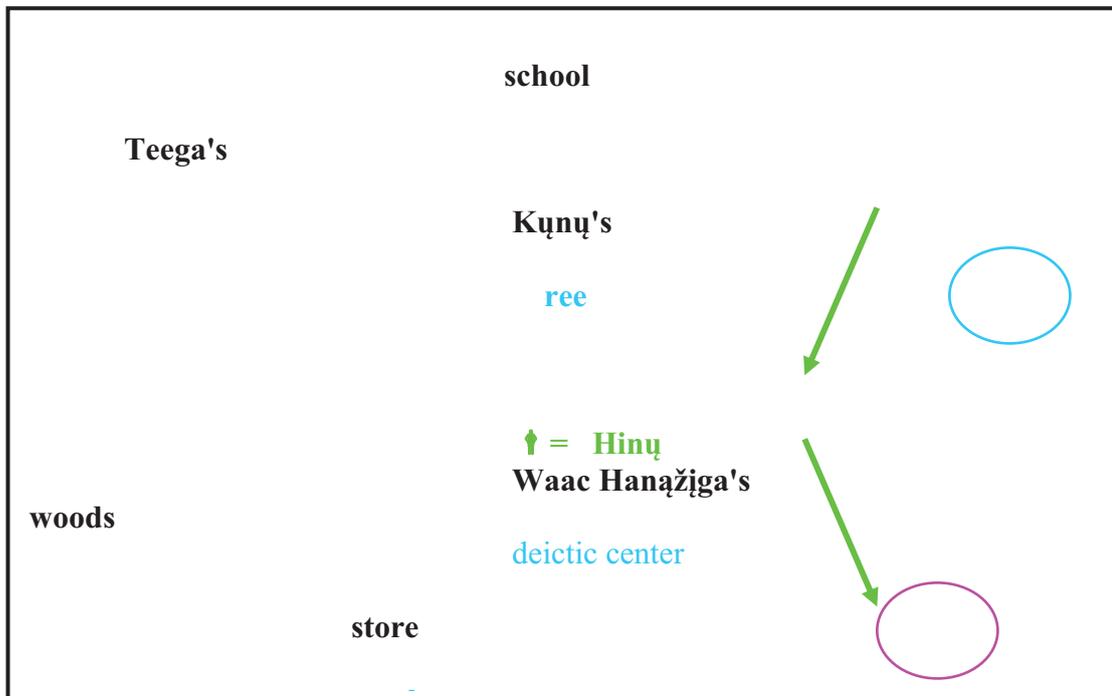
- a. Rakere waš'uḡawaḡ?  
 ra-**kere** wa<š>'u-ša-waḡ  
 2.A-go.back.there <2.A>do/be-2.A-POS.HOR  
 'Are you (Hinuḡ) (still) going back home?'
- b. Keenḡ ragiinḡ?  
 keenḡ ra-**gii**-nḡ  
 ANT.IN 2.A-arrive.back.there-ANT.FIN  
 'Did you (**Hinuḡ**) get home yet?'

**E 3 Speaker +DC Hinu:**

Hakiri.  
 ha-**kiri**  
 1E.A-arrive.back.here  
 'I (**Hinu**) just got back home.'

An illustration of motion towards the Base vs. motion away from the Base is shown in Figure 4. When Hinu says that she is heading out to the store (which is not her Base) she has to use the DMV *ree* (cf. videoclip CGI\_9a), whereas when she talks about heading back home she will have to use *kere* (cf. videoclip CGI\_9b). In E4-6 the full sentences are given.

**Figure 4. Motion towards Base away from Base**



**E 4 (CGI\_09a) Speaker+DC Hinu at Kunu's:**

Ka, keenj, 'eeja howatee waa'umakšana.  
 ka keenj 'eeja howe-**tee** wa<ha>'u-mak-šana  
 no not.yet there go.about-go.there\1E.A 1E.A>do/be-POS.HOR\1E.A-  
 DECL  
 'No, not yet, I'm (**Hinu**) going to the store (now).'

**E 5 (CGI\_09b) Speaker+DC Waac Hanažiga asking Hinu (cell phone)**

Rakaraginj was'uşawak?  
 ra-**kere**-ginj wa<ş>'u-şa-wak  
 2.A-go.back.there-already <2.A>do/be-2.A-POS.HOR  
 'Are you going back home now?'

## E 6 Speaker+DC: Hinu (on the way)

Hakere waa'umakšana.

ha-**kere**

1E.A-go.back.there

'I'm going back home.'

wa<ha>'u-makšana

<1E.A>do/be-POS.HOR-DECL

Overall, the two recording sessions allowed the researcher to witness and better understand how all of the DMVs are used in context, something the text corpus didn't. The map-like setting and the different characters worked well as stimuli and created a comfortable setting for the speaker, so that he could demonstrate the use of the DMVs not only through speech but also through the movements of the different characters.

### 3.2.2 Usage of DMVs in third person narrations

In narrations and stories DMVs are used differently, which is also why a full understanding of the DMVs is not possible just from looking at narrations alone. The DC is often transferred to a discourse participant with which the narrator is emphatic or which plays a significant role in a certain stretch of discourse. In the following example from one of our texts, the DC is shifted from the narrator to the home/Base of the Traveler which was the place where the preceding important events of the story had happened; cf. E 7.

## E 7 CHT010c

Ĝáak naççégera teekjže, ha ké

haakjá cii

ĝáak naççé-**ra** teek-xjž- že ha ké

haakjá cii

cry heart-DEF ache-INTS-QUOT NEG.IN back

house

'éja kirinjra.

'eeja **kiri-nj-ra**

there **return-NEG.FIN-DEF**

'He was crying with a broken heart, he did not **return to the house.**'

The house is the home of the boy from which he was expelled by his father for educational reasons. Since the house is not the narrator's home Base one would expect him to use *gii* [-DC, +Base]. However, the narrator uses *kiri* which is translated here as 'return'. The semantic features are: [+motion to home base]; [+motion toward DC] and [arrival]. Thus, the DC of this usage of *kiri* coincides with the home base of the character the story is about.

## 4. Conclusions

The main conclusion to be drawn from the study of deictic motion verbs in Hocak is that there is no such thing as a pure principled documentation of an individual language that may serve as a sufficient data base for all kinds of linguistic research let alone descriptive linguistics.

It is not possible to expect that a language description consists only of generalizations on the primary data of the language documentation.

If a language documentation should serve as a repertoire of primary data for a grammatical or lexical description, it has to be enriched with all the data the descriptive linguist needs for the generalizations; language documentation and language description have to go hand in hand to some degree. Good language documentation needs reference to descriptive linguistics.

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Links:

"Documentation of the Hocak Language" at the University of Erfurt

[http://www.uni-erfurt.de/sprachwissenschaft/Vgl\\_SW/Hocank/index\\_frames.html](http://www.uni-erfurt.de/sprachwissenschaft/Vgl_SW/Hocank/index_frames.html)

# Interrogatives in Sri Lankan Sign Language

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## Abstract

This paper examines both manual and non-manual ways of forming polar and content questions in Sri Lankan Sign Language in comparison with Indo-Pakistan Sign Language in terms of the paradigm of question words, the ways of expanding the paradigm, the spread of non-manual question marking and the position of question words in sentence. Both languages pattern together in terms of head position with respect to non-manual marking for the distinction between polar and content questions. The spread of non-manual marking is more restricted in SLSL than IPSL. The use of mouth in the question-word paradigm is more prevalent in SLSL than IPSL. The placement of question words in sentence is much less constrained in SLSL than IPSL.

**Keywords:** interrogatives, polar questions, content questions, non-manual marking, Sri Lankan Sign Language.

## 1. Introduction

Signed languages are natural human languages used by deaf people throughout the world. Unlike the spoken languages that use an oral-auditory modality, signed languages use a visual-manual modality in which manual signs, facial expressions, and body movements and postures all convey complex linguistic information.

Zeshan (2004, 2006) and Šarac et al. (2007) provided a cross-linguistic comparison of interrogatives in many signed languages. Zeshan (2000, 2006) discussed that based on the comparisons of lexicon and grammatical structures, there is only one signed language used in various regions of India and Pakistan and refers to this signed language as Indo-Pakistani Sign Language (IPSL). Sri Lanka is also one of other regions of Indian subcontinent. And there may be only one signed language in various regions of Sri Lanka because deaf people of various regions have no difficulty of communicating with each other. I refer to this signed language as Sri Lankan Sign Language (SLSL). It is of great interest to see the similarities and differences between

IPSL and SLSL.

In this paper I use the data of the dialect of Colombo area, where is the center of politics, education and economy in Sri Lanka. This research has been conducted based on elicited data as well as data that have been collected by video recording natural discourses and translations from Sinhala with a deaf consultant's cooperation.<sup>1</sup> He is a native signer of Colombo dialect and grew up in Deaf family where SLSL was the primary language used in the home. The data and observations regarding IPSL are cited from Zeshan (2000, 2004, 2006).

Zeshan (2004) investigated interrogative structures based on data from 35 signed languages around the world since the functions of interrogative sentences play an important role of the grammar of any language. Zeshan found that both content (wh-questions) and polar questions (yes/no questions) are mainly marked by non-manual characteristics. Some signed languages also have manual polar signs and most of the signed languages have manual question signs.

Similar to other signed languages, interrogative constructions in SLSL consist of both manual and non-manual components. Manual components are lexical items, which consist of the combinations of hand, movement and location. Non-manual components consist of special facial expressions such as brows up, head and body postures such as chin up and down, body leaning forward, eye gaze toward the addressee and mouth patterns. In this paper, I examine both manual and non-manual ways of forming two basic types of questions, polar questions and content questions in SLSL in terms of the paradigm of question words, the ways of expanding the paradigm, the spread of non-manual question marking and the placement of question words in sentence, compared with IPSL.

## **2. Polar questions**

### *2.1. Non-manual marking*

As shown in (1), SLSL is a verb/predicate-final language like IPSL.

- (1) INDEX<sub>1</sub> BANANA EAT  
“I eat bananas”

In SLSL, a polar question differs from the corresponding affirmative sentence by the

presence of non-manual marking ‘chin down’ as exemplified in (2). I use a conventional gloss notation which involves the use of capitalized English words to represent signs in signed languages. Subscript numbers refer to points in the signing space that are used in pronominalization. The spread of a non-manual marking is indicated by a line on top of the sign glosses in capital letters.

- (2) a. INDEX<sub>2</sub> DEAF INDEX<sub>2</sub>  
 “You are deaf.”
- b. INDEX<sub>2</sub> DEAF  $\overline{\text{INDEX}}_2$   
 chin down  
 “Are you deaf?”

In addition to head position, i.e. chin down, brow position, i.e. brows up, is also used to mark polar questions. In (3), the sign EAT is marked by brows up, whereas in (4) there is no brows up and the sign CLOSE is marked by chin down only, which is also used in polar questions of IPSL (Zeshan 2004: 20). The eye gaze toward the addressee and a hold following the sign in clause-final position are obligatory. In (2-4), the final sign in each sentence accompanied with eye gaze is followed by a hold. Although IPSL and SLSL have the same feature of non-manual marking that differentiates between a polar question and the corresponding affirmative sentence, they differ in terms of the spread of non-manual marking. It is notable that in SLSL the head movement ‘chin down’ does not spread over the entire sentence which has no topicalised constituents and marks the sign CLOSE only, whereas in IPSL it spreads over the entire sentence minus any topicalised constituents according to Zeshan (2004: 20).

- (3)  $\overline{\text{EAT}}$   
 brows up/chin down  
 “Did you eat?”
- (4) NOW TIME 6  $\overline{\text{CLOSE}}$   
 chin down  
 “Is it around 6’oclock?”

## 2.2. Question Particle

Besides non-manual marking, SLSL has a question particle for marking polar questions, whereas IPSL does not have any question particle (Zeshan 2006: 340). The question particle is articulated by beginning with one or two open hands with the fingers and thumb extended, palm facing down and fingers pointing forward, held in front of the body, and then twisting the hand at the wrist so that the palm faces up while moving forward slightly. It is optionally used in polar questions, alternative questions, tag questions and content questions, and occurs in clause-final position only. Example (5) illustrates that the question particle (QP) occurs in clause-final position following the sign CAN.

- (5) INDEX<sub>1</sub> TIME LONG MEDICINE DRINK LONG NEED CAN QP  
“Will I have to drink medicine for a long time?”

When used in content questions, the question particle occupies the clause-final position following a question word, as shown in (6).

- (6) INTERROG-A QP  
“Why?”

### **3. Content questions**

#### *3.1. Non-manual marking*

As shown in the above examples (2b)-(4), the polar questions are marked by chin down. In contrast to that, the content questions are primarily marked by chin up in (7) and (8) like IPSL (Zeshan 2006: 309). Thus in terms of head position, IPSL and SLSL have the same typological feature with regard to non-manual marking for the distinction between polar and content questions. In terms of the status of non-manual marking involving brow position, i.e. brow furrow and brows up, however, they seem to differ from each other. In SLSL brow furrow is primarily associated with the general question word INTERROG-B accompanied by a round, open mouth gesture, but not primarily with other question words, whereas it is used for secondary non-manual marker in IPSL (Zeshan 2006: 310). In SLSL, brows up functions as a secondary non-manual marker because it is not used as illustrated in (7) and (8), whereas in IPSL it functions as a primary non-manual marker (Zeshan 2006: 310). In SLSL brow position does not

appear to be crucial for marking content questions in that it is also used for marking polar and content questions that are formed in the absence of non-manual marking involving brow position. The statuses of these non-manual markers and the differences among them have not yet been studied.

Besides chin up, mouth patterns and slight headshake are also used to mark content questions in SLSL. In (9) and (10) mouth patterns accompanied with the question word are ‘how’ in English. With respect to head position, chin up functions as a primary non-manual marker and head shake functions as a secondary non-manual marker.

- (7) INDEX<sub>2</sub> TODAY LATE INTERROG-A  
chin up  
“Why are you late today?”
- (8) INDEX<sub>2</sub> INTERROG-A  
chin up/mouthing  
“Who are you?”
- (9) COCONUT PICK INTERROG-A  
mouthing/head shake  
“How do you pick coconuts?”
- (10) SEE BEFORE NOW INTERROG-A  
mouthing/head shake  
“Seeing you after a long time! So how?”

As for the spread of non-manual marking, unlike IPSL, the examples (7)-(9) mentioned above show that the non-manual marking by chin up is limited to the question word only. In IPSL the non-manual marking spreads over the entire question minus any topicalised constituents whereas in SLSL only a question word is typically marked by non-manual marking, although in some cases the adjacent constituent to a question word is also marked. Example (11) illustrates that the sign GIVE is also marked by brows up and chin up. It seems that the spread of non-manual marking for polar and content questions in SLSL is more constrained than IPSL. Much more research will be needed on the conditions of the spread of the non-manual marking.

- (11) A: SIGN INDEX<sub>2</sub>  
“What is your name sign?”  
B: NAME-SIGN

“My name sign is this.”  
 A: NS GIVE INTERROG-A  
 chin up/brows up  
 “Who named you the name sign?”

### 3.2 Basic Paradigm of Question Words

According to Zeshan (2004: 22), "Paradigms of question words can be radically different from one signed language to another, in terms of both size and the distinctions that are lexicalized as question words. Indo-Pakistani Sign Language basically has a minimal paradigm with only one question word that covers the entire range of interrogative meanings", i.e. 'what, who, why, and where'. In contrast to IPSL, SLSL has four basic monomorphemic question words (see Table 1), and thus has a larger paradigm of question words than IPSL.<sup>2</sup> Among the basic questions words, two content words are general question words, i.e. INTERROG-A and INTERROG-B, that cover the wide range of meanings. The sign INTERROG-A with all fingers curled and palm facing left involves a pivoting movement of the elbow held in front of the right shoulder and is articulated by a short double to-and-fro movement. The sign INTERROG-B is articulated by beginning with the index finger extended and other fingers curled against the palm, palm facing down and the index finger pointing forward, held in front of the chest, and then wiggling the index finger.

There are several differences between INTERROG-A and INTERROG-B. First, INTERROG-A is a basic and general term for ‘what’ in terms of frequency and usage, whereas INTERROG-B is more specific. Second, INTERROG-A is marked by mouth patterns derived from English and Sinhala content words such as ‘who’ in English and ‘æyi’ (why) in Sinhala, whereas INTERROG-B is marked by mouth gesture formed from within in SLSL (See 3.3.1 for the use of mouth). Third, INTERROG-B can be used to differentiate human entity from non-human by movements of eyes such as eye gaze toward the addressee and ‘look down’. Example (12) illustrates that when INTERROG-B is marked with the eye gaze toward the addressee, it refers to human entity. In contrast, INTERROG-B is marked with the eye movement ‘look down’, it refers to non-human entity such as animal, thing and activity. In (13), it refers to an activity.

(12) WORK INTERROG-B  
 brows up/chin up/mouth gesture

- “Who is working?”  
 (13) WORK INTERROG-B  
 brow furrow/mouth gesture  
 “What are you doing?”

It is well known that languages vary in the way they manifest animacy. Examples (12) and (13) indicate that in SLSL animacy concept is reflected in the domain of question words through an interaction of manual and non-manual components.

Fourth, unlike INTERROG-A, INTERROG-B combines with other elements of movement. As shown in (14) involving the situation for picking up something, the dominant hand forming INTERROG-B stretches forward and moves from left to right as if searching for something. Example (15) illustrates that INTERROG-B stretches towards the upper right direction as if incorporated into the index finger representing 3rd person pronoun.

- (14) BOOK LIKE INTERROG-B  
 brow furrow/chin up/mouth gesture  
 “Which book do you like?”  
 (15) ASOKA GO INTERROG-B  
 brow furrow/chin up/mouth gesture  
 “Whom does Asoka go with?”

In addition to the general question words INTERROG-A and INTERROG-B, specific question words for ‘where’, ‘when’ and ‘how many’ also form the basic paradigm of the question words in SLSL. The two-handed sign WHERE involves an orientation change and is articulated by beginning with the fingers and thumb extended, palms facing down and fingers pointing forward, held in front of each side of the body, and then twisting the hands at the wrists so that the palms face up. The sign HOW-MANY has two meanings, i.e. 'how many' and 'when'. It involves an internal hand shape change and is articulated by beginning with all of the fingers and thumb curled, palm facing in, held in front of the chest, and then moving downward while flicking the fingers and thumb open quickly.

Table 1. Basic paradigm of monomorphemic question words

	SLSL	IPSL
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Monomorphemic question words	1. INTERROG-A ‘what, who, why, how’ 2. INTERROG-B ‘what, who, which, what for’ 3. WHERE ‘where’ 4. HOW-MANY ‘how many, when’	1. INTERROG ‘what, who, why, where, etc.’
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### 3.3. Expanding the basic paradigm of question words

SLSL has several devices to expand the basic paradigm of question words by the use of three formational means: mouth patterns accompanying the manual question signs, complex question word formation and using non-interrogative words as question words.

#### 3.3.1 Mouth patterns

Since the basic question words have several meanings, for disambiguation mouth patterns are used to specify them in SLSL. On the other hand, IPSL does not seem to have the use of mouth for disambiguation in interrogative constructions, because Zeshan (2000, 2001, 2004, 2006) did not report that. According to Braem and Sutton-Spence (2001: 2-3), signed languages have at least two types of mouth patterns. One may be derived from a spoken language and the other may be formed from within the sign languages and have no relation to the mouth movement of a spoken language. I refer to the former with mouthing and to the latter with mouth gesture, according to Braem and Sutton-Spence.

SLSL also has two types of mouth patterns.<sup>3</sup> One is mouth patterns derived from English and Sinhala question words. The same manual sign INTERROG-A can be accompanied by mouthing of different words such as ‘who’ in English and ‘æyi’ (why) in Sinhala, resulting in separate question signs in SLSL. For expressing the meaning of ‘who’, INTERROG-A is accompanied by the mouth movement of rounding lips. For ‘æyi’ (why), INTERROG-A is accompanied by stretching the mouth wide. Mouthing may have a lexical function and be part of the lexical component of interrogative constructions. And the other is mouth patterns formed from within SLSL which do not have any relation with English and Sinhala question words. In contrast to the mouthing, the round and open mouth gesture accompanying INTERROG-B does not function

specifying each meaning of INTERROG-B because INTERROG-B always associates with the same mouth gesture, i.e. the round, open mouth gesture.

### 3.3.2 *Complex question word formation*

Another device for expanding the basic paradigm is a complex question word formation that consists of non-interrogative sign in combination with INTERROG-A. Non-interrogative nouns are used as question words by combining with INTERROG-A, such as WATCH + INTERROG-A/B ‘what time’, TIME + INTERROG-A/B ‘what time’ and MONEY + INTERROG-A ‘how much’. In IPSL this word formation is a disambiguation strategy, because IPSL has only one question word that covers the whole range of question words in other languages and is ambiguous. In contrast, the word formation does not function specifying the meanings of the general question signs in SLSL, because INTERROG-A cannot mean ‘what time’ and ‘how much money’ in the absence of the signs WATCH and MONEY respectively. As for the sign WATCH, note its repeated movement when forming a content question as shown in (16). The sign WATCH is a two-handed sign. When the extended index finger of the dominant hand with slight to-and-fro movement points twice at the wrist of the non-dominant hand or touches it one time in (17), the sentence means ‘what time’. By pointing at the wrist one time in the absence of to-and-fro movement, it means ‘whose watch?’.

(16) WATCH  $\overline{\text{INTERROG-A}}$

chin up

“What time is it?”

(17) TIME  $\overline{\text{INTERROG-B}}$

chin up

“What time is it?”

(18) MONEY  $\overline{\text{INTERROG-A}}$

chin up

“How much is it?”

### 3.3.3 *Non-interrogative words as question words*

As question words some nouns are used by marking them with non-manual components such as mouthing, head movement, brows up or a combination of these. SLSL has two nouns, i.e. TIME and MONEY, used as question words, whereas IPSL

does not use this strategy. In (19) the sign TIME is accompanied by the open and close mouth movement of imitating the pronunciation of English word ‘time’. In (20) the sign MONEY is accompanied by the mouth movement of imitating the pronunciation of English word ‘money’. Notice that the non-interrogative sign AGE can be used without mouthing, head movement or brows up, although it accompanies eye gaze toward the addressee and a hold in clause-final position. The use of AGE as a question word without non-manual marking appears to be due to the effect of frequency. Since the phrase unit INDEX2 AGE is frequently used, it is easily predictable and identifiable from the context even if it has no non-manual marking, and may become conventionalized.

- (19)  $\bar{T}\bar{I}\bar{M}\bar{E}$   
mouthing/chin up  
“What time is it?”
- (20)  $\bar{M}\bar{O}\bar{N}\bar{E}\bar{Y}$   
mouthing  
“How much?”
- (21) INDEX2 AGE  
“How old are you?”

Table 2 shows the expanded paradigm of question words both in IPSL and SLSL. Note that the use of mouth is prevalent in SLSL than IPSL in the domain of the formation of interrogative construction.

Table2 The expanded paradigm of question words

	SLSL	IPSL
Monomorphemic question words	1. INTERROG-A	1. INTERROG
	2. INTERROG-B	
	3. WHERE	
	4. HOW-MANY	
	(mouth patterns)	
Composite question expressions which consist of a non-interrogative sign in combination with INTERROG	1. WATCH INTERROG-A/B	1. FACE INTERROG
	2. MONEY INTERROG-A	2. PLACE INTERROG
	(mouth patterns)	3. TIME INTERROG
		4. NUMBER INTERROG
Non-interrogative words as question	1. TIME	

words	2. MONEY	
	3. AGE	
	(mouth patterns)	

### 3.4 Syntactic position of question words

Unlike in IPSL that allows only clause-final placement of question words, in SLSL the syntactic positions for question words are clause initial, clause final, or doubled and in situ, although the clause final position is strongly preferred in the data. In (22) the question word INTERROG-A occupies in-situ position. In (23), the question word WHERE appears in the clause final position. On the other hand, in (24) it occupies the clause initial position. Notice that WHERE in the clause initial position is not marked by eye contact with the addressee but by chin down. It will require more research on the relation between the position of a question word and non-manual making.

(22) INDEX<sub>2</sub> REMOVE ELSE INTERROG-A WANT INDEX<sub>2</sub>

chin up

“What else do you want?”

(23) YOUNGER-BROTHER GO WHERE

chin up

“Where did younger brother go?”

(24) WHERE YOUNGER-BROTHER GO

chin down

“Where did younger brother go?”

Unlike IPSL, SLSL has multiple content questions that contain more than one content question word. Example (25) illustrates that the same question words occupy both clause-initial and clause-final position and it is a construction with doubling of constituents. The two different general question signs, i.e. INTERROG-A and INTERROG-B, can also appear in the clause-initial and clause-final position as shown in (26).

(25) INTERROG-A MONK INDEX<sub>3</sub> INTERROG-A

chin up

chin up

“Which monk is that?”

- (26)  $\overline{\text{INTERROG-A}}$  DO  $\overline{\text{INTERROG-B}}$   
chin up chin up/brow frown/mouth gesture  
“What are you doing?”

In example (27) and (28), there are two different question signs INTERROG-B and WHERE that sequentially co-occur in clause-final position. The examples differ from each other in that in (27) they undergo a phonological reduction indicated by the notation ‘~’, behave like a one unit and express the meaning ‘where’, whereas in (28) each content sign denotes its inherent meaning. Examples (29) and (30) also illustrate that two different general question signs INTERROG-B and INTERROG-A undergo a phonological reduction, behave like a one unit and mean ‘why’ in (29) and ‘who’ in (30).

- (27) ASOKA GO  $\overline{\text{INTERROG-B~WHERE}}$   
chin up/mth chin up  
“Where did Asoka go?”
- (28) ASOKA GO  $\overline{\text{INTERROG-B}}$   $\overline{\text{WHERE}}$   
chin up/mth chin up  
“What is Asoka’s job and where does he work?”
- (29) ASOKA GO  $\overline{\text{INTERROG-B~INTERROG-A}}$   
chin up/mth chin up  
“Why did Asoka go?”
- (30) MONK  $\overline{\text{INTERROG-B~INTERROG-A}}$   
chin up/mth chin up  
“Who is the monk?”

While it is possible to elicit multiple content questions such as (31), they do not appear to occur spontaneously.

- (31) ASOKA GO WHERE WITH  $\overline{\text{INTERROG-A}}$  WATCH  $\overline{\text{INTERROG-A}}$   
chin up chin up  
“When and where did Asoka go with whom?”

According to Zeshan (2004: 25), American Sign Language and Japanese Sign Language allow split interrogative constituents. IPSL allows it in the composite interrogative expressions as shown in (32). Examples (33) and (34) exemplify that SLSL also permits the construction.

- (32) INDEX2 FRIEND PLACE SLEEP INTERROG (Zeshan 2006: 316)  
 “Where is your friend (going to) sleep?”
- (33) COLOR LIKE INTERROG-A  
 chin up  
 “What color do you like?”
- (34) TIME GO INTERROG-B  
 chin up/mouth gesture  
 “What time will you go?”

#### 4. Conclusion

The paper focuses on several typological features in order to find out the similarities and differences between IPSL and SLSL. In terms of head position, SLSL patterns with IPSL with respect to non-manual marking for the distinction between polar and content questions. Both languages use chin down for polar questions and chin up for content questions, although they are different from each other with respect to the use of brow position. Regarding the basic paradigm of question words, SLSL has a larger paradigm than IPSL in terms of size and the distinctions lexicalized as question words. With respect to the spread of non-manual marking, it is restricted in SLSL more than IPSL. The use of mouth in the question-word paradigm is more prevalent in SLSL than IPSL. The placement of question words in sentence is much less constrained in SLSL than IPSL. Such findings reveal the similarities and differences between two languages.

Further research will be needed on the extent of the spread of non-manual marking, the functions of the non-manual markers and mouth patterns, and the constraints on the placement of question words. This type of research could make a descriptive contribution to our knowledge of the signed languages of Indian subcontinent.

#### Notes

1. I am very much indebted to my informant Asoka Abeysekera. Without his patient help this research would not have been possible.
2. According to Rohana Special School (2007), Matara dialect has a larger basic paradigm of question signs than Colombo dialect studied here. It has WHO ‘who’,

WHAT 'what', WHY 'why', HOW 'how', WHERE 'where', WHEN 'when', HOW-MANY 'how many' and WHAT-TIME 'what time'

3. The use of mouth patterns is influenced by several factors, i.e. personal background, educational background, communication situation, and text type. The exact functions of mouth patterns in SLSL need considerable further research based on the sociolinguistic factors.

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# Clitic and its Tonal Behavior in Akan

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## Abstract

This paper aims to show how justification for the syntactic category clitic can be seen in its tonal behavior in Akan. We focus here on what I call enclitics, namely, =*i*, =*no*, =*bi*, =*ni*, =*ha*, =*fo-ɔ*, and =*nom*. Although they presumably originate from nouns, they have been equated with suffixes by the researchers. However, what has been gained from this research is, that some enclitics behave differently tonally from suffixes. There are three types tonally: one is the same as nouns, a second the same as suffixes, and the third the same as both nouns and suffixes. It is concluded that the presence of these three types reflects the fact that they originate from words, and are shifting toward affixes.

**Keywords:** Akan, tone, clitic, word, affix.

## 1. Introduction

Akan is a Niger-Congo, Kwa language spoken mainly in Ghana. According to Gordon ed. (2005), there are nine dialects: that is, Asante, Fante, Akuapem, Agona, Dankyira, Asen, Akyem Bosome, Kwawu, and Ahafo. The dialect dealt with in this paper is Asante, and all the data presented here is collected by the author from a native speaker.<sup>1</sup>

Akan is a tone language, and there are two tonemes: one is H(igh), and the other is L(ow) (see (1)). Phonetically, there is mid tone which appears only after H, which is a little lower than H but not as low as L (see (2)). We call this Downstepped H(igh), because it is considered that it appears when both L and H are realized in one syllable. In this paper,  $\acute{\phantom{x}}$  represents H tones,  $\overset{\sim}{\phantom{x}}$  Downstepped H tones, and L tones are unmarked.

- (1) a.  $d\acute{a}$                        $da$   
          “to lie”                    “ever”

b. <i>papá</i>	<i>papa</i>	<i>pápá</i>
“father”	“fan”	“very good”

(2) <i>ɔbɔ́fóó</i>	<i>ɔbɔ́!fóó</i>
“creator”	“messenger”

## 2. Tone of suffixes

Let us first look at the behavior of suffixes. As shown in (3), nominal suffixes (-o, -ɔ, -õ, -e, -ε, -ẽ)<sup>2</sup> always bear the H tone, regardless of the tone of the root ( - representing morpheme boundaries).

(3) <i>a-pú!pú-ó</i>	<i>a-paso-ó</i>	<i>n-sõ-õ</i>
“shellfish”	“scissors”	“ash”
<i>nantwí-é</i>	<i>a-taadé-é</i>	<i>kyénsẽ-ẽ</i>
“cow”	“clothes”	“pan”

## 3. Tone of roots

Let us take a look at the tonal behavior of noun roots here. They always retain their original tones as in the sentences and compounds shown in (4) (= representing clitic boundaries. In this paper, unless shown separately, the tones of morphemes in words or sentences have not changed from the original tones).

(4) a. <i>ɔ=wo</i>	<i>siká</i>
3sgSC=have	money
“S/he has money.”	
b. <i>ɔ=wó</i>	<i>fufú-ó</i>
3sgSC =pound	fufuo
“S/he pounds on fufuo.”	

- c.  $\text{ɔ}=\text{bó}$       *dúku*  
 3sgSC =wear scarf  
 “S/he wears a scarf.”
- d.  $\text{ɔ}=\text{tó}$       *pí!ǎ*  
 3sgSC =throw lance  
 “S/he throws a lance”
- e. *twíí-ká!sá*  
 Twi-language  
 “Twi language”
- f. *naná-maamé*  
 grandparent-elder woman  
 “great-grandmother”
- g.  $\text{ɔ}=\text{mán-fáráńkaá}$   
 nation-flag  
 “national flag”

When a noun has a L tone prefix, usually the prefix is deleted when it is preceded by another word or root.<sup>3</sup> But the tone of the prefix is preserved therefore when the preceding root-final tone and the initial tone of the root to which the prefix is attached are both H, the initial H tone changes into Downstepped H tone as in the sentence and compound shown in (5).

- (5) a.  $\text{o}=\text{twá}$       *!dwán*      cf. *o-dwán*  
 3sgSC =cut sheep      “sheep”  
 “S/he kills the sheep.”
- b. *a-wú-!dúró*      cf. *a-dúró*  
 PREF-die-medicine      “medicine”  
 “poison”

An interesting tonal phenomenon is seen exclusively in some compounds. In the examples shown in (6), the original tones of the preceding roots are lost, and they

appear with L tone throughout (tones of the following roots do not change).

- |                           |                     |                 |
|---------------------------|---------------------|-----------------|
| (6) a. <i>dade-pɔnkɔ́</i> | cf. <i>dadé-é</i>   | <i>ɔ-pɔnkɔ́</i> |
| iron-horse                | “iron”              | “horse”         |
| “bike”                    |                     |                 |
| b. <i>nantwi-nám</i>      | cf. <i>nantwí-é</i> | <i>ε-nám</i>    |
| cow-meat                  | “cow”               | “meat”          |
| “beef”                    |                     |                 |
| c. <i>e-fun-dá!ká</i>     | cf. <i>e-fúnú</i>   | <i>a-dá!ká</i>  |
| corpse-box                | “corpse”            | “box”           |
| “coffin”                  |                     |                 |

#### 4. Tone of enclitic

Now let us look at the tonal behavior of enclitics. The enclitics presented here are demonstrative enclitic =*i*, determiner enclitic =*no*, indefinite enclitic =*bi*, agent enclitic =*ni*, demonstrative enclitic =*ha*, agent enclitic =*fo-ɔ*, and plural enclitic =*nom*. Although =*i*, =*no*, =*bi*, and =*ha* clearly originate from nouns *weí* ‘this’, *ε-no’* ‘it’, *e-bí* ‘something’, and *a-há* ‘here’ respectively, they have been equated with suffixes by the researchers (e.g. Christaller 1964, Dolphyne 1988). However, what has been gained from this research is, that some enclitics behave tonally differently from suffixes. These enclitics are categorized tonally into three types: one is the same as nouns, a second the same as suffixes, and the third the same as both nouns and suffixes.

##### 4.1 =*i*, =*no*, =*bi*,

As shown in (7) and (8), demonstrative enclitic =*i*, determiner enclitic =*no*, and indefinite enclitic =*bi* always bear the H tone regardless of the tone of the roots as nominal suffixes do.

- (7) a. *a-nadwo=í*                      *sófi=í*  
           night=DEMC                      shovel=DEMC  
           “tonight”                          “this shovel”
- b. *a-nadwo=nó*                      *sófi=nó*  
           night=DETC                      shovel=DETC  
           “the night”                        “this shovel”
- c. *a-nadwo=bí*                        *sófi=bí*  
           night=INDC                      shovel=INDC  
           “a certain night”                “a certain shovel”
- 
- (8) a. *a-kókó=í*                            *prá!kó=í*  
           hen=DEMC                        pig=DEMC  
           “this hen”                         “this pig”
- b. *a-kókó=nó*                        *prá!kó=nó*  
           hen=DETC                        pig=DETC  
           “the hen”                         “the pig”
- c. *a-kókó=bí*                        *prá!kó=bí*  
           hen=INDC                        pig=INDC  
           “a certain hen”                 “a certain pig”

#### 4.2 =ni

In contrast with the three clitics presented in 4.1, agent enclitic =ni behaves just like a noun with a H tone root and a L tone prefix. When the root-final tone is L, it bears the H tone as shown in (9), but when the root-final tone is H, it bears the Downstepped H tone as shown in (10). This tonal phenomenon indicates that =ni originates from a noun with a L tone prefix.

- (9) *o-krísto=ní*                            *gáána=ní*  
       PREF-Christ=AGC                      Ghana=AGC  
       “Christian”                            “Ghanaian”

- |                         |                   |
|-------------------------|-------------------|
| (10) <i>ɔ-wari'=!ní</i> | <i>o-tié'=!ní</i> |
| PREF-marry=AGC          | PREF-listen=AGC   |
| “married person”        | “listener”        |

Furthermore, as in (11), some roots to which =*ni* is attached appear with the L tone throughout, regardless of the original tone of these roots, as preceding roots in compounds do.

- |                          |                  |
|--------------------------|------------------|
| (11) a. <i>o-sika=ni</i> | cf. <i>sika'</i> |
| PREF-money=AGC           | “money”          |
| “rich person”            |                  |
| b. <i>o-kua=ni</i>       | cf. <i>ku'á</i>  |
| PREF-farming=AGC         | “farming”        |
| “farmer”                 |                  |
| c. <i>o-kuro=ni</i>      | cf. <i>kúró</i>  |
| PREF-town=AGC            | “town”           |
| “citizen”                |                  |

#### 4.3 =*ha*, =*fo-ɔ*, =*nom*

Demonstrative enclitic =*ha*, agent enclitic =*fo-ɔ*, and plural enclitic =*nom* show a mixed behavior. As shown in (12), when the preceding root-final tone is L, they bear the H tone. But when the preceding root-final tone is H, they bear the Downstepped H tone in some cases as shown in (13), and the H tone in other cases as shown in (14). Furthermore, while the tones of the roots to which =*ha* is attached never change, some roots to which =*fo-ɔ* and =*nom* are attached appear with L tone throughout as in the compounds shown in (15).

- |                        |                          |
|------------------------|--------------------------|
| (12) a. <i>ɔ=te=há</i> | <i>o=gyina=há</i>        |
| 3sgSC=live=DEMC        | 3sgSC=stand=DEMC         |
| “S/he lives here.”     | “S/he is standing here.” |

- b. *a-krísto=fó-ǒ*  
 PREF-Christ=AGC  
 “Christians”
- c. *a-wúra=nóm*  
 master=PLC  
 “masters”

- |  |  |
|--|--|
| (13) a. <i>ɔ=bá=!há</i><br>3sgSC=come=DEMC<br>“S/he comes here.” | <i>ɔ=góró=!há</i><br>3sgSC=play=DEMC<br>“S/he plays here.” |
| b. <i>ɔ-kyeré=!fó-ǒ</i><br>PREF-teach=AGC<br>“teacher”           | <i>e-múm=!fó-ǒ</i><br>dumb=AGC<br>“dumb”                   |
| c. <i>a-há=!nóm</i><br>here=PLC<br>“hereabouts”                  | <i>ε-hǒ=!nóm</i><br>there=PLC<br>“thereabouts”             |

- |   |  |
|---|--|
| (14) a. <i>ɔ=tená=há</i><br>3sgSC=sit=DEMC<br>“S/he sits here.” | <i>o=pín=há</i><br>3sgSC=move=DEMC<br>“S/he moves here.” |
| b. <i>ɔ-ká=fó-ǒ</i><br>PREF-speak=AGC<br>“speaker”              | <i>ɔ-tán=fó-ǒ</i><br>PREF-hate=AGC<br>“enemy”            |
| c. <i>naná=nóm</i><br>grandparent=PLC<br>“grandparents”         | <i>kúnú=nóm</i><br>husband=PLC<br>“husbands”             |

- |  |                                  |
|--|----------------------------------|
| (15) a. <i>o-kuna=fó-ǒ</i><br>PREF-widowness=AGC<br>“widow, widower” | cf. <i>e-kuná</i><br>“widowness” |
|--|----------------------------------|

b. *a-nua=nóm*  
brother/sister=PLC  
“brother/sister”

cf. *a-núa'*  
“brothers/ sisters”

## 5. Conclusion

To sum up, all the enclitics mentioned in this paper appear to originate from words consisting of a H tone root and a L tone prefix. The enclitic which behaves the same as nouns is *=ni*, since whenever the root-final tone is H, the enclitic always bears the Downstepped H. This suggests that it originates from a word with a H tone root and a L tone prefix.

Contrastively, the enclitics which behave the same as suffixes are *=i*, *=no*, and *=bi*. Although these enclitics seem obviously to originate from nouns with a H tone root and a L tone prefix, downstep never occurs when the root-final tone is H, but these enclitics always appear with H.

The enclitics which behave like both nouns and suffixes are *=ha*, *=fo-ɔ*, and *=nom*. When the root-final tone is H, there are cases where these enclitics appear with the Downstepped H like words with a H tone root and a L tone prefix, and there are cases where these enclitics appear with the H like suffixes. Furthermore, among these three enclitics, *=fo-ɔ* and *=nom* behave more like words than *=ha*. This is because in several cases the roots to which *=fo-ɔ* or *=nom* is attached appear with the L tone throughout regardless of the original tone of these roots, just as in some compounds.

To conclude, there are three types of enclitics tonally: one is the same as nouns, a second the same as suffixes, and the third the same as both nouns and suffixes. The presence of these three types reflects the fact that clitics originate from words, and are shifting toward affixes. The enclitics dealt with in this paper can be placed on the transitional phase as shown in (16).



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# Possessor Raising and Noun Incorporation: A Case of Alutor in Russian Far East

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## Abstract

In Possessor Raising (PR) in Alutor (Chukchi-Kamchatka language family), the noun is placed outside the verbal complex as a possessor and the incorporated noun, as a possessee. The aim of this paper is to demonstrate all possible situations that allow PR in Alutor. In many languages, PR occurs when the possessor noun and the possessed noun indicate inalienable (often body parts) possession. In contrast, PR in Alutor is not restricted to inalienable possession, but can occur in the case of many other relations. Nevertheless, there are certain restrictions. In this paper, I will show that the following three parameters control PR in Alutor: 1) Property of nouns, 2) Affectedness of a verb, 3) Beneficialness of the action.

**Keywords:** possessor raising, incorporation, transitivity, affectedness, beneficialness.

## 1. Introduction

Alutor involves a process known as Noun Incorporation (NI). By incorporating a direct object, a transitive verb reduces its valence and follows the intransitive conjugation pattern. However, there are also some cases in which a transitive verb incorporates its direct object and retains its transitivity. One of these cases is associated with Possessor Raising (PR); these sentences have both the noun outside the verbal complex as a possessor (1a. dog) and the incorporated noun as a possessee (1a. whisker). In this study, I will term constructions like (1a) as PR with transitive NI.

- (1) a. *un<sup>[J]</sup>un<sup>[J]</sup>u-ta      <sup>[H]</sup>ət<sup>[H]</sup>-ə-n      na-lalu-<sup>[G]</sup>itəl<sup>[J]</sup><sup>[Q]</sup>*  
*at-ə-tkə-n*  
child-ERG    dog-E-ABS.SG    LOW.A-whisker-pull-E-IPFV-3SG.P

“The children pull the *dog’s* whiskers.” (*lit.* the children whisker-pull the dog)

b. *un*[\$J]*un*[\$J]*u-ta*      *[\$H]ət[\$H]-ina*      *lalu-wwi*  
 child-ERG    dog-POSS.3PL    whisker-ABS.PL  
*na-[\$G]itəl[\$J]at-ə-tkə-na*  
 LOW.A-pull-E-IPFV-3pl.P  
 “The children pull *dog’s* whiskers.”

Cross-linguistic studies show that PR is often restricted to inalienable possession. However, PR in Alutor is used for broader possessive relations. The goal of this presentation is to demonstrate all possible situations that allow PR with transitive NI.

## 2. General information about Alutor

- Alutor belongs to the Chukchi-Kamchatkan language family and is spoken in Kamchatka Peninsula, Russia, by about 200–300 speakers.
- Alutor is an agglutinating, polysynthetic, and ergative language. Transitive subjects (A) are encoded in the ergative case (2), while intransitive subjects (S) and direct objects (O) are encoded in the absolutive case (2, 3).

(2) *[junjunawət-nak]A*    *[\$G]-etu-lin*      *[un[\$J]un[\$J]u-pil[\$J]]O*  
 PSN-ERG.SG      RES-give.birth-RES.3SG.P      child-DIM.ABS.SG  
 “J gave birth to a little baby.”

(3) *teloŋ*    *qət-ə-jji*      *[miti]S*  
 to.there    go-E-PFV.3SG.S    PSN.ABS.SG  
 “M went there.”

- Transitive and intransitive verbs show different conjugation patterns and are easily distinguishable from each other.
- The word order is fairly free.
- The subject and/or object are often omitted because the person and the number of these participants are obligatory marked on verbs by affixes.

(4) *[əlla[\$Q]-a]A*      *iv-nin*

mother-ERG      say-PFV.3SG.A/3SG.P  
 “Mother told him.”

### 3. Overview of NI in Alutor

When a transitive verb incorporates its direct object, the performer of the action is moved to the absolutive position, and the verbal complex takes the intransitive conjugation pattern. In (5a), the word “boots” takes the absolutive case, and the verb “crumple,” the transitive conjugation. In contrast, in (5b), the nominal stem “boot” is incorporated into the verb, and the verbal complex “boot-crumple” take the intransitive conjugation pattern.

- (5) a. *ɲavakka-ta              pəlak-u              tavamjat-ə-tkə-nina*  
 daughter-ERG      boot-ABS.PL      crumple-E-IPFV-3SG.A/3PL.P  
 “(My) daughter softens *boots*.”
- b. *ɲavakək                      plak-tavamjat-ə-tkən*  
 daughter.ABS.SG      boot-crumple-E-IPFV.3SG.S  
 “(My) daughter softens *boots*.” (*lit.* Daughter boot-crumples.)

- According to general tendency for NI provided in Mithun (1984: 856), in Alutor, NI often refers to general, habitual activities or ‘activities directed at an unspecified portion of a mass’.
- Alutor does not allow the incorporation of two objects.
- No modifier of a noun can be incorporated.
- Transitive verbs that have corresponding lexical affixes (e.g., “to eat” and “to make”) usually do not incorporate their direct objects. Thus, the NI in (6a) is ungrammatical, and sentences with a lexical suffix, such as (6b), are preferred.

- (6) a. \**ɬ[G]əmmə      t-əvənɬ[Q]-ə-nu-tkən*  
 I.ABS      1SG.S-berry-E-eat-IPFV  
 \*‘I eat berries.’
- b. *ɬ[G]əmmə      t-əvənɬ[Q]-u-tkən*  
 I.ABS      1SG.S-E-berry-eat-IPFV  
 “I eat berries.” (*-u* is a lexical suffix that means “to eat/drink”)



In (8a), the noun “parka” is incorporated into the verb “tear,” and its possessor “father” is the direct object of the verbal complex.

[clothes]

- (8) a. *un*[\$J]un[\$J]u-ta      **alla**[\$G]-ə-n  
 child-ERG    father-E-ABS.SG  
*it*[\$Q]-ə-n-sima-v-nin  
 parka-E-CAUS-tear-CAUS-3SG.A/3SG.P[PFV]  
 “The child tore the father’s parka.” (lit. the child parka-tore father)
- b. *un*[\$J]un[\$J]u-ta      **alla**[\$G]-in      *it*[\$Q]-ə-n  
 child-ERG    father-POSS.3SG    parka-E-ABS.SG  
*t-ə-sima-v-nin*  
 CAUS-E-tear-CAUS-3SG.A/3SG.P[PFV]  
 “The child tore father’s parka.”

In (9a), the noun “cat” is incorporated into the verb “to kill,” and its possessor “mother” is shown as the direct object of the verbal complex.

[domestic animals]

- (9) a. *un*[\$J]un[\$J]u-ta      **alla**      \$[G]a-koška-nm-ə-lin  
 child-ERG    mother.ABS.SG    RES-cat-kill-E-RES.3SG.P  
 “The child killed the *mother’s* cat.” (lit. the child cat-killed *mother*)
- b. *un*[\$J]un[\$J]u-ta      \$[G]a-nm-ə-lin      *koška*  
 child-ERG    RES-kill-E-RES.3SG.P    cat.ABS.SG  
**alla**[\$Q]-in  
 mother-POSS.3SG  
 “The child killed mother’s cat.”

Similarly, in (10a), the noun “cup” is incorporated into the verb “to break,” and its possessor “father” is the direct object of the verbal complex.

[other inanimate objects]

- (10) a. *qaj-un*[\$J]un[\$J]u-ta      **alla**[\$G]-ə-n  
 DIM-child-ERG    father-E-ABS.SG  
*na-kujŋ-ə-sŋat-ə-n*  
 LOW.A-cup-E-break-E-3SG.P[PFV]

“The boys broke the *father’s* cup.” (lit. the boys cup-broke father)

- b. *qaj-un* *un* *u-ta*      *alla* *in*      *kuj* *ə-n*  
 DIM-child-ERG    father-POSS.3SG    cup-E-ABS.SG  
*na-syat-ə-n*  
 LOW.A-break-E-3SG.P[PFV]  
 “The boys broke *father’s* cup.”

In contrast, kinship terms functioning as a possessee are not incorporated. In (11 a), the noun “child” is incorporated into the noun “to scold,” and his mother is the direct object. It is regarded incomprehensible or interpreted as “I scolded my sister for her son.” That is, the action is directed not toward the incorporated noun “child,” but toward the direct object “sister.” In the same manner, (12a) is incomprehensible.

[Kinship terms]

- (11) a. *əmnan*      *aninal* *ə-n*      *t-un* *un* *u-ηatkəjavat-ə-n*

I.ERG      sister-E-ABS.SG      1SG.A-child-scold-E-3SG.P[PFV]  
 ?“I scolded (my) sister’s son.”

- b. *əmnan*      *aninal* *in*      *un* *un* *u*  
 I.ERG      sister-POSS.3SG    child.ABS.SG  
*t-ə-ηatkəjavat-ə-n.*

1SG.A-E-scold-E-3SG.P[PFV]  
 “I scolded (my) *sister’s* son.”

- (12) a. *\*qetum* *a*      *javakka-java-nin*  
 relative-ERG    daughter-use-3SG.A/3SG.P[PFV]

*tum* *ə-tum*  
 friend-E~ABS.SG

\*“(My) relative had sex with *the friend’s* daughter.” (lit. my relative daughter-used *the friend*)

- b. *qetum* *a*      *java-nin*      *tum* *in*  
 relative-ERG    use-3SG.A/3SG.P[PFV]    friend-POSS.3SG  
*javakək*  
 daughter.ABS.SG

“(My) relative had sex with *the friend’s* daughter.”

## 4.2. Affectedness

Affectedness—the degree to which an action is transferred to a patient (Hopper and Thompson 1980: 252)—is also related to the occurrence of PR with transitive NI.

All verbs in the abovementioned examples show a high degree of affectedness (“to cut open,” “to tear,” “to kill,” “to break”). On the other hand, the same construction using verbs of lower affectedness is regarded ungrammatical. Compare the following examples:

- (13) \**un*[\$J]*un*[\$J]*u-ta*      *\$/H/ət\$/H/-ə-n*      *\$/G/a-ŋujŋ-ə-la\$/H/u-lin*  
 child-ERG      dog-E-ABS.SG      RES-tail-E-see-RES.3SG.P  
 “The child saw a *dog’s* tail.” (*lit.* the child tail-saw a *dog*)
- (14) *un*[\$J]*un*[\$J]*u-ta*      *\$/H/ət\$/H/-ə-n*      *\$/G/a-ŋujŋ-akmil-lin*  
 child-ERG      dog-E-ABS.SG      RES-tail-clutch-RES.3SG.P  
 “The child clutched a *dog’s* tail.” (*lit.* the child tail-clutch a *dog*)

Example (13), which uses the verb “to see,” is ungrammatical, while (14), which uses the verb “to clutch,” is grammatically correct. The only difference between these sentences is in the verbs used. This shows that the affectedness of the verbs determines the acceptability of PR with transitive NI.

Let us consider some other examples with verbs of lower affectedness. Sentences (15), (16), and (17) are all ungrammatical. However, if we use the verb “to break” in place of each verb, all the sentences are regarded to be grammatical.

That is, “I broke my friend’s pot,” “The child broke the mother’s pot,” and “The child broke the mother’s leg” are all grammatical.

- (15) \**t-ə-kuka-java-n*      *tum\$/G/-ə-tum*  
 1SG.A-E-pot-use-3SG.P[PFV]      friend-E~ABS.SG  
 “I used (my) *friend’s* pot.” (*lit.* I pot-used my *friend*)
- (16) \**un*[\$J]*un*[\$J]*u-ta*      *əlla*      *\$/G/a-senik-ə-ntəmŋiv-lin*  
 child-ERG      mother.ABS.SG      RES-teapot-E-lose-RES.3SG.P  
 “The child lost the *mother’s* teapot.” (*lit.* the child teapot-lost *mother*)
- (17) \**un*[\$J]*un*[\$J]*u-ta*      *əlla*      *\$/G/a-\$/G/ətka-nit\$/Q/ajav-lin*  
 child-ERG      mother.ABS.SG      RES-leg-wet-RES.3SG.P  
 “The child wet the *mother’s* feet.” (*lit.* the child foot-wet *mother*)

The acceptability of verbs with regard to affectedness is shown in Table 1. As we have already seen, the verbs of higher affectedness, “to kill,” “to cut open,” and “to tear,” can be used in PR with transitive NI. However, the verbs of lower affectedness cannot be used in this manner.

Table 1. Acceptability of verbs in PR with transitive NI.

Affectedness	Verbs	Acceptability
High	tm/nm- ‘kill’	A
	svi- ‘cut’	A
	-rra- ‘cut open’	A
	m̩la- ‘break’	A
	s̩ŋa- ‘break’	A
	simav- ‘tear’	A
	j̩[G]u- ‘bite’	A
	akmit- ‘clutch’	A
	k̩pl- ‘hit’	A
	keŋa- ‘kick’	A
	java- ‘use’	U
	-nit̩[Q]ajav- ‘we t’	U
-ntəm̩ŋiv- ‘lose’	U	
Low	la̩[H]u- ‘see’	U

A: acceptable; U: unacceptable

#### 4.3. Beneficialness of the action

When the action expressed by a verbal complex is beneficial for its direct object, the direct object is not interpreted as a possessor of the incorporated noun, but as a beneficiary of the action. Compare the following two examples:

(18) un̩[J]un̩[J]u-ta      əlla      [G]a-koška-nm-ə-lin  
(=9)

child-ERG      mother.ABS.SG      RES-cat-kill-E-RES.3SG.P

“The child killed *mother’s* cat (*lit.* the child cat-killed *mother*).”

(19) un̩[J]un̩[J]u-ta      əlla[G]-ə-n      [G]a-qura-nm-al-lin

child-ERG father-E-ABS.SG RES-reindeer-kill-SUFF-RES.3SG.P  
 “The child killed reindeers for the *father*.” (*lit.* the child reindeer-killed *father*)

Killing a pet cat is not beneficial for its owner. However, killing reindeers is beneficial because it helps one get reindeer meat and fur that are absolutely imperative for Alutor people. Thus, in (19), the direct object “father” is interpreted as a beneficiary, rather than a possessor, of the incorporated noun “reindeer.” Another related example is given in (20): Here, the direct object “mother” is also interpreted as a beneficiary, rather than a possessor. If we use the verb “to break” in place of the verb “to take, to buy,” the direct object “mother” would be interpreted as a possessor of the incorporated noun “dish.”

(20) *ɲavakka-ta*      *ʃ[G]a-qama-ʃ[Q]akmil-lin*      *alla*  
 daughter-ERG RES-dish-take-RES.3SG.P mother.ABS.SG  
 “The daughter bought a dish for the *mother*.” (*lit.* the daughter dish-took *mother*).

When an incorporated noun refers to a body part, the direct object is interpreted as a possessor. Compare the following two examples: In (21), the incorporated noun “hand” is a body part term; therefore, the direct object of the verbal complex, “child,” is interpreted as the possessor of the “hand.” In contrast, in (22), the incorporated noun “shirt” does not indicate a body part, and the direct object of the verbal complex is interpreted as a beneficiary.

(21) *ʃ[G]əmnan*      *unʃ[J]unʃ[J]u*      *t-ə-mənʃ[G]-ə-nmət-ə-tkə-n*  
 daughter-ERG child.ABS.SG 1SG.A-E-hand-E-wash-E-IPFV-3SG.P  
 “I wash (my) *child’s* hands.” (*lit.* I hand-wash my *child*)  
 (22) *ʃ[G]əmnan*      *unʃ[J]unʃ[J]u*      *t-urvaq-ə-nmət-ə-tkə-n*  
 daughter-ERG child.ABS.SG 1SG.A-E-shirt-E-wash-E-IPFV-3SG.P  
 “I wash the shirt for (my) *child*.” (*lit.* I shirt-wash my *child*)

## 5. Concluding remarks

PR with transitive NI is preferred in the following cases:

- when an incorporated noun and a direct object of a verbal complex exhibit i

inalienable possessive relation (body parts)

- for a verb with a high degree of affectedness

PR interpretation does not occur in the following cases:

- The incorporated noun is a kinship term
- The affectedness of a verb is low
- The action expressed by a verbal complex is beneficial for the direct object

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### Appendix: List of Abbreviations

A agent; ABS absolutive; CAUS causative; DAT dative; DIM diminutive; E epenthesis; EMP emphatic; ERG ergative case; IPFV imperfective; LOW.A a marker of lower agent; P patient; PFV perfective; PL plural number; POSS possessive; PSN person name; S intransitive subject; SG singular number; SUFF suffix with unknown function; RES resultative; 1 first person; 2 second person; 3 third person; [ ] nonovert element in glossaries; - morpheme boundaries; ~ reduplication.

## Language Policy for China's Minorities: Orthography Development for the Yi

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### 1. The Yi

The Yi nationality of southwestern China is a composite group of nearly eight million people speaking various related languages; a very small number also live in northern Vietnam and northeastern Laos. There are nearly a hundred languages of the Ngwi subgroup of the Burmic or Southeastern branch of Tibeto-Burman (Bradley 1997a, 2007). Of these, over sixty (and probably others still unreported) are spoken by people classified as members of the Yi nationality in China.

The term Yi was introduced in the early 1950s to replace the earlier Chinese term Lolo, now regarded as pejorative; it is said that Chairman Mao himself selected the character now used in Chinese for the Yi nationality, which is homophonous with another character formerly used to refer to groups speaking Dai languages and now classified as Zhuang and Buyi nationality. The nationalities classification was undertaken rather quickly in the mid-1950s, and simply follows the earlier Chinese practice of lumping numerous distinct groups with different languages into larger nationalities.

Four groups within the Yi nationality have distinct logographic traditions, Nosu, Nasu, Nisu and Sani. Like Chinese characters, the original basis of these systems was pictographic, but they subsequently developed into logographic systems by the use of pictographic characters in their phonetic value for homophones, and modifications to distinguish these characters from the original pictographs. Like Chinese, the Ngwi languages do not have affixal morphology and so each character represents a syllable with a meaning.

My term Ngwi is derived from the traditional autonym of many groups speaking Ngwi languages. In these languages, cognates derived from the Tibeto-Burman etymon \*d-ŋul<sup>1</sup> originally meaning 'silver' are used as an autonym, and the etymon \*plu<sup>2</sup> meaning 'white' elsewhere in Tibeto-Burman has generalised to mean 'silver' as well. In the Burmese cognate /ŋwe<sup>22</sup>/ as in other non-Ngwi Burmic or Southeastern Tibeto-Burman languages, the cognates of this etymon reflect the original form and original meaning 'silver'. One of the older Chinese terms for minority groups of the southwest was Man, and there were Bai Man 'White Man' and Wu Man 'black Man' subgroups in what is now Yunnan Province, usually taken to be the ancestors of groups later called Lolo and now Yi; perhaps the descriptive term 'white' here also reflects the Ngwi autonym. The traditional autonym for the Nosu is /ni<sup>21</sup>/, for Nasu it is /nu<sup>21</sup>/ and similar forms, and for the Eastern Yi Sanguie language spoken just west of Kunming city, the autonym remains /sq<sup>21</sup> ŋwe<sup>21</sup>/ or changes in some dialects to /sq<sup>21</sup> ɲε<sup>21</sup>/ (Bradley 2005); we also see the same name and the same Chinese prefix in the Sani autonym /nɪ<sup>21</sup>/, in the second syllable of the autonym of the related Southern Ngwi group Hani and in the autonym Zani found in the traditional songs of the Akha, and so on. Like the Akha, the Nosu, Nasu and Nisu also have newer autonoms; all three literally mean 'black people'.

There is extreme confusion of Chinese names among groups classified as Yi. Hei Yi 'black Yi' often refers to various formerly unassimilated groups, Bai Yi 'white Yi' is a widespread term for formerly partly assimilated groups, and Gan Yi 'dry Yi' refers to various more fully assimilated groups with a lifestyle like that of the Han Chinese majority. Various other colour and descriptive terms are also combined to refer to specific groups, such as Huang Yi 'yellow Yi', Hong Yi 'red Yi', Shui Yi 'water Yi', Shuitian Yi 'irrigated field Yi'

and so on. Among the Nosu, the leading former aristocratic clans are known as ‘black’, while the former non-aristocrat but non-slave clans are known as ‘white’. Some of the most assimilated groups no longer have any remembered autonym other than a general Chinese term such as Bai Yi. Prior to the introduction of the new term Yi in the early 1950s, all these were Lolo: Bai Lolo and so on. Just to confuse matters even further, there is a very large group classified as Yi whose autonym remains Lolo, and another whose autonym is Lalo.

Chinese linguists classify Yi into six major clusters, including Central Yi (Lolo plus a few other languages) and Western Yi (Lalo and some related languages) respectively, neither of which has a traditional writing system. Of the four groups with writing systems, the Nosu are classified as Northern Yi, the Nasu are classified as Eastern Yi, the Nisu are classified as Southern Yi, and the Sani are one of various groups classified as Southeastern Yi. Chinese linguists call the whole Ngwi subgroup of Tibeto-Burman the Yi Branch. Bradley (1979) classified this into Northern, Central, Southern and Southeastern subbranches. The Ngwi languages linguistically classified in the Southern Ngwi subbranch are spoken by people mostly classified as Hani nationality in China. Speakers of languages in the Central Ngwi subbranch include groups classified as Yi such as the Lolo, Lalo and others, as well as all those classified as Lisu and Jinuo, nearly all the Lahu and some of the Nu. Most groups whose languages are within the Northern Ngwi and Southeastern Ngwi subbranches are classified as Yi, but one such group, the Kazhuo of Tonghai, is classified as Mongol.

The Nosu number over 2.3 million people, mostly in the Liangshan Yi Autonomous Prefecture of southwestern Sichuan Province, but also in Ninglang County which is the continuation of the same mountain area in northwestern Yunnan. Since 1950, the Nosu have also spread widely across the rest of northwestern Yunnan. The Nosu are by far the largest group within the Yi nationality, their language is very well maintained among the population and Nosu leaders have frequently proposed that their language should be the standard for all Yi in all provinces of China. This was even agreed at a conference of Yi Studies held in Sichuan five years ago, but has not been implemented. Nosu has an extremely wide range of published research materials, including several dictionaries including bilingual ones such as Mahei et al. (1989) and monolingual ones such as Zhu et al. (1990), as well as numerous grammatical studies, but all are based on the new syllabic writing system, not the older traditional script (see discussion below in 3.1). While quite a lot of text material has been published, much has been edited so that it contains much less variation than was found in real traditional texts, or more often so that it conforms exactly to the new syllabic standard discussed below. One fortunate exception is Vermander (1998). There are still many traditional religious practitioners (hereafter ‘shamans’) who use traditional writing, including some younger ones in some areas, and many mother tongue linguists doing extensive research.

The Nasu are widely scattered across northeastern Yunnan and northwestern Guizhou provinces, and number about one million speakers and many more ethnic group members who do not speak the language. Not all Nasu subgroups have retained a literary tradition; two major clusters which have are in Wuding and Luquan counties just north of Kunming in Yunnan, and in various counties in northwestern Guizhou, notably Bijie and Dafang counties. A large number of traditional Nasu texts in original or edited form with Chinese translation have been published in China in the last twenty years, especially material from Guizhou but also from elsewhere. However, the number of fully literate shamans who can read traditional materials is small and rapidly decreasing, and there are few scholars working on Nasu. Notable dictionaries include Ma et al. (1991) on the Guizhou dialect, Bai et al. (1995) on the Wuding dialect, with further data on the Shuangbai dialect of Nisu as well as Lipo and Lolo, and Zhang et al. (1999) on the Luquan dialect. Apart from the literary dialects of Nasu, there are many other closely related languages classified within Eastern Yi by Chinese linguists.

Nisu or Southern Yi is also rather diverse; in addition to about 800,000 speakers, there are many nonspeaker members of the group. It has a wide range of dialects, with Northern and Southern dialects. Speakers of the northernmost Northern Nisu dialect in Yimen, Jinning, Hongta and northern Eshan counties or districts south of Kunming actually use the autonym Nasu (not to be confused with the Eastern Yi Nasu). The other subdialect of Northern Nisu is spoken in Xinping, Shuangbai, Yuanjiang, Mojiang and Shiping counties. Southern Nisu is spoken in Jianshui, Honghe, Luchun and other counties of south central Yunnan and in Vietnam. The main differences between Northern and Southern Nisu are in the reflexes of \*ak which is /a/ in the Nasu subvariety of Northern Nisu, /i/ in the rest of Northern Nisu, and /iɛ/ in Southern Nisu; also the reflexes of medial \*l clusters in words such as ‘white/silver’, Yang (Forthcoming), and retroflex affricates and fricatives, present in Southern Nisu, allophonically present before back vowels in northernmost Northern Nisu, and absent elsewhere. Traditional literate shamans are found in many of these areas, but their numbers are declining, and relatively few young shamans are being trained in the traditional way. There are also some Nisu scholars and intellectuals who have some literacy in traditional Nisu, but much less complete than that of the older shamans. A few Nisu live in Vietnam where they are known as Lolo; these Nisu had at least one literate shaman when they arrived in Vietnam more than 150 years ago, but by the time French colonial administrators visited in the 1880s, literacy had disappeared and the remaining manuscripts were collected by the French and eventually taken to Paris. A surprisingly large number of Nisu manuscripts is in overseas libraries in France, the UK and elsewhere, partly due to the colonial efforts of the French in southern Yunnan while building a railway from Hanoi to Kunming in the early twentieth century. There is an excellent Northern Nisu dictionary, Pu Zhangkai et al. (2005), which is very comprehensive and makes a systematic attempt to list all alternative forms of characters, and substantial scholarly publication of traditional texts.

Sani is the main speech form of the Yi nationality in Shilin ‘stone forest’ County, formerly known as Lunan but renamed after its major tourist attraction, and is also spoken in a number of surrounding counties by a total of about 120,000 people. The autonym of this group is actually Ni; Sani is a Chinese exonym containing the first syllable ‘sa’ so widespread in Chinese names for Yi groups around Kunming. The Shilin County government promotes the use of traditional Sani logographic characters and research on Sani topics, notably the Ashima and other traditional stories. There are fewer Sani manuscripts overseas, despite the fact that the French Catholic missionary Vial did extensive work on it starting over a hundred years ago. There are two dictionaries, Vial (1909) using a type font with only 450 characters, and Jin et al. (1984) with over 1300 distinct handwritten head entry characters and some alternative forms given. Vial was limited by the availability of a restricted font of Sani characters, while Jin et al., representing a slightly different dialect, shows some of the wide range of additional variant characters actually used.

## 2. Yi Writing Systems

The traditional writing systems were known to and used almost exclusively by shamans for life cycle, divination and healing rituals, keeping historical and genealogical records, and among the Sani for writing traditional semihistorical stories such as the well-known Ashima story. These practitioners are known in the ethnographic literature as *bimo*, from the romanisation of the Nosu word /pi<sup>33</sup> mo<sup>44</sup>/; Nasu /pe<sup>55</sup>/, Nisu /pu<sup>55</sup>/ and Sani /pi<sup>21</sup>/ are cognate with the first syllable of the Nosu term. While these four writing systems are ultimately related, they differ greatly.

The original orientation of all four systems was most likely similar to Chinese: written from top to bottom. Most Nasu texts are written starting at the top right. The Nosu are relatively recent arrivals in Sichuan, having come from the east and thus across the upper

Yangtse River from the adjacent Nasu area of northeastern Yunnan only a few hundred years ago. At some point, the Nosu started to turn their texts 90 degrees counterclockwise, and now read them from left to right starting at the top. This means that Nosu characters are rotated 90 degrees counterclockwise, when compared to the characters of the other three traditions. Both Nisu and Sani are written starting at the top left.

Traditional books are hand-written on handmade paper, bound into books with handmade cloth covers, and usually stored rolled. Traditionally, each shaman would train a son or nephew to succeed him, and the successor would recopy all of the books of his mentor, and as many other books as he could find. All literate shamans were men; female religious healing practitioners did not use writing. There is also a small corpus of inscriptions on stone or on bronze bells, of hotly debated dates but probably no more than 600 years old. Some Yi scholars claim a 6000 year history for Yi writing, antedating Chinese, but this is implausible. The principle of logographic writing and the form of some Yi characters clearly derive from Chinese. The Chinese were a major force in the Yunnan area for over two millennia, long before any surviving datable Yi inscriptions.

It is easy to distinguish Nisu and Nasu manuscripts, because after each line of five, seven or however many syllables, there is a dividing mark (to mark the pause in chanting). The Nisu dividing mark is an equilateral triangle resting on one base, with a horizontal line going to the left from the top. This is often filled in in red, while the rest of the text is in black. The Nasu dividing mark is a small circle at the bottom right or left of the last character in a line, out of alignment with the characters. A similar mark is sometimes used in Sani, but the form of many Sani characters is quite different, so a limited familiarity with some basic frequent characters suffices to distinguish these. The manuscripts usually have section titles written horizontally in a colophon above the beginning of each section; thus a Nosu manuscript has the title and the text reading in the same direction, while the other three traditions have the text reading vertically but the titles reading horizontally, most often left to right. The end of each section of a Nisu manuscript is marked by an equilateral triangle standing on its apex, with ornamental lines, sometimes partly in red, radiating downward. Sections are also sometimes separated from the following section by a black line. Some Nisu manuscripts have ruled borders and even ruled lines between vertical columns of text. Manuscripts often contain pictures, and the orientation of the pictures also shows which way the text is to be read and thus whether it is Nosu or one of the other three.

A partial exception is seen in some divination books, which may have full-page illustrations upside down facing the text, so that the person whose fortune is being told can see the picture while the shaman reads the text. These books typically have an even number of pages, 24 to 60 (and reportedly up to a maximum of 70, though no book of this size is currently known). Each page of these divination books has an attached string with a copper coin at the end; the person chooses a coin, and the shaman then reads relevant parts of that page to the person. Such books are fairly widespread among the Nisu where they are known as Baileshu, less frequently found among the Nasu, and not used by the Nosu and Sani; two collections of the illustrations from these divination books have recently been published: Zhang (2003) and Pu Xuewang et al. (2005); our translation of two such divination books in European libraries is forthcoming.

Books are sometimes dated, usually according to the Chinese emperor and the year of his reign in which the book was first written or when it was copied. It is said that the older style of ritual text has five syllables per line, while the newer style has seven, and indeed many of the texts with seven-syllable lines are recognisably derived from Chinese models, though usually still several hundred years old.

Due to the mode of transmission, the forms of the characters within each major tradition show substantial internal differences. Unlike Chinese, there has never been an

education system spreading and standardising these scripts. Also, as the shamans made their living by chanting texts, there was a desire to keep the texts as opaque as possible. For this reason, many frequent words have multiple alternative written forms. These are usually edited out of recently published materials, but not always.

In all four traditions, the texts have been transmitted for many generations by recopying, and so textual differences have developed. Also, various parts of the text can still be read phonetically but are ambiguous or impossible to understand, so even the most knowledgeable shamans cannot explain everything.

A local variant of the Nasu script has been used in some scholarly publications in Guangxi, where there are some Yi, especially in Longlin County in the northwestern corner. Nasu script has also been learned by a few shamans speaking other languages: there is a Sanguie shaman just west of Kunming who uses it for his Eastern Yi language, there were formerly some Samei shamans who used it to write their Eastern Yi language spoken just east of Kunming, and there are still a few Azhe shamans in Mile County southeast of Kunming who use it for their Southeastern Ngwi language. It is also reported that some Lolo who speak a Central Ngwi language but were in contact with Nasu formerly wrote using this orthography. Similarly, a few Pula and Muji shamans who speak their own Southeastern Ngwi languages, but are bilingual in Nisu, use Nisu script.

Various other Ngwi groups have retained traditional oral ritual texts which follow the same structural pattern as most Yi ritual texts: pairs of lines with parallel structure and meaning but alternative lexicon, mostly with five or seven syllables and always with an odd number of syllables; there is no requirement for internal rhyme or syllable structure constraints as in some forms of Chinese poetry, but pairs of lines often end with the same grammatical element and thus may rhyme, but this is not necessary. Divination, historical and story texts do not follow this fixed pattern, neither in the various Yi nonritual texts nor in the oral texts of other groups such as the Lisu, Hani and others speaking Ngwi languages but without old writing systems.

### **3. Standardisation of Yi**

Language policy for minority languages in China follows the usual Stalinist model: each nationality in principle has one language, and one standard dialect should be chosen which is a central dialect intelligible to speakers of other dialects, with a large number of speakers who are socially advanced within the group. This one dialect should become the standard for the development or reform of writing, for educational implementation, and for wider use within the society. In China in the 1950s, there was also a push for the use of romanisations instead of traditional orthographies, for Chinese as well as minority languages, but this was dropped at the end of the 1950s.

During the 1950s, there were several attempts to implement romanisations to replace the Yi orthographic traditions. Vestiges of these romanisations survive in libraries around China, but none was ever accepted by any Yi group. It is interesting that indigenous literary traditions which were so restricted in their users and uses up to that time nevertheless were central enough to group identity that community members simply refused to accept these romanisations, intended to smooth the way for learning Chinese through its *pinyin* romanisation.

After the end of the Cultural Revolution and the fall of the Gang of Four in the mid-1970s, there was an explosion of work on minority languages. Firstly, a massive quantity of primary ethnographic and linguistic research material collected in the late 1950s was finally published. Secondly, the shamans who had managed to save their books from the Red Guards brought them out from hiding and started to perform traditional rituals again. Thirdly, a new generation of young scholars and shamans started to be trained. Finally, the new 1982

constitution clearly stated the right of each nationality to maintain and develop its language and culture. Many local governments in minority autonomous areas all over China took full advantage of this liberalisation. In recent years this push has slowed greatly, but local authorities still deploy their traditional culture as a tourist drawcard.

As in some other areas, the imposition of a single standard variety for an entire nationality has not really been attempted for the Yi; each province with a substantial Yi population has followed a different path.

### **3.1 The Nosu Syllabary**

The first and most successful reformed writing system for a Yi language was the Nosu syllabary. Mahei (1985) provides a detailed account of the process of its development, from the perspective of a leader in the process. This syllabary was devised starting in 1974 and was fully approved on 17 December 1980. It selects one of the many alternative variant characters for each of the 819 syllables which occur in the speech of the Central variety of Nosu (also known as Shengza from its autonym) as spoken in Xide County, and uses only that one character, rather than different logographic or variant forms, for every other homophone regardless of meaning. It also adds a diacritic, a semicircle above the mid tone form, to indicate the lower-high sandhi tone found in that local dialect but not previously distinguished in the orthography; there is one additional symbol to indicate that a particular syllable is repeated. Not surprisingly, this syllabary is written from left to right starting at the top, like traditional Nosu script and like modern Chinese.

Thus this orthography is a phonetic syllabary based on one dialect, not a logographic system neutral between dialects. This of course means that speakers of other varieties of Nosu, including Northern Yino and Lindimu and Southern Sondi and Adur, must learn the Central Shengza dialect in order to become literate. As these other Nosu varieties, including the Southern ones not mutually intelligible with Shengza Nosu, have different tone sandhi patterns (Bradley 1997b) and other phonological differences, major lexical differences and some syntactic differences, becoming literate is much easier for the approximately half of the Nosu who speak a Central dialect, including all those in northwestern Yunnan.

Training for teachers of Nosu has long been carried out in the Nosu area at Liangshan University in Xichang and Zhaojue Normal Institute in Zhaojue, and elsewhere at the Southwest University of Nationalities in Chengdu and at the Central University of Nationalities in Beijing. In the early 1980s, the Yunnan Institute of Nationalities brought teachers from Sichuan to teach Nosu to students from northwest Yunnan, but since the mid-1980s Nosu students from Ninglang County have been sent to Sichuan to study Nosu instead. A huge number of monolingual books in Nosu, including textbooks at all levels up to university, original research on Nosu language and society, traditional and modern literature, health, agricultural, political and other materials translated into Nosu from Chinese, magazines, scholarly journals and many other things have been published, starting in draft versions in the late 1970s and since 1980 in really amazing quantity and quality, mostly through the Sichuan Nationalities Press. There is also a newspaper in Nosu, the Liangshan Daily, which started in January 1978 with three issues a month and has been a daily for many years. Initially all Nosu materials were typeset and printed at a plant in Xichang, but now everything is computer-generated and there is a Unicode standard.

Claims of literacy achieved in this Nosu syllabary range up to nearly 100% in the core Shengza areas where it is the local speech, and nearly as high in other Shengza areas with slight dialect differences, such as Yanyuan County where /h/ has merged with /x/. Signs in public places such as train stations, roads, signboards and notice boards throughout Liangshan are bilingual. Many members of other nationalities in Liangshan are also able to speak Nosu: some members of the Tibetan nationality with first languages such as Pumi and

Namuyi and the local Mongol and Naxi with first languages Na and Naxi can speak Nosu in addition to their own language. There are even some Han Chinese and a few foreigners who have learned Nosu and its syllabary.

### **3.2 Nasu Characters**

In Guizhou starting in the early 1980s, the traditional Nasu logographic script was standardised and brought back into use, firstly with literacy primers and textbooks such as Guizhou Nationalities Commission & Guizhou Nationalities Research Institute (1982-83) and Language Office, Guizhou Nationalities Commission (1984) and subsequently with a great deal of traditional text material published by the Guizhou Nationalities Press and by the Sichuan Nationalities Press. This was intended to use the local pronunciation of each area, but with a single standardised set of logographic characters without graphic variation. That is, unlike Sichuan, the Nasu in Guizhou were not expected to learn to use another dialect in order to write, but only to learn a single set of standard characters. This is more analogous to the earlier Chinese situation, in which people used local pronunciation when reading, unlike the modern Chinese situation in which the standard *Putonghua* pronunciation is used for reading throughout China. Modern Nasu in Guizhou is written from left to right starting at the top left, as is modern Chinese, and not like traditional Nasu; even published versions of traditional Nasu books are printed this way.

The dissemination of this Nasu script has been led by the Guizhou Institute of Nationalities, training teachers, scholars and administrators in Nasu from the late 1970s. There is also an institute for Nasu writing at Bijie, which carries out much of the research work, and uses a slightly different standard as seen in Ma et al. (1991). As about half of the Yi nationality in Guizhou, especially younger people, do not speak Nasu or any other kind of Yi, chances for long-term success with this script are lower than in Sichuan.

The dialect differences within Nasu in Guizhou are not too large, but the speech of western Weining County is actually more similar to the speech of many of the Nasu in northeastern Yunnan, and the speech of Pan County in the southeast is much more distinct, though still considered Eastern Yi by Chinese linguists.

### **3.3 Yunnan Reformed Yi**

As we have seen, all four of the traditional Yi writing systems are found in Yunnan. Thus, no one system could be implemented province-wide, unlike Sichuan and Guizhou where the internal linguistic differences between the languages included in the Yi nationality are much less substantial, and only one traditional Yi orthography was present.

In response to this, the Yunnan Nationalities Commission directed its Nationalities Language Commission to create a new composite logographic system. A work group representing the four literary varieties of Yi was set up, and worked from September 1983 to late 1985 creating a completely new composite logographic orthography of over 1600 characters, with some of its characters derived from each of the four established scripts. The Nosu work group member left after one year, and the Nosu component is small. Like modern Nosu and Nasu, Yunnan Reformed Yi is written from left to right starting at the top; unlike Nosu, none of the characters is turned on its side. A conference to report on and discuss this work was held in Kunming in March 1986.

The intention in this Einbau process (Fishman 2006) was to have majority rule: if a single character was used in three of the four scripts, or two out of four with the other two each different from each other, then the majority character was meant to be chosen. Given that Nosu, Nasu and Nisu orthographies are on the whole more similar to each other, and Sani is more distinct, this would have meant relatively few uniquely Sani characters would

have been chosen, so the work group attempted to give Sani characters somewhat greater representation than would have resulted from the majority principle.

Notice that this means that the Yunnan Reformed Yi characters are purely logographic; in principle they cannot be used in their phonetic value, as they have no inherent phonetic value. Each is meant to be pronounced according to local speech; thus it is also suitable for Yi areas where there was no traditional script, such as in western Yunnan among the Lolo and Lalo, or where there are speakers of more than one type of Yi; or for that matter where children do not speak Yi, and can be taught some variety using the materials provided.

The first stage was approved for implementation at the province level in February 1987. Over a further two years, the work group devised an additional 600 logographic characters and a syllabary to represent borrowed words or words for which there is no logographic character available. Initially, provincial Nationality Affairs Commission subsidies were available for educational implementation of the system in schools, and various textbooks were prepared. A literacy volume had the largest print run, with 6,000 copies printed in August 1991 from hand-written characters (Yunnan Nationalities Language Commission & Yunnan Reformed Yi Work Group 1991). A revised edition of 5,000 copies using a computer font for both Yi and Chinese came out in May 1997 (Yunnan Nationalities Language Commission & Yunnan Reformed Yi Work Group 1997) and an expanded edition (Bi et al. 2000) came out in December 2000 in a print run of 10,000. The total printing of 21,000 copies over ten years for a group with nearly five million people in the province shows how limited the actual implementation has been; if anything, the print runs exaggerate the extent of use, as in each case the new printing was made to improve the earlier edition, before that had been sold out.

There was a serious attempt by Zhang Chunde of the Yunnan Institute of Nationalities to implement this script. He led and taught a two-year program for Yi cadres from all over Yunnan, with a few from other provinces, to learn it; this included participants from groups with and without traditional writing, and also trained participants in the Nosu script from Sichuan. Over a number of years, Zhang also taught Yunnan Reformed Yi to students of the Yi language class in the Yunnan Institute of Nationalities, using his own Luquan Nasu as the model pronunciation; students were also trained in phonetics so that they could represent their own speech and relate it to the characters. Since he retired at the end of 2001, this training has stopped. Another centre for learning this script was in Chuxiong, the capital of the only Yi autonomous prefecture in Yunnan, at the Chuxiong Normal Institute; it is claimed that this has produced 340 qualified teachers since 1987. Since most Yi in Chuxiong either have no tradition of literacy or are Nasu and prefer traditional Nasu script, teaching has not been well-received (Cao 2001). In the Honghe Hani and Yi Autonomous Prefecture in southern Yunnan, a six-month class for teaching this script was held in 1989 with 36 of 74 participants passing, and six teacher training classes were run between 1991 and 1998 with 208 teachers trained. This was implemented during the 1990s in seven preschools and twenty primary schools (Liang 2001), but has now lapsed.

The Yunnan Reformed Yi writing system has encountered very serious problems. Some Yi in Yunnan Province, including some in areas with languages other than the four having orthographic traditions, have started to use the Yunnan Reformed Yi script for symbolic purposes such as public signs, letterheads and tourist-oriented materials, but its educational implementation has stalled, and authorities in Nisu, Sani and Nasu areas have strong reservations about its use, all preferring their own traditional scripts. Nosu in Ninglang have never switched to it, but continued to use the Sichuan Nosu syllabary.

While the Yunnan Nationalities Press continues to publish materials in Yunnan Reformed Yi, including new primary school textbooks in a province-wide series for all nationalities that have an established orthography, these Yi textbooks are hardly used.

#### 4.4 Traditional Yi

In every area, printed versions of traditional texts are arranged as in modern Chinese; that is, starting at the top and going from left to right. Line breaks in ritual and other similar texts are not represented by the original diacritics, but by starting a new line of text. Nearly all of what is printed also has an introduction in Chinese and a translation of the text into Chinese, sometimes with phonetic transcription of each syllable, word-by-word glosses and extensive footnotes to explain cultural background and other information. Most such books are printed in fairly small press runs and quickly go out of print. Sometimes the publication of a volume is supported by a local government, in which case that government may take almost the entire press run and gradually give it out to visitors, and such books are almost immediately unavailable from the publisher.

In Yunnan, local authorities in the Nisu, Nasu and Sani areas have attempted to document their traditional orthographies and publish materials in traditional characters, usually through the Yunnan Nationalities Press. There is also a lot more material internally published by various universities, teaching institutes and research institutes; in principle this is meant to be for restricted use inside China. Some of this appears years later in openly published editions; for example, Guo & Ding (1984) which eventually became Guo et al. (1993), with very similar content.

The most extensive efforts to teach a traditional system to new shamans have been in the Honghe Yi and Hani Autonomous Prefecture in southern Yunnan. There, many Nisu shamans have taught informal classes since the early 1980s; a more formal program was run in primary schools of one village in Xinping County of Yuxi Prefecture in the mid-1990s, but stopped when funding from the Ford Foundation ran out. Many Nosu shamans in Sichuan also run informal classes, mainly for their male relatives. In addition, extensive study of traditional Nosu, Nasu, Nisu and Sani written materials is carried out by scholars at what are now the Central University of Nationalities, the Southwest University of Nationalities, the Yunnan University of Nationalities and the Guizhou Institute of Nationalities; all of these institutions have also trained many students in traditional scripts.

#### 5. Conclusion

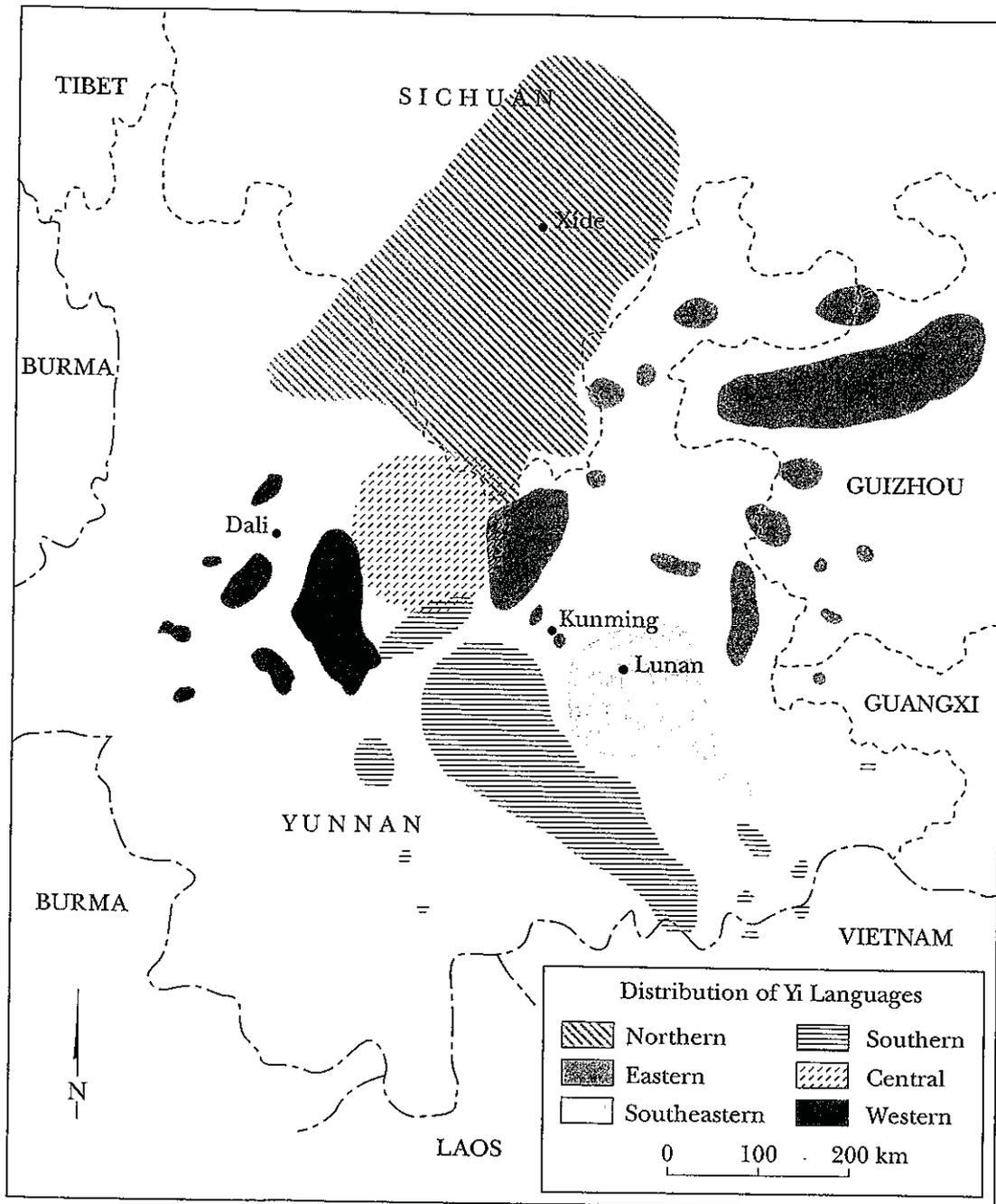
The Yi orthography reforms have been very successful for Nosu in Sichuan, less so for Nasu in Guizhou, and rather unsuccessful in Yunnan. At the same time, efforts are being made to document and preserve traditional written materials, and in some areas to continue to train traditional shamans.

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# Yi Locations



## Yi Characters

Meaning	Chinese	Nosu Shengza	Yino	Nasu Yunnan	Guizhou	Nisu	Sani	Yunnan Reformed
'one'	一	𠄎	𠄎	𠄎	𠄎	𠄎	𠄎	𠄎
'two'	二	𠄎	𠄎	𠄎	𠄎	𠄎	𠄎	𠄎
'three'	三	𠄎	𠄎	𠄎	𠄎	𠄎	𠄎	𠄎
'four'	四	𠄎	𠄎	𠄎	𠄎	𠄎	𠄎	𠄎
'five'	五	𠄎	𠄎	𠄎	𠄎	𠄎	𠄎	𠄎
'six'	六	𠄎	𠄎	𠄎	𠄎	𠄎	𠄎	𠄎
'seven'	七	𠄎	𠄎	𠄎	𠄎	𠄎	𠄎	𠄎
'eight'	八	𠄎	𠄎	𠄎	𠄎	𠄎	𠄎	𠄎
'nine'	九	𠄎	𠄎	𠄎	𠄎	𠄎	𠄎	𠄎
'ten'	十	𠄎	𠄎	𠄎	𠄎	𠄎	𠄎	𠄎
'hundred'	百	𠄎	𠄎	𠄎	𠄎	𠄎	𠄎	𠄎
'thousand'	千	𠄎	𠄎	𠄎	𠄎	𠄎	𠄎	𠄎
'not'	不	𠄎	𠄎	𠄎	𠄎	𠄎	𠄎	𠄎

# Discrepancies between Sounds and Graphs in Chinese Characters

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## Abstract

This article attempts to analyze the causes of the irregular readings of Chinese characters both in Madarin and Sino-Korean, Korean pronunciations of Chinese characters. Cultural taboo, avoidance of confusion and residues of historical and/or regional sound change were the main causes for irregular readings in Chinese. Semantic readings, euphony, mismatched palatalization, confusion and erroneous readings were the main reasons in Sino-Korean among many others. This article examines also how well the graph of a Chinese character conveys the sound if it is a phonetic compound, which consists of a phonetic element and a semantic element. It points out that the function of conveying the exact pronunciation of a Chinese character is not so reliable unlike DeFrancis' (1984) claim.

Key Words: discrepancies, sounds, graphs, Chinese, Sino-Korean, characters, erroneous readings, irregular readings, Mandarin

## 1. Introduction

As a writing system, Chinese characters are known as logographic while English and Korean alphabets are phonemic. However, it is merely a misconception that a Chinese character can convey a meaning graphically beyond a few limited examples. Even the most typical examples of pictographs shown in (1) still require one's rich imagination to figure out their exact meanings.

- (1) a. 日            sun  
      b. 月            moon  
      c. 山            mountain  
      d. 木            tree

In that sense, Hannas (1997:109) is right to reject the notion that Chinese characters represent 'ideas' divorced from language. It is similarly erroneous to believe that a Chinese character can convey sound graphically although DeFrancis (1984) emphasizes the phonetic function of Chinese characters over semantic function. He (1984:84) points out that the ratio of phonetic compounds had increased from 34% in the oracle bone period to 97% by the 18th century.

(2)		16-11th C BC	2nd C AD	12th C	18th C
	Non-phonetic (%)	66	18	7	3
	Phonetic (%)	34	82	93	97

So called the phonetic compound, a term which was first coined by Karlgren (1923:16),

refers to a Chinese character that consists of one phonetic element and the other semantic element. The examples in (2) show that phonetic compounds are overwhelmingly the major component of Chinese characters nowadays. It is fortunate that a Chinese character has indicators for its meaning and pronunciation.

What is unfortunate, however, is that the meaning and sound indicators may not function properly all the time. According to DeFrancis (1984:106), the accuracy of phonetic elements in phonetic compounds can be summarized as follows:

- |     |                              |       |
|-----|------------------------------|-------|
| (3) | a. Completely Identical      | 24.6% |
|     | b. Identical except for tone | 17.0% |
|     | c. Partially Identical       | 23.4% |
|     | d. Total                     | 65.0% |

Some examples of (3a-c), quoted from DeFrancis (1984:102-103) with modifications, are as follows:

- |     |          |       |                     |
|-----|----------|-------|---------------------|
| (4) | MM       | SK    | Gloss               |
| a.  | 皇 huang2 | hwang | an emperor          |
|     | 惶 huang2 | hwang | afraid              |
|     | 煌 huang2 | hwang | brilliant           |
|     | 凰 huang2 | hwang | female phoenix      |
| b.  | 馬 ma3    | ma    | a horse             |
|     | 媽 ma1    | ma    | mother              |
|     | 瑪 ma3    | ma    | agate               |
|     | 馮 ma4    | ma    | clamp               |
| c.  | 堯 yao1   | jo    | a legendary emperor |
|     | 驍 xiao1  | hjo   | fine horse          |
|     | 翹 qiao2  | kjo   | tail feather        |
|     | 曉 xiao3  | hjo   | dawn                |
|     | 燒 shao1  | so    | burn                |

The statistics in (3) above demonstrate that only 65% of phonetic compounds are useful as indicators of the proper pronunciations to a certain degree. This means that the remaining 35%, which comprise approximately 34% of all Chinese characters, have no clue for their sounds in their graphs. The percentage of 34-35% takes a considerable portion of the whole Chinese characters, which exceed more than 55,000 in number.

This paper originally planned to explore those phonetic compounds, whose pronunciations are totally different from the readings of their phonetic components. However, since this type of discrepancy was created by historical sound changes, one has to further examine whether the sound change was regular. If it was a systematic change that took place in a group of characters, which had the same pronunciation, it is no longer an irregular change. The *fanqie* is a crucial criterion for determining whether the pronunciation of a character is correct. The *fanqie* was a more analytic and scientific means than earlier methods because the first character of a set of two represented the onset of the character in question, and the second represented the rhyme, such as the

glide, nucleus and coda. Accordingly, this paper will examine the causes of irregular readings of Chinese characters, both in modern Mandarin Chinese and modern Sino-Korean. The emphasis, however, will be on the analysis of Sino-Korean data because of the quantity of the data collected for this study.

## 2. Irregular Readings of Modern Mandarin

### 2.1 Initials

In this paper, PY, OC, MC, FQ, OM, MM and SK stand for pinyin (PY), Old Chinese (OC), Middle Chinese (MC), fanqie of the Guangyun (FQ), Modern Mandarin (MM) and Sino-Korean (SK) respectively. OC and MC reconstructions were cited from Guo (1986) and Li and Zhou (1993), with slight modifications, both of which are based upon Wang Li's reconstructions. For typographical reasons, S, c, Y and E in this article denote the voiceless postalveolar, the voiceless alveolo-palatal fricative, the palatal lateral approximant and the open-mid front vowel respectively. The following characters are examples of irregular readings of Chinese characters in Modern Mandarin:

(5)

CR	PY	OC	*OC	MC	*MC	FQ	OM	MM	Crrt	SK
鳥	niao3	端幽	tiau	端篠開4II效	tieu	都了	niau	niao3	diao3	tSo
秘	mi4	幫質	piet	幫至開3IV 止	pi	兵媚	Pi	pi4/mi4	bi4	pi
溪	xi1	溪支	khie	溪齊開4I蟹	khiei	苦奚	khi	ci1	tc <sup>h</sup> i1	kje
捐	juan1	余元	Yiwan	余仙合3I山	jiwen	與專	iuEn	tcyen1	yan1	jøn
鉛	qian1	余元	Yiwan	余仙合3I山	jiwen	與專	iEn	tc <sup>h</sup> ien1	yan1	jøn

The character for ‘bird’ is *niao3* in Modern Mandarin. It is a unique pronunciation because it cannot have a nasal onset in a historical sense. The modern Sino-Korean reading, co [tSo] is a palatalized form of the Middle Sino-Korean [tjo] (Gweon 2005:374). Since it belonged to the OC and MC alveolar stop initial group, it is supposed to have an alveolar stop [t-]. However, it changed to [niau] in Old Mandarin while other characters which belonged to this initial group remained the same. The reason why was that [tiau] referred to the male sexual organ in some Chinese dialects. This is an example of how taboo caused a change in pronunciation.

The second character in (5) is read as [mi] instead of [bi] as in *mimi* 秘密, ‘secret’ and *mishu* 秘書, ‘secretary.’ The bilabial nasal onset in these words has no theoretical basis. The third character *xi1* [ci] 溪 for ‘stream’ had an aspirated velar stop so its palatalized form would be *qi* [tc<sup>h</sup>i]. Both *mi4* and *xi1* are erroneous readings, and I cannot explain the causes of such irregular changes.

The fourth and fifth characters, 捐 and 鉛, should have had the zero initial as in SK. However, they have palatal affricates in MM. Where was the consonantal onset derived from? Qu (2006) presents Li Fangkuei's OC reconstruction of *juan1*, \*grj- as the source of *juan1*. She claims that compilers of rhyme books did not record the actual

sound with a velar initial due to the conservative nature of rhyme books. Qu might be right but her claim stands on the premise that Li's reconstruction is colloquial while Wang Li's reconstruction is literary. Since it is not certain such a premise can be accepted, it is still questionable whether the character in question had a velar onset during the OC period. Qu presents the *Hebing zixue bianyun pianlan* (1606) as the first book which recorded the *fanqie* of *juan1* as 居然. It indicates that the character *juan1* acquired a velar onset in some dialects for unknown reasons and changed to a palatalized affricate later on. The character for *qian1*, meaning 'lead,' had the same pronunciation as *juan1* until OM, so the same explanation could be given for this character. These characters seem to be the historical and/or regional residues of sound change.

## 2.2 Finals

The only example at hand is the character for 'cancer.' It is ai2 癌 in MM while it is am in SK. The OC, MC and OM are uncertain.

(6)

CR	PY	OC	*OC	MC	*MC	FQ	OM	MM	Crrt	SK
癌	ai2			疑咸開2I咸				ai2	jEn2	am

In the *Mathew's Chinese-English Dictionary* (1931, 1943) this character is listed only under yen2, which is the same as yan2 in *pinyin* system. In the *Xinhua zidian* (1990 edition) it is listed only under ai2. This indicates that the standard pronunciation has been officially changed in recent years on purpose. Considering SK am and SJ kan, yan2 ought to be the correct pronunciation. If so, why did they change it to an incorrect sound? According to Liu Zemin (2008 personal communication), yan2 for 'cancer' can be easily confused with yan2 炎 for 'inflammation.' It makes sense not to make 'inflammation' 炎症 easily confused with 'cancer' 癌症 for both patients and doctors. This is an example of how a pronunciation has been artificially changed for a practical reason.

## 3. Irregular Readings of Sino-Korean

### 3.1 Initials

There are many more examples of irregular readings in SK although SK demonstrates considerably similar correspondence with Chinese, MC in particular. There were internal changes within the domain of SK but they underwent very systematic changes. Accordingly, it is not so difficult to discover irregular readings although the lists below, of course, are not complete or exhaustive. In his article, the palatalized alveolar stop and the open back vowel are denoted as T and A for typographical convenience.

(7) Koreanized Readings

CROC	*OC	MC	*MC	FQ	MM	SK	Crrct	
串	昌元	Thiwan	昌線合3III山	tchiwEn	尺絹	chuan4	tShən/kot	tShən
寧	泥耕	nieŋ	泥青開4I梗	nieŋ	奴丁	ning2	(n/r)jəŋ	(n)jəŋ
拏	泥魚	neA	泥麻開2I假	na	女加	na	na/ra	Na
異	余職	Yiək	余志開3去止	jiə	羊吏	yi4	i/ri	i

The first character is a very rare example of semantic reading of SK at present, as is used in *Jeongotgyo* or *Salgoji dari*, which is an old stone bridge near Hanyang University (See the picture below). Chuan4 means ‘to string together.’ SK kot(<kkot) is the stem of the Korean verb equivalent to chuan4.

(8) *Jeongotgyo*



Ning2 for ‘peaceful’ is read yeong word initially. It changes to nyeong after a consonant or to ryeong after a vowel at a non-word initial position as in *Changnyeong* 昌寧 and *Euiryeong* 宜寧. The r- onset in SK, however, has no theoretical basis at all because the character never has had an r- onset throughout the history of Chinese.

What is interpreted as so called ‘euphony’ has no Chinese background either. The la sound in *Halla-san* 漢拏山 and the ri in *Chiri-san* 智異山 have nothing to do with Chinese pronunciations. The former has an n- onset and the latter has no onset in Chinese.

Data (9) presents some examples of mis-matched palatalization between Mandarin and Sino-Korean. In the following tables, D and O denote the voiced palatalized alveolar stop and the rounded open-mid back vowel respectively:

(9) Mis-matched Palatalization

CROC	*OC	MC	*MC	FQ	MM	SK	
丁	端耕	Tieŋ	端青開4I梗	tieŋ	當經	ding1	tSəŋ
店	端談	Tiam	端木忝開4III咸	tiem	都念	TiEn4	tSəm
卓	端藥	teauk	知覺開2IV江	TOk	竹角	zhuo1	thak
撞	定東	deoŋ	澄絳開2III江	DOŋ	直絳	zhuang4	taŋ
濁	丁屋	deok	澄覺開2IV江	DOk	直角	zhuo2	thak
宅	定鐸	deAk	澄陌開2IV梗	DAk	瑒伯	zhai2	thEk

As was reported in Eom (2000, 2003), Chinese and Korean underwent totally

different paths for palatalization. MC palatalized or retroflex stops changed to palatal affricates while MC alveolar stops remain unchanged in Chinese. On the other hand, MC palatal of retroflex stops of grade 3 and alveolar stops of grade 4 changed to affricates while most of MC alveolar and palatal stops of grades 1 and 2 remained unchanged in SK. This caused great discrepancies between MM and Modern SK. The examples shown in data (8) are all irregular sounds from a Chinese perspective. For typographical reasons, X and Z are used to denote the voiced velar and alveolo-palatal fricatives in this article.

(10) Confused Readings with Similar Characters with Identical Elements

CR	OC	*OC	MC	*MC	FQ	MM	SK	errct	Trigger
鐸	定鐸	dAk	定鐸開1IV宕	dAk	徒落	duo2	thak thek	t(h)ak	澤澤
秒	明宵	miau	明宵開3III效	miEu	亡沼	miao3	tSho	mjo	抄炒tSho
肖	心宵	siau	心笑開3III效	siEu	私妙	xiao4	tSho	so	峭哨梢稍
圳						zhen4	tShən	tShən/su	川
歐	影侯	O	影侯開1I流	əu	烏侯	ou1	ku	u	區 ku
鷗	影侯	O	影侯開1I流	əu	烏侯	ou1	ku	u	區 ku
毆	影侯	O	影厚開1III流	əu	烏后	ou1	ku	u	區 ku
邯	匣談	Xam	匣談開1I咸	XAm	胡甘	han2	kam	ham	甘 kam
酣	匣談	Xam	匣談開1I咸	XAm	胡甘	han1	kam	ham	甘 kam
憾	匣侵	Xəm	匣勘開1III咸	XAm	胡紺	han4	kam	ham	感 kam
聶	泥葉	niap	泥葉開3IV咸	niEp	尼輒	nie4	(t)səp	njəp	攝 səp
攝	書葉	ciap	書葉開3IV咸	ciEp	書涉	she4	səp/njəp	səp	攝 səp
喟	溪物	khiwət	溪至合3IV止	khwi	丘愧	kui4	wi	kwi	胃 wi
鈇	定月	Tiat	定霽開4IV蟹	diei	特計	di4	tE	thE	大 tE
槐	匣微	Xoəi	匣皆合2I蟹	XwAi	戶乖	huai1	kwø	hwø	淮懷hwø
召	定宵	diau	澄笑開3III效	Dieu	直照	zhao4	so	tSo	紹昭韶so
嗜	禪脂	ziei	禪至開3IV止	Zi	常利	Shi4	ki	si	耆嗜嗜ki
耆*	羣脂		羣脂開3I止	giei	渠脂	qi2	ki	ki	

The SK readings in (10) are the most commonly found errors. It is predictable that the Korean people tend to guess the pronunciation of a character from the seemingly phonetic component. The SK readings of the characters in the right-most column seem to have triggered such erroneous readings. These examples, the largest in number, demonstrate that how risky to solely rely on the phonetic element of a phonetic compound to pronounce it correctly.

(11) Erroneous Readings of the Characters with Multiple Readings

CR	OC	*OC	MC	*MC	FQ	MM	SK	errct	Meaning
行	匣陽	XAn	匣唐開1I宕	XAn	胡郎	hang2	hEn	han	a store
行	匣陽	XeAn	匣庚開2I梗	XAn	戶庚	xing2	hEn	hjəŋ	to go
便	並元	bian	並線開3IV山	biEn	婢面	bian4	phjən	pjən	convenient

便	並元	bian	並仙開3I山	biEn	房連	pian2	pjən	phjən	cheap
豸	定支	die	澄蟹開2II蟹	Dai	宅買	zhi4	t(S)hE		lgndry animal
豸	定支	die	澄紙開3II止	Die	池爾	zhi4	tShi		legless insect

The three characters in (11) had different *fanqie* in MC depending on meaning. The distinctions, however, were not made clearly in SK. *Eunhaeng*, 銀行 ‘bank,’ should be read as *eunhang* in SK. However, SK does not make such distinction at all as one can see in *Yuhan yanghaeng*, 柳韓洋行 a pharmaceutical company and *juhaeng*, 走行 ‘running.’

SK usage of the second character is clear as is shown in (12):

- (12) a. [phən]: 便安 便利 便宜 方便  
 b. [pjən]: 大便 小便

However, such distinction is not identical in Chinese, where *pianyi* has an aspirated ph- while others have an unaspirated p-.

The last character, zhi4, has one pronunciation in MM but has two different meanings: one is a legendary animal that eats fire, the other is a feetless insect. MC differentiated its pronunciation depending on the meaning, the former Dai and the later Die. Such distinctions were well preserved in SK but SK pronunciations are problematic. It became a keen issue because Seoul Metropolitan Government announced “Haechi” as the new symbol of Seoul in 2008 (See the picture below). “Haechi” means an insect without feet. If the Seoul Metropolitan Government meant the legendary animal of which stone statues are often found in front of a palace or an entrance of a city in Korea, it should be called “Haetae” or “Haeche.”

(13) The New Mascot of Seoul



As the *fanqie* of zhi4 豸 indicates, this character belonged to the *zhi* 知 series of grade 2. More than 70% of these characters did not undergo palatalization in the pre-modern Korean period (Eom 2000:227, 2003:210). Accordingly, it is mostly provable and correct to read it “Haetae [hEthE].” It was recorded as [thi] for the insect in the *Sinjeung ryuhap* (1576) (Gweon 2005:430). According to Nam (1995:563), Middle SK dictionaries list it as [chi] and [chai] since the eighteenth century.

(14) Erroneous Readings for Other Various Reasons

CR	OC	*OC	MC	*MC	FQ	MM	SK	crct	rmks
畜	曉覺	xiauk	曉屋合3IV通	xiuk	許竹	xu4	chuk	hok	MM
畜	透覺	thiuk	徹屋合3IV通	Thiuk	丑六	0	chuk	chuk	SK
畜	透幽	thiu	徹宥開3III流	Thiəu	丑救	0	chu	chu	
旭	曉覺	xiauk	曉燭合3IV通	xiwok	許玉	xu4	uk	hok	
丑	透幽	thiəu	徹有開3III流	Thiəu	敕九	chou3	chuk/chu	chu	
革	見職		見麥開2IV梗	kæ k	古核	ge2	hjak	kjak	
姬	見之		見之開3I止	kiə	居之	ji1	hli	ki	
系	匣錫		匣霽開4III蟹	Xiei	胡計	xi4	kje	hje	
頤	匣質	Xiet	匣屑開4IV山	Xiet	胡結	jie2	kil/hil	hil	頤頤
輒	端葉		知葉開3IV咸	TiEp	陟葉	zhe2	tShəp	tSəp	asp
陟	端職		知職開3IV曾	Tiək	竹力	zhi1	tShək	tSək	asp

The first character, xu4 should be read as hok [hok] in SK instead of chuk [tShuk] if following MC. However, the SK pronunciation is not basis. This character had two additional pronunciations in OC and MC, as shown in (14). SK followed the second *fanqie* while MM followed the first *fanqie*. At this point, it is not certain if there were differences in meanings and why they took different paths.

The second character, xu4 should not be [uk] but [huk] in SK if strictly following the *fanqie*. It is not certain why this character acquired the zero initial since Middle SK. The third character, chou3, has two readings in SK, chuk and chu. The consonantal coda of chuk has no basis from a Chinese perspective because it has been an open syllable throughout the history of Chinese. It might be a trace of Old SK, of which coda system was under the process of development. One may refer to Eom (1999:39) for detailed discussion.

The following four characters demonstrate interchange between h- and k-. The initial aspiration on the last two characters is without basis. I will not discuss this issue further because mismatch in aspiration is not a rare phenomenon between Chinese and SK.

### 3.2 Finals

It is not easy to generalize the causes for the erroneous readings in SK finals. One apparent tendency is a preference of a low vowel [a] over a high front vowel [i], as shown in (15):

#### (15) High Vowel → Low Vowel

CR	OC	*OC	MC	*MC	FQ	MM	SK	crct
蔘	山侵	Siəm	山侵開3I深	Siem	所今	shen1	sam	sim
師	山脂	Siei	山脂開3I止	Si	疏夷	shi1	sa	si
寺	邪之	ziə	邪志開3IV止	ziə	詳吏	si4	sa	si
私	心脂	Siei	心脂開3I止	si	息夷	si1	sa	si
四	心質	Siet	心至開3去止	si	息利	si4	sa	si

士	崇之	dZiə	崇止開3III止	dZiə	鉏里	shi4	sa	si
子	精之	tsiə	精止開3II止	tsiə	卽里	zi3	tSa	si
雌	清支	tshie	清支開3I止	tshie	此移	ci1	tSa	tS(h)i

It is interesting to note that a high front vowel in Chinese changed to a low vowel in the above examples of SK.

There are some additional examples that demonstrate vowel lowering in SK. The following table (16), which are based upon Daesan (1940:8), also presents a variety of vowel mismatches between Chinese and SK:

(16) Vowel Lowering

CR	OC	*OC	MC	*MC	FQ	MM	SK	errct
魅	明物	miət	明至開3IV至	mi	明秘	mei4	Me	mi
畏	影微	iwəi	影未合3III止	iwe	於胃	wei4	∅	wi
母	明之	Mə	明厚開1II流	məu	莫厚	mu3	Mo	mu
乞	溪物	khiət	溪迄開3IV臻	khiət	去訖	Qi3	kəl	kɪl
阮	疑元	ŋiwan	疑阮合3III山	ŋiwan	盧遠	ruan3	wan	wən

What follows are counter examples, which I quoted from Daesan (1940:8) and Yang Seuk(2008 personal communication):

(17) Vowel Raising

CR	OC	*OC	MC	*MC	FQ	MM	SK	errct
繡	幫蒸	pəŋ	幫耕開2I梗	pəŋ	北萌	beng1	puŋ	pjəŋ
諸	章魚	TiA	章魚開3I遇	tcio	章魚	zhu1	tSe/tSə	tSə

Over all, it seems to be apparent that SK preferred lower vowels for the reasons that I cannot figure out at this point.

#### 4. Conclusion

This paper attempted to present the causes of the irregular readings in Chinese and Sino-Korean. In Chinese cases, cultural taboo, avoidance of confusion, and possibly residues of historical and/or regional sound change were the main causes for the irregular readings. These factors, however, did not trigger the irregular readings of SK. A variety of reasons caused the irregular readings in SK. They include semantic readings, euphony, mismatched palatalization, confused readings of phonetic elements or similar characters, erroneous readings of the characters with multiple readings, a tendency for vowel lowering and, of course, unknown reasons. Among these, the most critical reason turned out to be the confused readings with similar characters with identical elements. This fact demonstrates that the function of conveying the exact pronunciation of a phonetic compound is not so reliable unlike DeFrancis' expectation. The results of this study can eventually shed light on the mechanisms of discrepancies

between sounds and graphs both in Chinese and Sino-Korean although the current study was limited in that sense due to insufficient data.

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# The Nurigeul Writing System for Preliterate Chepang

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## Abstract

In this paper, the phonemic system of Chepang is analyzed and the Nurigeul writing system for Chepang is proposed. There are two needs for literacy. The first is a strong need for an easier writing system. The other is the chance for formal education. Nurigeul is a writing system that is easy to learn and teach. It fits perfectly for the purpose of spreading a new writing system. A font for Chepang is provided for the use on a computer. Education of teachers to spread the writing system must continue; for this purpose, reading materials should be prepared. Different methodologies that can be used in temporary education organizations like night study groups and Hangul schools are also proposed.

**Keywords:** Chepang, Aspiration, Nurigeul, Hangul, writing system

## 1. Introduction

The purpose of this study is to establish the phonemic system of Chepang, a preliterate language used in Nepal, and to point out unsatisfactory points in the phonemic system proposed by Caughley (1969).

Chepang is a language used by a minority tribe living in Nepal, representing one of endangered languages without proper writing system. The Chepang tribe lives in high mountainous regions located in Chitwan province, Nepal. The population is about 130 thousands, an approximate number in that they rarely register new-born babies. People of Chepang started living in mountainous regions in their efforts to escape from epidemic diseases and invasion of the Arian and they still live in the same region even after the dangers of Malaria or the Arian disappeared. Due to this reason, they were able to maintain their unique characteristics as a minority tribe.

They earn a livelihood by the gathering and the slash-and-burn field agriculture; most of them do not receive public education. Population growth seems rapid as they usually marry in their late 10's and have babies without birth controls. Most of males are able to use both Chepang

and Nepali language while females usually use only Chepang. Illiteracy rate is over 95% for females and over 80% for males (Panta 2005).

Chepang belongs to the Tibeto-Burman language family. It lacks retroflexed stops and affricates, which are common in Nepali and Hindi. It also lacks double articulation phonemes and nasal vowels. Instead, however, Chepang is distinguished from Nepali in that it has glottal stops.

## 2. Previous Research

Caughley(1969) provides a list of phonemes in Chepang. In his paper, names of palatal and glottal sounds are not listed as shown in <Table 1>.

<Table 1> The Phonemic System of Chepang (Caughley, 1969)

	<b>Bilabial</b>	<b>Dental</b>		<b>Velar</b>	
<b>Stops</b>	p b	t d		k g	ʔ
<b>Affricates</b>			c j		
<b>Fricatives</b>			s		h
<b>Liquids</b>		r l			
<b>Nasals</b>	m	n		ŋ	
<b>Non-syllabic Vocoids</b>	w		y		
<b>Vowels</b>			i e	ə a	u o

While Caughley acknowledged that Chepang is a Tibeto-Burman language, he did not follow the fourfold stop/affricate system specific to the Tibeto-Burman language family, i.e. voiceless unaspirated, voiceless aspirated, voiced unaspirated, and voiced aspirated sounds. He has done a detailed analysis in other aspects of Chepang, but aspiration of stops and affricates still remains unexplained. He instead treated aspirated stops and affricates as a sequence of stops/affricates plus a /h/ sound.

As aforementioned, the fourfold stop/affricate system is a unique characteristic to the Tibeto-Burman language family. Speakers of Chepang recognize aspirated and unaspirated sounds as different phonemes. It is not a /h/ sound following stop/affricate sounds, but one sound with aspirated/unaspirated characteristics. It seems that the fourfold stop/affricate system exists in this language. Therefore, in the stop/affricate system of Chepang, aspirated sounds act as phonemes.

### 3. Research Process

In order to analyze the phonemic system of Chepang, we visited the residential zones of Chepang four times, from February, 2004 through August, 2007. In each visit, the duration of stay ranged from a week to a month. In the first visit, basic words and phrases were investigated to see the fourfold system. The second visit was paid to prepare for the analysis of a phonemic system of Chepang by comparison with the phonemes of the Nepali language, along with a phonetic transcription of Chepang.

In the third visit, we investigated the fourfold system out of the sounds of Chepang using words and phrases to identify the sounds which the speaker recognized or failed to recognize as phonemes. In the last visit, we recorded the sounds of Chepang to verify the problems in the previous research, which were found during the third visit, with respect to the stop/affricate system.

We first transcribed the phonetic sounds of Chepang to identify the phonemic structure of the language. While recording, we transcribed the sounds on a notebook by using IPA symbols and later confirmed the transcription results. To this end, native speakers of Chepang and a translator helped us. No one from Chepang was able to speak English, so it was impossible to communicate in English with them. Because many males were able to speak both Chepang and Nepali we hired a Nepali translator who could speak English to communicate with Chepang males.

Later we asked the native speakers to speak in short sentences and transcribed the sounds as precisely as possible. We transcribed all the sounds at the level of the allophone so that we would not accidentally omit phonemes by treating phonemes as allophones. Then later on we differentiated phonemes from allophones.

### 4. Phonemes and Matching Words

We found phonemes and matching words based on phonetic transcription data. Phonemes are found in accordance with the general procedure for phoneme identification used mainly by structural linguistics, focusing on the matching structure of the fourfold system and their free variations. Particularly, we relied heavily on the natural sense of the native speaker of Chepang in this process.

<Table 2> Consonants and Vowels of Chepang and Matching Words<sup>1</sup>

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<sup>1</sup> To maintain objectivity in the recording, the subjects (3 males and 2 females) were asked to pronounce the words twice. In this way, transcriptions of words were confirmed. Given below are the names and personal information on the subjects.

<2-1> Consonants of Chepang and Matching Words

Phoneme	1	2	3	4	5	6
k	kən (see)	kəyk̃ (neck)	kəwʔ (net trap)	kawaʔ (crow)	kam̃ba (lizard)	
k <sup>h</sup>	k <sup>h</sup> adok̃ (doorway)	k <sup>h</sup> uñʔarbaŋ̃ (rebuke)	k <sup>h</sup> up̃nay (shawl)	k <sup>h</sup> eñ (face)		
g	gəb <sup>h</sup> uʔa (bamboo tube)	gəl̃ (kidney)	gayd <sup>h</sup> ə (storm)	gal̃saʔ (black soil)	guni (slowly)	
g <sup>h</sup>	g <sup>h</sup> agi (pass)	g <sup>h</sup> ak̃ (crutch)	g <sup>h</sup> aŋ̃ (hole)	g <sup>h</sup> aŋ̃h (bullfrog)	g <sup>h</sup> uñčuni (snail)	
ŋ	ŋa (I)	ŋəñdala (dumb)	ŋəy (make noise)	ŋaʔ (fish)	ŋiʔ (smile)	ŋoyʔ (bend)
č	čəñ (crab)	ča (sore)	čayʔ (grass)	čiʔ (know)	čoʔ (child)	čoʔdyaŋ̃ (daughter)
č <sup>h</sup>	č <sup>h</sup> əwʔ (fat)	č <sup>h</sup> aŋ̃h (whisper)	č <sup>h</sup> eʔ (salt)	č <sup>h</sup> yap̃ (clear jungle)	č <sup>h</sup> yut̃ (nest)	
ʃ	ʃawyap̃ (mosquito)	ʃuʃi (tip)	ʃubaʔ (top)	ʃuñʔsəyk̃ (front tooth)	ʃeʔga (food)	
ʃ <sup>h</sup>	ʃ <sup>h</sup> ək̃ (drying tray)	ʃ <sup>h</sup> ak̃ (desire)	ʃ <sup>h</sup> iŋ̃ (drum)	ʃ <sup>h</sup> orto (flame)	ʃ <sup>h</sup> yom̃ (be wilted)	
t	talaŋ̃ (head)	tək̃ (hoe)	tañ (show)	tayala (pregnant)	tiʔkawʔraŋ̃ (spring)	
t <sup>h</sup>	t <sup>h</sup> əñʔ (gather)	t <sup>h</sup> a (appear)	t <sup>h</sup> ayk̃ (break up)	t <sup>h</sup> i (be frozen)	t <sup>h</sup> oŋ̃lah (full moon)	
d	dam̃ (farewell)	daw (worm)	diñh (touch)	dum̃dum̃ (cloud)	doŋ̃si (truly)	dom̃ (leg)
d <sup>h</sup>	d <sup>h</sup> añh (dust)	d <sup>h</sup> awʔ (wash clothes)	d <sup>h</sup> yap̃ (hillside)	d <sup>h</sup> yoy (slow person)	d <sup>h</sup> yoyoto (deep)	
n	nəʔpuñ (lip)	naʔ (sister)	naŋ̃ (you)	ni (we)	nis (2)	no / noʔ (ear)/(talk)
p	pəyk̃čaʔ (couple)	pa (father)	pačəʔ (family)	pam̃h (bury)	puhliʔ (brain)	
p <sup>h</sup>	p <sup>h</sup> as (untie)	p <sup>h</sup> iʔrik̃ (twist)	p <sup>h</sup> uri (ulcers)	p <sup>h</sup> ut̃saʔ (fine dirt)	p <sup>h</sup> el̃baŋ̃ (sky)	
b	baŋ̃ (stone)	bal̃ (shoulder)	boŋ̃ʔ (search)	bop̃ (mollusk)	brek̃ (pop)	blaŋ̃h (plank)
b <sup>h</sup>	b <sup>h</sup> aw (bridegroom)	b <sup>h</sup> ek̃ (late)	b <sup>h</sup> op̃ (bubble)	b <sup>h</sup> ya (complete)	b <sup>h</sup> yuk̃ (hatch)	
m	məyŋ̃ (name)	magam̃ (molar)	matiʔ (river)	madəm̃ʔ (thumb)	maruʔ (wind)	maŋ̃ʔ (dream)
y	yaŋ̃ (fly)	yap̃ (fan)	yəw̃h (complain)	yado (perhaps)	yaʔdiŋ̃ (night)	
w	wi (blood)	wəʔraŋ̃ (axe)	waʔ (bird)	waŋ̃ (come)	wiñʔ (bat)	
r	rə (vine stem)	rəw̃ (new)	riʔ (rib)	ruk̃ (follow)	reʔ (baby)	
l	ləw̃h (help)	la / laʔ (rope)/(arrow)	luyʔ (bow)	laŋ̃ / laŋ̃ʔ (bread)/(net)	lah (moon)	le (tongue)
s	səñʔ (nail)	səydiŋ̃ro (sunlight)	səyk̃ (tooth)	sak <sup>h</sup> i (mind)	sati (oil)	
h	həm̃ʔaleʔ (tomato)	həw̃ (young)	hal̃məyŋ̃ (nickname)	haw̃nəy (voice)	hahraŋ̃ʔ (heat)	hih (scream)

- ① Raj Kumar Chepang, 25, male, minister, residence in Makrani, Piple, Chitwan
- ② Jiwan Kumar Chepang, 16, male, highschool student, residence in Sillinge, Kankada, Makawanpur
- ③ Chandra Kumar Chepang, 20, male, highschool student, residence in Makrani, Piple, Chitwan
- ④ Sancha Maya Chepang, 18, female, middleschool graduate, residence in Sillinge, Kankada, Makawanpur
- ⑤ Phul Maya Chepang, 25, female, middleschool graduate, residence in Sillinge, Kankada, Makawanpur.

## <2-2> Vowels of Chepang and Matching Words

Phoneme	1	2	3	4	5	6
ʔə	ʔək̃ (prise up)	ʔəm̃ (decrease)				
ʔa	ʔag̃ <sup>h</sup> (tradition)	ʔapa (father)	ʔama (mother)	ʔal̃ (go)	ʔay (grandmother)	ʔaysayʔ (cucumber)
ʔi	ʔiçi (this small)	ʔihaŋ̃ʔ (here)				
ʔu	ʔum̃ (egg)	ʔuh (that)	ʔus (crop)			
ʔe	ʔeñʔ (sleep)	ʔer (large)				
ʔo	ʔohaŋ̃ʔ (there)	ʔoyk̃ (powder)				

5 matching words are selected for each phoneme and are double-checked to see if the sound is not an allophone. The phonemes and corresponding matching words, transcribed in IPA, are listed in <Table 2>. The phonemes and the corresponding matching words, transcribed narrowly in IPA, are listed along with English meanings.

### 5. Aspirated Sounds of Chepang

Taking a look at the phonemic system of Caughley, we found that he did not distinguish unaspirated sounds from aspirated ones, and that distinctions were made between voiced and voiceless sounds. However, in the structure of Chepang, aspiration is one of the distinctive features and thus aspirated versus unaspirated sounds must be distinguished.

First of all, Chepang speakers are aware that there are fourfold matching pairs in Chepang classified by the qualities of aspiration and voicedness. This fact was confirmed by the interviews with 5 Chepang native speakers in that they all recognized aspirated stops or affricates as independent phonemes.

Second, by observing the minimal pairs of phonemes in Chepang we can see that aspirated sounds are used independently from unaspirated sounds. Table 3 presents an IPA transcription of minimal pairs of stops/affricates and their English meanings.

<Table 3> Minimal Pairs of Chepang Stop/Affricate Structure

	Voiceless		Voiced	
	Unaspirated	Aspirated	Unaspirated	Aspirated
<b>Velars</b>	/kəŋ/ 'earring'	/k <sup>h</sup> əŋ/ 'skin face'	/gəŋ/ 'trough for pigs'	/g <sup>h</sup> əŋ/ 'fall on face'
<b>Palatals</b>	/čə/ 'be pulled'	/č <sup>h</sup> ə/ 'favour'	/ʃəmɰ/ 'prepare tobacco'	/ʃ <sup>h</sup> əmɰ/ 'die away'
<b>Alveolars</b>	/tək/ 'hoe'	/t <sup>h</sup> ək/ 'make hole'	/dəŋ/ 'settle'	/d <sup>h</sup> əŋ/ 'descend'
<b>Bilabials</b>	/pən/ 'bedbug'	/p <sup>h</sup> ən/ 'ritual smoking'	/bəŋʔ/ 'bamboo tube'	/b <sup>h</sup> əŋʔ/ 'burst out'

As we can see in <Table 3>, for each stop/affricate sound there are minimal pairs between aspirated and unaspirated sounds. Therefore, we can argue that aspiration is one of the distinctive features, separating aspirated sounds from unaspirated ones.

Third, <Table 4> below presents the Nepali system of stop/affricate sounds, which belongs to the Tibeto-Burman language family and is closely related to Chepang. The Nepali system of stop/affricate sounds is composed of the fourfold oral sounds, based on the qualities of voicedness and aspiration, and a nasal stop sound. The table is constructed with the help of Mr. Nava Raj Panta,<sup>2</sup> a Nepali student studying in Korea.

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<sup>2</sup> Nava Raj Panta, 42, Ph.D course student, Kyunghee University, originally from Chitwan, Nepal

<Table 4> The Stop/Affricate System of Nepali language

Plosives & Affricates in Nepal			
Devanagari	IPA	Sample word	Meaning
Velars:			
1 क ङ	k	kələmə	Pen
2 ख ङ	k <sup>h</sup>	k <sup>h</sup> əɾayo	Rabbit
3 ग ङ	g	gəd <sup>h</sup> a	Donkey
4 घ ङ	g <sup>h</sup>	g <sup>h</sup> ədʒi:	Watch
5 ङ ङ	ŋ	nəŋ	Nail
Palatals:			
6 च ङ	ç	çəɾa	Bird
7 छ ङ	ç <sup>h</sup>	çhəhəɾa	Waterfalls
8 ज ङ	ʃ	ʃəhəʃə	Plane
9 झ ङ	ʃ <sup>h</sup>	ʃ <sup>h</sup> ədʒi:	Bush
10 ञ ङ	ɲ	əɲçəl	Province
Retroflex(ed):			
11 ट ङ	t	təpəri:	Leaf plate
12 ठ ङ	t <sup>h</sup>	t <sup>h</sup> əg	Cheat
13 ड ङ	d	dəd <sup>h</sup> elo	Fire on the forest
14 ढ ङ	d <sup>h</sup>	d <sup>h</sup> əkəni:	Little cover
15 ण ङ	ɳ	koŋə	Angle
Dentals:			
16 त ङ	t	təkma	Medal
17 थ ङ	t <sup>h</sup>	t <sup>h</sup> aru	Tharu tribe
18 द ङ	d	dəhi:	Curd
19 ध ङ	d <sup>h</sup>	d <sup>h</sup> ənə	Wealth
20 न ङ	n	nəmbəɾə	Number
Labials:			
21 प ङ	p	pəsələ	Shop
22 फ ङ	p <sup>h</sup>	p <sup>h</sup> əlp <sup>h</sup> ɔl	Fruit
23 ब ङ	b	bəhadɔɾ	Brave
24 भ ङ	b <sup>h</sup>	b <sup>h</sup> əkəri:	Store
25 म ङ	m	mə	I

Fourth, looking at the transcribed data, the syllabic structure of Chepang is a CVC type with obstructed sounds appearing at the finals. Consonant clusters may appear at the finals, but cannot possibly appear at the onset position. Based on these observations, we can treat an aspirated sound at the onset position as a phoneme, not as a /h/ followed by stop/affricate sounds.

In investigating the phoneme structure of Chepang, we focused mainly on the aspiration structure of stop/affricate sounds, for results of the study, except for this part, are in agreement with those of the previous research by Caughley(1969). As presented in detail above, the aspiration structure of Chepang is not just the matching pairs of voiced vs. voiceless sounds, but the fourfold matching pairs of voiceless unaspirated, voiceless aspirated, voiced unaspirated, and

voiced aspirated sounds. Based on this observation, the correct phonemic system of Chepang, therefore, is presented in <Table 5> below.

<Table 5> The Phonemic System of Chepang

	Bilabial	Alveolar	Palatal	Velar	Glottal
<b>Stops</b>	p b p <sup>h</sup> b <sup>h</sup>	t d t <sup>h</sup> d <sup>h</sup>		k g k <sup>h</sup> g <sup>h</sup>	ʔ
<b>Affricates</b>			č ʃ č <sup>h</sup> ʃ <sup>h</sup>		
<b>Fricatives</b>			s		h
<b>Liquids</b>		r l			
<b>Nasals</b>	m	n		ŋ	
<b>Glides</b>	w		y		
<b>Vowels</b>			i e	ə a	u o

If we compare the stop/affricate system with that of Caughley (1969), the results are shown in <Table 6>.

<Table 6> A Comparison of the stop/affricate system with Caughley (1969)

	Bilabial	Alveolar	Palatal	Velar	Glottal
<b>Lim(2007)</b>	p b p <sup>h</sup> b <sup>h</sup>	t d t <sup>h</sup> d <sup>h</sup>	č ʃ č <sup>h</sup> ʃ <sup>h</sup>	k g k <sup>h</sup> g <sup>h</sup>	ʔ
<b>Caughley (1969)</b>	p b	t d	c j	k g	ʔ

In <Table 7>, all the phonemes in the forms of an alphabet are presented along with corresponding examples and their meanings.

<Table 7> The Phonemic System of Chepang and Example Words

Phoneme	Example word	Meaning of example word
Velars		
k	kən	see
k <sup>h</sup>	k <sup>h</sup> alə	only
g	goyčoʔ	male
g <sup>h</sup>	g <sup>h</sup> utum	motionless
ŋ	ŋa	I
Palatals		
č	čewʔ	catch sight of
č <sup>h</sup>	č <sup>h</sup> oŋ	tall
ʃ	ʃand <sup>h</sup> ənʔ	age mates
ʃ <sup>h</sup>	ʃ <sup>h</sup> ah	long for
Dentals		
t	talaŋ	head
t <sup>h</sup>	t <sup>h</sup> al	start action
d	dəmh	monkey
d <sup>h</sup>	d <sup>h</sup> anh	dust
n	naŋ	you
Labials		
p	pul	bridge
p <sup>h</sup>	p <sup>h</sup> ek	sweep
b	baŋ	stone
b <sup>h</sup>	b <sup>h</sup> am	be white
m	manta	person
Liquids/Lateral		
j	jaŋ	fly
w	wah	move
ɾ	ɾani	queen
l	laŋ	bread

Sibilant		
s	sjan	teach
Glottal		
h	has	vomit
Vowels		
ə	ʔəm	decrease
a	ʔat	one
i	ʔihaŋʔ	here
u	ʔuyhle	formerly
e	ʔewerŋ	still, calm
o	ʔohaŋʔ	there

The far left column in <Table 7> is an alphabetic transcription of the sounds in IPA notation. In the second column from the left are examples in broad transcription, corresponding to the phonemes. In other words, examples are transcribed using the phonemes of Chepang, using IPA. We selected the examples with the corresponding phoneme in the onset position. For vowels, however, we selected the words starting with a glottal stop sound [ʔ], as there is no word starting with a vowel.<sup>3</sup> The last column presents the meanings of the examples.

## 6. Nurigeul Writing System for Chepang

The Nurigeul writing system for Chepang is made based on the Korean alphabet system, Hangul. The writing system is established on the standard list of phonemes. The system does not indicate stress or intonation, for they do not cause changes in meaning, but it does clearly indicate segments. <Table 8> below is the Nurigeul writing system for Chepang.

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<sup>3</sup> Transcribed data show that glottal stop sounds clearly exist as phonemes, but some Chepang speakers did not recognize the preceding glottal stop sounds as consonants. The relationship between glottal stop sounds and vowels is beyond the scope of this paper and thus is not treated in detail.

<Table 8> The Nurigeul writing system for Chepang

Devanagari Alphabet – Nurigeul for Chepang			
Devanagari Alphabet	Sample words	Meaning	Nurigeul Alphabet
<b>Velars</b>			
1 क क	기하사	see	기
2 ख ख	카하러	can not	ㅋ
3 ग ग	기하	kidney	ㄱ
4 घ घ	기하	hole	ㄱ
5 ङ ङ	하	I	ㅇ
<b>Palatals</b>			
6 च च	차하	saw	ㅈ
7 छ छ	차하	whisper	ㅊ
8 ज ज	자하	mosquito	ㅉ
9 झ झ	자하	hope	ㅊ
<b>Linguals</b>			
10 त त	타하	head	ㄷ
11 थ थ	타하	begin	ㅌ
12 द द	다하	why	ㄸ
13 ध ध	다하	dust	ㄷ
14 न न	나하	you	ㄴ
<b>Bilabials</b>			
15 प प	파하	good	ㅍ
16 फ फ	파하	sky	ㅍ
17 ब ब	바하	stone	ㅂ
18 भ भ	바하	pressure	ㅂ
19 म म	마하	human	ㅁ
<b>Liquids/Lateral</b>			
20 य य	야하	fly	ㅇ
21 र र	라하	shame	ㄹ
22 ल ल	라하	bread	ㄹ
23 व व	와하	walk	ㅇ

Sibilants			
24	स र	ㄱ ㄴ	insect
Glottal			
25	ह ह	ㅎ ㅅ	nausea
Vowels			
1	अ	ㅏ ㅑ	mend
2	आ ɪ	ㅓ ㅕ	Let's go
3	इ ɪ	ㅓ ㅕ	this way
4	ऊ ॊ	ㅗ ㅛ	that way
5	ए ॑	ㅛ ㅜ	here
6	ओ ॑	ㅜ ㅠ	there

Some letters are not found in the Korean writing system. Letters with a small circle at the lower left corner are the voiced sounds of the corresponding voiceless sounds.<sup>4</sup> Also, in contrast to no distinction between ‘r’ and ‘l’ in the Korean alphabet, there is a clear distinction in Vajao and so we used ‘r-ㄹ’ and ‘l-ㄹ’ matching. ‘o’ in Korean has different sounds between the onset position and the coda position. Thus, we used ‘o’ to indicate /ŋ/ instead of ‘o’.

Moreover, for /ʔ/, a glottal stop sound, we used a medieval Korean letter ‘ㅇ’; for ‘y’ and ‘w’ there are no corresponding letters in the Korean alphabet, so we used ‘y’ and ‘w’. These two letters have the qualities of both vowels and consonants; thus we used ‘o’ to denote consonants and ‘j’ and ‘l’ to denote the sound value of each letter.

## 7. Suggestions for the Establishment of the Writing System

The first way that we can support the native speakers of Chepang is to help in designing their keyboard layout to make relevant fonts. It would be helpful for the users to produce documents using Nurigeul, which would in turn promote the use of Nurigeul.

The layout of the keyboard is designed around the current layout of the Roman alphabet and additional letters occupy the empty spaces on the keyboard. Diphthongs, especially, are arranged in the positions of capital letters, i.e., the typing positions of ‘shift+alphabet,’ so that one stroke may produce the diphthongs. <Figure 1> below shows the keyboard layout.

<sup>4</sup> Korean plosive/affricate system does not have voiced sounds.

### Recommended Keyboard Layout for Chepang Font<sup>1</sup>

~`	! 1	@ 2	# 3	\$ 4	% 5	^ 6	& 7	* 8	( 9	) 0	- -	+ =	Ⓜ	Backspace												
Tab	q	oL	w	ll	e	z	r	cc	t	Ol	y	T	u	l	i	l	o	HH	p	{	}	[	]	]		
Caps Lock	†	a	^	s	┘	d	ll	f	┘	g	õ	h	ʌ	j	ll	k	ll	l	:	;	'	'		Enter		
Shift		z	x	ʌ	c	ó	v	ʌ	b	L	n	□	m	,	,	.	.	/	/	?		Shift		÷	\	\
Ctrl	Start	Alt	Space Bar										Alt	Start	Mouse	Ctrl										

#### Meaning of the Keys

Shift + Key	
Normal Key	English key Location

Figure 1: Recommended keyboard layout for Chepang Font

The current author designed the letter shapes and keyboard design; font design and production of the program for the computer processing of the Chepang language have been done by Sandoll Communications. When Nurigeul phonemes and sample words for Chepang are complete, we can produce educational materials to teach Nurigeul to users and cultivate teachers of Nurigeul. We may first recruit and educate potential teachers who can later teach the Nurigeul writing system for Chepang to others.

According to the personal experiences of the author from 2004 through 2006, after only 2 to 3 hours of training, using the production principles of Nurigeul, students were able to write simple words such as their names and village names. Among these early students a few grew very comfortable in using Nurigeul alphabets and became teachers who went on to educate others.

Using the indigenous people as teachers of Nurigeul could save effort and money in spreading Nurigeul to the users. Users in the indigenous society prefer to have indigenous teachers as they do not need translators.

One of the ways to help the Chepang people use Nurigeul is to produce and supply books and reading materials. The most welcome reading materials which may please the elders and the leaders of the tribe are traditional fairy tales or materials preserved by oral tradition.

We may first teach children Nurigeul alphabets for the Chepang people and produce reading materials in Nurigeul, displaying them in public places where people might come and read the materials freely. We believe that it would be advantageous for the users of Nurigeul alphabets to have traditional fairy tales, short Biblical stories, and educational materials that

children love. This will eventually influence the eradication of illiteracy and promotion of Nurigeul alphabets.

Traditional Chepang fairy tales have never been translated or published. From the position of the national leaders, it is lamentable for the traditional fairy tales to disappear due to the lack of a writing system. Therefore, preservation of traditional fairy tales would be another reason for the development and spread of the Nurigeul writing system for Chepang.

Hangul was disseminated through Summer Bible School and make-shift night schools for the poor. In this way, we can say that Korean Christianity has prospered through Hangul. Many people got involved in the production and dissemination of the Bible written in Hangul and thus escaped from illiteracy. Likewise, the Nurigeul writing system for Chepang should be provided to eradicate illiteracy through temporary education organizations such as make-shift night schools and churches.

## **8. Conclusion**

In this paper, we investigated the aspirated sounds of Chepang, a language without a proper writing system. Our study is centered around the phonemic system presented by previous research done by Caughley(1969) and proposed an updated version of the structure. We especially looked at the aspiration structure of stop/affricate sounds.

The previous study of Chepang (Caughley, 1969) seems to contain incorrect observations in the stop/affricate system. There are matching structures of phonemes by aspiration quality, which can be explained in several different ways, including speakers' intuition, the structure of syllables, a comparison with the Nepali language that belongs to the same language family, and most importantly the minimal pairs and spectrogram. We showed that minimal pairs exist at the phoneme level in voiced and voiceless stop/affricate sounds. Analysis by spectrogram provides enough evidence that voiced stop/affricate sounds are not a sequence of stop/affricate sounds and a /h/ sound, but form a single phoneme.

In order to analyze the phonemes of Chepang, we transcribed words and sentences and separated phonemes and allophones using the intuition of the speakers. Subsequently, we searched and provided the sample words that include the phonemes for the learners of Chepang to use as education materials.

This paper makes a proposition for Nurigeul as a universal writing system. Nurigeul is so easy to learn and also to teach that it is apt for Nurigeul to be used and remembered as the basic alphabet is shaped after the shapes of speech organs. Moreover, Nurigeul writing provides a one-

to-one relationship between sounds and letters that users can write precisely, without any confusion. For these reasons, we suggest using Nurigeul as the writing system for Chepang.

We also provide keyboard layouts and fonts to be used on computers for the convenience of the users. This is supported by education programs for teachers and the production of educational materials such as traditional fairy tales and reading materials. As an education method, we suggested the use of temporary education organizations such as make-shift night schools or summer schools for the education of the Nurigeul writing system.

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# Ambiguity in Homographic *Kanji* and Disambiguation through *Okurigana*

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## Abstract

In Japanese, a large number of *kanji* graphemes are homographic at two levels, namely the *morpheme level* and the *word-form level*. They are ambiguous because their intended readings are not predictable from the orthographic representation per se. Previous work has suggested that these graphemes are disambiguated by *okurigana*, i.e. post-*kanji hiragana* graphemes used to phonemically spell out a section of the written word. This paper presents a critical appraisal of the actual effectiveness of the disambiguating function. It is argued that while *okurigana* disambiguate homographic *kanji* fully at the word-form level, their effectiveness is severely limited by several restrictions at the morpheme level.

**Keywords:** Homographic *kanji*, Ambiguity, *Okurigana*, Disambiguation, Effectiveness.

## 1. Introduction

One striking feature of the current Japanese writing system is that it incorporates a large number of homographic *kanji*, i.e. graphemes of the *kanji* script that have several readings.<sup>[1]</sup> These graphemes are inherently ambiguous, since the intended readings are not predictable from the orthographic representation (see section 2). This type of ambiguity can be observed at two levels (Kondō 2005, Honda 2007, in press). At the *morpheme level*, on one hand, a single grapheme may encode several Native Japanese (NJ) morphemes, several Sino-Japanese (SJ) morphemes, or both (1a).<sup>[2]</sup> At the *word-form level*, on the other, a single grapheme may be used for varying forms of inflectional words (1b). As these two levels are not mutually exclusive, *kanji* graphemes can be ambiguous at both levels, with a large number of candidate readings.

- (1) a. 食 → {*tabe-*, *kuw-*, *kuraw-*, *SYOKU*, *ZIKI*}  
b. 食 → {*tabe-ta* ‘eat-PAST’, *tabe-ro* ‘eat-IMP’, *tabe-nai* ‘eat-NEG’, . . . }

Previous work has shown that *okurigana* reduce ambiguity by disambiguating

homographic *kanji* (Hoshina 1949, Hayashi 1977, Kondō 2005, Honda, in press). *Okurigana* are post-*kanji hiragana* graphemes used to spell out inflectional endings and/or a section at the end of various NJ free morphemes and stem morphemes. As most *hiragana* graphemes encode individual morae through biunique correspondences, *okurigana* can be seen as reliable sources of phonemic information. So if they are applied to a homographic *kanji*, and if the phonemic information matches that of only one candidate reading, then this candidate is logically specified as the intended reading (2).<sup>[3]</sup> In this sense, *okurigana* have the potential to disambiguate homographic *kanji*.

(2) ORTH	a. 食	べ	た	b. 食	べ	ろ
TRANSLIT	<i>tabe-</i>	<i>be</i>	<i>ta</i>	<i>tabe-</i>	<i>be</i>	<i>ro</i>
GLOSS	tabe-ta ‘eat-PAST’			tabe-ro ‘eat-IMP’		

At first glance, the disambiguating function of *okurigana* seems to provide an effective solution to the prevalent problem of homography-induced ambiguity. This is particularly true if it is seen from a qualitative perspective, as in the previous studies mentioned above. However, little effort has been made at examining the *actual effectiveness* of this function, that is, the amount of homographic *kanji* that they can really disambiguate. This issue deserves particular attention because if *okurigana* fail to disambiguate many graphemes, a large amount of ambiguity persists in the *kanji* script and, in turn, the Japanese writing system as a whole.

This paper presents a critical appraisal of the actual effectiveness of the disambiguating function of *okurigana* from a quantitative perspective. In section 2, the notions of homographic *kanji* and their ambiguity are elaborated. In section 3, the disambiguating function of *okurigana* is formalised. In section 4, it is argued that this function is subject to various restrictions at the morpheme level. In section 5, a survey of 1,945 official *kanji* graphemes demonstrates that these restrictions limit the effectiveness of morpheme disambiguation to a considerable degree. Finally in section 6, a conclusion is drawn.

## 2. Ambiguity in homographic *kanji*

### 2.1. Homographic *kanji*

Homography is a situation in which a single unit of writing corresponds to two or more units of language (Vance 2002, Rogers 2005). By definition, homographic representations do not change their forms according to the distinctive contrasts existing

between the corresponding linguistic units (Rogers 2005). If, say, an element is added to or deleted from a given representation to express such contrasts graphically, this necessarily creates separate representations and thus resolves homography. Put differently, the constancy of homographic representations implicates that these representations do not point to the intended reading in a graphically distinctive manner.

As has been already mentioned in section 1, *kanji* graphemes can be homographic at two levels. At the morpheme level, many *kanji* graphemes encode multiple NJ morphemes, multiple SJ morphemes, or both. With regards the current official *kanji* inventory *Jōyō Kanji Hyō* (Cabinet 1981a; see section 5.1), 1,249 out of 1,945 graphemes (64%) encode two to 12 morphemes (Nomura 1981).

The prevalence of morpheme-level homography can be ascribed to two historical events that took place in the course of adopting *kanji* into Japanese.<sup>[4]</sup> First, both *kanji* graphemes and their corresponding morphemes were borrowed from various parts of China over a long period of time. As a result, many graphemes came to accommodate an accumulation of morphemes of varying origins (e.g., 食 → *SYOKU*, *ZIKI* ‘eating, food’). Second, *kanji* graphemes were gradually adapted to represent not only the original SJ morphemes (*on*) but also their NJ equivalents (*kun*). In many cases, the graphemes were given a variety of NJ translations, many of which have been preserved in the lexicon of the present-day Japanese (e.g., 食 → *tabe-*, *kuw-*, *kuraw-* ‘eat’).

In addition to the morpheme-level, homography is also found at the word-form level. Japanese has a relatively rich inflectional and derivational morphology, implemented mainly by suffixation. While SJ items are not inflectional, NJ verbs, adjectives and adjectival verbs take a wide range of inflectional suffixes denoting tense, modality, aspect and so forth. These properties are underrepresented in *kanji*, since graphemes remain the same irrespective of the varying word-forms (e.g., 食 → *tabe-ta*, *tabe-ro*, *tabe-nai*, . . .). Regarding the *Jōyō Kanji Hyō*, 1,230 out of the 4,087 official readings (30%) classify as NJ inflectional items (Nomura 1981).

*Kanji* graphemes can be homographic at the morpheme level and the word-form level simultaneously. That is, a single grapheme may encode several morphemes, and some or all of these morphemes may be inflectional. Consequently, many *kanji* graphemes are highly homographic, associated with large sets of candidate readings (3).

- (3) 食 →  $\left\{ \begin{array}{llll} \textit{tabe-} & \textit{kuw-} & \textit{kuraw-} & \textit{SYOKU} \quad \textit{ZIKI} \\ \textit{tabe-ta} & \textit{kuw-ta} & \textit{kuraw-u} & \\ \textit{tabe-ro} & \textit{kuw-e} & \textit{kuraw-e} & \\ \textit{tabe-nai} & \textit{kuw-anai} & \textit{kuraw-anai} & \\ \dots & \dots & \dots & \end{array} \right\}$

## 2.2. Homography-induced ambiguity in kanji

The constancy of homographic representations gives rise to the problem of ambiguity. When units of writing are actually employed in a particular text, they are in principle intended for specific readings. This is also true for homographic representations, irrespective of how many candidate readings they may potentially have. Yet, the intended readings are not predictable from these representations per se, since they are not differentiated from other candidate readings in a graphically distinctive manner. In this sense, homographic representations are *potentially* ambiguous.

To be precise, it is important to observe that not all homographic representations are *actually* ambiguous. For one example, in English <c> has two readings, namely the phonemes /k/ and /s/. As /s/ occurs only when this grapheme is immediately followed by <e>, <i> or <y> (Venezky 1970: 39), the intended reading can be regularly predicted from the adjacent grapheme.<sup>[5]</sup> Contrastively, the intended reading for the English <s> is unpredictable from the orthographic representation: it can be /s/, /z/ or zero, and in many cases the occurrence of each reading is lexically specified (e.g., *virus*, *as*, *corps*) (Venezky 1970: 83). This grapheme is therefore inherently ambiguous, and the intended reading can be accessed only by making reference to individual, lexically specified spelling-to-sound correspondence rules. Following this line of thought, this paper assumes that homographic representations are ambiguous if the intended readings are not regularly predicted from the surrounding orthographic environment.

Viewed in this light, homographic *kanji* graphemes are ambiguous at both morpheme and word-form levels. At the morpheme level, which particular morpheme constitutes the intended reading is lexically specified, and is therefore unpredictable from the orthographic representation. For instance, 海 encodes two distinct morphemes, namely *umi* and *KAI* ‘sea’, both of which are entitled to occur in many words (4). The relative frequency of NJ versus SJ readings is not a useful clue because it differs from grapheme to grapheme. Even though there are some rules of thumb (e.g., ‘SJ is more likely in *kanji-kanji* strings’), they are subject to many counterexamples and fail to offer reliable grounds for prediction (as in (4a)).

- (4) a. 海      蛇                      b. 海      水  
    *umi*    *hebi*                      *KAI*    *SUI*  
    *umi+hebi* ‘sea+snake’      *KAI+SUI* ‘seawater’

The intended word-form is also unpredictable from the information embedded in the orthographic representation. This is simply because the occurrence of a particular word-form is licensed by syntactic, semantic, and other linguistic factors. As the

orthographic representation provides only implicit information about these factors, the word-form must be inferred indirectly from the context.

The prevalence of homographic *kanji* indicates that the *kanji* script incorporates a large amount of ambiguity. This, in turn, implies that the Japanese writing system is potentially highly ambiguous because the *kanji* script constitutes an integral component of this system. In short, the existence of many homographic *kanji* poses a serious threat to the transparency of Japanese text.

### 3. The disambiguating function of *okurigana*

In the literature, it has been suggested that *okurigana* serve to reduce the problem of homography-induced ambiguity at both morpheme and word-form levels.

As has been outlined earlier, *okurigana* are post-*kanji hiragana* graphemes used to spell out inflectional endings and/or a portion of NJ free morphemes and stem morphemes. Current conventions for *okurigana* orthography have been stipulated by a body of official guidelines called *Okurigana no Tsukekata* (Cabinet 1981b). Despite the non-binding nature of these guidelines, the use of *okurigana* is virtually obligatory in both casual and formal writing. Accordingly, *okurigana* should be regarded as an indispensable part of the current Japanese writing system.

When *okurigana* are used for inflectional endings, they are applied to *kanji* graphemes in a way that they spell out all relevant suffixes. As *hiragana* graphemes relate to individual morae quite regularly, this means that *okurigana* assign a unique representation to each distinct word-form, indicating its phonemic form clearly and invariably (Hoshina 1949, Hayashi 1977, Sampson 1985, Coulmas 2003, Kondō 2005, Honda, in press, and many others). This is applicable to all word-forms, even morphologically highly complex words such as *mi-sase-rare-tagar-anai* ‘do not want to be made to see’ (5).

(5) 見 さ せ ら れ た が ら な い  
mi- sa se ra re ta ga ra na i  
mi-sase-rare-tagar-anai ‘see-CAUS-PASS-want-NEG’

Besides, the word-form disambiguation is not only exhaustive but also surface-oriented in terms of the level of abstraction (Honda, in press). In Japanese, there are morphophonological processes collectively known as *onbin*, wherein some stem-final consonants alternate with other segments when concatenated to certain inflectional suffixes. To illustrate, when the stems *kak-* ‘write’, *yom-* ‘read’ and *tor-* ‘take’ are

followed by the past tense suffix *-ta*, they become *kai-*, *yoN-* and *toQ-*, respectively (6a-c).<sup>[6]</sup> In each case, *okurigana* represent the surface phonemic forms rather than the more abstract morphophonemic forms. Based on the exhaustive and surface phonemic representation, the intended word-forms can be regularly predicted from the orthographic representation. This way, *okurigana* disambiguate *kanji* graphemes altogether at the word-form level.

- (6) a. 書 い た      b. 読 ん だ      c. 取 っ た  
*kak- i ta*      *yom- N da*      *tor- Q ta*  
ka[i]-ta ‘write-PAST’      yo[N]-da ‘read-PAST’      to[Q]-ta ‘take-PAST’

Several studies have suggested that *okurigana* also contribute to the disambiguation of *kanji* graphemes at the morpheme level. First, Kaiser (1995) points out that the presence of *okurigana* implicates that the intended reading is NJ: there are orthographic requirements restricting *okurigana* to NJ nominals (see section 4).<sup>[7]</sup> This is illustrated below, where *べ* distinguishes the NJ compound *tabe+mono* ‘food’ (7a) from the near-synonymous SJ compound *SYOKU+MOTU* ‘food’ (7b).

- (7) a. 食 べ 物      b. 食 物  
*tabe- be mono*      *SYOKU MOTU*  
tabe+mono ‘eat+thing’      SYOKU+MOTU ‘eat+thing’

Second, the phonemic information of *okurigana* contributes to a more explicit form of disambiguation. Hoshina (1949) and Hill (1967) point out that when *okurigana* spell out inflectional endings phonemically, they also specify the intended morpheme as well as the intended word-form. Sampson (1985) and Coulmas (2003) provide more specific description with regards the so-called C-verbs. In Japanese, verb stems are divided into two groups, namely those ending with a vowel (V-verbs) and those ending with a consonant (C-verbs). For C-verbs, the convention is that *okurigana* should start from the unit comprising the stem-final consonant and the suffix-initial vowel, which is then followed by the inflectional ending. According to Sampson and Coulmas, this specifies the intended morpheme by spelling out its final consonant. This is exemplified by 歩, which encodes (among others) *aruk-* ‘walk’ (8a) and *ayum-* ‘walk’ (8b).

- (8) a. 歩 く      b. 歩 む  
*aruk- ku*      *ayum- mu*  
aruk-u ‘walk-NON.PAST’      ayum-u ‘walk-NON.PAST’

Honda (2007) points out that the same logic holds for similar cases where *okurigana* repeat a section at the end of morphemes. Within the range of *Okurigana no Tsukekata*, this applies to stems of V-verbs (9a) and many adjectives (9b), as well as various free morphemes such as non-derived adverbs (9c) and conjunctions (9d).

Moreover, in some exceptional cases *okurigana* are also applied to NJ nominals (9e), despite the orthographic requirements mentioned above. For these morphemes, *okurigana* provide partial but reliable phonemic information, which may be utilised for predicting the intended morphemes. It is therefore reasonable to conclude that *okurigana* have the potential to disambiguate homographic *kanji* at the morpheme level.

- |          |                        |              |      |                         |          |      |                   |
|----------|------------------------|--------------|------|-------------------------|----------|------|-------------------|
| (9) a. 食 | べ                      | る            | b. 悲 | し                       | い        | c. 最 | も                 |
|          | <i>tabe-</i>           | <i>be ru</i> |      | <i>kanasi-si</i>        | <i>i</i> |      | <i>mottomo mo</i> |
|          | tabe-ru ‘eat-NON.PAST’ |              |      | kanasi-i ‘sad-NON.PAST’ |          |      | mottomo ‘most’    |
| d. 且     | つ                      |              | e. 幸 | せ                       |          |      |                   |
|          | <i>katu tu</i>         |              |      | <i>siawase se</i>       |          |      |                   |
|          | katu ‘besides’         |              |      | siawase ‘happiness’     |          |      |                   |

#### 4. Restrictions on morpheme disambiguation

In the previous section, it was shown that *okurigana* disambiguate *kanji* graphemes fully at the word-form level, specifying all word-forms without exception. Contrastively, such perfection cannot be expected for disambiguation at the morpheme level. From a qualitative perspective, *okurigana* certainly provide a vital clue for predicting the intended morpheme (Honda, in print). At the same time, it is also true that morpheme disambiguation is subject to heavy restrictions. As will be discussed below, the existence of these restrictions gives rise to an empirical question about the actual effectiveness of morpheme disambiguation.

Let us start by elaborating on the restrictions which limit the applicability of morpheme disambiguation. These restrictions derive from two orthographic requirements, which have been already mentioned in section 3. The first requirement stipulates that *okurigana* can be added to *kanji* graphemes – no matter they are homographic or non-homographic – only when the intended reading is NJ. In other words, *okurigana* are powerless over SJ items (10a). This is a major drawback because SJ items account for a large proportion of the entire vocabulary.<sup>[8]</sup> Similarly, the second requirement bans the use of *okurigana* for NJ nominals, except for nominal derivatives of inflected words (e.g., 歩む *ayum-u* ‘walk’ → 歩み *ayum-i* ‘progress’) (10b). While *Okurigana no Tsukekata* permits *okurigana* for a small number of non-derived NJ nominals (e.g., 幸せ *siawase* ‘happiness’), these exceptions do not undermine the general principle.

- (10) a. *Okurigana* should not be used for Sino-Japanese items.

- b. *Okurigana* should not be used for NJ non-nominals (ex. nominal derivatives and other exceptions)

Essentially, the orthographic requirements (10a, b) are concerned with the type of readings for which *okurigana* can be used. Three restrictions on the applicability of the morpheme-level restriction are generated when the type factor is combined with another factor, namely the number of candidate readings. First, it follows from (10a) that *okurigana* cannot fully disambiguate homographic *kanji* that encode two or more SJ morphemes, irrespective of the number of NJ morphemes. *Okurigana* cannot specify the intended reading if it is SJ, since they are not applicable to SJ items in general. Consequently, if there are multiple SJ items, and if one of these items constitutes the intended reading, it is unpredictable from the orthographic representation. Thus, the problem of homography-induced ambiguity remains unsolved (11).

- |   |                |             |
|---|----------------|-------------|
| (11) a. 質 → { <i>SITU</i> , <i>SITI</i> } | b. 質           | c. 質        |
|   | <i>SITU</i>    | <i>SITI</i> |
|   | SITU ‘quality’ | SITI ‘pawn’ |

Similarly, it follows from (10b) that *okurigana* cannot fully disambiguate homographic *kanji* that encode two or more NJ nominals, irrespective of the number of SJ items and NJ non-nominals. *Okurigana* are powerless if one of the NJ nominals constitutes the intended reading (12).

- |  |               |             |
|--|---------------|-------------|
| (12) a. 角 → { <i>kado</i> , <i>tuno</i> , ...} | b. 角          | c. 角        |
|  | <i>kado</i>   | <i>tuno</i> |
|  | kado ‘corner’ | tuno ‘horn’ |

By the same token, it follows from (10a) and (10b) that *okurigana* cannot fully disambiguate homographic *kanji* that encode one or more SJ morpheme(s) and one or more NJ nominal(s) at the same time (13).

- |   |               |           |
|---|---------------|-----------|
| (13) a. 印 → { <i>sirusi</i> , <i>IN</i> } | b. 印          | c. 印      |
|   | <i>sirusi</i> | <i>IN</i> |
|   | sirusi ‘mark’ | IN ‘seal’ |

In addition to the three restrictions on applicability, morpheme disambiguation is subject to yet another restriction which limits its sufficiency. In some cases, *okurigana* fail to prevent homographic representations even if they do accompany *kanji* graphemes. Some *kanji-okurigana* combinations produce identical representations in all word-forms (14), while others become homographic in certain word-forms (15). In either case, *okurigana* do not spell out morphemes to the extent that the intended item can be specified invariably.

- (14) a. 開 → {*ak-*, *hirak-*, ...}

- |   |  |
|---|--|
| b. 開            <<br><i>ak-~hirak-</i> <i>ku</i><br><i>ak-u~hirak-u</i> ‘open-NON.PAST’ | c. 開            い た<br><i>ak-~hirak-</i> <i>i</i> <i>ta</i><br><i>ai-ta~hirai-ta</i> ‘open-PAST’ |
|---|--|
- (15) a. 行 → {*ik-*, *okonaw-*, ...}
- |  |  |
|--|--|
| b. 行            <<br><i>ik-</i> <i>ku</i><br><i>ik-u</i> ‘go-NON.PAST’ | b. 行            つ た<br><i>ik-~okonaw-</i> <i>Q</i> <i>ta</i><br><i>iQ-ta</i> ‘go-PAST’~ <i>okonaQ-ta</i> ‘do-PAST’ |
|--|--|

To sum up, morpheme disambiguation does not work on homographic *kanji* which violate any of the Applicability Restrictions (16a-c) or the Sufficiency Restriction (16d). In view of these restrictions, the empirical question arises: How effective is morpheme disambiguation, or, more specifically, what is the proportion of homographic *kanji* that actually qualify for it? In addition, a secondary but equally important question is, which restriction or restrictions constitute(s) the chief obstacle to morpheme disambiguation?

(16) *Kanji* graphemes must not have:

- a. Two or more SJ morphemes;
- b. Two or more NJ nominals (ex. nominal derivatives and other exceptions);
- c. One or more SJ morpheme(s) and one or more NJ nominals (ex. nominal derivatives and other exceptions); or
- d. Two or more morphemes that take identical forms of *okurigana*.

## 5. Survey

### 5.1. Aim

To answer the questions raised in the previous section, the author conducted a survey of *jōyō kanji*, i.e. *kanji* graphemes listed in the official *Jōyō Kanji Hyō* (‘List of Characters for General Use’; Cabinet 1981a). The inventory consists of 1,945 graphemes and 4,087 associated morphemes, which are “recommended” to be used for everyday purposes. Just like *Okurigana no Tsukekata* (Cabinet 1981b; see section 3), *Jōyō Kanji Hyō* has no legal binding power whatsoever. Besides, it is not an exhaustive list of all *kanji* graphemes, even though it covers a large proportion of the graphemes that are currently in use. Nonetheless, the inventory stands out as a de facto standard adopted in official and legal documents, approved textbooks, major dailies and various other publications. It is therefore reasonable to regard the *jōyō kanji* set as representative of the current

*kanji* script.

## 5.2. Material and method

Among the 1,945 *jōyō kanji*, 1,249 graphemes classify as homographic, with the number of associated morphemes ranging from 2 to 12. These graphemes and morphemes were sorted out using a computer-readable database developed by Tamaoka and his colleagues (Tamaoka et al. 2000). This database is prepared in Excel 2000 and can be downloaded from the Oxford Text Archive free of charge (as of October, 2008). It describes various properties of *jōyō kanji* graphemes using 27 variables, such as grapheme structures, associated morphemes, transliterations, English translations, etc. The author downloaded the database in June, 2007, and extracted the relevant data for the present survey.

The accuracy of the data was checked against two hardcopy databases of *jōyō kanji* (Nomura 1981, Kai & Shinozaki 2006). As a result, it was discovered that Tamaoka et al. (2000) incorrectly classified 気 as a grapheme with one NJ and two SJ morphemes. In reality this grapheme encodes only SJ morphemes (*ki* and *ke*), and the database itself does not show the claimed NJ morpheme. Apart from some minor typographic errors, this was the only flaw that came to the author's attention.

After the checking, the data were reorganised to make a 'Check Table'. Using this, the author checked the 1,249 homographic *jōyō kanji* against the four restrictions (16a-d) one by one. Each violation was marked in the Check Table and the total number was counted. As for the Sufficiency Restriction (16d), *kanji* graphemes were judged as violating the restriction if they took identical *okurigana* for two or more morphemes in some or all word-forms. The survey covered all and only those morphemes shown in *Jōyō Kanji Hyō*. This included a number of items specifically marked as "special or of limited use" in the inventory. Strictly speaking, some of these items were in fact not distinct morphemes but allomorphs of the same morpheme.<sup>[9]</sup> Yet, the author treated all items equally, as long as the inventory identified them as separate readings.

A sample of the Check Table is reproduced here as Table 1, which has been partly modified from the original to enhance clarity. Each line consists of an exemplar *kanji*, violations against the restrictions (16a-d), and the morphemes associated with the grapheme in question. Abbreviations are used to denote the four restrictions; see the accompanying note for clarification. The first four lines illustrate violations against the respective restrictions, citing the examples (11), (12), (13) and (14) from section 4. Notice that the second example 角 commits multiple violations: it encodes two NJ

nominals as well as one SJ morpheme. The fifth and sixth lines exemplify cases of non-violation.

The graphemes which did not violate any restriction were identified as qualifying for morpheme disambiguation. Finally, the total number of these graphemes was divided by the total number of homographic *jōyō kanji* (1,249) to calculate their ratio within the entire set.

Table 1. A sample of the Check Table

Kanji	Violations				Associated Morphemes	
	2+ SJ	2+ NJ Nom	1+ SJ & 1+ NJ Nom	Identical	NJ	SJ
質	X				—	<i>SITU, SITI, TI</i>
角		X	X		<i>kado, tuno</i>	<i>KAKU</i>
印			X		<i>sirusi</i>	<i>IN</i>
開				X	<i>ak-, hirak-, ake-, hirake-</i>	<i>KAI</i>
届					<i>todok-, todoke-</i>	—
運					<i>hakob-</i>	<i>UN</i>

NOTE: 2+ SJ = Two or more SJ morphemes (16a); 2+ NJ Nom = Two or more NJ nominals (16b); 1+ SJ & 1+ NJ Nom = One or more SJ morpheme(s) and one or more NJ nominals (16c); Identical = Two or more NJ morphemes that take identical forms of *okurigana* (16d); X = violation.

### 5.3. Results and discussion

The survey brought about the following results.<sup>[10]</sup> Firstly, 569 graphemes were identified as qualifying for morpheme disambiguation. They amounted for only 45.5% of all homographic *jōyō kanji* graphemes. This clearly demonstrates that the effectiveness of morpheme disambiguation is severely limited, so much that the intended morphemes can be specified in less than half of homographic *kanji*.

Secondly, there were 755 cases of violation in total; among these, 728 (96.4%)

were violations against the Applicability Restrictions (16a-c). Recall that these three restrictions are all derived from the same orthographic requirements which prohibit *okurigana* for SJ items and NJ nominals (10a, b). This point has particular significance for the actual effectiveness of morpheme disambiguation in several respects.

To begin with, SJ items count for more than half of all vocabulary items (Miyajima et al. 1987: 60; see fn. 6). In view of this fact, the failure of morpheme disambiguation for SJ items implicates that a considerable amount of graphemes remain ambiguous in actual texts. Second, formal texts (e.g., legal documents, academic materials, etc.) tend to have more SJ items than less formal texts do (e.g., general magazines, light novels, etc.). Again, the prohibition of *okurigana* for SJ items leaves much ambiguity unresolved. To be sure, the learned reader must be able to specify the intended morphemes without much difficulty. However, this by no means alters the amount of ambiguity inherent to these texts. Finally, NJ nominals also occur quite frequently, particularly in casual texts, primary school textbooks and materials intended for a young readership.

In sum, *okurigana* fail to provide a drastic solution to the problem of homography-induced ambiguity at the morpheme level, leaving a significant amount of ambiguity in Japanese texts. Considering the preponderance of *kanji* graphemes and their indispensability, this indicates that a large amount of ambiguity remains unresolved in the current Japanese writing system and their products.

## 6. Concluding remarks

This paper has discussed the problem of ambiguity in homographic *kanji* graphemes and the effectiveness of *okurigana* as a solution to this problem. First, it was shown that many *kanji* graphemes are homographic at the morpheme level and/or the word-form level, and that this causes a potentially large amount of ambiguity. Second, previous work was reviewed to outline the way *okurigana* may disambiguate homographic *kanji* at both levels. Third, it was argued that while disambiguation works out fully at the word-form level, morpheme disambiguation is subject to several heavy restrictions. These restrictions were classified into two types, namely Applicability Restrictions and a Sufficiency Restriction. Finally, a survey of the current official *kanji* inventory demonstrated that these restrictions limit the actual effectiveness of morpheme disambiguation to a considerable degree.

The limited effectiveness of *okurigana* at the morpheme level suggests that

ambiguity remains largely unsettled in the *kanji* script and, by extension, the entire Japanese writing system. Consequently, the task of disambiguating homographic *kanji* is left to the reader's ability to infer the intended morphemes by making reference to lexical knowledge and other extra-orthographic factors. In this respect, the problem of homography-induced ambiguity has a fundamental effect on the operational principle of the current Japanese writing system.

## Notes

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[1] The current Japanese writing system is a "multiscriptal" system (Smith 1996), substantiated by several scripts that constitute subcomponents of the entire grapheme system. The scripts of particular importance are *kanji* and *hiragana*. Roughly, *kanji* primarily encodes morphemes, and is mainly used to represent Native Japanese and Sino-Japanese lexical elements (free morphemes, stems, roots, etc.). *Hiragana*, on the other hand, encodes morae and is chiefly used for Native non-lexical elements (affixes, particles, postpositions, etc.). Usually both scripts are employed to compose a text, each assigned to the particular linguistic elements just described.

Following Sproat (2000) and Rogers (2005), this paper uses *grapheme* to refer to the basic unit of writing, without committing to the theoretical debate on the appropriateness of this traditional term (Daniels 1991, 1994, Herring 1994a, b). For *kanji*, it is used to denote the so-called *character*, not its *component*.

[2] Throughout this paper, examples are transcribed morphophonemically using the *Kunreisiki* romanisation system (Cabinet 1954), with a few minor modifications. Upper case indicates Sino-Japanese items.

[3] The labels ORTH, TRANSLIT and GLOSS stand for 'orthographic representation', 'transliteration' and 'gloss', respectively. To save space, these labels are omitted in the remainder of this paper.

[4] For more detailed accounts of the historical background written in English, see Miller (1967), Sampson (1985) and Seeley (2000/1991), among others.

[5] Details about the behaviour of this specific grapheme in polygraphs (e.g., *church*)

and loans (e.g., *cello*) is not relevant to the point being made.

[6] Here, the elements shown in square brackets denote the surface phonemic forms.

[7] In contrast, the absence of *okurigana* does not necessarily implicate that the intended reading is SJ: it can be either a SJ item or NJ nominal (Vance 2002).

[8] According to Miyajima et al. (1987: 60), a survey of a general dictionary revealed that 31,839 out of 60,218 headwords (52.9%) classified as SJ. Even though many of these headwords are presumably non-standard or rarely used words, this figure substantiates the predominance of SJ items in the lexicon of the present-day Japanese.

[9] For example, *Jōyo Kanji Hyō* identifies *ame* and *ama* as distinct items associated with 雨 ‘rain’. As a matter of fact, the latter is an allomorph generated by a morphophonological alternation (e.g., *ame* ‘rain’ + *oto* ‘sound’ → *ama+oto*).

[10] For full details of the survey result, see Honda (2007).

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# Choice of Voices in Maya Hieroglyphic Writing

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## **Abstract**

Maya hieroglyphic writing was the prestigious writing system of the Maya civilization and had been used mainly during the Classic Period (ca. AD 250-900). In Maya hieroglyphs, three types of voices (active voice, passive voice and mediopassive voice) have been identified until now. These three voices are not used randomly and usually one of the three voices is preferably chosen for each verb. The choice of voices in Maya hieroglyphs seems to be constrained by the contextual nature of texts as historical records and the nature of an agent and a patient. In this paper, I will analyze what kinds of factors constrain the choice of voices in Maya hieroglyphic writing.

**Keywords:** Maya Hieroglyphs, Writing System, Voices, Mayan Languages.

## **1. Introduction**

Maya hieroglyphic writing was the prestigious writing system mainly used during the Classic Period (ca. AD250-900) in the Maya area (Guatemala, Mexico, Honduras and Belize). In Maya hieroglyphs, three types of voices have been identified until now: active voice, passive voice and mediopassive voice (Stuart et al. 1999; Houston et al. 2000). These three identified voices are not used randomly and usually one of the three voices is preferably chosen for each verb.

In the texts of Maya hieroglyphs, usually an important person of a site is the main character of the texts and the texts recount the historical events happened at the site (e.g. birth, accession, death, war, period-ending, capture of a captive, ceremonies, dedication of a building & monument). This contextual nature of the texts as historical records and the nature of an agent and a patient (human vs. non-human & specific vs. non-specific) seem to restrict the choice of voices in Maya hieroglyphs. In this paper, I will show how the three voices are chosen for each verb and analyze what kinds of factors constrain the choice of voices in Maya hieroglyphic writing.

## 2. Voices in Maya Hieroglyphs

Stuart et al. (1999) and Houston et al. (2000) have identified three types of voices in Maya hieroglyphs: active voice, passive voice and mediopassive voice (or -Vy intransitive). In addition to these three types of voices, Kettunen and Helmke (2005) also list an antipassive voice in Maya hieroglyphs. In this section, I will summarize how an active voice, a passive voice, a mediopassive voice and an antipassive voice are represented in Maya hieroglyphs.

### 2.1. Active voice (*transitive verb*)

The active voice of a transitive verb is represented by a *-wa* syllabic sign (syllabogram) in Maya hieroglyphs. The *-wa* syllabic sign is suffixed to a CVC root and CVC-*wa* is phonetically interpreted as CV<sub>1</sub>C-V<sub>1</sub>w. This *-wa* suffix is attached to a verb root in both incomplete and complete aspects.

### 2.2. Passive voice

A passive voice is represented by a *-ja* suffix in Maya hieroglyphs. In an incomplete aspect, *-ja* is suffixed to a CVC root and CVC-*ja* is phonetically interpreted as CV(h)C-*aj*. This *-ja* suffix is interpreted as a morpho-syllable (Stuart et al. 1999) and is read as *-aj* instead of *-ja*.<sup>1</sup> Like modern Ch'olan languages (see 3.2.), probably *h* was infix to a CVC root in Maya hieroglyphs but *h* cannot be represented in the spelling convention of Maya hieroglyphs. In a complete aspect, a passive voice is represented by *-ji-ya* suffixes and CVC-*ji-ya* is phonetically interpreted as CV(h)C-(a)*j-iiy*. In this case, *a* of the passive voice suffix *-aj* cannot be represented in Maya hieroglyphs either.

### 2.3. Mediopassive voice (*-Vy intransitive*)

The third voice in Maya hieroglyphs is a mediopassive voice. This voice is also called a -Vy intransitive verb because the marker for this voice is represented by a -Vy suffix. A syllabic sign *-yi* is used for a mediopassive voice and it is suffixed to a CVC root. In an incomplete aspect, a mediopassive voice is represented as CVC-*yi* and it is phonetically interpreted as CV<sub>1</sub>C-V<sub>1</sub>y. In a complete aspect, a mediopassive voice is represented as CVC-*yi-ya* and it is phonetically interpreted as CV<sub>1</sub>C-V<sub>1</sub>y-*iiy*.

## 2.4. Antipassive voice

Whether Maya hieroglyphs have an antipassive voice or not is still uncertain. Stuart et al. (1999) and Houston et al. (2000) do not list an antipassive voice, but Kettunen and Helmke (2005) list it. According to Kettunen and Helmke (2005:61), a *-wi* syllabic sign is an antipassive voice marker in Maya hieroglyphs and CVC-*wi* is phonetically interpreted as CV<sub>1</sub>C-V<sub>1w</sub>: e.g. *tzutz-uw* (TZUTZ-*wi*) ‘(s/he) finished’.<sup>ii</sup> Kettunen and Helmke (2005:61) also list *-wa(?)* as an antipassive voice marker and CVC-*wa(?)* is phonetically interpreted as CV<sub>1</sub>C-V<sub>1w</sub>: e.g. *chuk-uw* (*chu-ku-wa(?)*) ‘(s/he) captured’.<sup>iii</sup> Kettunen and Helmke (2005) do not mention whether an antipassive voice has different markers for different aspects.

If *-wa* is used as an antipassive voice marker as well as an active transitive marker in Maya hieroglyphs, only difference between an antipassive voice and an active transitive verb is an ergative marker: an antipassive voice does not take an ergative marker and an active transitive verb takes an ergative marker. However, both an ergative marker and the *-wa* suffix are often omitted in Maya hieroglyphs. Therefore, whether the lack of an ergative marker represents the difference between an antipassive voice and an active transitive verb in Maya hieroglyphs is questionable. Besides, antipassive voice markers in modern Ch’olan languages are different from -V<sub>1w</sub> (see 3.4.). Therefore, whether *-wi* and *-wa(?)* are antipassive voice markers in Maya hieroglyphs is still uncertain. Even if *-wi* and *-wa(?)* are antipassive voice markers in Maya hieroglyphs, their distribution is very limited and they will not affect the main argument in this paper.

The identified voices in Maya hieroglyphs are summarized below (see Figure 1).

	<b>Incomplete</b>	<b>Complete</b>
<b>Active (Transitive)</b>	CV <sub>1</sub> C-V <sub>1w</sub> (CVC-wa)	CV <sub>1</sub> C-V <sub>1w</sub> (CVC-wa)
<b>Passive</b>	CV(h)C- <i>aj</i> (CVC- <i>ja</i> )	CV(h)C-( <i>a</i> ) <i>j-iiy</i> (CVC- <i>ji-ya</i> )
<b>Mediopassive</b>	CV <sub>1</sub> C-V <sub>1y</sub> (CVC- <i>yi</i> )	CV <sub>1</sub> C-V <sub>1y-iiy</sub> (CVC- <i>yi-ya</i> )

<b>Antipassive?</b>	CV <sub>1</sub> C-V <sub>1</sub> V <sub>1</sub> w?	CV <sub>1</sub> C-V <sub>1</sub> V <sub>1</sub> w?
	(CVC-wi/wa?)?	(CVC-wi/wa?)?

**Figure 1: Voices in Maya Hieroglyphs**

### 3. Voices in Modern Ch'olan Languages

Ch'olan languages are composed of four languages (Ch'olti', Ch'orti', Chontal and Ch'ol) and subclassified into Eastern Ch'olan languages (Ch'olti' and Ch'orti') and Western Ch'olan languages (Chontal and Ch'ol).<sup>iv</sup> Stuart et al. (1999) and Houston et al. (2000) hypothesized that the language of Maya hieroglyphs was most similar to the proto-language of Eastern Ch'olan languages, which they named Classic Ch'olti'an. Mora-Marín (2004) hypothesized that the language of Maya hieroglyphs was closer to Proto-Ch'olan than Classic Ch'olti'an. Although which hypothesis is better is still under debate, it seems doubtless that a kind of a proto-language of Ch'olan languages was the language of Maya hieroglyphs. In this section, I will show how the four voices are represented in modern Ch'olan languages and analyze whether the markers for the identified voices in Maya hieroglyphs can be linguistically reconstructed based on modern Ch'olan languages.

#### 3.1. Active voice (transitive verb)

An active transitive verb takes a status maker after a CVC root in modern Ch'olan languages (see Figure 2).

#### (Incompletive Aspect)

<b>Ch'olti':</b>	CVC-V <sub>1</sub>
<b>Ch'orti':</b>	CVC-i/-e
<b>Chontal:</b>	CVC-e'
<b>Ch'ol:</b>	CVC-∅

#### (Completive Aspect)

<b>Ch'olti':</b>	CVC-V <sub>1</sub>
------------------	--------------------

<b>Ch’olti’:</b>	CVC-i/-e
<b>Chontal:</b>	CVC-i
<b>Ch’ol:</b>	CVC-V <sub>1</sub>

(Kaufman and Norman 1984:100)

### Figure 2: Active Transitive Voice Markers in Ch’olan Languages

In Ch’olti’ (in both aspects) and Ch’ol (in a completive aspect), a status marker for an active transitive verb is represented by a harmonic vowel -V<sub>1</sub>. Although the active transitive verb marker in Maya hieroglyphs is -V<sub>1</sub>w, it seems likely that w of -V<sub>1</sub>w had been lost in Proto-Ch’olan and -V<sub>1</sub> became more specifically -i/-e in Ch’orti’ and Chontal.

#### 3.2. Passive voice

A passive voice in modern Ch’olan languages are represented as follows (see Figure 3).<sup>v</sup>

<b>Ch’olti’:</b>	CVjC-a	
<b>Ch’orti’:</b>	CVjC-a	
<b>Chontal:</b>	CVC-k	(Knowles 1984:142-144)
<b>Ch’ol:</b>	CVjC (when a final consonant is a non-fricative)	

(Kaufman and Norman 1984:107-109)

### Figure 3: Passive Voice Markers in Ch’olan Languages

Although Eastern Ch’olan languages (Ch’olti’ and Ch’orti’) do not have j after a passive voice suffix -a, it seems likely that j of -aj in Maya hieroglyphs was lost in Eastern Ch’olan languages or at the stage of Proto-Ch’olan. Both Ch’olti’ and Ch’orti’ retain a j infix.<sup>vi</sup> In Ch’ol, the passive voice suffix -aj was lost but the j infix is retained. Although data on a passive voice in Chontal are unavailable in Kaufman and Norman (1984), Knowles (1984) lists -k as a passive voice marker in Chontal. Since the passive voice marker in Chontal is different from those in other Ch’olan languages and the j infix does not exist in Chontal, the -k passive voice marker seems to be an innovation in

Chontal.

### 3.3. Mediopassive voice

Although Kaufman and Norman (1984) do not list mediopassive voice markers in Ch'olan languages, MacLeod (2004) lists those in Ch'olan languages (see Figure 4).

#### (Incompletive Aspect)

<b>Ch'olti':</b>	-el / -p-a(h)-el / -k'-a(h)-el	
<b>Ch'orti':</b>	-p-a / -k'-a	
<b>Chontal:</b>	m-a-n	-Vl (in Acalan Chontal)
<b>Ch'ol:</b>	CVjC-el	

#### (Completive Aspect)

<b>Ch'olti':</b>	-p-a / -k'-a	
<b>Ch'orti':</b>	-p-a / -k'-a	
<b>Chontal:</b>	m-i	-p-i (in Acalan Chontal)
<b>Ch'ol:</b>	CVjC-i(y)	

(MacLeod 2004)

**Figure 4: Mediopassive Voice Markers in Ch'olan Languages**

Although CVjC-i(y) in Ch'ol (in a completive aspect) is similar to the -V<sub>1</sub>y suffix in Maya hieroglyphs, other mediopassive voice markers in modern Ch'olan languages are different from -V<sub>1</sub>y. Houston et al. (2000:332) proposed that the -V<sub>1</sub>y suffix had derived from a positional verb marker -\*V<sub>1</sub>l and an intransitive positional marker -\*er in Common Mayan (see Figure 5).

<b>Common Mayan</b>	-*V <sub>1</sub> l (positional), -*er (intransitive positional)
<b>Common Wasteko-Ch'olan</b>	-*V <sub>1</sub> y (intransitive positional)
<b>Common Ch'olan</b>	-*V <sub>1</sub> y (intransitive positional)
<b>PreClassic Ch'olti'an</b>	-*V <sub>1</sub> y (passive)
<b>Classic Ch'olti'an</b>	-V <sub>1</sub> y (mediopassive)

(Houston et al. 2000:332)

### **Figure 5: Origin of Mediopassive Voice Markers in Maya Hieroglyphs**

According to their hypothesis, a positional verb marker  $-*V_1l$  and an intransitive positional marker  $-*er$  in Common Mayan were merged into a  $-*V_{1y}$  intransitive positional marker in Common Wasteko-Ch'olan. Then, the  $-*V_{1y}$  intransitive positional marker was functionally sifted to a passive voice maker in PreClassic Ch'olti'an and it became a mediopassive voice marker in Classic Ch'olti'an (language of Maya hieroglyphs). However, their hypothesis is still suspicious and more historical linguistics analysis is necessary to clarify the origin of the  $-V_{1y}$  mediopassive voice marker in Maya hieroglyphs.

#### *3.4. Antipassive voice*

Although neither Kaufman and Norman (1984) nor MacLeod (2004) list an antipassive voice marker, Knowles (1984) lists an antipassive voice marker in Chontal. According to Knowles (1984:150), an antipassive voice in Chontal is represented by an  $-n$  suffix. In Ch'ol, an antipassive voice marker is an  $-oñ$  suffix (Coon 2004:45). In Ch'orti', an antipassive voice marker is a  $-san$  suffix (Martinez 1994:72). Since antipassive voice markers in modern Ch'olan languages are different from  $-V_{1w}$ , the antipassive voice marker  $-V_{1w}$  in Maya hieroglyphs is suspicious.

### **4. Choice of Voices in Maya Hieroglyphs<sup>vii</sup>**

In this section, I will show how the identified three voices (active voice, passive voice and mediopassive voice) are actually used for each verb in Maya hieroglyphs. The data on Maya hieroglyphs are from the sculptured monuments (e.g. stelae, altars, lintels, plates, tablets, hieroglyphic stairways, zoomorphs, thrones, slabs) of most of the major Maya sites (e.g. Aguateca, Caracol, Copan, Dos Pilas, Naranjo, Palenque, Piedras Negras, Quirigua, Seibal, Tikal, Tonina, Yaxchilan) and some other minor sites. The following eleven verbs will be analyzed in this section: *chok* ('to throw/scatter'), *ch'am* ('to grasp/receive'), *chuk* ('to seize/grasp/capture'), *muk* ('to bury'), *naw* ('to adorn'), *jub'* ('to take down/bring down'), *pul* ('to burn'), *k'a'* ('to terminate'), *k'al* ('to

bind/tie/wrap’), *tz’ap* (‘to plant upright’) and *tzutz* (‘to end/finish/terminate’). Since the existence of the *-wi* and *-wa(?)* antipassive markers is still uncertain, an antipassive voice is not included in the analysis bellow.

#### 4.1. *Chok*

The verb *chok* means ‘to throw/scatter’ and is usually used with *ch’aj* (‘drops of liquid’). Although *chok* is used in a passive voice on the Stela F of Quirigua, *chok* is usually used in an active voice (see Table 1). In many cases, an ergative marker and *-wa* are not written. Without *-wa*, *chok* might be treated as a nominalized verb (‘throwing/scattering’). In Table 1, *chok* without an ergative marker or *-wa* is not included.

	Active	Passive		Mediopassive	
		INC	COM	INC	COM
<b>(Caracol)</b>					
Alt.12	1				
<b>(Quirigua)</b>					
St.C	1				
St.D	1				
St.E	1				
St.F		1			
St.K	1				
Zo.P	1				
<b>(Palenque)</b>					
Palace Tablet	1				
<b>(Aguateca)</b>					
St.1	1				
<b>(Seibal)</b>					
Tablet 3	1				
Tablet 5	1				
<b>(Dos Pilas)</b>					
St.1	1				
St.8	1				

St.15	1				
<b>(Tonina)</b>					
M.8	1				
M.110	1				
M.111	1				
M.113	1				
M.137	1				
M.138	1				
M.158	1				
M.162	1				
<b>(Ixil)</b>					
Alt.1	1				
<b>(Ucanal)</b>					
St.4	1				
<b>(Ixtutz)</b>					
St.4	1				
<b>(La Honradez)</b>					
St.4	1				
<b>TOTAL</b>	<b>25</b>	<b>1</b>			

**Table 1: Choice of Voices for *Chok* in Maya Hieroglyphs**

#### 4.2. *Ch'am*

The verb *ch'am* means 'to grasp/receive' and is usually used with *k'awiil* (name of a deity) or a specific name of a scepter. *Ch'am* is always used in an active voice (see Table 2). However, an ergative marker and *-wa* are not written in many cases. Without *-wa*, *ch'am* might be treated as a nominalized verb ('grasping/receiving'). In Table 2, *ch'am* without an ergative marker or *-wa* is not included.

	Active	Passive		Mediopassive	
		INC	COM	INC	COM
<b>(Tikal)</b>					
St.31	1				

<b>(Quirigua)</b>					
St.J	1				
<b>(Palenque)</b>					
Palace Tablet	1				
T-XIV	1				
<b>(Seibal)</b>					
Tablet 6	1				
<b>(Dos Pilas)</b>					
St.8	1				
<b>(Piedras Negras)</b>					
St.1	1				
St.3	1				
<b>TOTAL</b>	<b>8</b>				

**Table 2: Choice of Voices for *Ch'am* in Maya Hieroglyphs**

#### 4.3. *Chuk*

The verb *chuk* means ‘to seize/grasp/capture’ and expresses the capture of a captive. Although *chuk* is used in an active voice on the Throne 1 of Piedras Negras, *chuk* is usually used in a passive voice (see Table 3).

	Active	Passive		Mediopassive	
		INC	COM	INC	COM
<b>(Yaxchilan)</b>					
L.8		1			
L.10		1			
L.41		1			
L.44		1			
L.46		1			
HS 3		3	2		
HS 5		6			
St.18		1			
St.19		1			

<b>(Palenque)</b>					
HS House C		1			
Tablet of Slaves		1			
<b>(Tortuguero)</b>					
M.8		1			
<b>(Dos Pilas)</b>					
HS		2			
<b>(Naranjo)</b>					
St.22		1			
<b>(Piedras Negras)</b>					
St.12			1		
Thr.1	1				
<b>(Tonina)</b>					
M.84			1		
M.141		1			
M.145			1		
M.147		1			
M.157			1		
M.159			1		
M.170		1			
Frag.43			1		
<b>TOTAL</b>	<b>1</b>	<b>25</b>	<b>8</b>		

**Table 3: Choice of Voices for *Chuk* in Maya Hieroglyphs**

#### 4.4. *Muk*

The verb *muk* means ‘to bury’ and expresses the burying of a person. Although I could find only two samples of *muk*, *muk* is only used in a passive voice (see Table 4).

	<b>Active</b>	<b>Passive</b>		<b>Mediopassive</b>	
		INC	COM	INC	COM
<b>(Piedras Negras)</b>					
L.3		1			

<b>(Dos Pilas)</b>					
St.8		1			
<b>TOTAL</b>		<b>2</b>			

**Table 4: Choice of Voices for *Muk* in Maya Hieroglyphs**

#### 4.5. *Naw*

The verb *naw* means ‘to adorn’ and expresses the dressing-up of a person. According to Montgomery (2002:182-183), *naw* is used to express the dress-up of a captive before sacrifice. Although I could find only two samples of *naw*, *naw* is only used in a passive voice (see Table 5).

	Active	Passive		Mediopassive	
		INC	COM	INC	COM
<b>(Piedras Negras)</b>					
St.1		1			
St.3		1			
<b>TOTAL</b>		<b>2</b>			

**Table 5: Choice of Voices for *Naw* in Maya Hieroglyphs**

#### 4.6. *Jub'*

The verb *jub'* means ‘to take down/bring down’ and metaphorically implies a war event. *Jub'* is always used in a mediopassive voice (see Table 6).

	Active	Passive		Mediopassive	
		INC	COM	INC	COM
<b>(Yaxchilan)</b>					
L.41				1	
<b>(Tikal)</b>					
T1-L.3				1	
<b>(Caracol)</b>					
St.3				2	

<b>(Dos Pilas)</b>					
HS				2	
<b>(Itzan)</b>					
St.17				1	
<b>(Palenque)</b>					
T-Sun				2	
<b>(Tonina)</b>					
M.83				1	
M.91				1	
<b>(Tamarindito)</b>					
HS				1	
<b>(Piedras Negras)</b>					
Thr. 1				1	
<b>(Naranjo)</b>					
St.22				1	
<b>(Copan)</b>					
Alt.Q				1	
Alt.Z				1	
<b>TOTAL</b>				<b>16</b>	

**Table 6: Choice of Voices for *Jub'* in Maya Hieroglyphs**

#### 4.7. *Pul*

The verb *pul* means ‘to burn’ and metaphorically implies a war event. *Pul* is always used in a mediopassive voice (see Table 7).

	Active	Passive		Mediopassive	
		INC	COM	INC	COM
<b>(Naranjo)</b>					
St.13				1	
St.22				2	
St.35				1	
<b>(Piedras Negras)</b>					

St.23				1	
<b>(Palenque)</b>					
T-F Cross				2	
T-Sun				1	
<b>TOTAL</b>				<b>8</b>	

**Table 7: Choice of Voices for *Pul* in Maya Hieroglyphs**

#### 4.8. *K'a*

The verb *k'a* means 'to terminate' and is used with *sak nik 'ik'-il* ('white flower soul'). The phrase *k'a sak nik 'ik'-il* ('to terminate a white flower soul') metaphorically implies the death of a person. *K'a* is always used in a mediopassive voice (see Table 8).

	Active	Passive		Mediopassive	
		INC	COM	INC	COM
<b>(Dos Pilas)</b>					
St.8				1	
<b>(Palenque)</b>					
T-Inscription				1	
Palace Tablet					1
<b>(Tonina)</b>					
M.149				1	
<b>(Collections: Tonina?)</b>					
Alt.1				1	
<b>(Piedras Negras)</b>					
L.3				1	
<b>(Yaxchilan)</b>					
L.27				2	
L.28				1	
L.59				1	
St.12				1	
<b>(Quirigua)</b>					
St.E				1	

<b>TOTAL</b>				<b>11</b>	<b>1</b>
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**Table 8: Choice of Voices for *K'al* in Maya Hieroglyphs**

4.9. Other verbs (*k'al*, *tz'ap* & *tzutz*)

Although other verbs like *k'al* ('to bind/tie/wrap'), *tz'ap* ('to plant upright') and *tzutz* ('to end/finish/terminate') are used in two or three voices, they also show some preference (see Table 9). *K'al* is usually used with *tun* ('year/stone') or (*sak*) *jun* ('(white) headband').<sup>viii</sup> Although *k'al* is used in a passive voice on the Palace Tablet of Palenque and the Box of Tortuguero, *k'al* is usually used in an active voice. An ergative marker and the active transitive marker *-wa* are not written in many cases. In Table 9, only samples with both an ergative marker and *-wa* are counted and *k'al* without an ergative marker or *-wa* is not included. *Tz'ap* expresses the erection of a stela/monument. *Tz'ap* is usually used in a passive voice but sometimes *tz'ap* is used in an active voice too. *Tzutz* means 'to end/finish/terminate' and is usually used to express the termination of a period (e.g. *b'aktun*, *k'atun*, *tun*).<sup>ix</sup> *Tzutz* is usually used in a mediopassive voice, but sometimes it is also used in an active voice or a passive voice.

	Active	Passive		Mediopassive	
		INC	COM	INC	COM
<b>K'al</b>	<b>7</b>		<b>3</b>		
<b>Tz'ap</b>	<b>8</b>	<b>15</b>	<b>1</b>		
<b>Tzutz</b>	<b>7</b>	<b>7</b>	<b>2</b>	<b>20</b>	<b>4</b>

**Table 9: Choice of Voices for *K'al*, *Tz'ap*, *Tzutz* in Maya Hieroglyphs**

**5. Analysis of the Data**

Judging from the data in the previous section, each voice does not seem to be chosen randomly for each verb and usually one of the three voices is preferably used for each verb. In this section I will analyze why one of the three voices is preferably chosen for each verb and discuss whether it is possible to make generalization for the choice of voices in Maya hieroglyphs.

According to the data in the previous section, *chok* ('to throw/scatter'), *ch'am*

(‘to grasp/receive’) and *k’al* (‘to bind/tie/wrap’) are usually used in an active voice. The agent of these verbs is an important person and a patient is a non-human. More specifically, patients are drops of liquid for *chok*, *k’awiil* or a specific name of a scepter for *ch’am* and a year/stone or a (white) headband for *k’al*. Since an agent is more important than a patient in these contexts, the choice of an active voice seems to be reasonable. The verb *yak* (‘to give’) is similar to *chok*, *ch’am* and *k’al*. *Yak* is usually used in an active voice. Since an agent is an important person and a patient is a specific thing given by the person, the choice of an active voice seems to be reasonable too.

The verbs *muk* (‘to bury’), *naw* (‘to adorn’) and *chuk* (‘to seize/grasp/capture’) are usually used in a passive voice. With *muk* and *naw*, a patient is an important person and probably an agent is a person (or persons) who buried or adorned the patient. Since an agent is an unidentified person (or persons) and a patient is a specific person, the choice of a passive voice seems to be reasonable.

In the case of the verb *chuk*, usually both an agent and a patient are mentioned in a text and both of them are important persons: a captor is an important person of the site and a captive is an important person from other site. Since an agent is obviously more important than a patient in this context, an active voice seems to be more preferable to a passive voice. However, a passive voice is usually chosen in this context. Since a patient is more emphasized than an agent in a passive voice, the choice of a passive voice seems to be somewhat odd in this context.

Although *tz’ap* (‘to plant upright’) is preferably used in a passive voice, sometimes it can be used in an active voice too. An agent is a non-specific person (or persons) who built a stela/monument and a patient is the stela/monument. Since an agent is uncertain (might be a ruler) and the stela/monument is a specific thing on which the text is carved, the choice of a passive voice might be reasonable. In an active transitive sentence, the agent who built a stela/monument is clarified (usually a ruler) and the agent is more emphasized.

The verbs *jub’* (‘to take down/bring down’), *pul* (‘to burn’), *k’a’* (‘to terminate’) and *tzutz* (‘to end/finish/terminate’) are usually used in a mediopassive voice. Both *jub’* and *pul* metaphorically imply a war event. Probably, an agent is an unidentified person or a site itself and a patient is a specific site or place. *K’a’* is used with *sak nik ’ik’-il* (‘white flower soul’) and metaphorically expresses the death of a person. Although a deceased person is mentioned in a text, an agent who terminated a white flower soul is uncertain because of the metaphoric nature of the text (might be a deceased person). In the case of *tzutz*, an agent is uncertain (might be a ruler) and a patient is a period of time (e.g. *b’aktun*, *k’atun*, *tun*). The verb *tab’* (‘to rise up/ascend/present’) expresses the

dedication of a building and is usually used in a mediopassive voice too. An agent is a non-specific person (or persons) and a patient is a specific building. Since an agent is a non-specific person (or persons) or non-human and a patient is a specific non-human (site/place, period of time, white flower soul, building) with these verbs, the choice of a mediopassive voice seems to be reasonable.

Based on these analyses, it seems possible to make generalization for the choice of voices in Maya hieroglyphs. When an agent is a specific person and a patient is a non-human, an active voice is preferred: e.g. *chok*, *ch'am*, *k'al*, *yak*. When a patient is a specific person and an agent is a non-specific person, a passive voice is chosen: e.g. *muk*, *naw*. When both an agent and a patient are specific persons, a passive voice is preferred for some reason: e.g. *chuk*. When an agent is a non-specific person or non-human and a patient is a non-human, a mediopassive voice is chosen: e.g. *jub'*, *pul*, *k'a'*, *tzutz*, *tab'*.

As a result, the following generalization for the choice of voices based on the nature of an agent and a patient (human vs. non-human & specific vs. non-specific) can be made in Maya hieroglyphs (see Table 10).

	<b>(Patient)</b>	<b>Specific Person</b>	<b>Non-human /Non-specific Person</b>
<b>(Agent)</b>			
<b>Specific Person</b>		Passive	Active
<b>Non-human /Non-specific Person</b>		Passive	Mediopassive

**Table 10: Generalization for the Choice of Voices in Maya Hieroglyphs**

Usually, the texts of Maya hieroglyphs recount the life history of an important person of a site (e.g. birth, accession, death) or historical events happened at the site (e.g. war, period-ending, capture of a captive, ceremonies, dedication of a building & monument). Therefore, the main character of a text is usually an important person of the site. Because of this contextual nature, the choice of voices seems to be highly constrained by the nature of an agent and a patient (human vs. non-human & specific vs. non-specific) in Maya hieroglyphs. In the case of *tz'ap*, *tz'ap* is most preferably used in a passive voice. Since usually an agent is a non-specific person and a patient is a non-human (stela/monument), *tz'ap* does not follow the generalization (following the generalization, *tz'ap* should be in a mediopassive voice). Therefore, the generalization is not absolute and sometimes different contextual factors or constraints may override this

generalization.

## 6. Conclusion

In Maya hieroglyphs, three types of voices (active voice, passive voice and mediopassive voice) have been identified until now (e.g. Stuart et al. 1999; Houston et al. 2000). The active voice of a transitive verb is represented by  $-V_1w$  in both incomplete and complete aspects. A passive voice is represented by  $-aj$  in an incomplete aspect and  $-(a)j-iiy$  in a complete aspect. A mediopassive voice is represented by  $-V_1y$  in an incomplete aspect and by  $-V_1y-iiy$  in a complete aspect. Although Kettunen and Helmke (2005) list an antipassive voice marker in Maya hieroglyphs, whether  $-V_1w$  is actually an antipassive marker or not is still uncertain.

Among the identified three voices in Maya hieroglyphs, an active transitive voice marker and a passive voice marker seem to be reconstructible based on the data on modern Ch'olan languages. Although Houston et al. (2000) proposed that a mediopassive voice marker  $-V_1y$  in Maya hieroglyphs had derived from a positional verb marker  $-*V_1l$  and an intransitive positional marker  $-*er$  in Common Mayan, their analysis is suspicious and more detailed historical linguistics analysis is necessary.

In this paper, I analyzed the choice of the three identified voices for eleven verbs (*chok*, *ch'am*, *chuk*, *muk*, *naw*, *jub'*, *pul*, *k'a'*, *k'al*, *tz'ap* and *tzutz*) in Maya hieroglyphs. As a result, each voice is not chosen randomly for each verb and usually one of the three voices is preferably used for each verb. The choice of voices seems to be mainly constrained by the nature of an agent and a patient (human vs. non-human & specific vs. non-specific). When an agent is a specific person and a patient is a non-human, an active voice is preferred: e.g. *chok*, *ch'am*, *k'al*, *yak*. When a patient is a specific person and an agent is a non-specific person, a passive voice is chosen: e.g. *muk*, *naw*. When both an agent and a patient are specific persons, a passive voice is preferred for some reason: e.g. *chuk*. When an agent is a non-specific person or non-human and a patient is a non-human, a mediopassive voice is chosen: e.g. *jub'*, *pul*, *k'a'*, *tzutz*, *tab'*.

Thus, the nature of an agent and a patient seems to constrain the choice of voices in Maya hieroglyphs and the generalization using human vs. non-human and specific vs. non-specific (see Table 10) seems to explain the choices of voices in Maya hieroglyphs. However, the generalization is not absolute and may be overridden by other contextual factors or constraints (e.g. *tz'ap*). Although Maya hieroglyphic writing is not as eloquent as the writing systems of modern languages, sometimes the contextual nature of a

writing system may influence and constrain its grammatical structure like Maya hieroglyphic writing.

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<sup>i</sup> Morph-syllables are represented by the same glyphs as syllabic signs but morpho-syllables are read as VC instead of CV: e.g. *-aj*, *-il*, *-ib'* (Stuart et al. 1999).

<sup>ii</sup> Although Kettunen and Helmke (2005:61) interpret *TZUTZ-wi* as *tzutz-uuw* ('s/he finished'), they interpret *chu-ku-wa* as *chuk-uw* ('s/he captured'). Therefore, the vowel length of  $V_1w$  is inconsistent. For consistency, I chose the short vowel variant  $-V_1w$  here because the vowel of the active transitive marker  $-V_1w$  is also treated as a short vowel with the same *-wa* suffix.

<sup>iii</sup> Since Kettunen and Helmke (2005:61) put a question mark after *-wa*, *-wa* as an antipassive voice marker seems to be still uncertain for them.

<sup>iv</sup> Ch'olti' is a deceased language.

<sup>v</sup> Although Ch'olti', Ch'orti' and Ch'ol have a few other passive voice markers too, I list only passive voice markers most closely related to the decipherment of a passive voice in Maya hieroglyphs.

<sup>vi</sup> In Maya hieroglyphs and Proto-Ch'olan, the /j/ infix was /\*h/. Although both /\*h/ and /\*j/ can be reconstructed in Proto-Ch'olan (Kaufman and Norman 1984), /\*h/ and /\*j/ were merged into one phoneme /j/ in modern Ch'olan languages.

<sup>vii</sup> In the data on Maya hieroglyphs, the following abbreviations are used: Alt. = altar, COM = completive aspect, Frag. = fragment, INC = incompletive aspect, HS = hieroglyphic stairways, L. = lintel, M. = monument, St. = stela, T = temple, Thr. = throne, Zo. = zoomorph.

<sup>viii</sup> Sometimes, *k'al* is used with *may* ('deer hoof'). Since the meaning of the phrase *k'al may* is uncertain, *k'al* with *may* is not included in the data.

<sup>ix</sup> *B'aktun*, *k'atun* and *tun* correspond to 144,000 days, 7,200 days and 360 days respectively.

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# The Emblematic Script of the Aztec Codices as a Particular Semiotic Type of Writing System

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## Abstract

Aztec manuscripts give examples of an early stage of phonetic writing used for inscriptions in the whole frame of textogram representing an event. The inscriptions have the character of emblems, where pictorial images have phonetic meaning. This type of writing may be called Emblematic script – a stage in the morphosyllabic writing. Among the factors constraining the development of the script the language structure factor should be noted. It may be the polysynthetism of the structure of the Nahuatl language, which allowed long series of syllables within an incorporative complex. An emblem with its restricted number of positions might not have had technical resolution for guarding the strict order in such a long file as a predicative phrase, so only name phrases could be written.

**Keywords:** Aztec script, Emblematic writing, textogram, polysynthetism.

## 1. The Phoneticism of the Aztec Script

### 1.1. Did the Aztecs have phonographic writing?

It is generally accepted that Aztec codices represent a transitional stage from pictography to phonography, to morphosyllabic writing, or, rather, a stage of ideography with the rudiments of phonography. Already the first investigator of Aztec manuscripts Joseph Aubin, in 1849, gave examples of syllabic spellings of personal names (*itz-co-atl*, *mo-cauah-zo-ma*) and the place name Teocaltitlan (*te-o-cal-tlan*, with the omission of syllable *-ti-*).

These examples could not convince the majority of scientists that there was an Aztec tradition of elaborated phonography.

Nevertheless in the 20<sup>th</sup> century the idea of a developed phoneticism of Aztec script was seconded by Nickolson (Nickolson 1973) and at present by Alphonso

Lacadena (Lacadena 2003). As he shows, place names and personal names mostly have a phonetic transcription: the scribes used not only ideographic, but also syllabic signs, and their combinations, with the main conventions of morphosyllabic writing: rebus substitutions, redundant phonetic indications, pure syllabic spellings. Lacadena also succeeded in showing that in the Aztec script there was a set of syllabic signs, and it was regularly used by the scribes of different local schools. This brought him to the conclusion that the Aztec script in its essential features doesn't differ from other ancient morphosyllabic systems – Sumerian or Egyptian.

Yet most scholars consider the phonological component as minimal and developed under Spanish influence.

### *1.2. Writing tradition in Mesoamerica*

Now after Knorozov's decipherment of the Maya writing and the discovery of Zapotec and Olmec monuments with inscriptions, the ingenious nature of the Mesoamerican writing tradition is out of doubt.

The Aztec script can be regarded in this tradition as one of several coexisting forms: Mixtec, Zapotec, Olmec, Maya. They are all different, but have some shared graphic images. Mixtec may be rather ideographic, Maya is morphosyllabic, Zapotec and Olmec are not deciphered yet, but presumably morphographic.

## **2. The Aztec Script at the Very Beginning of Proper Writing**

### *2.1. The Aztec script as a separate stage in the evolution of writing*

We are inclined to regard the Aztec script as a separate stage in the evolution of writing and as a particular semiotic type, different from ideography and from proper morphosyllabic writing. If we consider pictography and ideography (following Gelb as well as Dyakonov) as Proto-writing, and the consistent phonetic component in the text as the main characteristic of proper writing, then we should assume that the Aztec script must be placed at the very beginning of proper writing. What distinguishes it from the preceding stage, which is represented, e.g., in the Winter Counts and other monuments of North American writing or maybe in the Mixtec manuscripts, is the stable phonetic component.

What distinguishes it from the morphosyllabic stage is the following:

1) The peculiar function of phonetic spelling in the structure of *textogram* (Dyakonov's term): it is subordinate to the pictographic representation of events or descriptive subjects; this is a function comparable to that of a caption;

2) The absence of phonetic spellings of predicate phrases – only of name phrases: place names, personal names;

3) Writing of names in the form of an emblem composed of a restricted number of elements in no strict order (their arrangement could be interpreted logically as well as phonetically);

4) Syncretism of the images: only one symbol could stand for a sequence of two morphemes;

5) The absence of signs for semantic determinators, a function proper to developed morphosyllabic writing.

Yet the use of conventions of morphosyllabic writing and the very fact of a stable tradition of such conventions allow us to consider this script as a peculiar, distinct beginning stage in the evolution of proper writing. We propose naming this type of writing the Emblematic script – because it is the emblem with its compound structure of meaning and graphic combination that is its main unit. This type may be characterized as “writing of inscriptions”, or as “illustrative writing”. Probably this stage is common to historical writing systems. At this stage the picture is prominent and conserves its fascinating power.

These characteristics shall be considered in more detail.

## 2.2. *Function of phonetic signs*

The Aztec codex can be compared to a children's book, where the main content is represented in the picture and the text is only an inscription. In adults' books the proportion is the opposite: the main content is given in the text and the picture is only an illustration, an additional expressive means. The Aztec codex differs from a children's book in the form of signs – as for iconic, so for index signs they are the same.

In Aztec manuscripts pictures accomplish two kinds of functions:

– iconic – representation of events (conquests of towns, births, marriages, deaths of rulers, their feats and so on) or of descriptive subjects (tributes, penalties and so on), on the one hand, and

– indexical (after Pierce) – fixation of their concrete circumstances (dates, locations, titles and names, number of objects).

These two functions are supported with a peculiar structure of the pictorial sign.

### 2.3. Semiotic structure of the Aztec pictorial sign

We can see the semiotic structure of the Aztec pictorial sign in its stages from a picture to a writing sign.

At first it is a visual representation of an object. It may function just as a picture and it may have several interpretations: *Ayotl* – ‘Turtle’, ‘The Place of turtles’.

When the metonymical interpretation becomes generally accepted, the structure of *signatum* becomes more complex: the Word becomes the *signatum* of the 2<sup>nd</sup> level.

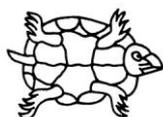
Gradually the word becomes a *signatum* of the 1<sup>st</sup> level, and the object a *signatum* of the 2<sup>nd</sup> level.

At last the connection of the picture with the object-signatum is lost and the connection with the sound-signatum is fastened – the sign again has its simple structure.

The Aztec writing sign may use the last and the preceding stages of development.

### 2.4. Emblems in nominations – name phrases

A proper name can be written with a sign-pictogram or with a combination of pictograms as an emblem. We find examples in (Berdan 1992):



a) *AYOTLAN* – (*Ayo-tl*) + *tlan* – “Where there are many turtles” (*-tlan* is omitted).



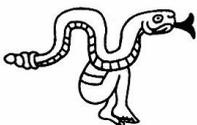
b) *AYOTZINTEPEC* – (*Ayo-tl* + *tzin* + *Tepe-tl*) + *c* – “On the Hill of the Little Turtle”, where ‘little turtle’ is expressed syncretically in one image, locative suffix *-c* is omitted.



c) *AYUTUCHCO* – “On the Armadillo” (*Ayo-tl* + *Toch-tli*) + *co* = ‘On the Turtle-rabbit’ (‘armadillo’ is a rabbit in the armour of a turtle) + *A-tl* (‘water’) – phonetic complement.

### 2.5. The absence of a strict order of components

The logical incompatibility of components in emblems of personal names and names of places can indicate the combination of phonetic and ideographic signs:



d) *COATZINCO* – “On the Small Snake” (*Coa-tl* + *tzin*) + *co*  
*coa-tl* – ‘snake’, *tzin-tli* – ‘rump’, *tzin* – ‘small’ (rebus substitution), *co* – ‘on’ (omitted).

The graphic structure may have no direct correspondence with the components of the composite:



e) *YACAPITZTLAN* – “Where There are Many Pointed Things” (*Yacapitz-auah*) + *tlán*:

*Yaca-tl* – ‘nose’, *Petz(o-tli)* – ‘insect’, *Yacapitz(a-uac)* – ‘smth pointed’ (rebus spelling), *tlán* – ‘abundance of’ (omitted).

Hill (graphic base) + Nose + Insect.



f) *COYUACAN* – “Place of the Lean Coyotes” (*Coy-otl* + *hua-cqui*) + *can*:  
*Coyo(tl)* – ‘coyote’, *Coyo(ctic)* – ‘hole’ (phonetic complement), *huacqui* – ‘lean, hungry’, *can* – ‘pertaining to a place’ (omitted).

### 2.6. *Syncretism of the image*

The use of one glyph for two morphemes (as *b*, *c*) may be even more creative:  
*MIXCOAC* – “On the cloud snake” (*Mix-tli* + *coa-tl* + *c*), *Mixtli* – ‘cloud’, where *mix-tli* (“cloud”) is drawn as a blue snake with curls forming the upper line of the coat’s image. The blue colour and the curling line represent a cloud. But the same place name is composed with two glyphs (a snake and a cloud) in cod. Santa Maria Asuncion.



### 3. The textogram as a frame

Now we can see how the whole composition is made in Aztec Manuscript. On the page consecrated to Itzcoatl – ‘The Snake with arrows’ – his conquests are shown: the emblem of war is in the centre, destroyed cities with their emblems are around it, the years of his reign as calendar glyphs are in blue at the border.

So the textogram corresponds to a situation, representing it as a frame with acting participants, where the participants’ positions are determined by the coordination of the principal, central, and secondary, subordinate. For the archaic culture the cyclic

repetition of certain events is principal, and new, changing factors are regarded as secondary, though necessary circumstances. The subordinate function of emblems as marks, signs of circumstances in a textogram is expressed in their particular position.

The structure of the textogram doesn't prescribe the order of reading; it represents the semantic, deep level of text, which is known from the oral tradition.

E. Boone (Boone 1998) speaks about the "visual thinking" of the Nahua, comparing their pictorial documents to musical or mathematical notations that could be "read" without words.

#### **4. Factors constraining the development of script**

Finally about the factors constraining the development of Aztec script. We see three such.

- 1) Cultural factor: it was just a choice of communicative strategy (A. Davletshin, private discussion), based upon "visual thinking" (E. Boone).
- 2) Sociolinguistic factor: it was the Spanish influence. The situation with the Aztec (and Maya) script in collision with Spanish culture may be compared with that of Egypt in the emergence of Hellenism, when Coptic writing arose. "Firstly, in Egypt and elsewhere, it is a script, rather than the language, that becomes a symbol of "heathendom", of the old religious order which a new revealed religion aims to overcome; secondly, the alphabetic system is not an inevitable outcome of a writing system ..." (Lopriene 1995, 237).
- 3) Language structure factor: it may be the polysynthetism of the structure of the Nahuatl language, which allowed long series of syllables within an incorporative complex (up to 32, often 8–9). A proper word for Nahua could be a name with its stable morphemic structure; a predicate is a variable incorporative combination. There lies the border between language and speech. An emblem with its restricted number of positions could not have the technical resolution for guarding the strict order in such a long file; it should be unfolded to a chain. Yet we have the example of the Maya hieroglyphic script, where the problem was resolved for a language with elements of polysynthesisism. But before the pictorial sign became phonetic, the number of components in hieroglyphic block was restricted and the proper order of writing/reading was determined.

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# **The Emblematic Principle in the Evolution of Writing Systems**

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## **Abstract**

The paper addresses the use of emblems in the representation of language units in writing systems. The emblem is conceived as a complex graphic unit which creates a new meaning by means of differentiation of reference. The proper function of the emblem is nomination, so it appears in the representation of proper names in historical writing systems. The stage of Emblematic writing may be placed at the very beginning of proper writing; the Aztec manuscripts show the most typical examples of it. An emblem can be formed by one symbol, but more often it has two components. The relations between them can be compared with those in compound words: they can be symmetrical or subordinating. The emblematic principle is used in modern writing along with the linear principle: while the latter unroll the text in the consequent order, the former represents hierarchic information as an integral graphic composition.

**Keywords:** Historical Writing systems, Emblem, Symbol, Differentiation.

## **1. Acknowledgements**

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I represent here the Russian State University for Humanities, where Dr. Kondratyeva teaches Korean language at the Institute for Oriental and Classical Studies and I lecture in History and Theory of Writing, Semiotics and Sociolinguistics.

I've permitted myself to widen the announced theme of the paper (The Emblematic principle in Korean Writing) in the absence of Dr. Kondratyeva, who is much more competent in Korean. So I'll speak about the Emblematic principle in the evolution of writing systems, not only in Korean writing.

## **2. Some Preliminary Definitions and Assumptions**

### *2.1. Writing system*

We define *a writing system* as a semiotic system, with a set of graphic (pictorial or linear, symbolic) signs for expressing a certain content. So a calendar system, a counting system, any system of notation (musical, mathematical and so on) can be regarded as a writing system. We regard as a language writing system any system of writing based on language units.

### *2.2. The emblematic principle of writing*

My first comprehension of the emblematic principle was as follows: the emblematic principle of writing presupposes that a complex semantic unit – such as a proper name (personal name, name of tribe, place name, etc.) – has an appropriate external, graphic structure, which represents the combination of its elements as a whole. Presumably its semantic structure includes a pair of components as immediate constituents.

### *2.3. Assumptions*

We presuppose that the use of emblem may be extended to the common principle of writing, along with the linear principle.

The nature of the emblem can vary, but its main features are the combination of pictorial images in a whole, not in a linear order (integration), and some sort of semantic relation between them.

The linguistic emblem is a readable sign, representing a (compound) language unit.

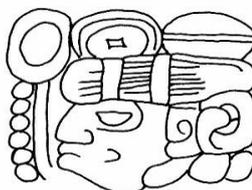
### 3. The Term Emblem in the History of Writing

In the history of writing the term emblem was used by Heinrich Berlin in his investigation of Maya place names (Berlin 1958). Yet his comprehension of emblem presupposed an iconographic and not linguistic nature, so the emblem was regarded not as readable sign, but as sign requiring interpretation.

Consider these examples of compound Maya glyphs for the settlements Palenque and Tikal:



*Palenque*



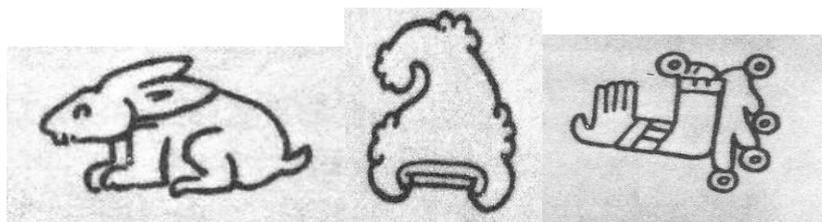
*Tikal*

We can compare them with simpler glyphs for Aztec place names (pre-Hispanic place signs), which presumably have phonetic reading:

a rabbit for *Tochpan* – *toch-tli* ('rabbit') + locative postfix;

a curved hill for *Colhuacan* – *colhua*<sup>1</sup> is represented as *col-tic* (*tepetl*) 'curved' ('hill'), (while *colhua*<sup>2</sup> is a group living in the Valley of Mexico) + locative postfix = 'place of *colhua*', with a rebus spelling;

*Acolman* (*Acolhuacan*?) – *a-tl* ('water') + *acol-li* ('shoulder') + locative postfix, where *atl* is used as a redundant phonetic indicator (phonetic complement).



*Tochpan*

*Colhuacan*

*Acolman/Acolhuacan*

So there are compound as well as simple signs. Simple signs can be emblems when they correspond to a distinct referent.

#### 4. The Difference between Emblem and Symbol

It is obvious that a writing emblem has much in common with an ordinary graphic or pictorial symbol with semantic reference (whether verbalized or not), such as we can see in modern advertisement, or as we use in e-mail letters:

*I ♥ Nescafe Gold*

*I √ Stream*

*We are waiting for you at the hotel ☺*

They are merely simple pictograms or ideograms. An important point is that they presuppose some intelligible semantic (not phonetic) reference (we can read: *I choose Stream, I prefer Stream, I vote for Stream*), so they belong to a different level of structure than the surrounding signs. The context makes their meanings more definite.

Yet the difference between Emblem and Symbol as semiotic category consists in the definite reference of the Emblem and indefinite reference (or even infinity of possible references) of the Symbol.

Reference becomes the most definite in nominations, in proper names.

So the main feature of a writing emblem is not its 2-component structure, but its function – that is a different way of reference: 1) it is a semantic reference, 2) it is a distinct reference, restricted with a language unit in its proper sound image.

The emblems are in contrast to the rest of the pictorial composition or of the text – or they may be prominent in vacuum, holding the quintessence of meaning. For the blank field, *tabula rasa*, is in full opposition to a meaningful symbol. The use of emptiness as a generative power is a philosophical principle in Oriental Art, and it reveals its value in Proto-writing.

## 5. Simple Symbols as the Bases of the Writing system

In the history of invention of writing systems there are examples when simple signs, symbols, make the basis of the whole system. The simpler the primary signs are, the deeper the sense they could convey.

The Korean *Hankyl* is the most evident example. It has 3 main signs for vowels, which symbolize the neo-Confucian ideas:

- – Point or circle – for Heaven,
- – Horizontal line – for Earth,
- ┃ – Vertical line – for Man

Another example is the Slavic Glagolitic writing, where 3 signs found the graphic images of the letters. They are symbols of Christianity:

- – Circle, which symbolizes the Infinity of the Universe,
- △ – Triangle, which symbolizes the Holy Trinity, and
- ✝ – Cross, which indicates Christ's Passion.

The main difference is that the Korean signs have their own phonetic value, and among the Glagolitic only the Cross signifies /a/ by itself. But the others form combinations corresponding to sounds. So these simple signs could be regarded as symbols, but not as true emblems.

## 6. Pictograms and Ideograms: the Ambiguity of Terms

At the beginning of writing we have more often not symbolic signs with global meanings, but pictorial signs with concrete meanings, e.g.: ☀ 'sun', ▲ 'mountain'.

They have an iconic reference to the object. Traditionally they are called pictograms, while a term of ideogram is used for a sign with indirect reference. But a

picture can represent an idea as well as an object – so there is no definite distinction between a pictogram and an ideogram:

	
‘sun’	‘daylight’
	‘day’
	‘God’

So some scholars avoid the last term (H. Rogers uses ‘abstract pictograms’ for ideograms (Rogers 2005)).

The ambiguity proceeds from the fact that the terms are based upon different aspects of the sign. The picture (*picto-*) is a *signans* of a sign, while the idea (*ideo-*) is its *signatum*.

While the principle of pictography is iconic – the use of visible, direct reference, – the principle of ideography is the use of indirect reference, metonymic or metaphoric. They are supplementary to each other, so pictograms and ideograms can coexist in the same ideographic system.

## 7. The Ways of Differentiation of an Emblem

The evolution of writing (if there is any) can be considered as a way of optimization of the system: from Proto-writing with iconic direct representation of a situation to proper writing with graphemes representing language units, from radical-morpheme writing to morphosyllabic writing, and so on, always through differentiation to a new integration. Any mark of differentiation serves to restrict reference in the syntagmatic representation at any stage of the process. At the very beginning of proper writing an emblem is differentiated from the whole pictorial composition, *textogram* (Dyakonov’s term. (Dyakonov 1979)), representing a situation and referring to a canonical text. Thus proper names, dates, numerals can be recorded. This is a stage of Emblematic writing.

Then, at the advanced stage of writing emblems remain among linear signs and get a differentiating mark.

An emblem can be marked among other signs:

– with a diacritic:

we can see an example in the Egyptian writing, where a stroke marks an ideogram in the status of an emblem: p-r = ‘house’, kA = ‘soul’ (the stroke can be considered as a second, subordinate structural – semantically empty – component of an emblem); later the cartouche served as a diacritic of compound emblem: it had a role of escutcheon, a coat of arms, and within it a special, honorific order of signs was permitted. Also a line above a letter (letters) marks its numeral meaning or abbreviation (“titlo” in Slavic); so the name *Iisus* (Jesus) is written in abbreviated form as an emblem.



*p-r* 'house'; *son of Ra, Tutankhamen* [imn-t-w-t-anx]; *IS* (Jesus)

*kA* 'soul';

– by its size:

ciphers, numerals among the letters; a majuscule in proper names which can be considered as the relict of an emblem mark; maybe even a long line or hook under or above the line in many consonant letters as a mark of a syllable in minuscule alphabetic writing, as Dr. Manfred Kripke supposed (in private discussion);

– by the heterogeneity of its structure:

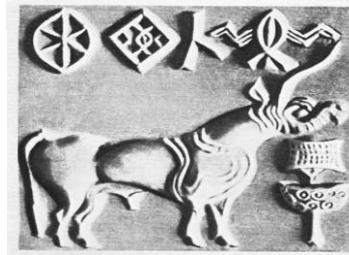
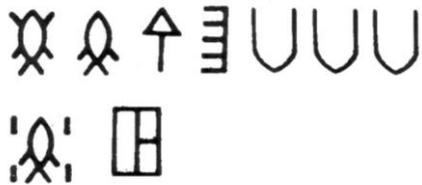
Chinese characters among Korean syllables or Japanese kana;

나무는 德을 가지고 있다

(‘Even a tree has its virtue’)

– sometimes with symmetrical or balanced organization of compound signs, which acquire an appearance of an emblem:

Indus, or Kharappa, writing, not deciphered yet, gives examples of symmetry in ligatures; also as an emblematic relict may be considered the rule of a square of Egypt and Chinese calligraphy, where graphic elements are situated within an invisible square, and they can be enlarged or diminished, stretched or compressed; we can also see these graphic techniques in the Korean syllabograms, especially with patchims;



*sign of fish in ligature with IIII; sign of fish in ligature with waves in a tablet (Kharappa)*

– by its position:

at last, it may have no external mark, as Sumerian ideograms in the Akkadian cuneiform (Dyakonov calls them *heterograms* (Dyakonov 1979); but it can be marked with its position. This is the case with the stable position of a determinative.

These are the ways of external differentiation. They are more often morpheme-operations than segmental morphemes, as we have seen. They mark emblems as signs of another level among the rest.

## 8. Ways of restriction of reference

The use of an emblem serves to restrict the reference.

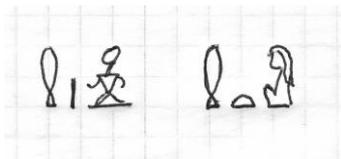
In morphographic writing a sign-radical can be referred to any element of a semantic field. So its content can be restricted in some ways, e.g.:

– by a semantic determinative, indicating a class of reference – the determinative is an emblem marked by its position:

Sumerian (in conventional form):

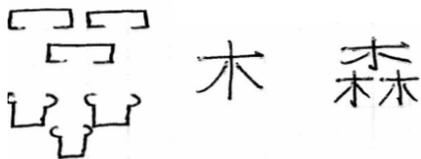
Aššur<sup>Country</sup>, Aššur<sup>Town</sup>, Aššur<sup>God</sup>;

Egyptian (the combination of signs creates a new integrated image):



*'slave'-id. + Det. 'man'; 'slave' + [t] fem. + Det. 'woman'*

– by a reduplication of the ideogram. The reduplication can give way to a new meaning, the new integration gives a new emblem:



*Pl. ('house');*      *'tree' – 'grove' (Ch.)*

*Pl. ('soul') (Eg.);*

As we can see, a new integrated meaning appears in the semantic compound, so reduplication may be the first archaic way of visual representation of a grammatical meaning, such as the plural.

A new meaning appears not only in the case of reduplication, but in combinations of ideograms:



*'man' + 'tree' = 'rest', 'relax' (Ch.)*

This is a new step of integration going along with differentiation.

All these means make for a more intelligible reference and a more sophisticated expression of the meaning.

## 9. The proper Function of Emblems is Nomination

The word becomes actual in the nomination, so personal names, place names, names of tribes, calendar names are the first stable names – proper names – and real stable phrases worthy of notation. Proper names are names with fixed reference, and the ancient names have an appropriate semantic structure. Such a name may contain a single word (Turtle, Fox, Bear, Cloud, etc.), which is expressed by a pictogram. But more commonly there is a differentiated name (a word combination) that creates an individual image (Turtle Following His Wife, Dark Cloud, etc.). This is already an attempt of sound writing with iconic images, because the *signatum* is a sounding word, not an object, – a scribe wrote the name. We can see such writing in Mixtec codices

(Smith 1973), in North-American annual records.

We can find more elaborated emblems of names in Aztec manuscripts, where a redundant phonetic indicator or rebus spelling may be evidence of sound writing.

The emblematic principle works at the early stages of writing as a transition to morphosyllabic writing. We can suggest that emblematic writing was an important stage in the development of writing. This principle is represented most completely in the Aztec manuscripts. The phono-emblems function as subtitles or inscriptions to the pictorial compositions of common content, such as war, battle or death, marriage. They mark on the background calendar dates, lords' names, toponyms and other concrete information, which is subordinate to the main content given in the centre. They use the devices of phoneticism (Nickolson 1973, Berdan 1992). The same principle may be found in Egyptian in Narmer's Palette where *Narmer* is a phono-emblem with two glyphs.

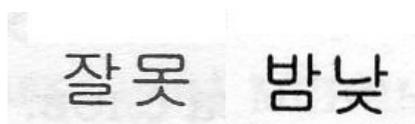
## **10. Relations between Components of a Compound Emblem**

For the one-sign emblem we can regard the mark of differentiation as its second component, so the relation between the first and the second is quite technical (with a functional meaning).

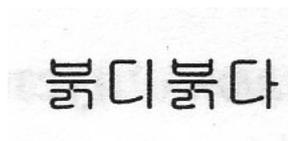
At first I assumed that there must be subordination between the immediate constituents of an emblem (Aztec place names give examples). Now I see that this is not necessary. There can be different possibilities, and other, non-linguistic material gives good examples of coordinative relation; one of them illustrates the *yin-yang* emblem, which constitutes the balance of male and female, light and dark.

I think that some parallels with language word-composition could be established: the possible relations between components in a compound word resemble the relations within an emblem. We have not only bahuvrihi, but also dvandva composites in many languages, often giving not only the sum of meanings, e.g., in adjectives of colour (*red-blue*), or the sense of intensification, but new nominations: so we have in Armenian *arev-tur* = 'take-give' for 'market'; in Greek *ἄψε-σβήσε* 'fire-blow' (imperative) = 'in a flash'; in Nahuatl we have more often not compound words, but binomial word-combinations (the words are in their free form): *in atl in tepetl* as set expression or *atltepetl* as a composite – 'water, hill', the whole means 'settlement'; *in cozcatl in quetzalli* – 'necklace, feather of quetzal' – that is 'treasure'.

Korean gives many examples of composites and binomial compounds:



*cal-mos* = ‘good, not’ (‘mistake’), *pam-nac* = ‘night, day’ (‘24 hours’);  
reduplications for intensification:



*pulkti-pulcta* = ‘red-red’ (‘scarlet’);

especially many reduplications with onomatopoeic function: *acang-acang* (for a child’s first steps), *panccak-panccak* (about glint, with intensification), or



*khung-khung* ‘din-din’ (Lee 2005).

We have thus word-emblems – words that change their function and reference in composition.

In a more common sense a compound word may be regarded as a semantic emblem because the semantic relations between its components are frozen or neutralized (for example, *forget-me-not* or the Nahuatl greeting *mixpantzinco* (*m(o)-ix-pan-tzin-co* – ‘in your reverend presence’), as in the most part of compound word etiquette formulae; *leap-day* or *leapfrog* – on the other hand, with indefinite grammatical functions of its components). But this is a subject of further research.

## 11. The Lay-out of a Semantic Unit

The lay-out of a semantic unit is a logical task; it is resolved by the coordination of the central and the marginal (the positions around a centre), the main and the subordinate (positions behind the main) or by the balanced coordination of components. The whole composition is a task of integration.

A complex language unit has an underlying logical structure. A complex writing unit has an emblematic structure, which is governed not only by the structure of

language unit, but by the logical order, graphical possibilities and fantasy of the author. So we can see fantastical images: a tree with teeth or with a mouth and a speech scroll, a snake with knives or lips in the channel. On the other hand, the components of an emblem can be combined in a logical way: where a house stands on the hill, a snake goes out of the house. In every case a scribe tries to make the composition into a whole, even if it is a fantastic image.

The lay-out of the phonetic chain needs linear order, and the linear principle indicates the unrolling in time of the sequence of symbols, the order of reading. This is a way of differentiation.

## **12. The Emblematic Principle in Korean Writing**

The language system may determine the ways of writing.

The Korean writing combines the emblematic principle in the representation of morphemes and the linear order in the spelling of words.

The Korean writing follows the emblematic principle in 2 points:

1) in the use of Chinese characters as emblems of words with strict meanings or radical morphemes in the chain of phonetic signs (a Chinese word is rather a semantic emblem);

2) in the composition of a syllable, using alphabetical signs.

The first case is a relict of morphographic writing, which may be conserved to a certain degree – as long as it makes for laconism of expression and helps understanding and as long as it doesn't create great difficulties for reading. It is a matter of tradition and of reasonable extent.

The second case reveals many details. Some of them – the balanced organization of a syllable as a whole – were already mentioned. We can add two things: 1) the use of a zero-sign, indicating the absence of an initial consonant, so that the whole syllable reserves its canonical two-component structure; 2) the division of the word into syllables which shows its morphemic structure – so that the syllable borders coincide with the morphemic borders in the word.

So a Korean word may be regarded as a phono-emblem, rather than a phonetic chain.

### 13. Is the Emblematic Principle an Obsolete Survival?

– It coexists with the linear principle in creation of monograms, ligatures, abbreviations:

£ & @ Æ

– It corresponds to the creative, combinatory capacity, due to which we have such emblems as “?” and “!” created in Latin writing by using a vertical order of components (Q and o, I and o):

Quaestio > Qo > ?

Io > !

– Even in writing numerals we can find the coexistence of two ways of representation: linear (1 : 3) and emblematic ( $\frac{1}{3}$ ). Other examples can be found in mathematical, chemical and musical notations (in the last a chord is a harmonic emblem and a melody progresses note by note in linear order).

In conclusion, we must remark that the emblematic principle can unite signs of different levels or different status in the historical writing systems. This doesn't mean that emblematic principle is an obsolete survival. An emblem of any kind is a way of visual representation of hierarchic information in compact form; it is a way to break the importunate chain of linear order. And its energy is multiplied in emptiness.



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# A Formal Model of Writing: Writing Systems, Scripts, Writing Standards, Orthographies and their Interactions

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## Abstract

Starting from the observation that writing systems are vaguely defined and thus offer a loophole for national ideologies, we propose a formal description of writing systems. Such a formal description can be used to identify ideologies in linguistic discourse or a data structure for OCRs and text-handling modules. Key-notions such as *script*, the *writing standard* and the *orthography* are newly defined, so that established classifications can now be formally defined. New research questions arise from the proposed formalization, helping to advance our knowledge of this intricate field.

**Keywords:** Writing systems, writing standards, formal modeling, ideologies

## 1. Writing Systems: From classification to conceptualization

Writing systems have for a long period been ignored as object of scientific study. Writing might have been thought to be too closely related to linguistic prescription and thus not to be a suitable subject for science. Writing systems is still largely banned as a research field from linguistic curricula and, with few recent exceptions, from conferences and journals. The new interest in writing is partially due to a series of systematic studies. e.g. by Cardona (1986), Sampson (1990) and Daniels and Bright (1996), that established classifications and new terminology for the description of writing systems.

Our knowledge of writing systems however still lacks behind that of other linguistic domains, such as phonology or morphology. We know details about specific writing systems, but have no general theories in the same way as we have phonological theories. As a consequence, we lack a conceptual framework that, in widely accepted terms, allows thinking and reasoning about writing systems. This is due to the gap in research on the one hand, and the extraordinary diversity and complexity of writing systems on the other: Writing systems are compromising, in different ways, political power, national identity, religious identity, tradition, learnability, readability, writability, digitalizability, the phonological system of a language, the phonetics of a language and a culture's aesthetics. A theory of writing that does not integrate linguistic, psycholinguistic, anthropology, sociology and sociolinguistics will thus remain fragmentary.

This inherent complexity however does not mean that the current state of knowledge is all we can achieve, or even, that writing systems are unsuitable for a scientific study. In this paper we thus want to support the claim that scientific approaches can be applied to writing systems and illustrate this through a minimal formalization, actually, implemented in the framework of a relational database.

Second, we claim that the entire field of linguistics without a rich theory of writing system will remain unscientific, in the same way as a psychology without the notion of environment is unscientific. The unscientific nature of a linguistics that does not integrate a theory of writing becomes apparent when contrasting current linguistic discourse to a formal model of writing systems. This discourse, we claim, can be linked directly to the extinction of languages and cultures that we are currently facing (cf. Crystal 2002).

## **2. Writing Systems: Playground for Ideologies**

We claim that the lack of a theoretical framework for writing systems discredits the entire field of linguistics and threatens, as one factor among others, languages and cultures. In the absence of writing systems from the conceptual space of the linguist, there is no structural opposition between 'writing system' and 'language'. As a consequence, phenomena that should be described by the linguist at the level of writing systems are described as if belonging to the level of language. The discourse of a linguist is thus similar to that of biologist that talks about algae as if they were plants.

One might wonder whether linguists are basically aware of the difference and just employ a sloppy discourse. But how sloppy are linguists allowed to be? No chemist would call NaCO<sub>3</sub> (Sodium Bicarbonate) "Sodium", but which linguists wouldn't call a text written in English, Swahili or Russian "English", "Swahili" or "Russian". A denominations like "English" actually seem to be innocent, but this identification with a language ignores at the same time the (obvious) script, the (less obvious) writing standard, the (nameless) orthography and the (obvious) writing direction or even the fundamental distinction between a language and a written representation of it. How far would a chemist come if he systematically calls a salt by the name of the metal?

The term "English-Chinese Machine Translation", used by, for example, but not only, Siu and Meng (2001), is another example of a perverted linguistic discourse. Here, the term "English" refers to a language. Which writing system of English is translated is not specified through the term. Might it be American English written in Desert?. "Chinese", the second linguistic term, refers to a language family including, but not limited to, Modern Standard Mandarin. A second meaning of the term is the Chinese script. This script has been applied to a variety of languages, including Korean, Japanese, Vietnamese, Cantonese and Taiwanese Minnan. Which language is actually involved in the translation is thus left unspecified in both interpretations of the term "Chinese", as language family and script are compatible with more than one language and even the intersection of both remains ambiguous. Maybe Cantonese is actually aimed at, as the authors work in Hong Kong. Maybe. Maybe not. "Translation", finally thought of a mapping between languages is a misconception in the same way, as input and output of the Machine Translation systems is usually a text which can be linguistically classified as belonging to one or another writing system of which the language is one attribute. But whatever meaning a linguist might give to the term "language", as I-Language, E-Language (c.f. Chomsky 1986) or others, none of them will fit the concept of "translation". Translated are, at best, written, spoken, signed or other linguistic productions of which the language is one attribute.

Do we witness just a deplorable habitus (Elias 1939/1992) in an otherwise correct linguistic field? We don't think so. It is easy to show (c.f. Streiter & Voltmer forthcoming), that such an apparently meaningless discourse transmits ideologies, mostly that of nation states and their national languages, e.g. Spanish and Standard Mandarin, but also of non-central languages, the advocates of which use similar ideological means to compete with national language in their strive for power, e.g. Catalan and Taiwanese Minnan..

The transmission of the ideology through the linguistic discourse works as follows: If presented with such a meaningless expression, the addressee is forced to make subconsciously assumptions which allow to make the discourse meaningful. Such assumptions might be 'there is only one Chinese language written' or 'all Chinese languages are written in Chinese characters'. When presented sufficiently often with material which requires this assumption, the assumption is implemented in the cultural body of unconscious knowledge that has been built in the same way, cf. (Fairclough 1989). The more the discourse simplifies, the more default assumptions the addressee is supposed to make. As the linguist author might also make subconsciously assumptions about which default assumptions the addressee is most likely to make, he or she will fall back on those assumptions that he or she shares with the addressee, e.g. those assumptions propagated in Kindergarten and elementary education, which in most countries are mainly concerned with standardizing the kids' linguistic production according to national curricula for the establishment of national identities.

Linguists that in their discourse do not carefully distinguish the concept of 'language' from the concept of 'writing system' become, knowingly or unknowingly, henchmen and executors of prevailing ideologies, contributing with each analysis of "English", "Russian" or "Swahili" to the death of a language somewhere else. Linguists, through their discourse, ensoul and transmit a nationalistic discourse and thus affect the formation of identities, language attitudes and language politics. Whether or not representatives of central and non-central languages want to use these means to promote their language under the surface of a linguistic analysis, is left to their conscience. However, as this ideological linguistic discourse falls again into the area of linguistics, linguists have the right, the means and maybe the obligation to identify the ideologies and their mechanisms that invade their field.

Our proposal is thus to formalize writing systems as far as possible and to use this as conceptual framework with which linguistic discourse can be contrasted, showing where the ideological discourse creates unmotivated implications.

### **3. Writing Systems: Towards a Formal Model**

#### *3.1. Writing Systems: Axiom and Principles*

In our formal model, we start from an axiom that linguist might agree upon and a few principles that build on the axiom to derive theorems. Second, we need mechanisms to check the validity of the theorems against the reality of written texts. Third, through the logic of the formal model new research questions arise. Possible answers to this

question having the same validity should be ranked by the principles. If no ranking of competitive answers is possible, the principles are too weak and should be refined.

The endeavor to formalize writing systems started in the framework of XNLRDF (Streiter & Stuflesser 2006). In this project we describe writing systems of the world one by one in a formal way. While doing so we developed, adapted and validated a formal model. The model is said to be *inadequate* if it cannot distinguish different writing systems; it is *invalid* if the properties of a text do not match those of the associated writing system. Fundamental thus is the question what properties texts have and which of these properties motivate a distinction into different writing systems. The axiom we start from is derived from the discourse we criticize, i.e. the identification of language and writing system. If this identification represents common linguistic discourse, we can assume that linguists might agree to it.

**Axiom:** *When the language of a text changes, the writing system changes as well.*

**Example 1:** *Two writing systems separated by the language.*

- 1a)** Luxembourgish: *Eise Papp am Himmel*  
                           Our Father in heaven  
**1b)** Plautdietsch: *Ons Voda em Himmel*  
                           Our Father in heaven

(Translation of the Lord's Prayer 2008)

We define the concept of *language* as homogeneous form of expression used by a specific community in a specific time across different activities. Although different definitions of the concept of language are possible, they will possibly have no influence on the acceptability of the proposed axiom.

Second, we formalize a writing system as an *attribute value matrix* (AVM), e.g. [a=b,d=[e=f]], where the value to an attribute can be another AVM. AVMs should describe a homogeneous set of texts, identified by attributes like *time period*, *standard*, *language*, *writing direction*, *orthography*, *script* and *word separators*. How to define and organize these attributes and represent the interrelations of their values is part of this modeling. A first model of writing systems identifies the writing system with the language spoken by a community, thus merging the axiom and our definition of language, c.f. Listing 1:

**Listing 1:** *A first model of writing systems.*

---

```
[language=[language_name=,
          syntax_rule=*,phonology_rule=*,morphology_rule=*,
          time_from1=, time_to1=,
          community=*[community_name=,
                      time_from2=,time_to2=,
                      locality=,
                      language_activity=*[activity_name=,
                                          person=*[person_name=,
                                                  proficiency=,attitude=]]]],
channel],
person=*[person_name=,birth_date=,gender=, ethnicity=].
```

---

In this model, the Kleene-star '\*' marks that the value is a set instead of a single value. There is thus a one-to-many relations, e.g. between a language and a community. If we would not use the Kleene-star, the formalization would mean that each community has another language, or in other words, that the community is defined by the language. While '\*' marks the set when represented as type, we use <[.],[.],...> to mark an instance of a set.

*The channel* describes the form of linguistic expression like *spoken, whistled, signed, drummed* or *written*. We will return below to the discussion of the channel. The *proficiency* and *attitude* refer to the specific language activity. These latter values characterize a writing system, but do not define it.

Coming back to the axiom, one might object that the axiom we stipulate might go uncontested for Western Languages, but maybe not for texts in Chinese script that can be read in different Chinese languages. Isn't this a counterexample to the axiom, i.e. one writing system in many languages? We don't think so. This Chinese writing, might either be a specific Chinese language that incidentally can be vocalized in another language, or a written macro language (dach-sprache) that allows a comprehensible vocalization in different languages. In any of these cases we have, admittedly, at least two different languages. But from the partial identity of two writing systems we cannot deduce their identity. Although a Tang poem can be vocalized in Mandarin, written Mandarin is not the same writing system as the writing system of the Tang poem. A single character, a single sentence marker, a single spelling variance is sufficient to prove a difference. In written Mandarin, for example, we find the character '她' (/ta/, female 3<sup>rd</sup> person pronoun) that is not part of the writing system of the Tang poem. Thus, although these writing systems are related and their relation can be systematically analyzed and represented, they are not the same.

With this axiom we use two general principle that allows to distinguish writing systems and chose among alternative models. Principle 1 looks for systematic differences in two texts. It claims that if what is said is the same, but texts looks systematically different, different mechanism in coding and decoding are at stake. Random variations in not-standardized writing systems, thus, do not allow to speak of a different writing system. The writing system should thus provide all the information necessary for text understanding that is not provided by proper linguistic components, such as syntax or morphology modules. A formalized writing systems should be a component of OCRs, text-to-speech systems or any other text-handling facility.

**Principle 1:** *Any systematic difference in two texts that express the same wording in the same language reflects a difference in their writing systems.*

Principle 2 states that we want to constraint our model as much as possible and do that using hierarchical structure wherever possible. Hierarchical structures however should not serve the beauty of the representation, but allow for a calculus and through this calculus constrain the values of higher or lower levels in the hierarchy.

**Principle 2:** *A model that uses hierarchical structures and inheritance schemes it to be preferred over flat list of attributes.*

## 3.2 Writing Systems: Theorems

### 3.2.1. The script

The definition of a writing system in Listing 1, however is *inadequate* as it over-looks another, obvious systematic difference of texts, i.e. the *script*. When the *script* changes, the appearance of texts changes radically. A *script* is defined through a set of *characters* that get into usage in a certain *time* plus a set of functions that operate on the characters. Contrary to common assumptions, we assume, that these characters have no pronunciation and no meaning within the script. Pronunciation or meaning are defined in mappings between the script and a specific language. The only alternative to this assumption would be to include a language within the definition of a script, something impossible if at least one script is used to write more than one language. Of course, one might, in a historical perspective try to assign a proto-meaning or proto-sound to a character, but in a synchronic perspective, there is no uniform meaning or pronunciation in a script.

**Theorem 1:** *When the script of a text changes, the writing system changes as well.*

**Example 2:** *Two writing systems separated by the script.*

2a) Serbo-Croatian, Cyrillic script: *српскохрватски језик*

*serbocroatian language*

2b) Serbo-Croatian, Latin script: *srpskohrvatski jezik*

*serbocroatian language*

The Latin character 'u', for example, is pronounced /ü/ in Dutch, as /u/ in Italian. The Chinese character 緊 has in Cantonese a specific meaning it does not have in Mandarin or Taiwanese Minnan, i.e. expressing in Cantonese an ongoing action. To save the traditional assumption, one might argue that the Dutch script and the Italian script are not the same, as some characters are different. This might actually be true. But to take this as an argument for the inclusion of meaning and pronunciation into the script would mean, whenever two scripts have characters with different pronunciation or meaning, they also have to have different character sets, a claim that can be easily falsified. In addition if the script is freed from meaning and pronunciation we can, following Principle 2, set up hierarchies, allowing a script to inherit characters from its mother script. Such an inheritance might be expressed as in Listing 2. According to this model, one script can inherit from more than one script. In addition, single characters to be removed, added ex nihil or transformed.

**Theorem 2:** *A script is a set of characters. Pronunciation or meaning are assigned characters in language-specific mappings.*

**Listing 2:** *A possible formalization of inheritance in scripts.*

script\_A ::= [script\_B (v=>u) + \*script\_C (...=>...) - [x,y,w] + [ü]]

A script, in addition, has mappings to variants of a character, e.g. upper case characters, if these mapping prove to be language-independent. The ordering of characters, however is language-dependent most of the time. One can find even within one lan-

guage different systems of ordering for different purposes.<sup>1</sup> We thus tentatively associate the mapping of characters with the script, the ordering with the writing system.

**Listing 3:** *A first model of scripts.*

---

```
[script_name=,
 basics=[script_B (...=>..., ...=>...)
        + *script_C (...=>..., ...=>...)
        - [...]
        + [...]],
 up(a)=A, up(b)=B, ...
 time_from=...,
 time_fromB < time_from,
 time_fromC < time_from.
```

---

**Listing 4:** *A second model of writing systems including scripts.*

---

```
[language=[language_name=,
          syntax_rule=*,phonology_rule=*,morphology_rule=*,
          time_from1=,time_to1=,
          community=*[community_name=,
                    time_from2=,time_to2=,
                    locality=,
                    language_activity=*[activity_name=,
                                       person=*[person_name=,
                                               mode=,
                                               proficiency=,attitude=]]]],
 channel=,
 sorting=<[pos(a)=1],[ pos(b)=2],[...]>,
 script=[script_name=],
 script=*[script_name=,basics=, time_from3=],
 person=*[person_name=, birth_date=, gender=, ethnicity=]
```

---

Interestingly, our argumentation against language-specific attributes in the script does not prevent general linguistic values to be assigned within the script, if the values are valid for all usages of the script. These linguistic attributes, should be organized in hierarchies so to be compatible with a hierarchical organization of scripts, resulting in a more constraint model of scripts. At the moment we simply assume that, for example, characters for syllables can be described as 'syllable(...)' and characters that can be used as numbers as 'numbers(...)', e.g. in the case of Armenian (c.f. Nakanishi 1980).

---

<sup>1</sup> The new official German orthography, for example, while listing the character of the German alphabet, puts 'ä' after 'z', saying later on, that 'ä' should be ordered with 'a' (Duden 1996:860).

**Listing 5:** A second model of scripts, allowing characters to be linguistically classified.

---

```
[script_name=,  
basics=[script_B (...=>..., ...=>...)  
+ *script_C (...=>..., ...=>...)  
- [...] + [...]],  
up(a)=A, up(b)=B, ..  
vowel(a,e,i,o,u,...),  
consonant(b,d,f,g,..),  
plosive(b,d,g,...),  
number(a,b,...),  
time_from=...],  
time_fromB < time_from,  
time_fromC < time_from.
```

---

### 3.2.2. Time and place

As apparent from the above, a writing system has a temporal attribute, i.e. the temporal overlap of the other time periods.

**Theorem 3:** Texts written in a very different time and place belong to different writing system.

**Example 3:** Two writing systems separated by time.

**3a)** Old English, ca. 1000, Latin script: *Fæðer ūre þū þe eart on heofonum*

**3b)** Middle English, ca. 1384, Latin script: *Oure fadir þat art in heuenes*  
(Translation of the Lord's Prayer 2008)

**Listing 6:** A third model of writing systems, including time and space.

---

```
[MAXIMUM(time_from1,time_from2,time_from3)  
< MINIMUM(time_to1, time_to2),  
language=[...]]  
...
```

---

### 3.2.3. The Writing Standard

Every language has potentially a large number of writing systems. There are those used by communities, those proposed or implemented as national standards, or those used by linguists for the transcription or annotation of language activities. The notion of 'writing system' thus is not equivalent to that of a 'written language', as the former includes, for example, API/IPA transcriptions. Two writing systems of a language can be combined into a third, such as ([我們]/[wōmen]). These combined writing systems assume a central position in the formalization of mixed *spellings* (see below). Given one writing system, we can specify other writings system by the way they map to this writing system.

Mappings between writing systems that linguists are most familiar with are *transliterations*. A *transliteration* is defined as mapping of one writing system to another writing system of the same language. More precisely, in a *transliteration* characters or

combinations of characters are mapped one-to-one onto characters or combination of characters. Linguist, for example, transliterate a Russian Cyrillic text into a Russian Latin text, following one-to-one mapping rules, losing no information during this process. A *transliteration* might be specified in a general *standard*, e.g. the Cyrillic scientific transliteration in (ISO 9: 1995, 2002). Transcribing Modern Standard Mandarin in Hanyu Pinyin (Yin and Felley 1990), is another standard, although not a transliteration in the strict sense. One Hanyu Pinyin Romanization can be mapped onto more than one Chinese character.

The type of mapping between *writing systems* of the same *language* is called the *standard* or *writing standard*. We assume for each language the possible existence of a phonetic (e.g. API/IPA transcription), phonological (e.g. Signwriting, c.f. Gangel-Vasquez & Sutton 1998), morphological, syntactic or semantic writing system, each of them being linguist's inventions. If we assume that writing systems themselves are *typed* (*phonetic transcription, phonological transcription, morphological transcription, semantic transcription, syntactic transcription, transliteration, common writing*), the standard specifies how a *writing system* is defined by its mapping to another *typed writing system*, starting potentially from a close phonetic transcription. The *standard* for transcriptions might be the annotation guidelines developed within an annotation project, starting possibly from a *common writing* (e.g. Babko-Malaya 2005). The *standards* can be defined for a *language* or a group of languages (e.g. the Epp standard is specific to lower German languages), or a *script* or a group of scripts (e.g. the Epp standard is specific to the Latin script) and the *writing type* of the *writing system* (*phonetic transcription* etc.) mapped to.

**Listing 7:** *A fourth model of writing systems, including the writing type.*

---

```
[MAXIMUM(time_from1,time_from2,time_from3)
 < MINIMUM(time_to1, time_to2),
 writing_type,
 language=[...]]...
```

---

We hypothesize that the writing standard has three components, a *header*, a *rule-type definition* and *rules*. The header of a *writing standard* specifies the range of writing systems that can be mapped as illustrated in Listing 8.

**Listing 8:** *An example of the header of a writing standard.*

---

```
[standard_name=,
 standard_header=[language=Low German language,
                  script=Latin script,
                  writing_type=common writing] <=>
 [script=IPA/API script,
  writing_type=phonological transcription,
  standard=IPA/API standard]
 ...].
```

---

The rule-type definition gives the rule-format in a general form as shown in Listing 9. The third component, the set of more specific mappings are instantiations of a rule type. A rule might map, for example, the character 'm' to the IPA/API symbol /m/. In this notation the brackets '()' marks those elements that are actually mapped, similar to the notation of substitutions with regular expression in Perl (Larry Wall et al. 2000). Those elements outside the brackets '()' describe the context necessary for the rule to apply. The elements outside the brackets are not mapped. In case of not mapped contextual elements, the mapping is not bijective.

**Listing 9:** *An example of the rule type and rules in a writing standard.*

---

```
[standard_name=,
rule_type=<[*vowel]<=> (vowel),rule=<['(a)' <=> /(a)/],[ ...]>]
      [(consonant) <=> (consonant), rule=<['(m)' <=> /(m)/,['(n)' <=>
/(n)/]>>].
```

---

Established classifications can now be defined formally through in the *standard*, e.g. by reference to the writing type (1.-3.), the script (4., 5.) or the language (5.), as specified in the header of the *standard*. Most standards however are mixed (6.)

1. 'Phonemic orthography' ::= [common writing] <=> [phonemic transcription].
2. 'Phonetic orthography' ::= [common writing] <=> [phonetic transcription].
3. 'Ideographic writing' ::= [common writing] <=> [semantic transcription].
4. 'Chinese Romanization' ::= [Latin script] <=> [Chinese script].
5. 'Romanization of Japanese' ::= [Latin script] <=> [Japanese language].
6. 'Chinese mixed phonetic and ideographic writing' ::= [Standard Modern Mandarin, Chinese script, common writing] <=> [semantic transcription/phonological transcription].

Another classification can be re-defined on the basis of the rule-types of the *standard* and the references herein to the linguistic classification within scripts.

7. 'segmental' ::= <[\* (vowel) <=> \*(IPA vowel symbol)],  
 [\* (consonant) <=> \*(IPA consonant symbol)]>;
8. 'syllabic' ::= [(syllable) <=> (IPA consonant symbol, IPA vowel symbol)];
9. 'abugida' ::= <[(character) <=>  
 (IPA consonant symbols), IPA default vowel symbol],  
 [(character)(vowel symbol to be merged) <=>  
 (IPA consonant symbol), (IPA not default vowel symbol)]>;
10. 'consonantal' ::= [(character) <= (IPA consonant symbols), IPA vowel symbol];
11. 'impure consonantal' ::= <[(character)(vowel symbol to be merged)] <=>  
 (IPA consonant symbol),(IPA vowel type A);  
 [(character) <=  
 (IPA/API consonant symbol), IPA vowel type B]>;

Theoretically, the two types of standards, i.e. the types defined on the writing systems mapped and the other on the basis of the rule types are independent. De facto, however, not all combinations are found in writing systems. Although we find a seg-

mental Chinese Romanization, e.g. (Yin and Felley 1990), and a consonantal transliteration in Latin characters of the Ugaritic script, e.g. (Pope 1975), we have no consonantal Chinese Romanization, as this would be of limited help. Other limitation on theoretically possible combinations reflect the historical development of languages, scripts and standards and their interactions.

*Standards* can thus potentially be hierarchically organized in a multiple inheritance model. A formal definition of the hierarchy of *standards* has not been attempted yet, but would clarify fundamental properties of writing systems. As, in addition the standard restricts the range of scripts and languages, the writing system is represented as in Listing 10, where the language name and the script name of the writing standard have to unify with the set of language names and script names of the *standard*, marked formally as superscript, where the unification, especially of hierarchical terms has to be defined more precisely.

As a different *channel* requires different *standard* for transcriptions or transliterations, even if the same language is involved, a different channel will result in a different writing system. As for the differences of a written whistled language and its written spoken language counterpart, c.f. (Trujillo 2005:56).

**Listing 10:** *A third model of writing systems including the writing standard.*

---

```
[...
writing_type=,
language=[language_name=1],
script=[script_name=2],
sorting=<[pos(a)=1],[pos(b)=2],[...]>,
standard=[standard_name=],
*script=[...],
*person=[...],
*standard=*[standard_name=,
channel=,
standard_header=[language_name=1,
script_name=2,
writing_type3]
time_from4=,
standard_inherited_from=[standard_header=[language_name=1,
script_name=2,
writing_type=3]],
rule_type=*[rule]].
```

---

**Theorem 4:** *Texts written in a different standard belong to different writing system.*

**Example 4:** *Two writing systems separated by the writing standard.*

**4a)** Arabic language, Arabic script, pure consonantal: ذَبَح

**4b)** Arabic language, Arabic script, impure consonantal: ذَبَّح

(Abjad 2008)

A *standard* can be validated by comparing mapping rules at its lowest level of the hierarchy of *standards* to the entities mapped between a text of the writing system and a text of the target writing system, unless these entities are covered by the *spelling*. Entities mapped by the *spelling* can be validated in the same way, requiring in addition a check whether the spelling rules correspond to the standard. All this leads us directly to the definition of the *spelling*.

#### 3.2.4. The Spelling

The *spelling* maps between words or morphemes of different *writing systems* of the same *language*. The *spelling* can overwrite the mapping rules as defined in the *standard* by reference to words and morphemes. To what extent the spelling rules can violate the rule types so that the system becomes *invalid*, is difficult to judge. A writing system that does not specify the spelling, however, would clearly remain *inadequate* as it cannot account for the differences in Example 5.

**Theorem 5:** *Texts written in a different spelling belong to different writing system.*

**Example 5:** *Two writing systems separated by the spelling.*

Russian language, Cyrillic script, segmental, spelling 1709: *гражданскій шрифтъ*

Russian language, Cyrillic script, segmental, spelling 1917: *гражданский шрифт*

*Spellings* are linked to only one *language*, one *script*, and one *standard*. Within the domain of the one *language*, one *script*, and one *standard*, a hierarchy of orthographies might be possible. The spelling of English refers to a mixed semantic/phonetic writing system. Rules map either words or morphemes with word-rules overwriting morpheme-rules.

- photograph <=morpheme=> [“SEMIOTIC”] / [/'fotəgræf /].
- photographer <=word=> [“PERSON”]/[fə'tagrəfər/].  
(c.f. English Orthography 2008)

For the praxis of reading and writing the *spelling* rules have to be mastered, in the same way as text-to-speech or speech-to-text systems have to master these rules. The size of the body of *spelling* rules which have to be added to a *writing standard* in order to describe a writing system is an indicator for its learnability.

**Listing 11:** *A first model of spelling.*

---

```
[spelling_name=,  
language_name=1,  
time_from5=,  
script_name=2,  
rule=*,  
standard=[...]].
```

---

**Listing 12:** *A third model of writing systems including the spelling.*

---

```
[MAXIMUM(time_from1,time_from2, time_from3, time_from4,time_from5)
< MINIMUM(time_to1, time_to2), ...,
  spelling=[spelling_name=,
            time_from5=,
            rule=*,
            language=[language_name=1],
                    script=[script_name=2],
                    standard=[standard_name=,
                              standard_header=[language_name=1, script_name=2]],
            *script[script_name=2,basics,...],
            *language[language_name=1]
            *person[person_name, birth_date...],
            *standard[standard_name,
                      language_name=1,
                      script[script_name=2],
                      standard_inherited_from [language_name=1, script_name=2]]
```

---

### 3.2.5. The Orthography

Our notion of *spelling* is different from that of *orthography*. While the *spelling* maps characters to create morphemes and words, the *orthography*, through rules and sets of symbols, e.g. the characters, word separation markers, sentence markers etc., accounts for the spelling, hyphenation, quotation, punctuation, enumeration, numbers, formulas, dates, thus turning phrases and sentences into a text. Some of these subsystems of the orthography, one might argue, are writing systems on their own, e.g. numbers or mathematical formulas. Actually, writing system can include, like a function call, other writing systems.

**Theorem 6:** *Texts written in a different orthography belong to different writing system.*

**Example 6:** *Two writing systems separated by the orthography.*

**6a)** Standard High German, Latin script, segmental, orthography before 1998: *Er versprach, heute zu kommen.*

**6b)** Standard High German, Latin script, segmental, orthography after 1998: *Er versprach heute zu kommen.*

**Listing 11:** *A first model of orthography.*

---

```
[orthography_name=,
  time_from6=,
  spelling=,hyphenation=,quotation=,enumeration=,date=,time=,number=, ...].
```

---

### 3.2.5. The Writing Direction

As obvious as are changes of the script are changes in the writing direction. The knowledge of the writing direction and its implication is absolutely necessary to decode a text.

**Theorem 7:** *Texts written in a writing direction belong to different writing system.*

**Example 7:** *Two writing systems separated by the writing direction.*

**7a)** Chinese script, right to left, as written on tombstones: 安南

**7b)** Chinese script, left to right: 南安

(Streiter et al. 2007)

As the changes in the writing direction may imply changes in the characters of the script (e.g. in Mandarin Chinese, traditional characters has different realizations of the character 理 for top-to-bottom or left-to-right writing) and affect punctuation, quotation, enumeration and numbers, the writing direction is most likely to be an attribute of the orthography. Thus, when the writing direction changes, the orthography changes with it, allowing then, all other subsystems of the orthography, such as hyphenation, to change. A writing in boustrophedon, such as found, for example, in Ancient Greek, obviously challenges our formalization. What would be need would be a mirroring operation that operates over a line in a text, mirroring along the horizontal axis and/or the vertical axis. Such operations should be defined as part of the orthography as the notion of 'line' is available only at this level. If defined this way, boustrophedon would not be among the writing directions. This, however is reasonable, as with a boustrophedon the orientation of the characters changes, while a changing writing direction does not change the orientation of characters.

**Listing 12:** *A second model of orthography.*

---

```
[orthography_name=,  
...,  
vertical_mirror=,  
horizontal_mirror=,  
writing_direction=].
```

---

### 3.2.5. *The Rotation*

Texts, finally can be turned at an angle of 90 or 270 degree, especially if a left-to-right writing, e.g. in Latin or Cyrillic characters) is integrated into a top to bottom writing, e.g. traditional Chinese or traditional Mongolian. As the angle does not interfere with any other attribute or value, it can be represented outside the orthography. The model of writing thus is summarized in Listing 13.

## 4. Summary and Conclusions

In this paper we have tried to argue that linguists that do not carefully conceptualize writing systems, damage the entire field of linguistics. If the opposition between the notion of language and the notion writing systems collapses within the conceptual space of the linguist, his or her discourse becomes essentially meaningless and a transmitter of prevailing ideologies that ultimately contribute to the extinction of languages and cultures. Although we cannot provide here a full analysis of linguistic discourse, we can estimate the large amount of information that has to be inferred if we compare Listing 1, a possible model of standard linguistic discourse, to Listing 13, a more advanced model. While the first model explains a writing system by reference to a language, people, a region and a time, the last model highlights the arbitrary choices that contribute to the wri-

**Listing 13:** *A model of writing systems including the writing direction and the rotation.*

---

```
[MAXIMUM(time_from1,time_from2, time_from3, time_from4,time_from5),
<MINIMUM(time_to1,time_to2),
rotation=,
writing_type=,
sorting=<[pos(a)=1],[pos(b)=2],[...]>,
orthography=[vertical_mirror=,
              horizontal_mirror=,
              hyphenation=,quotation=,enumeration=,date=,time=,number=,
              spelling=[spelling_name=,
                        time_from5=,
                        rule=*,
                        language=[language_name=1],
                        script=[script_name=2],
                        standard=[standard_name=,
                                standard_header=[language_name=1,
                                                  script_name=2]]],
script=*[script_name=2,
          basics=[script_B[time_fromB=] (...=>..., ...=>...)
                  I + script_C=*[time_fromC=] (...=>..., ...=>...)
                    - [...]+ [...]],
                  up(a)=A, up(b)=B, ..
                  vowel(...,...),
                  consonant(...,...),
                  plosive(...,...),
                  number(...,...),
                  syllable(...,...),
                  time_from=...],
          time_fromB < time_from,
          time_fromC < time_from],
language=*[language_name=1,
           syntax_rule=*,phonology_rule=*,morphology_rule=*,
           time_from1=, time_to1=,
           community=*[community_name=,
                       time_from2=,time_to2=,
                       locality=,
                       language_activity=*[activity_name=,
                                           person=*[person_name=,
                                                     proficien-
cy=,attitude=]]]],
           person=*[person_name=, birth_date=, gender=, ethnicity=],
           standard=*[standard_name=,
                      channel=,
                      standard_header=[language_name=1,    script_name=2, writing_type=3]
                      time_from4,
                      standard_inherited_from=[standard_header=[language_name=1,
                                                                    script_name=2,
                                                                    writing_type=3]]
                      rule_type=*[rule]].
```

---

ting system, such as the choice of the alphabet, the writing standard and the orthography, contrasting the current state with other theoretical possible or historical states or historical decision that have been made.

Then we have tried to illustrate a formal approach to the description of writing systems. Starting from the inadequate description of a writing system we identify the attribute that varies in the inhomogeneous set of writings. We then arrange this attribute in the model such that the model is as constraint as possible, e.g. through the usage of hierarchical structures, but still valid. We thus assume the same conceptual structure for all writing systems and arrange the model so that it is valid for all writing systems. This theoretical model then projects dimensions, seeming regularities or categories onto the linguistic material which have gone unobserved for writing systems. We conjecture that finding the relation between these categories and the writing systems of the world will propose new insights in writing systems, writing in general and human cognition, demanding through the empirical validation an ever increasing specification.

If we assume that there are arbitrary constraints and linguistically motivated constraints on writing systems, theory formation in writing systems thus transforms seemingly arbitrary constraints into linguistically motivated constraints. For example, one might observe the fact that writing systems using the Cyrillic and Latin alphabet have a *segmental writing standard*. One then might then check the validity of the observation, and observe that it is only valid for *common writings*. The transformation of this finding into a general rule provokes a number of new questions. One might for example hypothesize that if more than one mapping between writing systems is possible, the mapping with the least information loss is chosen. This is a quite high level abstract constraint that, if put onto our model, would explain a great number of seemingly arbitrary constraints. Thus, if the phonological transcription (let us for a short while assume that there is one) has vowels and consonants and the available script can represent vowels and consonants, the segmental mapping is the preferred one. For any syllable-based mapping there might be not sufficient characters in the script and consonantal writings or other ambiguities of default vowels create ambiguities. If we cannot assume a phonological transcription from which to be mapped, we can assume at least a phonological awareness, which is formed or influenced by writing systems known by people in a certain time in a certain place. To represent these states of phonological awareness will be a challenge on its own. This relation between the phonological awareness and the available script would help to explain, for example, the slow development of, *segmental* writings in the history of writing. One might even try to reconstruct the phonological awareness of extinct languages from the modification of writing systems.

Finally we claim, that this formal exercise does not only have its practical benefits for archiving, data management and computational linguistics, but allows to derive and define the notions we should use when talking about languages and writing systems. It shows us new research directions, e.g. the construction of hierarchies for scripts, standards and orthographies and shows us where our knowledge and understanding is still insufficient, e.g. when facing seemingly arbitrary constraints on writing systems.

A last remark. Writing systems are important for the formation of identities and identities are indispensable for humans to survive. It is not our purpose to remove this important component from the discourse on writing. However we try to replace the fre-

quently dark nationalistic shades in the discourse by shedding light on the human and cultural development at the root of writing, something all people can be equally proud of.

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# The Korean Alphabet: An Optimized Featural System with Graphical Ingenuity

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## 1. Introduction

The basic structure of the Korean alphabet named as **Hangeul** is logical and systematic. The vowel letters are based on the three philosophical symbols for the trinity: Heaven · , Earth — , and Human | . These are typically the limited set of strokes (vertical, horizontal, and short lines = dots) frequently used in many other alphabets. All the vowels in the Korean language are combinations of dots, horizontal and vertical lines. These signs are balanced into the *Yang* (bright) sounds and *Yin* (dark) sounds for harmony, which according to Taoism are the universe's two opposing energies.

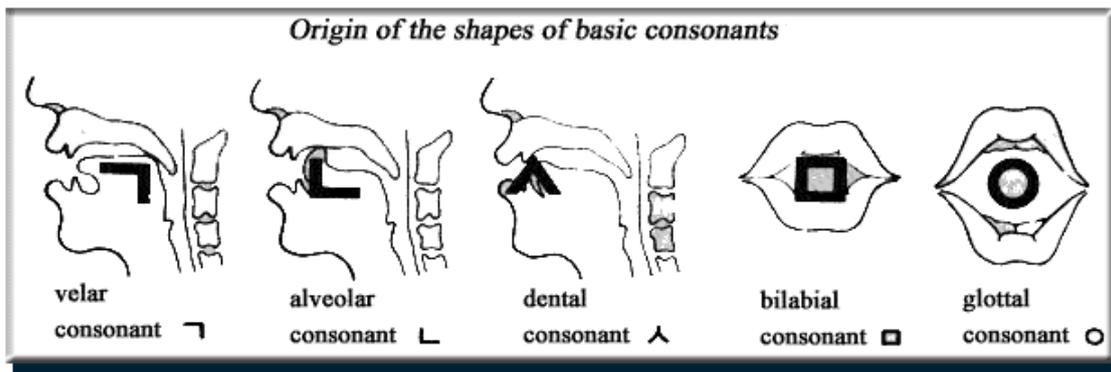
The Heaven	The Earth	The Human
( <i>Yang</i> bright, male)	( <i>Yin</i> dark, female)	(neutral)
Round dot	Level	Standing
· · ·	— — —	

King **Sejong**, inventor of the Korean alphabet in 1443, created a separate symbol for each vowel phoneme. There are eleven vowels shaped after symbols that represent the most important elements in eastern cosmology. This remarkable accomplishment is as important as the figurative representation of consonant features: prior to the 15<sup>th</sup> century, no writing system with a full representation of the vowels was known in all of Asia. Indian alphabets, for example, which were familiar to Koreans through Buddhism, incorporate the vowel "a" into the consonant symbols and represent other vowels with diacritics. The importance and significance of the vowel was a discovery unprecedented in East Asia. The analysis of a syllable by tripartite C-V-C (onset-nucleus-coda, where

C represents "consonant" and V "vowel") was creatively made breaking from the long tradition of bipartite C-rhyme(=VC) fundamental to Chinese phonology.

It is an undisputable fact that the consonant letters are based on the shapes of various speech organs. This is very innovative idea with the articulatory phonetic explanation which is better than Bell's *Visible Speech* in the West. Although some scholars have attempted to draw coincidental and nonsystematic connections between a few of the letters in **Hunmin jeongeum** (the original name of the Korean alphabet when it was first proclaimed) and those of neighboring writing systems, these apparent similarities are the result of the limited nature of the set of strokes (vertical, horizontal, and slanted lines, and circles) frequently used in an alphabet.

Ledyard (1966) and Yu Chang-gyun (1966) have suggested 'Phags-pa script as a possible model for the Korean alphabet, in particular, the 'Phags-pa consonants [d] for Korean [t]. However, other letter shapes, like Korean ㅅ[s], ㅆ[č], and ㅈ[tʰ], do not have the same sound value as the similar 'Pahags-pa letters ㅅ[o], ㅆ[o], and ㅈ[j]. With only this much coincidental similarity, nobody can fairly claim that there is systematic correspondence. The phonetic background of the script **Hunmin jeongeum** is clearly explained in the book *Hunmin jeongeum haerye* ("Explanations and Examples of the Correct Sounds for the Instruction of the People") the basic consonant symbols are schematic drawings of the speech organs articulating the sound.



Consonants articulated at the same place in the mouth share the same basic graph. Then, if one of these consonants has the added feature of aspiration, the symbol for that consonant is written with an additional stroke. Compare, for example, the symbols of the Roman alphabet: nothing in the shapes of the letters indicates how the phonemes are articulated. For example, pairs of letters such as *t* and *d* provide no clue that the two sounds they represent are related in any way. Both are articulated in the alveolar region.

The unique characteristics of the Korean alphabet are as mentioned above 1) the

creation of related letters by the addition of strokes to basic letters, and 2) writing words in syllabic units, combining more than two letters within two or three blocks in a square as found in Chinese characters, for example, 珀 or 碧.

However, **hangeul** also stood in stark contrast with the complex and flowing lines of Chinese characters. No one looking at this original work could fail to be impressed by the difference. Unlike the letters of other alphabets, **hangeul** symbols are not written side-by-side; rather, the individual letters are arranged into syllabic units. There are typically several different positions where a letter may occur. The shape of vowels may be affected by the presence of glides or final[=coda] consonants, and the shape of consonants by the vowel, the glide, or the presence of final consonants.

When we write individual letters in a syllabic unit for actual writing, there are six syllabic layouts. As illustrated in the following diagram, the individual letters are arranged and proportioned to fit neatly into a square box, and are always read from left to right, then top to bottom. As shown in Figure 1, there are several degrees of density in paralleling the strokes: six strokes in the horizontal direction and seven in the vertical direction are the most complex.

Vowels that are "vertical", like ㅏ, go to the **right** of the first consonant in a syllable. Vowels that are "horizontal", like ㅑ, go **under** the first consonant in a syllable. All of this is done to make sure that syllables fit into a square box.

가    ㄱ    ㅋ    ㆁ    ㆁ    ㄴ  
 ㅏ    ㅑ    ㅓ    ㅕ    ㅗ    ㅛ  
 ㅜ    ㅠ    ㅡ    ㅜ    ㅝ    ㅞ  
 ㅟ    ㅠ    ㅡ    ㅟ    ㅠ    ㅡ  
 ㅢ    ㅣ    ㅤ    ㅥ    ㅦ    ㅧ  
 ㅨ    ㅩ    ㅪ    ㅫ    ㅬ    ㅭ

		Bright	Dark	Neutral
	Vertically Oriented	ㅏ   ㅑ   ㅓ   ㅕ	ㅜ   ㅠ   ㅡ   ㅞ	ㅠ
	Horizontally Oriented	ㅑ   ㅕ	ㅟ   ㅡ	ㅢ

	Mixed-Orientation	나 내 니	겨 게	ㄱ
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Fig. 1. How to compose ‘Syllabic Units’

A maximal Korean syllable structure is CVCC. While C is optional, V is obligatory. The Korean syllable structure can therefore be re-written as (C) V (C) (C). All the possible combinations of the syllable occurrences are exemplified as the following:

V : 아, 와, 왜    VC : 얼, 음, 은    VCC : 앓, 엷, 읊

CV : 가, 보, 뛰    CVC : 낙, 뿔, 광    CVCC : 값, 뭇, 뽕

In addition to these characteristics, some calligraphic principles are applied. They are 3) writing from left to right and from top to bottom, 4) maintaining equi-distance in adding strokes and in creating syllabic units, and 5) limiting the size of syllabic units to the inside of squares in equal sequence. All these give a feeling of symmetry and stability based on calligraphic beauty (see Fig. 1).

Each syllable is symmetrical and balanced, much as one would say for Chinese characters. But these are not characters, they are syllables, or perhaps better morpho-syllables, consisting of alphabetic symbols representing the individual sounds, arranged according to the morpho-phonological rules involved.

Hangeul can be written both horizontally and vertically. The latter method is traditional, akin to the Chinese style. The former style was promoted since the twentieth century, and has become overwhelmingly preferred. Within each word, syllables are written right next to each other. Between words, however, there are spaces. This way even quickly and messily written hangeul will be legible to Koreans.

Hitherto uninvestigated aspects of the Korean writing system include graphemes and calligraphy.

## 2. How were the Graphemes of the Korean Alphabet Designed?

The question that has never been asked is *how* King Sejong the Great, who invented the alphabet, experimented with various possible strokes and characters on a

blank piece of paper. I assume that the king was the initiator of all ideas, since an individual should come up with an embryonic idea at the outset.

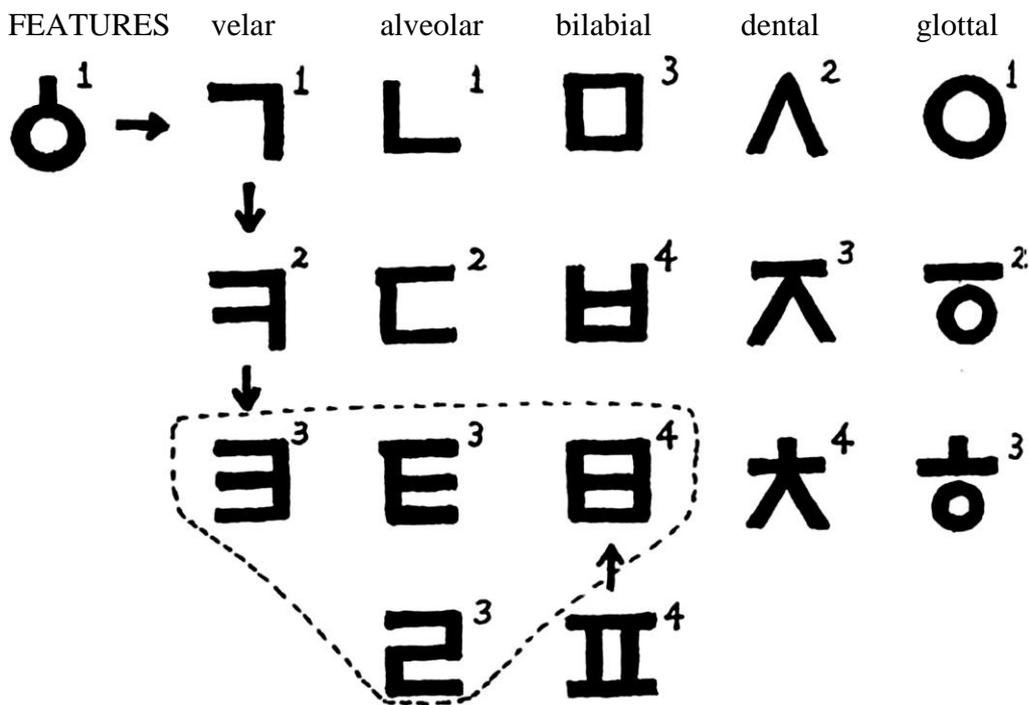
In this sequence of preparation, I am sure that he used the “trial and error” method, and was not mysteriously inspired with a mature idea for the entire set of characters all at once. It means that he used a brush to draw a draft of scripts and felt the difficulty of writing dots but in the initial period stuck to the philosophical symbol of round dot for Heaven and later changed to short strokes from the impractical dots in brush writing and plate carving on the wooden blocks.

### *2.1. Economy of Calligraphy*

In the case of ㄱ, ㅋ and ㆁ, the reason why he did not choose ㄱ, ㅋ and ㆁ is that the latter require one more stroke apiece in brush writing. This may be regarded as another calligraphic principle: 6) minimization of strokes. Another interesting example of economy of calligraphy is the latter development of shapes in 入, 丩, ㄹ with a visible reduction in the number of strokes from original 2, 3, 4 to 1, 2, 3.

### *2.2. Avoiding Calligraphic Similarity*

When King Sejong invented the consonant letters, he may have ended up with several similar characters, as marked by a dotted line in Fig. 2. It is well known that ㅞ and ㅟ printed in small type are often misread even today. Two problem areas were avoided: one is ㅞ and the other ㅟ. Thus, 7) calligraphic similarity must be avoided by introducing different shapes.



Velar	○ (ŋ)	ㄱ (g)	ㅋ (k)	ㆁ (kk)	
Alveolar		ㄴ (n)	ㄷ (d)	ㄸ (tt)	ㄹ (r, l)
Bilabial	ㅁ (m)	ㅂ (b)	ㅃ (p)	ㅍㅍ (pp)	
Dental	ㅅ (s)	ㅈ (j)	ㅊ (č)		
Glottal		ㅎ (h)			

Fig. 2. A Hypothetical and Preliminary Draft for Designing the Korean Alphabet

It is my assumption that King Sejong avoided the graphic jam by eliminating ㄷ, shifted ㄱ and ㅋ down to fill a blank, and newly introduced ㅇ as an exceptional measure of avoiding the graphic jam, an interpretation more in line with other ingenious aspects of the Korean Alphabet (Hunmin Jeongeum).

Many scholars believe that ㅍ has two additional strokes on the top of ㅍ but it is totally wrong. ㅍ has three strokes and ㅑ simply four in brush writing. Thus, there is not two, but one additional stroke.

As for ㅌ, this shape looks not only like the Chinese character 日 but also like the other Korean letters ㅌ, ㅎ, & ㄷ. Therefore, to avoid this jam in the dotted line of Fig. 1, ㅌ was introduced probably turning ㅌ by 90 degrees. ㅌ is a more natural way of adding strokes to ㅍ & ㅑ, but may have had problems in composing shapes like ㅌㅌ (the first ㅌ as a consonant, the second ㅌ as a vowel).

### 2.3. Graphemes with Maximal Distinction

Last but not least, ㄱ was chosen over ㄲ to avoid the probable confusion with ㅋ. ㄲ is one possible way to add a stroke to ㄱ. Likewise, ㅌ is one possible way to add a stroke to ㄴ. It is likely that either the set ㄱ & ㅋ or the set ㄲ & ㅌ would be selected to keep 8) maximal distinction between graphemes. Maximal distinction together with avoidance of calligraphic similarity is aspects of a general principle of calligraphic distinctiveness.

### 3. An Optimized Featural System

De Francis (1989) claims that Bell's "Visible Speech(VS)" is featural because it consistently takes a C-shaped symbol for *consonant*. As a result this *consistent* iconic alphabet ends up with shapes that prove equivocally confusing for laymen and cannot be used as a universal phonetic writing system in any practical cases. Although VS was a faithful featural script, Bell failed to understand where to leave this faithfulness and adhere to principle, but King Sejong knew how to make the system optimally workable. Sproat (2000) classified Hangeul(Hankul) as \_ an intelligently constructed segmental alphabet," but fairly speaking beyond taxonomic nomenclature, I believe it should be viewed as an **Optimized Featural System: a segmental system that come close to being\_ a featural system but intentionally avoids becoming completely featural.** As I explained above, King Sejong had "a tight spatiogeometrical constraint of having to represent characters in mutually distinctive shapes, each with no more than a few strokes."(Kim 1997)

In addition, the Korean vowel script retains the more vertical strokes for the statistically frequent vowel group (cf. Lee Sang-Oak, 1997), and it is easier to move our fingers and hand vertically well with a brush. Whether Sejong were aware of this relationship between the frequency of sounds and the assignment of vertical strokes, he invented the most optimal system anyhow, probably with the help of the Heaven.

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# A Syntax-Semantics Interface Study of Predicative *Shi* in Mandarin Chinese Copular Construction

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## Abstract

This research points out that, in the Mandarin predicative NP1-*shi*-NP2 construction, NP2 cannot independently serve as the syntactic predicate. That is, the syntactic predicate consists of *shi* and NP2. Furthermore, the syntactic realization of *shi* is determined by two semantic conditions. First, when NP2 denotes a specific meaning, *shi* can be covert. Second, when the sentence conveys a general reading with respect to the temporal reference and the perspective of referring, *shi* is not obligatory to be realized. This research concludes that in exploring the syntactic behavior of language, the semantic dimension must be taken into consideration.

**Keywords:** copula, predicate, specific meaning, temporal reference, perspective of referring

## 1. Introduction

From a syntax-semantics viewpoint, this paper explores the conditions determining the syntactic presence of the copula *shi*, a necessary part of the predicate in the NP1-*shi*-NP2 construction. It is clarified that in this construction the predicate is composed of *shi* and NP2. In addition, the fact that *shi* can be covert concerns two semantic conditions. The first concerns the denotation of NP2, namely, whether NP2 denotes an entity whose property is well characterized and classified. The second condition concerns the semantics of the sentence containing *shi*, namely, whether the sentence is interpreted under a generic reading and involves an unrestricted frame of reference in which properties are valued. Of these two semantic conditions, the first applies before the second one does. This research indicates language universal that the overt manifestation of Mandarin predicative *shi*, as those of the copular verbs in many other languages, is bound to semantic properties.

In most of the predicative NP1-*shi*-NP2 sentences, the copula *shi* must be present as shown in (1). However, it is well-known that there are examples in which *shi* does not have to occur. In other words, what we see is an apparent NP1-NP2 sequence as shown in (2).

- (1) Zhangsan \*(shi) xuesheng.  
 Zhangsan be student  
 ‘Zhangsan is a student.’
- (2) a. Zhangsan (shi) hao xuesheng.  
 Zhangsan be good student.  
 ‘Zhangsan is a good student.’
- b. Zhangsan (shi) zhongxuesheng.  
 Zhangsan be middle-school student  
 ‘Zhangsan is a middle school student.’

In view of this phenomenon, this article is motivated to identify the conditions constraining the syntactic presence of the copula *shi*. More specifically, we propose that the syntactic behavior of *shi*, on a par with copular verbs in many other languages, is tied to semantic values. These semantic constraints on the syntactic distribution of *shi* include, firstly, the reference denoted by NP2 and, secondly, the meaning conveyed by the sentence with respect to the temporal reference and the perspective of referring.

This paper is organized as follows. Section 2 reviews the previous works exploring *shi* in its predicative use. Section 3 discusses how *shi* can be covert when the denotation of properties of NP2 is specific enough. Section 4 addresses how the temporal denotation of the sentence and the perspective of referring condition the lexical realization of *shi*. Section 5 demonstrates the ordering of the application of the two semantic conditions and section 6 concludes this article.

To the best of our knowledge, all the previous analyses of this NP1-NP2 construction (e.g. Tang 2001; Wei 2004a, b; Hsieh 2005b) are based on the same assumption that NP2 alone can be predicative of NP1, serving as a nominal predicate. However, under their analyses, a problem arises: why *shi* has to occur in the sentence which refers to a specific location in time or denotes an entity based on a relativized set of reference. Thus, this research proposes to survey why and when *shi* can be implicit by looking into the semantic dimensions of the sentence containing *shi*.

## 2. Problems of Previous Analyses

In this section, we review three analyses proposed for the predicative NP1-(*shi*)-NP2 construction in the literature and point out theoretical and empirical problems that they suffer.

To begin with, Wei (2004a,b) claims that in copula-less sentences, NP2 is licensed as a nominal predicate only when it conforms to a modifier-modifiee pattern

at or above the phrase level. As shown in (3a) and (3b), *hao* ‘good’, an AP, and *xuesheng* ‘student’, an NP, form such a modifier and modifiee relationship at the phrasal level, which thus licenses absence of the copula *shi*.

- (3) a. \*Xiaohua xuesheng.  
       Xiaohua student  
       b. Xiaohua haoxuesheng.  
       Xiaohua good student  
       ‘Xiaohua is a good student.’

However, it is questionable that *hao* ‘good’ indeed modifies *xuesheng* ‘student’ in (3b) as claimed. According to McCawley (1992), such a sequence should be taken to be a compound rather than a combination of an adjective phrase and a noun phrase since an adjective phrase should be able to ‘expanded’ as in (4) but the sequence at issue cannot co-occur with degree expressions and comparative phrases as shown in (5), contrary to expectation.

- (4) a. He is a good boy.  
       b. He is a very good boy.  
       c. He is a better boy than you.  
       (5) a. Ta shi yige hoaxuesheng.  
           He be one-*Cl* good student.  
       b. \*Ta shi yige hen haoxuesheng.  
           He be one-*Cl* very good student  
       c. \*Ta shi yige bi ni haoxuesheng.  
           He be one-*Cl* than you good student

Furthermore, under Wei’s analysis, NP2 in (6) is expected to serve as a nominal predicate because it conforms to the required pattern with *henduo* ‘many’ as modifier and *xuesheng* ‘student’ as modifiee. This expectation, however, is not borne out.

- (6) \*Tamen henduo xuesheng.  
       They very many student

These unacceptable examples, therefore, show that a modifier-modifiee internal structure of NP2 is not the right generalization to capture the licensing of copula-sentence sentences.

Another account for the copula-less constructions is provided by Hsieh (2005b). It is pointed out that the occurrence of *shi* in the predicative NP1-*shi*-NP2 structure is conditioned by two factors related to the nominal phrase: whether there is an empty indefinite determiner and whether there is an internal licenser for the empty indefinite

determiner. Witness sentences in (7).

- (7) a. Ta (shi) [<sub>DP</sub> hen hao de [<sub>DP</sub> yi-ge [e] xuesheng]].  
He be very good *De* one-*Cl* student  
'He is a very good student.'
- b. Ta \*(shi) [<sub>DP</sub> yi-ge [e] [<sub>NP</sub> hen hao de xuesheng]].  
He be one-*Cl* very good *De* student  
'He is a very good student.'
- c. Zhangsan [<sub>NP</sub> shagua].  
Zhangsan fool  
'Zhangsan is a fool.'

According to Hsieh (2005a), in (7a), the modifier *hen hao de* 'very good', either adjoined to D' or DP, marks the existence of DP. This modifier serves as the internal licenser for the indefinite D. Thus *shi* is not required to be present since the indefinite D has been internally licensed. On the other hand, *shi* is required to occur in (7b) when the empty indefinite determiner needs external licensing with *shi* being the external licenser. The modifier *hen hao de* 'very good' in (7b) is adjoined to N' or NP and does not mark the existence of DP. Therefore, *shi* has to function as the external licenser and is required to be present in (7b).

Under closer scrutiny, however, the contrast in (7a) and (7b) is actually not as sharp as claimed by Hsieh. This casts doubt on simply relying on the word order difference between the adjective and the classifier to account for distribution of the copula *shi*.

Moreover, according to Hsieh (2005b), when there is no projection of D as in (7c), no licensing is required and therefore *shi*, as an external licenser, does not have to occur. However, when (7c) is compared to (8a) and (8b) as follows, it can be found that *shi* is required to occur although, as in (7c), there is no projection of D in (8a) and (8b).

- (8) a. Xiaolin \*(shi) yisheng.  
Xialin be doctor  
'Xiaolin is a doctor.'
- b. Laoliu \*(shi) jingwei.  
Laoliu be guard  
'Laoliu is a guard.'

From the comparison between (7c) and (8), it is suggested that the occurrence of *shi* is not relevant to the syntactic factors as Hsieh proposes but the semantic reading of NP2.

Finally, we consider Tang's (2001) account for the absence of *shi* in this construction. According to Tang, required by a focus anchoring principle, *shi* necessarily appears if the expression itself serves as a focus of message, based on a contrast with another piece of information in the mind of the speaker. Therefore, according to this analysis, the reason why NP2 *xinlaoshi* 'a new teacher' in (9) can be a predicate is that it is anchored by the focus through a contrast with 'an old teacher'. Likewise, the pair of NP2's in (10) can serve as predicates because of being a focus of information, set in a pair of contrastive sentences.

- (9) a. \*Zhangsan laoshi.  
       Zhangsan teacher  
       b. Zhangsan xinlaoshi.  
       Zhangsan new teacher  
       'Zhangsan is a new teacher.'
- (10) Zhangsan jingcha; Lisi junren.  
       Zhangsan policeman Lisi soldier  
       'Zhangsan is a policeman; Lisi is a soldier'

This account, however, fails to explain why *shi* is required to occur in (11a) and (11b).

- (11) a. Jiang ayi congqian \*(shi) haotaitai. (xianzai, bu shi.)  
       Jiang aunt before be good wife. (now not be)  
       'Aunt Jiang was a good wife before. (Now, she is not.)'
- b. Lisi yinggai \*(shi) haoyisheng. (Danshi shijishang ta bu shi.)  
       Lisi should be good doctor. (but in-fact he not be)  
       'Lisi should be a good doctor. (But, in fact, he is not.)'

According to Tang's analysis, in (11a) and (11b), the omission of *shi* should be allowed since the two sentences denote a contrastive meaning: in (11a) a contrast between the state of the present and that of the past; in (11b) a contrast between the expectation of the speaker and the reality. In spite of such contrastive reading, the copula *shi* is still required to occur in (11a) and (11b), thus casting doubt on this focus approach to copula-less sentences.

Additionally, under Tang's analysis, the fact that the copula *shi* may be absent in a small clause as in (12a) is because copula-less sentences are permitted in a context with "epistemic modality" but not in a factual context; an epistemic context, but not a factual one, provides a contrastive reading, which thus allows *shi* to be elided.

- (12) a. Wo dang Zhangsan (shi) xuesheng. (Tang 2001)  
       I consider Zhangsan be student

- ‘I consider Zhangsan a student.’
- b. Wo zhidao Zhangsan \*(shi) xuesheng. (Tang 2001)  
 I know Zhangsan be student  
 ‘I know that Zhangsan is a student.’

This account for the contrast in (12), however, is problematic. First, it remains a question whether *dang* takes a small clause as its complement. In fact, (12a) does not sound as acceptable as claimed by Tang with the absence of *shi*. If we look into more data, it can be found that the presence of *shi* in the complement clause should be required. Identify (12a), (12c) and (12d).

- (12) a. Wo dang Zhangsan ?(shi) xuesheng.  
 I consider Zhangsan be student  
 ‘I consider Zhangsan a student.’
- c. Wo dang Zhangsan \*(shi) kouzhuajia.  
 I consider Zhangsan be month-foot painter  
 ‘I consider Zhangsan a month-foot painter.’
- d. Wo dang Zhangsan \*(shi) baoxiantuixiaoyuan.  
 I consider Zhangsan be insurance salesperson  
 ‘I consider Zhangsan an insurance salesperson.’

Second, as Rothstein (2001: 275) stresses, the presence or absence of *shi* leads to distinct interpretations. Witness (12e) and (12f) below.

- (12) e. I consider Ken to be a nice doctor.  
 f. I consider Ken a nice doctor.

In (12e), the small clause denotes an existential eventuality, whereas in (12f) it refers to a characterizing property. Such a distinction can also be seen in the small clause complement taken by *dang* if we accept Tang’s analysis of *dang* as taking a small clause complement. Observe the contrast between (12a) and (12g) as follows.

- (12) a. Wo dang Zhangsan (shi) xuesheng. (Tang 2001)  
 I consider Zhangsan be student  
 ‘I consider Zhangsan a student.’
- g. Wo dang Zhangsan xianzai \*(shi) xuesheng.  
 I consider Zhangsan now be student  
 ‘I consider Zhangsan to be a student now.’

In (12g), the complement clause denotes an eventuality in present time and *shi* is not allowed to be absent. Last but not the least, the copula *shi* can and, in fact, must occur

in contexts denoting modality as shown in (13).

- (13) a. Huang xiaojie yinggai \*(shi) haomama.  
Huang miss should be good mother  
'Miss Huang should be a good mother.'
- b. Wang xiansheng hoaxing \*(shi) minghuajia.  
Wang mister seem be famous painter  
'Mr. Wang seems to be a famous painter.'

Based on the two pairs of counterexamples, those containing overt temporal expressions in (11) and those containing modal expressions in (13), we thus conclude that Tang's account that hinged on focus is not on the right tract. It is crucial to note that these two sets of data also constitute important counterexamples for Wei's (2004a, b) and Hsieh's (2005b) accounts as well. It is not immediately clear why the absence of the copula *shi* is not licensed since the modifier-modifiee relationship proposed by Wei and the licensing of the empty D proposed by Hsieh supposedly is satisfied within the internal structure of NP2. The fact *shi* has to be present in these contexts suggests that the licensing of the absence of the copula *shi* should go beyond the syntactic concerns provided by Tang, Wei and Hsieh.

Behind the analyses of *shi* given by Tang (2001), Wei (2004a, b) and Hsieh (2005b) is the assumption that NP2 in the NP1-*shi*-NP2 construction can be an independent nominal predicate. However, both theoretically and empirically, this assumption is not without problems. First, from the theoretical viewpoint, Timberlake and Nichols (1991) pinpoints that the copula reports a state or a change of state denoted by NP2 for NP1. Additionally, Rothstein (2001: 299) clarifies that English copula *be* is a grammatical formative although it is not a content word like any other lexical verbs. It actually bears a packaging and locating function, which presents a non-countable property denoted by the semantic predicate as a countable eventuality and then locates this eventuality in time. Since a predicational sentence ascribes either an inherent property or an existential eventuality to NP1, copula *be* plays a crucial semantic role in the NP1-*be*-NP2 construction.

In addition to the theoretical weakness, the analyses of Tang, Wei, and Hsieh can not account for why the sentence allowing *shi* to be elided requires a pause between NP1 and NP2.

Empirically speaking, all the sentences analyzed by Tang (2001), Wei (2004a, b) and Hsieh (2005b) as allowing *shi* to be elided require a pause between NP1 and NP2. Witness the following sentences.

- (14) a. Xiaochen haofuqin.  
Xiaochen good father

- ‘Xiaochen is a good father.’
- b. Xiaochen (shi) haofuqin.  
 Xiaochen is good father  
 ‘Xiaochen is a good father.’
- (15) a. Lisi daxuexiaozhang.  
 Lisi university president  
 ‘Lisi is a university president.’
- b. Lisi (shi) daxuexiaozhang.  
 Lisi is university president.  
 ‘Lisi is a university president.’

From (14) and (15), it can be seen that (14b) and (15b) which read with a pause between NP1 and NP2 sound more natural than (14a) and (15a).<sup>1</sup> According to Crystal (2003), a pause functions as a grammatical marker and plays a part in structure. For instance, an empty position left by a movement forms a syntactic gap. This syntactic gap constitutes a phonologically empty category and reads with a silent pause. In addition to Crystal, Cooper and Paccia-Cooper (1980) points out that a prosodic boundary often occurs where a syntactic deletion has taken place.<sup>2</sup> According to Crystal and Cooper and Paccia-Cooper, such a silent pause or a prosodic boundary indicates that there should be an empty position occurring between NP1 and NP2. Another indirect piece of evidence is mentioned by Feng (1993), studying the copula in classical Chinese. Feng points out that in classical Chinese there is a pause position between the subject and the semantic predicate, which serves as a place holder and can be filled by semantically empty particles. Thus, the pause occurring between NP1 and NP2 suggests that there indeed exists a slot left by *shi* being covert.

To summarize, from the theoretical and empirical point of view, in the NP1-*shi*-NP2 construction, NP2 cannot be a nominal predicate. Furthermore, the appearance of *shi* should be explored from the semantic perspective. Therefore, this research proposes to analyze *shi* as a necessary constituent in this construction, whereas it should be overtly realized in certain situations under the intervention of semantic factors.

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<sup>1</sup> Most of the speakers consulted by the researchers accept as more natural the sentence with a silent pause between NP1 and NP2 as in (14b) and (15b). However, according to the speakers surveyed, when two predicative sentences are juxtaposed with a pause in between, the pause occurring NP1 and NP2 can be elided.

<sup>2</sup> According to Cooper and Paccia-Cooper (1980), in (i), there should be a prosodic boundary, as marked by ‘#’, between *John* and *to Sue* since *gave a book* has been deleted and left an empty position.  
 (i) Sam gave a book to Mary and John # to Sue.

### 3. *Shi* and Semantic Property of NP2

#### 3.1. *Shi* as a semantically null verb

According to the modern linguistic view of the copular verb (Narahara 2002), *shi* functions to be a copula which makes no contribution to the semantic interpretation. Narahara cites Bach (1967) as employing the selectional restriction in testing whether the copula is semantically empty: the predicate nominal imposes a selectional restriction on the subject nominal as regular verbs do on their arguments. Such a test can serve to demonstrate that *shi* is a semantically null verb. Witness the contrast in (16).

- (16) a. Zhangsan shi Taipei ren.  
Zhangsan be Taipei man  
'Zhangsan comes from Taipei.'  
b. \*Zheben shu shi Taipei ren.  
This-*CI* book be Taipei man.

The acceptability contrast in (16) indicates that *shi* does not effect the proposition but the second NP does. Such being the case, it is NP2 that ascribes a property and thus is semantically predicated of the subject NP1. NP2, as Napoli (1988, 1989) explicates, is the semantic predicate. The semantic values of semantic predicate and its interaction with the copula is elucidated in the following subsection.

#### 3.2. *Shi* as a reporter of the semantic property of NP2

Timberlake and Nichols (1991) note that the copula is responsible for reporting the state denoted by NP2 for NP1. Moreover, the variation in the semantic value denoted by NP2 may be morphosyntactically correlated with the form of the copula. Compare (17a) and (17b) below.

- (17) a. John is a good guy.  
b. John seems a good guy.

In (17a), by virtue of the copula *be*, the property of being a good guy is neutrally reported for NP1, *John*, whereas in (17b), by the copula *seem*, the same property is assigned to *John* with a judgment involved. With regard to the semantic predication of NP2, Napoli (1988, 1989) clarifies that NP2 conveys a subjective and an evaluative judgment towards NP1. As illustration, consider (18a) and (18b).

- (18) a. Mr. Wang is a responsible doctor.

b. Peter is the best man I have met in the world.

(18a) and (18b) both express a subjective opinion and assign a property to the subject NP. In addition to the evaluative description, Timberlake and Nichols (1991) stress that NP2 specifies the semantic properties to be assigned to NP1 by individualizing NP1 into a certain class and characterizing NP1 by its distinctiveness from other individuals. By individualization and characterization, it means that the denotation of NP2 points to the classification of NP1 into a member of a kind (Carlson 1977) or characterizes NP1 by its properties. Witness (19a) and (19b) shown below.

(19) a. Smith is a teacher.

b. John is a genius.

NP2 in (19a) specifies the property of NP1 of being in the capacity of the typical member of some class of individuals while NP2 in (19b) features NP1 by the property of being talented. Given the analyses of the semantic value of NP2 provided by Napoli (1988, 1989) and Timberlake and Nichols (1991), we sort the predicative nature of NP2 into two types in terms of objectivity and subjectivity. In the objective sense, NP2 denotes a classification in which the entity denoted by NP1 is classified into a proper kind, as in (19a); in the subjective sense, NP2 denotes a characterization in which it points to the characteristic of NP1 involving the judgment and evaluation of the speaker as in (18) and (19b).

Based on the semantic function of the copula and the predicative nature of NP2, we assume that the syntactic manifestation of *shi* is determined by the semantic value denoted by NP2: when NP2 assigns a property to NP1 in a specific sense, *shi* can be syntactically covert. In the follow-up, let us scrutinize the correlation between the realization of *shi* and the specificity of the semantic property denoted by NP2.

### 3.2.1. Objective classification

This section examines whether the explicitness of *shi* is related to how well the referent of NP1 is classified. Witness (20), (21), and (22) in the following.

(20) a. Wei xiansheng Zhongguoren.

Wei mister Chinese

‘Mr. Wei is Chinese.’

b. \*Wei xiansheng ren.

Wei mister man

(21) a. Zhangsan xiaozhang; Lisi zhuren.

Zhangsan principal Lisi director

‘Zhangsan is a principal; Lisi is a director.’

- b. \*Zhangsan xiaozhang.  
 Zhangsan principal
- (22) a. Zhang xiaojie mishu jian daziyuan.  
 Zhang miss secretary and typist  
 ‘Miss Zhang is a secretary and typist.’
- b. \*Zhang xiaojie mishu  
 Zhang miss secretary

In (20a), *Zhongguoren*, analyzed by Tang (2001) as referring to a subset of a presupposed set and by Wei (2004a, b) as subject to the modifier-modifiee pattern, refers to a class of all the peoples in the world. Yet, in (20b) NP2 is not properly classified. In (21a), according to Tang (2001), the contrast between two readings licenses the omission of *shi*. However, by the definition of individualization (Timberlake and Nichols 1991), the denotation of the different identities of two persons individualizes the two persons into separate classes of the kind. In (21b), NP2, denoting one single property, does not express well individualized meaning. Likewise, in (22a), *jian* denotes two properties of one individual (Li 2001), which sufficiently specifies the characteristic of NP1. However, compared to (22a), (22b) is not specific in characterizing the property possessed by NP1. Therefore, as can be seen in the examples given above, *shi* does not have to be syntactically overt in (20a), (21a), and (22a) since they meet the requirement of property assigning.<sup>3</sup>

### 3.2.2. Subjective characterization

In addition to the classifying predicative nature, NP2 expresses the characteristic of NP1 in a subjective sense. Consider the contrast between (23a) and (23b).

- (23) a. Xiaoming (shi) huaihaizi.  
 Xiaoming be bad kid

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<sup>3</sup> We thank Ray Huang for offering a scenario in which *shi* does not have to be overt even though the property denoted by NP2 is not well individualized, as in (i) below.

(i) A: Zhangsan shi zuo sheme de?  
 Zhangsan *Shi* do what *De*  
 ‘What does Zhangsan do?’

B: Zhangsan (shi) xuesheng a!  
 Zhangsan be student *A*  
 ‘Zhangsan is a student!’

In this case, the individualized reading is provided by the context. Before speaker A gives the question, he actually presupposes *Zhangsan* is in a profession of some kind. Such a presupposition can be revealed by an extended interpretation attached to the question. Witness (ii).

(ii) Zhangsan shi zuo sheme de? (Laoshi haishi xuesheng?)  
 Zhangsan *Shi* do what *De* (teacher or student )  
 ‘What does Zhangsan do? (A teacher or a student?)’

Given the individualized interpretation brought about by the context, *shi* can be dropped.

- ‘Xiaoming is a bad kid.’  
 b. \*Xiaoming haizi.  
     Zhangsan kid

According to Tang (2001), *shi* can be omitted since (23a) involves a contrastive focus but (23b) does not. As for Wei (2004a, b), *shi* can be elided in (23a) but not (23b) since it fits the modifier-modifiee standard.<sup>4</sup> However, according to Napoli (1988, 1989), NP2, as semantic predicate, should voice a specific and an evaluative judgment.<sup>5</sup> Along this line of thinking, (23a) is better than (23b) in evaluating the property of NP1. As evident in (23), *shi*, functioning to report a property for NP1, can be covert when the property denoted by NP2 is more specifically and judgmentally expressed.<sup>6</sup>

In summary, when the property denoted by NP2 is specific and precise, *shi* can be syntactically dropped.

Aside from the correlation between the syntactic realization of *shi* and the semantic value of NP2, the behavior of *shi* is bound to another two semantic conditions, namely the temporal reference and the frame of referring of the sentence. The correlation between these two semantic facets and the copula is spelt out in the following.

#### 4. *Shi* and Temporal Reference and Perspective of referring

##### 4.1. *Instantiating function of copula and temporal reference*

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<sup>4</sup> In section 2, sentence (6) as repeated as follows is cited to counter Wei’s analysis. As we can see, even though *henduo xiesheng* is semantically more specific than *xiesheng* alone, *shi* is obligatory to occur in this sentence. The unacceptability of (6) seems to be a counter example against the analysis of this research. In fact, despite the specific reading of *henduo xiesheng*, *henduo* specifies the quantity rather than the property; hence the ungrammaticality of (6).

(6) \*Tamen henduo xuesheng.  
     They very many student

<sup>5</sup> However, it remains unsolved to what degree the denotation of a property can be specific. This question can be saved for further discussion.

<sup>6</sup> It must be noted that in sentences as (i), *shi* is obligatory to be present in spite of the specific and judgmental meaning.

(i) Zhangsan \*(shi) henhaode xuesheng.  
     Zhangsan be very good student  
     ‘Zhangsan is a very good student.’

Based on Simpson (2001) on DP in Chinese, *henhaode xuesheng* is a DP and thus cannot serve as semantic predicate.

According to Rothstein (2001: 299), English copula *be* is not a content word, but a grammatical formative. She defines *be* as the instantiation function. By this function, *be* bears a packaging and locating operation, which turns a non-countable property denoted by the semantic predicate into a countable eventuality and then locates this eventuality in time. For illustration, consider (24) as follows.

(24) Jane was clever last Monday.

In (24), *be* presents the non-countable property of being clever as a countable eventuality and then locates this eventuality in a specific time denoted by *last Monday* in which Jane had the cleverness property. Following this line of thinking, Rothstein suggests that the instantiating function of *be* is associated with the tense feature, namely [+tense] [+/-past] or [-tense], contained by Infl(ection). Witness the sentences in (25) as follows.

- (25) a. Lucy is a pretty girl.
- b. Lucy was a pretty girl.
- c. I consider Lucy to be a pretty girl.
- d. I consider Lucy a pretty girl.
- e. Lucy will be a pretty girl.

In (25a) and (25b), *be* instantiates the property denoted by NP2 in time since the Infl node contains [+tense] [-past] and [+tense] [+past] features respectively. In (25c) with the occurrence of *be*, the subject NP1 *Lucy* is interpreted as having an existential eventuality of being a pretty girl, whereas in (25d) NP1 is interpreted as having the generic property of being a pretty girl. As for (25e), even though the tense feature is underspecified in Infl in the future tense, the modal auxiliary *will* subcategorizes for a VP. That is, in (25e), it is a syntactic necessity that *be* should occur.

However, the association of the instantiation of *be* with the grammatical tense feature specified in Infl is not without problems. As Radford (1997) points out, the correlation between the present and past distinction and time reference is not a perfect one. Witness the example provided by Radford as follows.

(26) If I went there tomorrow, would you come with me? (Radford 1997: 531)

In (26), the past tense verb *went* is specified as [+tense] [+past], but the sentence refers to a location in time. Therefore, adopting the definition of copula offered by Rothstein, we propose that the instantiating function of copula should be associated with the temporal reference of the sentence. In order to classify temporal reference of sentences, we appeal to the distinction between characterizing and situation-descriptive sentences (Ramchand 1996), which is presented as follows:

A characterizing sentence is defined as a sentence referring to a generic property, which cannot be located in time; a situation-descriptive sentence is a sentence referring to a property of a being a certain type of event, which denotes an existential closure in time (Ramchand 1996). Given this division of characterizing and situation-descriptive sentences, the instantiation of copula can be associated with the temporal reference of the sentence: *be* instantiates an eventuality in time in a characterizing sentence, whereas this function does not come into play in a situation-descriptive sentence. In such an analysis, English copula *be* in (25b), (25c) and (25e) presents the property denoted by *a pretty girl* as an eventuality and locates it in time. In (25d), with the manifestation of *be*, *a pretty girl* is assigned as an inherent property to *Lucy*. Refer to (25b), (25c), (25d) and (25e), repeated as follows.

- (25) b. Lucy was a pretty girl.  
 c. I consider Lucy to be a pretty girl.  
 d. I consider Lucy a pretty girl.  
 e. Lucy will be a pretty girl.

As for (25a), the sentence denotes a generic property of being a pretty girl and thus is a characterizing sentence. However, *be* is obligatory to occur. The fact that *be* must be present is attributed to the syntactic concern: in English, Infl must take a VP as its complement (Haegeman 1994; Rothstein 2001) and, additionally, copula *be* must be attached with the tense feature (Doron 1983); hence, the obligatory occurrence of *be*.

We assume that *shi*, as does English copula *be*, functions to instantiate an eventuality and this instantiating function concerns the reference of the sentence to temporal locations. When the sentence containing *shi* denotes temporally unrestricted locations, it does not have to be overtly realized; when the sentence containing *shi* refers to a temporally restricted location, *shi* is obligatory to be manifested.

#### 4.2. *Shi* and temporal reference

Given our assumption of the syntactic realization of *shi*, let us examine the sentences in (27) as follows.

- (27) a. Lisi zhongxuelaoshi.  
 Lisi middle-school teacher  
 ‘Lisi is a middle-school teacher.’  
 b. Lisi shi zhongxuelaoshi.  
 Lisi be middle-school teacher  
 ‘Lisi is a middle-school teacher at the moment.’  
 c. Lisi yiqian \*(shi) shuxuelaoshi.

- Lisi before be math teacher  
 ‘Lisi was a math teacher before.’
- d. Lisi nianqing shi \*(shi) lanqoujiaolian.  
 Lisi youth moment be basketball coach  
 ‘Lisi was a basketball coach when he was young.’
- e. Lisi xianzai \*(shi) lanqoujiaolian.  
 Lisi now be basketball coach  
 ‘Lisi is a basketball coach now.’
- f. Lisi yizhi \*(shi) lanqoujiaolian. (yiqian shi, xianzai ye shi.)  
 Lisi constantly be basketball coach (before be now too be)  
 ‘Lisi has been a basketball coach. (He was one before and he is one now)’

(27a) is a sentence describes a property which refers to unrestricted locations in time and is classified as a characterizing sentence. It is demonstrated that *shi* can be covert in (27a). In (27b), with the syntactic manifestation of *shi*, the sentence denotes a temporally instantiated eventuality. This is to say, the instantiating function of *shi* leads to the interpretation that *Lisi* is a middle-school teacher at the right moment. (27c), (27d), and (27e) denote a restricted location in time and is known as a situation-descriptive sentence. As (27c), (27d), and (27e) illustrate, if the sentence refers to an existential eventuality, *shi* has to be overtly realized. As for (27f), the sentence seemingly denotes unrestricted locations in time and therefore *shi* should be allowed to drop. However, with the occurrence of adverb *yizhi*, we can afford the interpretation that in every individual situation, the eventuality of being a basketball coach is being ascribed to NP1, *Lisi*. Since the situation-descriptive reading is available in (27f), *shi* is obligatory to be present.

In summary, *shi* is required to be explicitly realized in the sentence denoting a temporally restricted location.

#### 4.3. *Shi* and perspective of referring

In addition to the temporal reference of the sentence, the syntactic behavior of *shi* concerns modality, namely the perspective of referring of the sentence. The perspective of referring can be incorporated into the concept of possible worlds. First, witness the sentences in (28).

- (28) a. Tom is a pianist.  
 b. Tom seemed to be a pianist. (But today, I found he is not.)

(28a) denotes the truth, based on an unrestricted frame of reference, whereas (28b) contrasts the truth with a possibility, founded on a relativized perspective of referring. In terms of possible worlds semantics (Kripke 1980), a relativized frame of referring entertains two situations, namely the actual world and a possible world. These two worlds, as Thomason (1984) notes, are bound to converge in time. For instance, in (28b), the actual situation and the possible situation merge in the temporal location denoted by *today*. In other words, a sentence involving a relativized reference frame definitely denotes a restricted location in time.

Along these lines, we assume that *shi* has to be overtly manifested in a sentence based on a relativized perspective of referring. Such an interaction of the syntactic behavior of *shi* and the perspective of referring is illustrated in the following sentences:

- (29) a. Xiaohua yinggai \*(shi) guaihaizi. Shishishang, ta bu shi.  
 Xiaohua should be nice kid actually he not be  
 ‘Xiaohua should be a nice kid. Actually, he is not.’
- b. Tingshuo Huang buobuo \*(shi) minggeshou. Danshi, ta bu xiang.  
 It-is-said Huang uncle be famous singer but he not like  
 ‘It is said that uncle Huang is a singer. But he does not look like one.’
- c. Ta hen xiang \*(shi) renzhen de laoshi. Keshi, hen xiang you  
 bu shi.  
 He very like be responsible *De* teacher But very like again  
 not be  
 ‘He seems to be a writer. But somehow it appears that he is not one.’

The sentences in (29) prove that the realization of *shi* is obligatory if the referring of the sentence is founded on a relative set of reference. In (29a), (29b) and (29c), the properties are valued founded on a contrastive set of reference and thus *shi* has to be fulfilled.

To summarize, when the sentence containing *shi* involves a relativized perspective referring, *shi* can be covert.

#### 4.4. Cross-linguistic data for copula

In fact, in many languages, the behavior of the copular verb is tied to the temporal reference of the sentence: in some of these languages, the distinction between the characterizing and situation-descriptive sentences determines the realization of copula; in the others, the characterizing/situation-descriptive distinction conditions the choice of different copular elements. To begin with, in Swahili, Yagua,

Hungarian, and Bengali, as shown in (30), (31), (32), and (33) the copula in the characterizing interpretation is not necessary to be overtly realized.

(30) Swahili (Schachter 1985)

- a. Hamisi mpishi.  
Hamisi cook  
'Hamishi is a cook'
- b. Hamisi alikuwa mpishi.  
Hamisi was cook  
'Hamisi was a cook'
- c. Hamisi atakuwa mpishi.  
Hamisi will be cook  
'Hamisi will be a cook'

(31) Yagua (Payne 1997)

- a. Máchituru ráy.  
Teacher 1SG  
'I am a teacher.'
- b. ra-vyicha-núú-yanu máchituru  
1SG-be-CONT-PST3 teacher  
'I used to be a teacher.'
- c. rá-á vicha machituru  
1SG-FUT be teacher  
'I am going to be a teacher.'

(32) Hungarian (Kiefer 1968)

- a. Péter katona.  
Peter soldier  
'Péter is a soldier.'
- b. Péter katona volt.  
Peter soldier was  
'Péter was a soldier.'
- c. Péter katona lesz.  
Peter soldier will-be  
'Péter will be a soldier.'

(33) Bengali (Finch 2001)

- a. ram Sukhi.  
Ram happy  
'Ram is (a) happy (person).'
- b. ram Sukhi achhe.

Ram happy be-3O<sup>7</sup>  
'Ram is (certainly) happy (at present).'

With regard to the different choice of the copular element, we first consider the copular verbs in Scottish Gaelic as in (34).

(34) Scottish Gaelic (Adger and Ramchand 2003)

- a. Is                      tidsear    Calum.  
COP-PRESENT    teacher Calum  
'Calum is a teacher (by vocation).'
- b. Tha                      mi    'nam    thidsear  
Be-PRESENT    I    in-1SG    teacher  
'I am a teacher.'

In Scottish Gaelic, *is* is required in the characterizing sentence as in (34a) and *tha*, an inflected form of *bith*, occurs in the situation-descriptive sentence as in (34b). Apart from the copular element in Scottish Gaelic, Spanish exhibits a distinct selection of the copular verb depending on the temporal reference of the sentence. Compare (35a) and (35b).

(35) Spanish (Querido 1976)

- a. Juan es            médico.  
Juan ser.3S doctor  
'Juan is a doctor.'
- b. Juan está        de    médico.  
Juan estar.3S of    doctor  
'Juan is a doctor.'

In (35), the copula verb *es*, an inflected form of *ser*, is employed in the characterizing sentence; in (35b), *está*, an inflected form of *estar*, is required since it is a situation-descriptive sentence (Querido 1976). In addition to Scottish Gaelic and Spanish, let us scrutinize the use of the copular element in Modern Hebrew. What is worth noting with respect to the copular element in Hebrew is that, when the sentence denotes a restricted location in the past and present time, the verbal copula *h.y.y* must be employed. However, in the sentence under a generic reading, a pronominal copula can either appear or be omitted (Doron 1986; Rapoport 1987). Wintess (36) as follows.

(36) Modern Hebrew

- a. Dani more.

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<sup>7</sup> According to Finch, in Bengali, 'O' is the ordinary form, distinct from 'H', the honorific form.

- Dani teacher.  
 ‘Dani is a teacher.’  
 b. Dani hu        more.  
    Dani *Pron* teacher  
    ‘Dani is a teacher.’

Regarding the presence and omission of *hu* in (36), Doron (1986) and Rapoport (1987) claim that the pronominal element is only a phonetic realization for the person and number features and it is optional in the predicational sentence. That is, this pronominal element does not correlate with meaning. However, Greenberg (1999) defines this element as a pronominal copula and argues that it indeed interacts with a difference in meaning: when *Pron* is present, the sentence has a more individual level reading, and when *Pron* is absent, it has more of a stage level interpretation. If Greenberg’s analysis is on the right track, it can be found that the manifestation of Hebrew verbal copula and pronominal copula concerns the characterizing/situation-descriptive interpretation.

The cross-linguistic data presented above for the copular verb demonstrate that the syntactic behavior of the copular verb is bound to the temporal reference of the sentence.

## 5. A Cyclic Application

Notice that when the semantic values denoted by NP2 and the temporal reference and the perspective of assigning the properties to NP1 are taking effect on the overt realization of *shi*, the cyclicity principle must be respected (Radford 1988). That is, the precondition that *shi* can be covert when the sentence has an imperfective interpretation or evaluates a situation by an unlimited set of reference is that the denotation of NP2 must meet the criteria of being well classified and bound to an evaluative characterization. Consider the following sentences:

- (37) a. \*Lisi (shi) laoshi. Ta dasuan zai jiao wu nian cai tuixiu.  
       Lisi be teacher. He plan more teach five year just retire  
    b. \*Zhangsan (shi) yanyuan. Zhejian shi dajia dou zhidao.  
       Zhangsan be actor this-*CI* fact everyone all know

From the two examples shown above, it is evident that (37a) and (37b) are ungrammatical even if the sentences do meet criteria required of the implicitness of *shi* regarding the temporal reference and the perspective of referring. The reason is

that NP2 in (37a) and (37b) does not express a specific reading.

## 6. Concluding Remarks

This paper points out the overt realization of *shi* is bound to semantic facets. There are two semantic conditions determining the syntactic behavior of *shi*. The first is that the information conveyed by NP2 must be specific and evaluative enough. The second is that the sentence must be in characterizing reading and denotes the situation founded on an unrestrained frame of reference. Furthermore, the two semantic conditions apply in an ordered fashion. From this research, we can learn that Mandarin *shi* plays a role as an indicator, the syntactic manifestation of which points to the semantic values of the NP2 and the temporal denotation and the perspective of referring of the sentence. Meanwhile, this research implies that the exploration of the syntactic dimension can not be independent of the investigation of the semantic structure of language. Last but not least, this research shows that the behavior of *shi*, as that of the copular verb in many other languages, correlates with certain semantic attributes.

This research, however, leaves unspecified the syntactic structure of the NP1-NP2 sequence. It is not clear whether in this sequence NP2 along serves as the syntactic predicate as claimed by the previous analyses or it is actually a construction with *shi* dropping on the surface structure. Such an issue needs further pursuing.

Aside from the construction being explored in this research, it is noted that there are other types of the NP1-NP2 construction. One of them can be illustrated in the following:

- (38) Zhangsan niurou mian, Lisi zhurou mian.  
Zhangsan beef noodles, Lisi pork noodles  
'Zhangsan wants beef noodles and Lisi pork noodles.'

As we can see, the sentence in (38) is an NP1-NP2 sequence. However, in this sequence, NP2 is not a semantic predicate since it does not ascribe a property to NP1. It appears that the occurrence of this type of NP1-NP2 constructions is restricted to certain contexts, for instance, the ordering of food in a restaurant. The NP1-NP2 construction can be a possible topic for future studies.

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# Syntax and Semantics of Negation

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## Abstract

The current study suggests a set of new diagnostics to examine narrow and wide scope negation, based on Korean data with two overtly distinct (short and long) forms of negation. The contrast between narrow and wide scope negation will be discussed in terms of metalinguistic negation, expletive negation, *again*-test, coordination construction, *try to V*-construction, and two Klima's (1964) tests -- namely *deliberately*-test and tag-question.

**Keywords:** negation, narrow/wide-scope, diagnostics

## 1. Introduction

The current study attempts to suggest a novel argument for the co-existence of two types of negation based on empirical evidence found from narrow scope versus wide scope negation in Korean. With respect to the debate on negation, Korean is of particular importance because it is equipped with two overtly distinct forms of negation marking different scopes: so-called Short form negation (S-Neg) and Long form negation (L-Neg). Starting from the hypothesis that the two types of Korean negation truly represent two distinct syntactic and semantic scopes of negation, the current paper sheds light on the nature of negation by rigorously investigating a complex array of facts in this domain: first, I suggest a set of new diagnostics for distinguishing narrow scope from wide scope negation in section 2. The basic syntactic structures of S-Neg & L-Neg will be proposed in section 3. Conclusion is given in section 4.

## 2. Proposal: Scope Diagnostics

In this section, crucial evidence will be provided for clarifying the semantic interpretations and the syntactic structures in the two types of negation. For this purpose,

I suggest that the following properties distinguish wide scope negation from narrow scope negation, in addition to Klima's diagnostics for negation scope in (1g,h):

(1) Diagnostics for Negation Scope

- a. Adverbial Jumping is available only with wide scope negation.
- b. Metalinguistic Negation is available only with wide scope negation.
- c. Expletive Negation is available only with wide scope negation.
- d. *Again*-test shows ambiguity only in wide scope negation.
- e. Coordination shows ambiguity only in wide scope negation.
- f. *Try to* V-construction shows ambiguity only in wide scope negation.
- g. *Deliberately*-test shows ambiguity only in wide scope negation (Klima 1964).
- h. Tag-question shows ambiguity only in wide scope negation (Klima 1964).

Although most of these tests were originally suggested for different purposes, they are uniformly applicable to diagnosing scope as well.

2.1. Test 1: "Adverbial Jumping" (only for L-Neg)

Two possible interpretations in (2) below show that English adverbials in negative sentences reveal peculiar behaviors. That is, a natural interpretation is that the negative targets the adjacent VP 'wear a jacket' as in (2a), meaning that he does not wear a jacket and it is because the weather is hot. However, another interpretation in (2b) is also available where, instead of the adjacent VP 'wear a jacket', the adverbial part 'because of the weather' is negated via a semantic scope transform, called 'jumping' (Gabbay and Moravcsik 1978; see also Johnston 1994). Hence (2b) states that it is the case that he wears a jacket but it (his wearing a jacket) is not because the weather is cold (but because he wants to be polite).

(2) He does not wear a jacket because of the weather.

a. He does not [(wear a jacket) because of the weather].

b. He wears a jacket not (because of the weather).

→ 'jumping'

Note, however, that such jumping is available only with L-Neg in Korean. The lack of jumping effects in S-Neg shows that the inherently low location of the negative prevents the negative from combining with an adjunct at higher position.

- (3) *Swuni-nun nalssi-ttaymwuney cakeys-ul ip-ci an-ess-ta.*<sup>1</sup>  
 Swuni-TOP weather-because of jacket-ACC wear-CI L-Neg-PST-DECL  
 R1: Swuni does not [(wear a jacket) because of the weather].  
 R2: Swuni wears a jacket not (because of the weather). → ‘jumping’
- (4) *Swuni-nun nalssi-ttaymwuney cakeys-ul an-ip-ess-ta.*  
 Swuni-TOP weather-because of jacket-ACC S-Neg-wear-PST-DECL  
 R1: Swuni does not [(wear a jacket) because of the weather].  
 R2: # Swuni wears a jacket not (because of the weather). → \*‘jumping’

2.2. Test 2: Metalinguistic Negation (only for L-Neg)

More surprisingly, a particular set of adverbial NPIs, summarized in Fig 1, is only licensed by L-Neg.

Fig 1. Adverbial NPIs in Negation

adverbial NPIs	S-Neg	L-Neg
norm-denying NPI: <i>potong, yekan, com</i> ((not)...at the normal standard)	*	√
expectation-echoing NPI: <i>byello</i> ((not)... particularly)	*	√
up-denying NPI: <i>cenhye, tomwuci</i> ((not)... at all/ ever)	*	√

The ungrammaticality of (5a) indicates a clear scope distinction between S-Neg and L-Neg.

- (5) a. \**Swuni-nun kongpu-lul potong an-coaha-y.*  
 Swuni-TOP study-ACC normally S-Neg-like-DECL
- b. *Swuni-nun kongpu-lul potong coaha-ci an-a.*  
 Swuni-TOP study-ACC normally like-CI L-Neg-DECL
- ‘It is not the normal degree that Swuni likes studying.’ (=she extraordinarily likes it)

Lee (2005) argues that the above cases are metalinguistic negation in Horn’s (1989) sense – “a device for objecting to a previous utterance on any grounds whatever, including the conventional or conversational implicata it potentially induces, its morphology, its style or register, or its phonetic realization.” His claim seems to be on

the right track because it corresponds to another obvious case of metalinguistic negation (6) where only L-Neg is grammatical.

- (6) a. *Swuni-nun ku-lul coaha-ci an-a. salangha-y.*  
 Swuni-TOP him-ACC like-CI **L-Neg-DECL** love-DECL
- b.# *Swuni-nun ku-lul an-coaha-y. salangha-y.*  
 Swuni-TOP him-ACC **S-Neg-like-DECL.** love-DECL  
 ‘Swuni does not like him. (she) loves him.’

Given that (6) shows that only L-Neg can have metalinguistic use, I argue that these asymmetries in metalinguistic negation are naturally predicted from the distinct syntactic scopes in each type of negation. That is, the metalinguistic negation requires a syntactic wide scope in which a focus phrase can be dominated by a higher (wide scope) negation, so the semantic interpretation can be structured as ‘it is not the case that Swuni likes him, but it is the case that she loves him.’ In contrast, a syntactic narrow scope S-Neg (6b) is only interpretable as ‘it is the case that Swuni does not-like her’, which makes its following sentence ‘Swuni loves her’ sound anomalous. Furthermore, I assume that the structure for wide scope negation can be interpreted either as simple propositional negation (external negation à la Russell 1905) or as the metalinguistic one above.

### 2.3. Test 3: Expletive Negation (only for L-Neg)

As in many other languages such as Old/Middle English, Spanish, French, Italian, Catalan, Russian, Polish, Dutch, Modern Hebrew, etc. (see van der Wouden 1994; Tovena 1996; Brown and Franks 1995; Portner and Zanuttini 2000; Abels 2002), Korean negation has an expletive use in exclamatives and the embedded clauses of adversative predicates. Another type of scopal asymmetry comes from the expletive negation<sup>2</sup>: (7) shows that L-Neg expressed in the form of an exclamative does not have a negative meaning. Note, however, this usage is unavailable with S-Neg (8).

- (7) *ney-ka aisukurim-ul ta mek-ci an-ess-ni !*  
 you-NOM ice cream-ACC all eat-CI **L-Neg-PST-DECL**
- (8) # *ney-ka aisukurim-ul ta an-mek-ess-ni !*  
 you-NOM ice cream-ACC all **S-Neg-eat-PST-DECL**  
 ‘You ate up all the ice cream!’

According to Portner and Zanuttini's (2003) analysis, expletive negation in exclamatives triggers a scalar implicature. Thus, in (7), an epistemic speaker assumes a likelihood scale (Scale = 'you ate all ice cream' < 'you didn't eat all ice cream') and the expletive negative implicates that the proposition with a low likelihood (i.e. you ate all ice cream) was out of the speaker's expectation. In this respect, the oddity in (8) arises presumably because, while the wide-scoped L-Neg in (7) affirms the fact that the addressee ate all the ice cream and the speaker expresses a surprise about the fact, the narrow scope nature of S-Neg in (8) forces an unintended interpretation where the speaker affirms the fact that the addressee did not-eat the ice cream.

#### 2.4. Test 4: *Again-test*

The *again-test* has been suggested as a diagnostic for object position (von Stechow 1996, Beck and Johnson 2004 for German; Ko 2005 for Korean). However, I suggest that it indicates not only the syntactic location of the object but the syntactic domain of negation as well. First, let's observe the interpretation pattern of *again* in affirmative sentences:

- (9) *Swuni-ka*            *mun-ul*            *tasi*            *yel-ess-ta.*  
 Swuni-NOM            door-ACC        again            open-PST-DECL  
 (i) 'Swuni opened the door again, and that had happened before.' (repetitive)  
 (ii) 'Swuni opened the door again, and the door had been open before.' (restitutive)
- (10)a. *Swuni-ka*            *tasi*            *mun-ul*            *yel-ess-ta.*  
 Swuni-NOM            again            door-ACC        open-PST-DECL  
 'Swuni opened the door again, and that had happened before.' (repetitive)
- b. *tasi*            *Swuni-ka*            *mun-ul*            *yel-ess-ta.*  
 again            Swuni-NOM            door-ACC        open-PST-DECL  
 'Swuni opened the door again, and that had happened before.' (repetitive)

Example (10) shows that the adverbial *again* adjacent to the verb allows for both repetitive and restitutive interpretation as in von Stechow's (1996) German data. However, (11) illustrates that the object is located higher than the domain of restitutive *again* in Korean. Given this, the (simplified) D-structure in Korean can be posited as the following:



irrespective of the location of *again*.

### 2.5. Test 5: Ambiguity in Coordination

The highest scope of L-Neg II is manifested by the scopal ambiguity in coordination structure. Consider the scopal ambiguity of NegP in the coordinated sentence (15) in English.

- (15) John cannot turn in the last assignment and (still) pass the class. [English]  
 (i) ‘John can [<sub>NegP</sub> **not** [turn in the last assignment and (still) pass the class]].  
 (ii) ‘John can [<sub>NegP</sub> **not** [turn in the last assignment]] and (still) pass the class.

It is well-known that this scope ambiguity in coordination only holds for long form negation in Korean.

- (16) a. V and [V-ci Neg]: Lower scope

*Swuni-ka swul-ul masi-ko [<sub>NegP</sub> tambay-lul piwue-ci an]-ess-ta.*  
 Swuni-NOM liquor-ACC drink-and cigarette-ACC smoke-CI L-Neg-PST-DECL  
 ‘Swuni drank alcohol, but didn’t smoke cigarettes.’  $\phi \wedge [\neg \psi]$

- b. [V and V-ci Neg] : Higher scope

*Swuni-ka [<sub>NegP</sub> swul-ul masi-ko tambay-lul piwue-ci an]-ess-ta.*  
 Swuni-NOM liquor-ACC drink-and cigarette-ACC smoke-CI L-Neg-PST-DECL  
 ‘Swuni didn’t drink alcohol and didn’t smoke cigarettes.  $\neg [\phi \wedge \psi]$  (Cho 1993)

As shown in (16) above, the scopal ambiguity in long form negation arises from the inherent dual structural interpretation between L-Neg type I and L-Neg type II. In the former interpretation with verbal suffix ‘ci’ (16a), negation scope is confined to the second VP. In the latter interpretation, the negation scopes over the first and the second VP (16b) because the focus clausal complementizer ‘ci’ has both VPs under its reach. The existence of both interpretations indicates a dual structure of long form negation.

Note also that there arises no such ambiguity in coordination construction with short form negation in (17). The invariably narrow scope of S-Neg has no alternative interpretation.

- (17) V and [Neg V]

*Swuni-ka swul-ul masi-ko tambay-lul [<sub>NegP</sub> an-piwue]-ss-ta.*

Swuni-NOM alcohol-ACC drink-and cigarette-ACC **S-Neg**-smoke-PST-DECL  
 ‘Swuni drank alcohol, but didn’t smoke cigarette.’

Furthermore, the coordination construction also demonstrates that NegP is lower than Tense Phrase (TP) in English and Korean. In contrast to ambiguous negation scope in two coordinated bare verbs in (18a), the tense-marked second verb *smashed* in (18b) exempts itself from the otherwise possible negated interpretation.

(18) a. John did **not** go home and smash windows here.

[<sub>NegP</sub> **not** [ go home and smash windows here ]] or,  
 [<sub>NegP</sub> **not** [ go home ]] and [smash windows here ]

b. John did [<sub>NegP</sub> **not** go home] and smashed windows here’ [English]

In the same manner, negation in (19) only scopes over the adjacent verb (the second one) when the first verb *masi-ess* is tense-inflected in Korean.

(19) *Swuni-ka swul-ul masi-ess-ko [<sub>NegP</sub> tambay-lul piwue-ci an]-essta.*

Swuni-NOM liquor-ACC **drink-PST**-and cigarette-ACC smoke-CI **L-Neg**-DECL  
 ‘Swuni drank alcohol, but didn’t smoke cigarette.’

Therefore, the structure with NegP lower than TP is also born out.

## 2.6. Test 6: Try to V- construction

The distinction between sentential negation (20) and constituent negation (21) in English<sup>3</sup> can also be found from Korean counterparts of L-Neg (20) and S-Neg (21). As expected, the narrow scope constituent negation is only observed in S-Neg.

(20) Bill didn’t try to laugh.

(21) Bill tried [**not** to laugh]. [English]

(22) *Bill-un wusulye-ko nolyekha-ci an-ha-ss-ta.*  
 Bill-TOP laugh-to try-CI **L-Neg**-do-PST-DECL  
 ‘Bill didn’t try to laugh.’

(23) *Bill-un an-wusulye-ko nolyekha-ss-ta.*  
 Bill-TOP **S-Neg**-laugh-to try-PST-DECL  
 ‘Bill tried [not to laugh].’

## 2.7. Test 7: *deliberately-test*

The scope of each negation type is further supported by application of the *deliberately-test* (Klima 1964; Payne 1985; McCawley 1988) to Korean negation.

- (24) a. *Swuni-ka koyucekulo Tom-ul an macwuchi-ess-ta.*  
 Swuni-NOM deliberately Tom-ACC **S-Neg** encounter-PST-DECL
- b. *Swuni-ka koyucekulo Tom-ul macwuchi-ci an-ss-ta.*  
 Swuni-NOM deliberately Tom-ACC encounter-CI **L-Neg-PST-DECL**
- (i) ‘Swuni deliberately did [not run into Tom].’, → **a/b**
- (ii) ‘It is [not [deliberate that Swuni ran into Tom]].’ → **b**

S-Neg (24a) only means that ‘Swuni avoided Tom on purpose’ (i), while L-Neg (24b) is ambiguous between (i) ‘Swuni avoided Tom on purpose’ and (ii) ‘Swuni encountered Tom but it was not on purpose’.

## 2.8. Test 8: *Tag-Questions*

Although Klima’s (1964) “negative appositive tag” test is inapplicable to Korean negation as it is, a slightly modified version of the tag question ‘*kuraysni?(did so?)*’ shows the scope differences between negation types. The tag-question preceded by a sentence with S-Neg (25a) only obtains the negated meaning (i) ‘Sue didn’t give John a gift’, whereas the one with L-Neg (25b) takes either a negated (i) ‘Sue didn’t give John a gift’ or a non-negated (ii) ‘Sue gave John a gift’ as its antecedent.

- (25) a. *Sue-ka John-ekey senmwul-ul an-cwun-keskatuntay, kuraysni?*  
 Sue-NOM John-DAT gift-ACC **S-Neg-give-seems,** **did so?**
- b. *Sue-ka John-ekey senmwul-ul cwu-ci-an-unkeskatuntay, kuraysni?*  
 Sue-NOM John-DAT gift-ACC give-CI-**L-Neg-seems,** **did so?**
- (i) ‘Sue didn’t seem to have given John a gift; did she not give him a gift?’ → **a/b**
- (ii) ‘Sue didn’t seem to have given John a gift; did she give him a gift?’ → **b**

## 2.9. *Summary*

In section 2, I have discussed eight diagnostics for distinguishing narrow and wide scope negation in Korean, which are highly applicable to other languages. The

consistent results of these tests serve crucial empirical evidence for the distinct structures that will be proposed in section 3.

### 3. Syntax of Negation in Korean

Base on the observations so far, I argue that a finer division of negation is required in order to correctly capture semantic scopal interpretations and numerous unresolved syntactic phenomena with respect to negation. To this end, three basic types of Korean negation will be characterized in terms of the interrelation between the syntactic structures and the semantic interpretations for the remainder of this paper. Furthermore, semantic property differences between negation types will also come into play to illustrate the logical contrast between narrow scope negation and wide scope negation.

#### 3.1. Short Form Negation (S-Neg: Narrow Scope Neg)

I claim that there are three types of negation in Korean: Short-Negation (S-Neg), Long-Negation type I (L-Neg I), and Long-Negation type II (L-Neg II). The first type is the S-Neg which is indeed a case of narrow scope negation excluding even the object outside the scope of negation and only negating the predicate itself.<sup>1</sup> This narrow-scope nature of S-Neg can be attributed to its inherent syntactic location.

A significant piece of evidence for this analysis is found in the clitic-like nature of S-Neg. As Han et al (2007) and others have argued, Neg-Cliticization analysis of S-Neg is supported by the adjacency condition between the negative element ‘an’ and the verb stem. As shown below, S-Neg and the verb should be adjacent. Neither the object in (26b) nor the adverb in (27b) can occur between S-Neg and the verb.

- (26) a. *Swuni-ka maykcwu-lul an masi-n-ta.* (S O Neg V)  
 Swuni-NOM beer-ACC Neg drink-PRES-DECL  
 ‘Swuni doesn’t drink beer.’
- b. \**Swuni-ka an maykcwu-lul masi-n-ta.* (\*S Neg O V)  
 Swuni-NOM Neg beer-ACC drink-PRES-DECL  
 ‘Swuni doesn’t drink beer.’

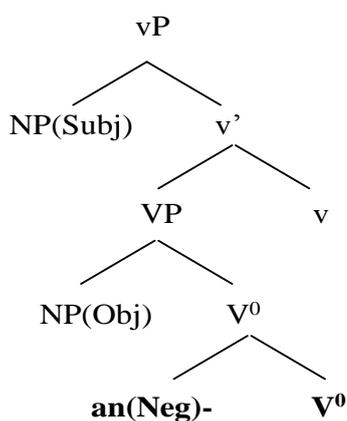
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<sup>1</sup> Weak indefinite objects under S-Neg will be discussed in section 4.

- (27) a. *Swuni-ka maykcwu-lul cal an masi-n-ta.* (S O Adv Neg V)  
 Swuni-NOM beer-ACC well Neg drink-PRES-DECL  
 ‘Swuni doesn’t drink beer.’
- b. \**Swuni-ka maykcwu-lul an cal masi-n-ta.* (\*S O Neg Adv V)  
 Swuni-NOM beer-ACC Neg well drink-PRES-DECL  
 ‘Swuni doesn’t drink beer.’

Given this property of S-Neg cliticized to the following verb stem, its syntactic location becomes predictable as right adjoining to the verb stem. Furthermore, the eight diagnostics discussed in the previous section have shown the narrow scope property of S-Neg. Thus, I propose the structure of short negation as the following.

(28) Structure of S-Neg



- (29) *Swuni-ka maykcwu-lul an masi-ess-ta.*  
 Swuni-NOM beer-ACC S-Neg drink-PST-DECL  
 ‘Swuni did [not drink] beer.’

The structure (28) above illustrates a sentence with short form negation as in (29). Notice the lower scope of Neg. As a result of ‘an’(neg) being cliticized onto the verb, negation only scopes over the verb, and the subject and the object at higher locations are outside the scope of Neg. Assuming the isomorphism of syntactic structure and semantic interpretation, the sentence with S-Neg is naturally interpreted with strictly narrow scope such as *Swuni did [not drink] beer.*

### 3.2. Long Form Negation type I (L-NegI: Narrow Scope Neg)

In contrast with short form negation which takes only narrow scope, long form

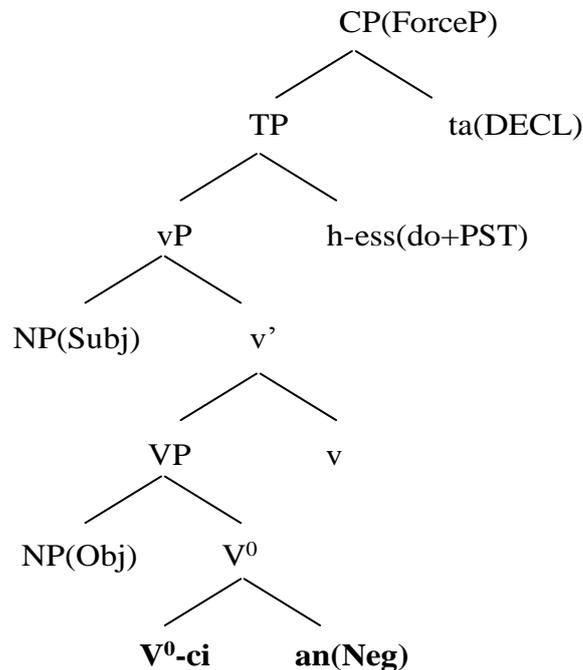
negation shows ambiguous behaviors between narrow and wide scope. According to this binary nature in scope, long form negation needs to be classified into two different categories: Long form Negation type I versus Long form Negation type II. The former is the one that takes narrower scope than a subject and an object within the clause (in the same fashion as Short form negation), whereas the latter takes wide scope.

This unusual division of L-Neg should be attributed to the dual nature of *ci*-marker preceding the negative element, which is analyzed as a simple verbal suffix in the former (taking narrow scope) and as a focus-clausal complement in the latter (taking wide scope). Given this, let me demonstrate the structure of L-Neg type I. In this form of negation, the *ci*-marker is a verbal suffix simply linking the preceding verb to the following negative element. The linear order and the hierarchical structure of sentence (32) for this type of negation are given in (30) and (31), respectively.

(30) Verbal Suffix -ci:

Subject    Object    [[Verb]-suffix(ci)    neg(an)]-do(ha)-Tense-DECL

(31) Structure of L-Neg type I



(32) *Swuni-ka    maykcwu-lul    masi-ci    an-ess-ta.*  
 Swuni-NOM    beer-ACC    drink-suffix    L-Neg-PST-DECL  
 ‘Swuni did [not drink] beer.’

Recall the strictly narrow scope of S-Neg presented in the preceding section.

Since the negative element ‘an’ of L-Neg I resides at the same height as S-Neg (i.e. adjacent to the verb stem) scoping only over the verb, the negative verbal complex ‘verb-ci(suffix) an(neg)’ is predicted to have a narrow scope interpretation as well. Therefore, L-Neg I should be included as another instance of narrow scope negation along with the case of S-Neg.

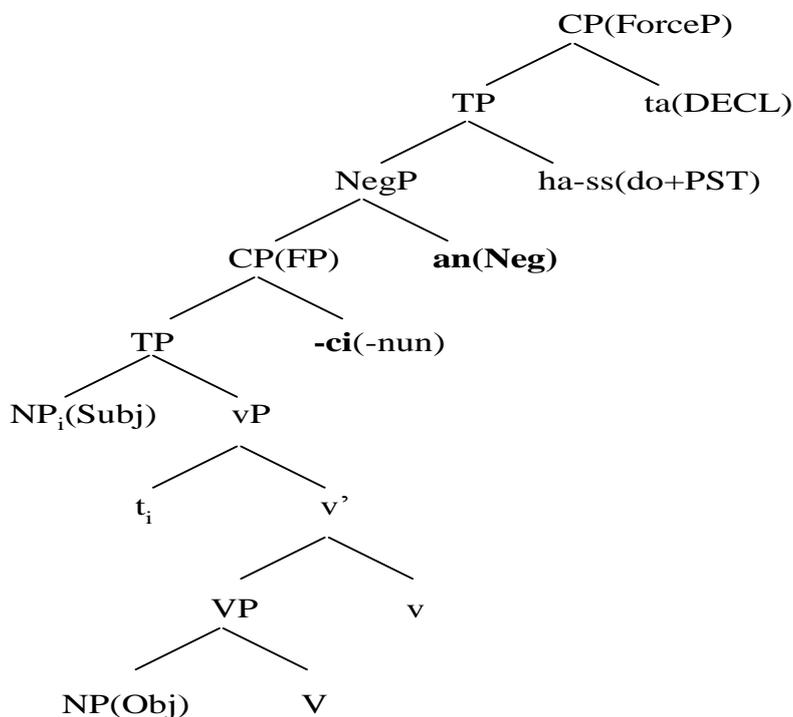
### 3.3. Long Form Negation type II (L-NegII: Wide Scope Neg)

Although L-Neg I can be interpreted with strictly narrow scope, L-Neg shows an ambiguous nature in terms of its interpretative scope. The same sentence given in (32) (in L-Neg I) above meaning *Swuni did [not-drink] beer* can also be interpreted with the widest scope: *It is not the case that Swuni drank beer* in (35). This wide scope negation will be dubbed as L-Neg type II in order to distinguish from the narrow-scope-taking L-Neg type I.

As pointed out already, the negation-preceding marker ‘ci’ seems to play a different role here, namely a focus clausal complementizer. Compare the linear order (33) and the hierarchical structure (34) of L-Neg II with the ones of L-Neg I in the preceding section.

- (33) (Focus) clausal complementizer/shell –ci  
 [[<sub>FocP</sub> Subject Object Verb]-COMP(ci) neg(an)]-do(ha)-Tense-DECL

(34) Structure of L-Neg type II



- (35) *Swuni-ka*      *maykcwu-lul*      *masi-ci(-nun)*      *an-ess-ta.*  
 Swuni-NOM      beer-ACC      drink-COMP(-Foc)      **L-Neg-PST-DECL**  
 ‘It is not the case that Swuni drank beer.’

In sharp contrast with L-Neg I (31), the above structure shows L-Neg II locating higher than the CP (/FP) and scoping over the whole clause including the subject, the object, and the verb. Despite the identical surface form of the two sentences, (32) and (35), the observed scope disparity of long form negation is unsurprising considering the fact that the seemingly identical marker ‘ci’ is endowed with inherently distinct grammatical roles.

The above structure (34), particularly where CP is treated as a focus phrase (FP), is further justified by the attachability of ‘nun’ at FP level because ‘nun’ is an explicit indicator of contrastive topic/focus phrase (C-M Lee 2003, 2005). Furthermore, the status of CP as a FP seems reasonable considering the general principle that a focused phrase always takes narrow scope. This type of negation can be characterized as a special focus phrase formation similar to the focus-cleft construction that creates the wide negation scope with ‘it is not the case that ...’ interpretation. As pointed out by Sells (2005), negation targets a focus phrase in Korean in the following data (36).

- (36)a. *John-i amwu kes-to ecey sa-ci-nun an-ess-ta.*  
 John-NOM n-thing yesterday buy-CI-Foc **L-Neg-PST-DECL**  
 b. Stress on John: unacceptable  
 c. Stress on ecey: ‘Whatever it was, it was [not yesterday] that John bought it.’  
 d. Stress on sa-ci: ‘Whatever it was, it was [not buying] it that John did yesterday.’

Considering the focus-targeting negation in English (Jackendoff 1972: 254) in the following (37), the inseparable nature of focus and negation seems universal.

- (37) Maxwell didn’t kill the judge with a silver hammer.  
 a. Maxwell didn’t . . . (i.e., someone else did)  
 b. He didn’t kill the judge . . . (i.e., he did something else to him)  
 c. He didn’t kill the judge . . . (i.e., he killed someone else)  
 d. He didn’t kill the judge with a silver hammer (but with something else)

Also, the argument that the focus on XP is marked by ‘nun’ in Korean is supported by Jackendoff (1969) and Büring (2003) note that similar effects are realized by stress in English, as illustrated in (38).

- (38) a. ALL \ the men didn’t go \ (all>neg)  
 b. ALL \ the men didn’t go / (neg>all) (Jackendoff 1969)

Furthermore, the focus phrase assumption is supported by the fact that an accusative case marker can be attached to ‘ci’ in (39).

- (39) *Swuni-ka maykcwu-lul masi-ci-lul an-ess-ta.*  
 Swuni-NOM beer-ACC drink-CI-ACC(Foc) L-Neg-PST-DECL  
 ‘It is not the case that Swuni drank beer.’

Observing this, Suh (1993) claims that this indicates the double clausal structure of long form negation in which the negated matrix verb assigns ACC case to the embedded clause. However, I argue that the ACC case here plays a dual role as a focus marker based on the following facts: first, ACC case here sounds more natural when it receives a phonological focus (*masi-ci-LUL*), and second, this double ACC case structure gives an emphatic effect to its recipient (‘*It is not DRINKING that Swuni did with the beer. She was just looking at it.*’)

Finally, this dual clausal structure assumption is unsurprising considering the acquisition fact that S-Neg is acquired much earlier (1.8-2 years old children) than L-Neg (3.5-4 years). Assuming only the structure for L-Neg type II, Kim (1991) argues that it is because a dual clausal structure is harder to acquire than a mono-clausal one. However, it seems equally plausible to attribute the acquisition difficulty in part to the structural and hence semantic ambiguity between L-Neg type I and type II.

#### **4. Conclusion**

Thus far, I have argued for the co-existence of narrow-scope negation (S-Neg and L-Neg I) and wide-scope negation (L-Neg II) in one language. It was shown that Korean has grammaticalized the two types of negation, narrow scope and wide scope negation, in its overt syntactic structures. Although negation is an extremely controversial issue in linguistic theory, the current paper significantly contributes to the clarification of negation scope by presenting a language which systematically distinguishes the scope by means of two different overt forms of negation. All the contrasts found in the results of the newly suggested diagnostics for narrow vs. wide scope negation followed from the proposal that Korean short form negation is narrow scope negation while long form negation is wide scope negation. As such, I have presented novel evidence that both narrow scope negation and wide scope negation are equally viable as inventories of natural language negation.

This opens the possibility of the same argument holding in other languages. Languages usually have their own strategy to mark different syntactic scope. For instance, English adopts additional strategies to mark narrow scope negation either by locating the negative *not* in different positions (e.g., She is able to [not breathe] for one minute) or by attaching an antonymous prefix (e.g, un-able, mis-match, dis-like). On the other hand, Japanese uses special forms such as ‘dewa nai’ (COMP+Topic Neg) to emphasize the wide scope negation property but lacks a way to express pure narrow scope negation as Korean S-Neg does. Further crosslinguistic investigation remains for future research.

#### **Note:**

<sup>1</sup>. The Korean data here are transcribed by Yale Romanization. The following abbreviations are used for the data: ACC: accusative; CI: ‘ci’-marker (verbal

suffix/focus marker); CL: classifier; COMP: complementizer; DAT: dative case; DECL: declarative sentence ending; L-Neg: long form negation; NOM: nominative case; PL: plural; PST: past tense; S-Neg: short form negation; TOP: topic marker.

<sup>2</sup> In Korean literature, the L-Neg in exclamatives was treated as factive use. Although, exclamatives show factive property as Portner & Zanuttini (2003) argues, the negation occurring in exclamatives and sentences with adversative predicates uniformly show expletive properties in Korean as well as many other languages.

<sup>3</sup> *Try*-type verb is usually analyzed as restructuring predicates (Cinque 1999), and Wurmbrand (1998) argues that *try*-type RPs involve semantic control (Chierchia 1982, 1984) without projecting an embedded PRO as seen in (ii).

(i) Bill<sub>j</sub> tried [PRO<sub>j</sub> talking to his boss].

(ii)\*Bill<sub>j</sub> tried today [PRO<sub>j</sub> talking to his boss tomorrow].

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# Productivity and Constraint in Morphology and Lexicon

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## Abstract

This paper deals with the productivity and constraint which take place in morphology and the lexicon, and also explores the relationship between two modules. Many words or compounds are made by affixation and compounding. As a result of word formation processes, possible or actual forms appear in morphology and the lexicon. However, we need a kind of device to restrict a power of word formation. So many kinds of constraint and blocking play an important role in distinguishing grammatical or acceptable forms from ungrammatical or unacceptable ones. These grammatical or acceptable forms are stored in the lexicon.

**Keywords:** word formation, productivity, constraint, lexicon, blocking

## 1. Introduction

In this paper, I will examine the productivity and constraint which take place in morphology and the lexicon. I will also explore how new words produced by word formation processes are related to the lexicon.

Since affixes or lexemes can be put together with bases, a number of words or compounds appear as an output. This shows the productivity of word formation. However, while some affixes are easily attached to bases, others are not. The nominal suffix *-ness* makes more nouns than *-al* in English. Similarly, compared to *-kay*, the nominal suffixes *-i*, *-um*, *-ki* are productive because they make a lot of nouns in Korean.

When words are generated by word formation processes, some forms are grammatical or acceptable but others are ungrammatical or unacceptable. Aronoff (1976), Bauer (2001) and Plag (2003) suggest that they are divided into actual and possible (potential) words. For example, Plag (2003) mentions that *affordable*, *readable* and *manageable* are existing words whereas *cannibalizable* may not be found in English dictionary. We can find similar phenomena in Korean:

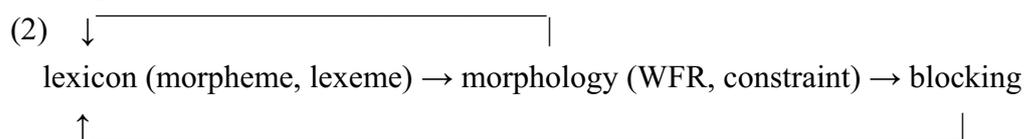
(1) a. kongchaki 'kicking a ball', kkanthongchaki 'kicking a tin'

b. ?kwusekchaki ‘kicking a corner’, cayuchaki ‘kicking freedom’

The examples in (1a) are good forms, but those in (1b) are somewhat strange words. In order to explain this difference, we have to ask what kinds of device affect the productivity of word formation. Furthermore, we need constraints or conditions to restrict the productivity of word formation. In Korean, since *chaki* can be attached to movable things, *kongchaki* and *kkangthongchaki* are well-formed words. However, *kwusekchaki* and *cayuchaki* occur as possible but strange words because *kwusek* and *cayu* are unmovable. This shows that there is a specific condition on word formation. We can have various kinds of constraint on word formation: morphological constraint, phonological constraint, semantic constraint, Binary Branching Hypothesis (Aronoff 1976, Scalise 1984), and Blocking (Aronoff 1976).

Blocking shows interesting phenomena as a filtering device. When we assume that the lexicon is a kind of storage, words made by word formation processes are put in the lexicon. So actual or possible words may be stored in the lexicon. However, some words cannot appear as lexical entry. For example, *guide* is found in English noun but we cannot find *guider*. Compared to words with –er, *guider* is possible but non-existent. According to Aronoff (1976), an existent form *guide* blocks a new form *guider*. He defines blocking as “the non-occurrence of one form due to the simple existence of another”. This means that blocking plays a major role in word formation.

The lexicon contains morphemes and lexemes, whereas word formation and constraint take place in morphology. The relationship between lexicon and morphology can be represented as follows:



The diagram in (2) shows a circular process. Morphemes or lexemes selected from the lexicon take part in word formation processes. In morphology, the output generated by word formation processes is restricted by constraint. The form which blocking filters out can enter the lexicon.

## 2. Productivity

Morphology is divided into inflection and word formation with respect to different properties (Plag 2003). Word formation includes affixation and compounding. This section deals with the productivity which takes place in affixation and

compounding.

## 2.1 Affixation

Affixation is formed by means of affixes. The affixation is composed of prefixation, suffixation, and infixation. But infixation rarely occurs in word formation. The affixation can be represented as follows: (prefix\*)-base-(suffix\*). This process can produce many English and Korean words.

- (3) a. im (Pref)-possible (A), beauty (N)-ful (Suf)  
un (Pref)-happy (A)-ness (Suf)  
de (Pref)-center (N)-al (Suf)-ize (Suf)-ion (Suf)  
b. tol (Pref)-pay (N) ‘wild pear’, teph (V)-kay (Suf) ‘cover’  
kay (Pref)-cwuk (V)-um (Suf) ‘useless death’  
keyulu (V)-m (Suf)-payngi (Suf) ‘idle person’

Unlike prefixation, suffixation can change a lexical category.

- (4) a. black-en (A → V)  
curious-ity (A → N)  
demonstrate-ion (V → N)  
b. sulki-lop(ta) ‘wisdom-Verb Suf’ ‘to be wise’ (N → V)  
kekceng-sulep(ta) ‘worry-Verb Suf’ ‘to be worried’ (N → V)  
salam-tap(ta) ‘man-Verb Suf’ ‘to be humane’ (N → V)

Certain nominal suffixes in Korean turn a verb into a noun (V → N). The suffixes make free or bound forms. Compared to (5a), the examples in (5a’) cannot be used independently, and rather they are always put together with other nouns.

- (5) a. mek-i ‘eat-Nom Suf’ ‘food’  
a’. kel-i ‘hang-Nom Suf’ ‘hanger’ (os kel-i ‘clothes-hanger’)  
cap-i ‘hold-Nom Suf’ ‘thing which someone holds’  
(son cap-i ‘knob, handle’)  
kkoc-i ‘be inserted-Nom Suf’ ‘thing in which something is inserted’  
(kkoch kkoc-i ‘flower arrangement’)  
b. cwuk-um ‘die-Nom Suf’ ‘death’, kkwu-m ‘dream-Nom Suf’ ‘dream’  
c. po-ki ‘see-Nom Suf’ ‘example’, tut-ki ‘hear-Nom Suf’ ‘hearing’

The suffixes -i, -(u)m, or -ki can be attached to a phrase.

- (6) a. [makwu cap]<sub>VP</sub>-i ‘[randomly catch]-ing’  
b. [son-ul ssi]<sub>VP</sub>-um ‘[wash hands]-ing’  
c. [hakkyo-ey ka]<sub>VP</sub>-ki ‘[go to school]-ing’

Since *makwu* in (6a) is an adverb and it modifies the verb *cap-*, the structure makes a verb phrase. In (6b), since *ssis-* is a transitive verb and it needs an object *son*, the form corresponds to the verb phrase. The example in (6c) consists of a verb and a postpositional phrase. Compared to *-(u)m* or *-ki*, *-i* can very rarely be connected with a phrase. So it can be said that *-i* is less productive than *-(u)m* or *-ki*.

As in English, adverbs in Korean are derived by affixation, especially suffixation.

- (7) a. happy-ly, usual-ly  
 b. kath-i ‘be identical-Adv Suf’ ‘identically’  
 coyongha-i ‘be quiet-Adv Suf’ ‘quietly’  
 him-kkes ‘strength-Adv Suf’ ‘strongly’  
 cengseng-kkes ‘sincerity-Adv Suf’ ‘sincerely’  
 kkuth-nay ‘end-Adv Suf’ ‘finally’  
 kyewul-nay ‘winter-Adv Suf’ ‘throughout the winter’

While the adverbial suffix is connected with adjectives in English, the adverbial suffixes in Korean are attached to verbs and nouns. Interestingly, according to Korean grammarians, adverbs were formed from verb bases by zero derivation in Middle Korean. For example, *tel* ‘less’ is derived from *telta* ‘to subtract’. Similarly, nouns themselves can be used as adverbs in Modern Korean. For instance, such words as *cikum* ‘now’, *onul* ‘today’, and *nayil* ‘tomorrow’ appear in both forms.

## 2.2 Compounding

Compounds are combinations of words and words: N N, V N, V V, N V, Adv Adv, Prep Prep, Postp Postp. These forms are illustrated as  $X_1 X_2$ . The rightmost form  $X_2$  in  $X_1 X_2$  is a head because the properties of  $X_2$  determine those of the compound. In *blackbird*, for example, the head *bird* does affect a lexical category and other properties of compound.

Bauer (1983:30) classifies compounds into four groups in terms of modifier-head relationship: endocentric compound, exocentric (*bahuvrihi*) compound, appositional compound and copulative (*dvandva*) compound. For example, *beehive* and *armchair* belong to the endocentric compounds, where a beehive is a kind of hive and an armchair is a kind of chair. However, since the exocentric compounds *redskin* and *highbrow* is not a kind of skin or brow, we cannot find the head relationship. Bauer mentions *maidservant* as an example of appositional compound, because maidservant is a type of maid and also a type of servant. Finally, there is no clear head in the

copulative compound *Alsace-Lorraine*.

I suggest that the appositional compound corresponds to a sort of endocentric compound because maidservant is a kind of servant, which is a head. Bauer's division shows ambiguity because of dual criteria of hyponymy and the head relationship. According to him, the appositional compound *maidservant* is a hyponym of both maid and servant: a maidservant is a type of maid and also a type of servant. Here, it is not clear whether maidservant has one head or two heads. Considering that maidservant is a kind of servant, servant may be regarded as the head. So the appositional compound should belong to the endocentric compound in terms of the head relationship. If the appositional compound did not have the head relationship, it would have to correspond to the exocentric compound or the copulative compound. In addition, the exocentric compound cannot be treated as the pure compound but as a kind of idiom, because its meaning is totally changed. Thus, since the exocentric compound is turned into an idiom, it will be listed in the lexicon.

Unlike Bauer's classification, I divide compounds into two groups in terms of the modifier-head relationship: (a) If  $X_2$  in  $X_1X_2$  satisfies IS A Condition and  $X_2$  is a head,  $X_1X_2$  is a sub-compound. (b) If  $X_1$  and  $X_2$  in  $X_1X_2$  has a parallel relationship and  $X_2$  is not a head,  $X_1X_2$  is a co-compound. With respect to these conditions, we consider the compounds in Korean.

- (8) a. miyek (N) kwuk (N) 'seaweed soup', kwun (V) pam (N) 'roasted chestnut'  
b. pam (N) nac (N) 'day and night', son (N) pal (N) 'hand and foot'

Since the examples in (8a) are sub-compounds, they satisfy the *IS A Condition* proposed by Allen (1978). For example, *miyek kwuk* 'seaweed soup' is a kind of soup rather than seaweed and soup. But the condition is not observed in (8b), which are co-compounds, because they are usually composed of words with contrastive meanings.

Verb compounds in Korean have sub-compounds and co-compounds as well. They are composed of two verb bases.

- (9) a. ttwi-nolta 'run-play' 'to romp'  
may-talta 'hang-hang' 'to hang'  
kwut-seyta 'be hard-be strong' 'to be strong'  
b. o-kata 'come-go' 'to come and go'  
ye-tatta 'open-close' 'to open and close'  
olu-naylita 'rise-fall' 'to rise and fall'

Compared to noun compounds, it is difficult to tell whether the examples in (9a) are sub-compounds or co-compounds. We assume that they are sub-compounds because the right-hand forms determine the meaning of the compounds. For example, *cith-phwuluta*

means ‘to be deep blue’, not ‘to be deep and blue’. In contrast, the examples in (9b) are co-compounds. Since the examples consist of contrastive or opposite forms, they exhibit semantic compositionality and lack a single head. Thus, the right-hand forms cannot determine the meaning of compounds.

Adverbs are rarely formed by compounding: *com-te* ‘a little more’, *kot-palo* ‘very-straight’, and *kot-cal* ‘pretty-well’. It is not certain whether the examples are sub-compounds or co-compounds. But since their meaning is determined by the words on the right side, they may be sub-compounds.

Compounding usually takes place in content words because they are open category. So compounding rarely occurs in function words. However, compounding can appear in function words. In English, for example, *into* and *onto* may be the compounds of preposition.

We assume Korean postpositions in terms of the position, which means that the postpositions in Korean are usually placed after nouns. They are classified into inherent case markers (ICM), delimiters (DEL), and structural case markers (SCM). ICMs include *-eykey* (Goal), *-pwuthe* (Source), *-eyse* or *-ey* (Location), and so on; DELs include *-(n)un* (Topic), *-man* ‘only,’ *-to* ‘also,’ and so on; SCMs include *-ka/i* (Nominative), *-(l)ul* (Accusative), and *-uy* (Genitive). The postpositions in Korean may be generated by compounding: *eyse-man* ‘in (Loc)-only’ and *man-i* ‘only-Nom’. While the former consists of an ICM and a DEL, the latter is composed of a DEL and a SCM. Since these examples exhibit compositionality, *eyse-man-i* is possible, as in the following example:

- (10) ?Ku kapang-ul Waikiki-eyse-man-i sa-l swu issta.  
 the bag-Acc Waikiki-in-only-Nom buy-can  
 ‘(We) can buy the bag only in Waikiki.’

The example in (10) is not perfect, but it is acceptable. Thus, postpositional compounds consisting of three postpositions can be represented as ICM-DEL-SCM. Compound postpositions always follow the order. If this order is violated, then the compound postposition is ungrammatical. So the structure *\*man-eyse* or *\*eyse-i-man* is not allowed.

Compound postpositions may be co-compounds because they exhibit composite meaning. For example, meaning in *eyse-man* is a combination of *in (at)* and *only*, and *man-i* indicates the meaning *only-Nominative*. Thus, it is difficult to determine the head in compound postpositions.

Bauer (1983:212-213), who treats onomatopoeia forms as compounds, divides them into *rhyme-motivated compounds* and *ablaut-motivated compounds*. The rhyme

between two elements is the major factor in the rhyme-motivated compound: *hokey-pokey*, *roly-poly*, and *teeny-weeny*. This shows that sound is changed in word-initial, which means the sound change of onset position. In the latter, vowel change or alternation appears in the two elements: *flip-flop*, *tick-tock*, and *zig-zag*. Following Bauer, when we assume that a lot of onomatopoeic words or sound symbolisms in Korean are regarded as compounds, *wulkus-pwulkus* corresponds to the rhyme-motivated compound and *singswung-sayngswung* corresponds to the ablaut-motivated compound.

### 3. Constraint

In this section, we will explore various kinds of constraint on the productivity of word formation.

#### 3.1 Morphological Constraint

As many morphologists (Bauer 1983, Bauer 2001, Plag 2003) have pointed out, it is not usual to add English adverbial suffix *-ly* to adjectives which end in *-ly*. Although *-ly* formation is a productive process, the adjectives ending in *-ly* do not show this process: \**elderlily*, \**miserlily*, \**sisterlily*, and \**worldlily*.<sup>1</sup> Another productive suffix *-ee* can be added to intransitive and transitive verbs: *resignee* and *huggee*. But the suffix is attached mainly to the transitive verbs. Rarely, *-ee* forms such as *escapee* and *infiltratee* appear as formation with the intransitive verbs.

Zimmer (1964:15) points out the interesting examples: *unwell* vs. \**unill*, *unhappy* vs. \**unsad*, and *unoptimistic* vs. \**unpessimistic*. This means that negative prefixes are not used with adjectival stems that have negative value on evaluative scales such as good and bad.

The suffix *-ity* is added to [+latinate] words, and *-hood* is attached to [-latinate] words: *possible-ity* vs. *boy-hood*. Korean also needs constraint to explain ungrammatical or unacceptable word formation. For example, forms such as *olun-ccok* ‘right side’ vs. *oyun-ccok* ‘left side’ and *wu-chuk* ‘right side’ vs. *cwa-chuk* ‘left side’, which indicate the relationship of antonym, are good word formation. On the other hand, *olun-chuk* vs. *oyun-chuk* and *wu-ccok* vs. *cwa-ccok* are very ungrammatical and unacceptable structures. This difference is due to lexical features in words. While *olun-*,

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<sup>1</sup> According to Bauer (1983), *friendly* and *sillily* are listed in the OED.

*oy-* and *-cok* are pure Korean forms, *cwa-*, *wu-* and *-chuk* Sino-Korean ones. The former have [+Kor] feature, and the latter [-Kor] feature. As in English, certain feature is required to explain the appropriateness of word formation.

Since the serial order of postpositions (ICM-DEL-SCM) is followed, the postpositions have a constraint on their combination. As S.-K. Kim (1989) points out, DELs do not freely cooccur with SCMs (DEL-SCM): (*man-i*, *man-ul*, *man-uy*) vs. (*\*to-ka*, *\*to-lul*, *\*to-uy*). The examples show that certain DELs connect with SCMs. This is confirmed in the following examples: (*kkaci-ka*, *kkaci-lul*, *kkaci-uy*), (*cocha-ka*, *cocha-lul*, *?cocha-uy*), and (*mata-ka*, *?mata-lul*, *mata-uy*). In the examples mentioned above, only *man*, *kkaci*, *cocha*, or *mata* can cooccur with the SCM.

At the same time, cooccurrence restrictions exist even within DELs. In other words, one DEL can cooccur with another DEL. When the DELs are divided into with respect to their position of appearance, we call them DEL<sub>1</sub> (*mace*, *cocha*, *kkaci*, *mata*, *ssik*, *man*) and DEL<sub>2</sub> (*(n)un*, *to*). While most DELs occur in the first position, only *(n)un* or *to* appears in the second position. The DEL *man* can also be put in the second position, but it can only combine with *kkaci* or *ssik* in the DEL<sub>1</sub> position: *ccaci-man* and *ssik-man*.

An interesting phenomenon turns up in the above cooccurrence restrictions. These restrictions specify the following order: DEL<sub>1</sub> {DEL<sub>2</sub> SCM}. This cooccurrence restrictions affect the order of DEL<sub>1</sub> and SCM, but also DEL<sub>1</sub> and DEL<sub>2</sub>. Since this is a mutually exclusive relation, DEL<sub>1</sub> must take either DEL<sub>2</sub> or SCM. For example, neither *\*kkaci-ka-to* nor *\*cocha-lul-un* exists in Korean.

### 3.2 Phonological Constraint

The velar consonant *k* is changed to *s* in certain word formation. As is well known, velar softening only occurs in words originate from Latin: electric [k] vs. electric-ity [s]. This phenomenon does not take place in words which are inherited from Anglo-Saxon.

Following Siegel (1972), Halle (1973) points out the phonological constraint on deadjectival verb formation, where a suffix *-en* is added to adjectives.

- (11) a. blacken, whiten, toughen, dampen, harden  
 b. \*dryen, \*dimmen, \*greenen, \*laxen  
 c. soften, fasten, moisten

The word formation in (11) must obey a phonological condition: (C) V (C[+son]) C[-son]]<sub>Adj</sub>. This constraint means that the forms are monosyllabic and end in an obstruent

which optionally may be preceded by a sonorant. The words in (11c) seem to violate the constraint because they have obstruent clusters. In order to solve this problem, if *t*-deletion rule applies after word formation, the derived form satisfies the phonological constraint: soft+en > *t*-deletion.

Deletion processes are shown in word formation. In adverb affixation, we can see the deletion of *l* in *kyewu-nay* (*kyewul-nay* → *kyewu-nay*): the *l* of *kyewul* is deleted before *n*. This phenomenon is also found in nominal or verbal compounding.

- (12) a. *mal-so* → *ma-so* ‘horse and cow’  
b. *mil-tatta* → *mi-tatta* ‘to push and close’

In (12), *l* is deleted before *s* or *t*. This *l*-deletion has a phonetic motivation. An alveolar consonant *l* is deleted before other alveolar consonants *n*, *s*, or *t*.

We can see the peculiar phenomena with respect to *l*-deletion:

- (13) a. *atul + nim* ‘son-Hon’ → *atunim*, *ttal + nim* ‘daughter-Hon’ → *ttanim*  
b. *pyel + nim* ‘star-Hon’ → *pyelnim*, *tal + nim* ‘moon-Hon’ → *talnim*

The examples in (13) show that although they have the same phonetic environment, *l*-deletion takes place in (13a) whereas it does not happen in (13b). This cannot be explained in a purely phonetic or phonological way. Since the same suffix *-nim* is attached to the nouns in (13), there is not a structural problem. In order to solve this trouble, we need to observe the different property between (13a) and (13b). While the former nouns have [+human] feature, the latter ones maintain the opposite feature [-human]. Instead of the phonological explanation, we should introduce semantic feature to handle the idiosyncrasy in (13).

### 3.3 Semantic Constraint

Bauer (1983:93) points out an interesting semantic constraint. In *blue-eyed*, *three-legged*, and *red-roofed*, the base must be inalienably possessed by the head noun that the adjective modifies. Thus, *\*two-carred man* or *\*a black-shoed lady* are not possible, since cars and shoes are possessed alienably.

Bauer (1983:94) mentions that there should not be any genus-species compounds like *\*humanman*, *\*animalhorse*, and *\*placemoor* where the determining element is implicit in the head element. Species-genus compounds are far more common: *cod fish*, *beech tree*, *puppy dog*, *palm tree*, and *boy child*. This shows not macro-micro but micro-macro relationship, and also implies that the modifier is a part or subset of the head. Korean compounds exhibit the same relationship as English ones: *namca-ai* ‘boy child’, *so-namwu* ‘pine tree’, and *yaca-namwu* ‘palm tree’.

The meaning in stratum 1 or level 1 affixes is more specific than that in stratum 2 or level 2 affixes: *-ity* (curiosity) vs. *-ness* (happiness). Aronoff (1976) claims that the more productive a process is, the more easily can its semantic effect be specified. This means that when affixes are used productively, they have a predictable meaning. In other words, productive affixes are more transparent in meaning if we assume that predictable meaning is related to meaning transparency. In Korean, the nominal suffix *-ki* shows more productivity than *-kay* in word formation: *tut-ki* ‘hearing’ vs. *teph-kay* ‘cover’. So *-ki* is more predictable than *-kay* in meaning of word formation.

Semantic transparency also affects the choice of causative suffix. While *-i*, *-hi*, *-ki*, and *-li* are causative and passive suffixes, *-wu*, *-kwu*, and *-chwu* are used only as causative suffixes. For the purpose of eliminating semantic opacity, single causative forms already formed seem to select one among *-wu*, *-kwu*, and *-chwu* rather than suffixes with both properties of causative and passive. Moreover, the addition of *-wu* is governed by a phonological condition, where *-wu* occurs with vowel-final bases, and *-kwu* and *-chwu* appear with consonant-final bases:

- (14) a. pi-ta ‘to be empty’ → pi-wu-ta  
       kkay-ta ‘to awake’ → kkay-wu-ta  
       say-ta ‘to dawn’ → say-wu-ta  
       b. sos-ta ‘to rise’ → sos-kwu-ta  
       tot-ta ‘to rise’ → tot-kwu-ta  
       c. nuc-ta ‘to be late’ → nuc-chwu-ta  
       nac-ta ‘to be low’ → nac-chwu-ta

This choice also exemplifies the movement of word formation towards increasing semantic transparency.

### 3.4 Binary Branching Hypothesis

The structure of word formation follows the Binary Branching Hypothesis proposed by Aronoff (1976) and Scalise (1984). This implies that it has a hierarchical structure: (a) [*kay* [*cwuk-um*]] ‘useless death’ (b) [[[*keyulu-m*] *payngi*] ‘idle person’. However, the Binary Branching Hypothesis permits ambiguity, as in the following example:

- (15) a. hes (Prefix)-pal (Noun)-cil (Suffix) ‘false-foot-doing’ ‘false kicking’  
       b. (i) [[hes-pal] cil]  
       (ii) [hes [pal-cil]]

The examples in (15) illustrate ambiguous binary branching. With respect to this

ambiguity, Scalise (1984:149-50) suggests that in Italian suffixation precedes prefixation. Such structure as [*kay* [*cwuk um*]] (\*[[*kay cwuk*] *um*]) ‘useless death’ confirms Scalise's suggestion. Moreover, although (15bi) and (15bii) are possible structures, the latter is preferred over the former. So it appears that suffixation applies before prefixation in Korean as well.

### 3.5 Blocking

In the lexicon, certain words can be formed, but others are not possible. For example, English noun *guide* is found but we cannot find *guider*. At the same time, *suere* does not exist in English because of the occurrence of *sewer*.

Clark & Clark (1979:800) claim that *spring* and *fall* are not used as verbs whereas *summer* and *winter* are used as verbs because of the prior existence of the homophonous irregular verbs *spring* and *fall*:

- (16) a. They summered/wintered in the country.  
 b. \*They springed/falled in the country.

This shows that regardless of meaning, homophony prevents word formation.

In order to explain possible but non-existent forms, Aronoff (1976:43) suggests blocking, and defines it as "the non-occurrence of one form due to the simple existence of another." As in English, blocking is often found in Korean. Verbal nouns, which are derived from verbs in Korean, are formed by verb base plus *-i*, *-(u)m*, or *-ki*. Consider the following examples:

(17) Verb	-i	-(u)m	-ki
a. mek-ta 'to eat'	mek-i	mek-um	mek-ki
pel-ta 'to earn'	pel-i	pel-um	pel-ki
b. wus-ta 'to laugh'	*	wus-um	wus-ki
ca-ta 'to sleep'	*	ca-m	ca-ki
c. po-ta 'to see'	*	po-m	po-ki
khu-ta 'to be big'	*	khu-m	khu-ki

The suffixes *-i*, *-(u)m*, or *-ki* can function as derivational suffixes which change verbs into nouns. In (17), the existence of forms with *-i* blocks other forms carrying *-(u)m* or *-ki*. While *mek-i* ‘food’ and *pel-i* ‘earning’ appear as nouns, *mek-um* or *mek-ki* ‘eating’ and *pel-um* or *pel-ki* ‘earning’ are still verbs.

On the other hand, it is possible that forms with *-(u)m* or *-ki* occur as nouns because of the non-existence of the forms with *-i*. This is confirmed in (17b) and (17c). In (17b), since *wus-um* ‘laughing’ and *ca-m* ‘sleep’ appear as nouns, *wus-ki* ‘laughing’

and *ca-ki* ‘sleeping’ remain verbs. In (17c), on the other hand, *po-ki* ‘example’ and *khu-ki* ‘size’ prevent *po-m* ‘seeing’ and *khu-m* ‘being big’ from becoming nouns. The examples in (17) illustrate that when the noun derived from a verb is already stored in the lexicon, it blocks the new noun.

Blocking is also found in forms with *-kelita* and *-hata*. Both suffixes can attach to onomatopoeic or mimetic words. The following examples present an interesting phenomenon:

(18) mimetic	-kelita	-hata	
pintwung	pintwung-kelita	*pintwung-hata	‘to be idle’
hetwung	hetwung-kelita	*hetwung-hata	‘to be hasty’
wungseng	wungseng-kelita	*wungseng-hata	‘to be noisy’
tetum	tetum-kelita	*tetum-hata	‘to grope’
esulleng	esulleng-kelita	*esulleng-hata	‘to hang around’

Using the symbol X for an onomatopoeic or mimetic word, the examples in (18) are represented as follows: [X / X-*kelita* / \*X-*hata*]. We can say that when X-*kelita* occurs in the lexicon, X-*hata* cannot be found. This fact can be described by blocking. Since X-*kelita* is already filled in the lexicon, there is no X-*hata*.

We consider blocking with respect to causative forms. As S.-Y. Bak (1982) points out, avoidance of meaning confusion is a factor in the formation of the double causative *-i-wu*. Since Korean is an agglutinating language, various kinds of inflectional suffixes can attach to the verb base. In contrast, only one derivational suffix can be added to the verb base: Verb Base-Causative and Verb Base-Passive. But the so-called double causative *-i-wu* is an exceptional and peculiar case. Consider the following examples:

- (19) a. *ca-ta* ‘to sleep’ → (\**ca-i-ta*) → *ca-i-wu-ta* → *cay-wu-ta*  
 b. *se-ta* ‘to stand’ → (\**se-i-ta*) → *se-i-wu-ta* → *sey-wu-ta*  
 c. *ttu-ta* ‘to float’ → (\**ttu-i-ta*) → *ttu-i-wu-ta* → *ttuy-wu-ta*  
 d. *cha-ta* ‘to be full’ → (\**cha-i-ta*) → *cha-i-wu-ta* → *chay-wu-ta*

Single causative forms without *-wu* may have sufficiently causative meaning. Nevertheless, these forms take double causatives by adding *-wu*. This phenomenon apparently results from an attempt to strengthen transparency of meaning. Single causative forms are identical with other verbs which already exist in the lexicon: *cayta* ‘to measure’, *seyta* ‘to count’, *ttuyta* ‘to appear’, and *chayta* ‘to snatch’. Since this coincidence causes confusion in meaning, blocking takes place in this case. In order to avoid semantic opacity, therefore, another causative suffix *-wu* is added to single causative forms.

#### 4. Morphology and Lexicon

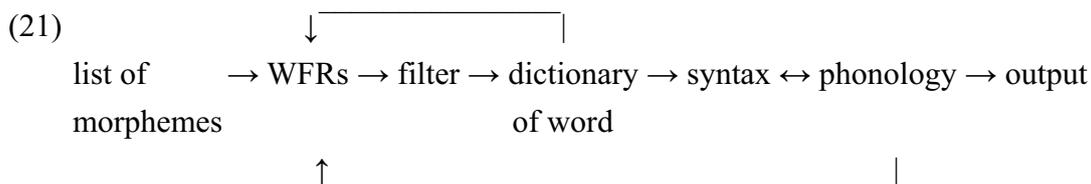
In this section, I will investigate the properties of morphology and the lexicon, and the relationship between morphology and the lexicon.

The lexicon, which may be called a dictionary of linguists, contains a list of morphemes and lexemes. In other words, the lexicon has been known as a storage where morphemes, affixes or words are included. Furthermore, since the lexicon has lawless properties (Williams & Di Sciullo 1987), idiosyncratic information of the morphological, phonological, syntactic and semantic components is stored in the lexicon. For example, Bauer (1983:190) mentions that there are three kinds of adjectives in English. The adjectives like *red* and *cold* are used either attributively or predicatively; those like *former* can only be used attributively; those like *afraid* can only be used predicatively.

- (20) a. The red house is on the hill.  
           The house on the hill is red.  
       b. The former president is in the audience.  
           \*The president in the audience is former.  
       c. \*The afraid man is at the bar.  
           The man at the bar is afraid.

Since it cannot be handled in syntax or semantics, this information has to be listed in the lexicon: red [+attributive, +predicative], former [+attributive, -predicative], and afraid [-attributive, +predicative].

Since Halle (1973), morphology has become an autonomous component where we investigate internal structure of words. Traditionally, morphology, which is recognized as word formation, has been handled in syntax and phonology. This means that there are no word formation rules in morphology, and that WFRs exist in other components. Syntacticians (Baker 1988, Lieber 1992) suggest that word formation can be dealt with in the syntactic component. Phonologists (Kiparsky 1982, Katamba 2005) argue that morphology is part of the lexicon. In contrast, Halle (1973) claims that morphology consists of three distinct components: a list of morpheme, rules of word formation, and a filter containing the idiosyncratic properties of words.



In (21), morphemes are input of WFRs. The forms derived WFRs are checked by filter, and then are listed in the dictionary. The listed forms or the phonological forms can be the input of WFRs. These three groups are summarized as follows:

- (22) a. lexicon (O), morphology (X) (→ syntax, phonology)
- b. lexicon (O), morphology (X) (part of the lexicon)
- c. lexicon (O), morphology (O) (autonomous, independent)

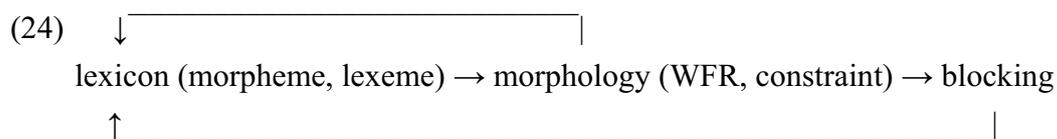
We assume that the lexicon is unproductive and irregular, whereas morphology is productive and regular. We may also say that potential or possible words are formed in morphology, and actual words appear in the lexicon. In (21), the list of morphemes and WFRs make potential words. Actual words are forms where potential words pass through the filter, and they are stored in the dictionary. So Halle (1973) mentions that morphology can be thought of as producing a long list of words; this list is designated by the term dictionary, which is similar to the notion listedness proposed by Williams & Di Sciullo (1987).

Katamba (2005:75) mentions an interesting example which shows the relationship between morphology and lexicon.

- (23) a. *yupp-ie* (= young urban professional people)
- b. *yuppi-fy*, *yuppie-dom*, *yup-ette*
- c. *buppie* (= black yuppie), *guppie* (= gay yuppie)
- d. *re-yuppification*, *de-yuppification*

The form *yuppie*, which corresponds to a kind of nonce word, is produced by an acronym *yupp* plus a suffix *-ie* meaning affection. The words in (23b) express a verbal form, a nominal form and a diminutive form, respectively. The words in (23c) are a kind of blending with respect to word formation. The words in (23d) exhibit affixation where prefixes and suffixes are added to the base *yuppie*. The acronym *yuppie* was a potential or possible word, but now it appears as lexical entry in a dictionary, which means that *yuppie* becomes an actual word by institutionalization. This process is summarized as follows: potential or possible word (morphology) → (institutionalization) → actual word (lexicon). On the other hand, the forms in (23b), (23c) and (23d) are recognized as potential or possible words. So they cannot be stored in the lexicon.

Unlike Halle and Katamba, I schematize the relationship between lexicon and morphology as follows:



The schema in (24) shows a circular process. Morphemes or lexemes in the lexicon can

be involved in WFRs. The possible or potential words derived by WFRs are restricted by constraints. The words which constraints are applied to may be acceptable or unacceptable forms. Since acceptable words become actual words, they can be stored in the lexicon. Unacceptable words go to the next stage, and they have to pass through blocking which is various kinds of filter. The forms which succeed in passing through blocking may be stored in the lexicon.

## 5. Conclusion

In this paper, I have dealt with the productivity of word formation and various kinds of constraints on word formation. A large number of words or compounds are made by affixation and compounding. As a result of word formation processes, possible or actual forms appear in morphology and the lexicon. This shows the productivity of word formation. However, we need a kind of device to restrict a power of word formation. So many kinds of constraint and blocking play an important role in distinguishing grammatical or acceptable forms from ungrammatical or unacceptable ones. These grammatical or acceptable forms are stored in the lexicon.

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# **Japanese women's language: Ideological constructs and changing gender roles**

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## **Abstract**

The Japanese Language has been characterized as being highly gendered with distinct male and female speech registers (Shibamoto 1985). These differences manifest themselves within self reference, addressee terminology, honorifics, pitch ranges and sentence final particles. However there seems to be an emerging pattern that suggests that women, in particular young women are abandoning 'traditional' Japanese women's language in favour of more masculine forms. (Okamoto & Sato 1992)

This synchronic study looks at two generations comprising of two sets of women from the rural north of Japan in an investigation to examine whether Japanese women's language use is in fact changing.

**Keywords :** Japanese women's language, Ideology, gender roles

## **Introduction**

Japanese women's language as a subject has been well represented and commented upon by both Japanese and non-Japanese scholars (Shibamoto, 1985, 1987, Okamoto 1995, Matsumoto, 1996, Reynolds, 1990). The general consensus within the metapragmatic discourse on how women should talk suggests that in contrast to men's language (*dansei-go*) Japanese women's language ( *joseego*) should adhere to being polite, gentle, softly spoken and non-assertive. Self reference (personal pronouns), honorifics, pitch ranges, address terminology, and sentence final particles have all been discussed as having these feminine traits and usage (Reynolds, 1985, Shibamoto, 1985).

Nevertheless are the cultural and scholarly representations of Japanese women's language reflective of the linguistic practices of contemporary Japanese women? Is Japanese women's language in a period of transition paralleling the change in gender roles or could it be suggested that 'feminine language' simply an ideological construct that does not in fact exist or find itself widespread in practice? (Sunaoshi 2004,

Okamoto & Sato 1992)

Technical terms such as *josego* and *onna kotoba* (women's language) argues Endo (2008) are used by linguists which carry with them a history of being forced on women in attempts to define their normative language since the Meiji period (1868-1912) So what is Japanese women's language and how strong is the relationship between *onna-rashii* ('feminine') language and the broad variety of language used by the Japanese woman of today?

The Japanese woman is defined as being elegant, polite, soft-spoken, non-aggressive and submissive and her language use and linguistic choices should therefore be reflections of this. Jordan (1990) states however that this is a stereotypical image of a weaker sex, of a woman who knows her place and is careful in demonstrating it. A throwback perhaps to days gone past to what Iwao (1993:1) calls "The Kimono-clad bamboo parasol-toting, bowing female walking three paces behind her husband".

Iwao (ibid:265) however suggests the traditional female has now become one of several breeds and that "The profound changes now taking place among Japanese women represent no less than a quiet revolution".

Kawashima (1995:271) states that "Japanese women have come a long way from the times when being a 'good wife and a wise mother' (*ryosai kenbo*) described her role in the family and society" With the growth in the number of roles for women and the independent economic status that they have acquired (Iwao1993; Lebra 1986; Fanselow & Kameda 1994; Jordan 1990) could this lead us to the assumption that these women's linguistic choices are also changing? Reynolds (1990) suggests that although contemporary women have a new found status, women's language still remains a representation that refers to the speaking practices of women in the past and recognizing this conflict is imperative if we are to understand the changing status of Japanese women and the change in Japanese women's speech. Such change has been given media attention which has highlighted the *midareta nihongo* or corrupt Japanese used by contemporary women as not being reflective of 'traditional Japanese women's language'. It has been labeled merely a vulgar, dirty and even tasteless use of the language with scholars such as Okamoto & Sato (1992) finding that young women are using less feminine forms and adapting a more masculine use of the language. This study attempted to determine if the same is true in the case of rural Japan, through an examination of Japanese women's discourse and their linguistic choices with particular reference to sentence final particles.

### *Final particles*

Inoue (2004) states the case that typical feminine sentence ending particles such as *da wa* and *wa yo* did not come to represent femininity as a result of being innately indexicalized as female exclusive. She argues that other sociolcultural and political phenomena are at work here.

At the beginning of the 20th century, Women's language was something that was read and not heard for the majority of the population. The late Meji period saw the consolidation of Japan's modern nation-state and the emergence of industrial capitalism. This period was also extremely influential in the creation of Japanese Women's roles. Based on Confucianism the notion of *ryoosai Kenbo*, *good wife, wise mother*, was introduced to compulsory education programmes. Such institutions emphasized homemaking, modesty, obedience to one's father and husband, chastity and high morality. Linguistically, writing and speech became standardized (*gembun ichi*) based on the elite of Tokyo. The rise of Women's language can be found in this linguistic modernization process. Inoue (1994:325) confirms this when she says "The construction and dissemination of women's language is closely linked to the construction and dissemination of the doctrine of 'good wife and wise mother' and to the larger political project of the conciliation of the nation-state".

By the early 20<sup>th</sup> century sentences endings such as *dawa* and *noyo* were increasingly assigned to female dialogue in novels, especially in *katei shoosetsu* or domestic novel which acted as learning aids for women on how to be a good wife and mother. This argument suggests that female education in the pre war years produced and ingrained gender differences with Sugimoto (1997) maintaining that from 1890 –1912 of the Meji period every effort was extended in order to make women more feminine.

#### *Masculine and Feminine Sentence Final Particles (SFP)*

*A full table categorizing SFPs and references can be found in Appendix A*

Maynard (1997) states that these 'interactional particles' express the speakers attitude and judgment toward the message and the addressee. McGloin (1990) suggests that these SFP's can create or maintain an interpersonal immediacy but these particles as has been discussed are sensitive to the gender of the speaker. The following sections will try to illustrate the bulk of these particles in practice.

### *Masculine particles*

The literature illustrates sentence endings as the predominant markers of gendered language in Japan. McGloin (1990) Streehan (2004) and Reynolds (1985) indicate that Japanese men use sentence final particles that index authority, aggression and masculinity as exemplified in the particles *ze* and *zo* and which are never used by women. Smith (1992) calls this men's linguistic privilege. But McGloin (1990) does argue that in monologues as does Hasegawa (2005) such particles are permitted to be used.

*Zo* is one of the more imposing of the masculine SFPs as it creates the impression of insistence, authority, aggressiveness and a status higher than your addressee. For example, father to children, a male teacher to his students.

McGloin (1990) asks the question why are *zo* / *ze* / *na* / *and sa* common in male speech with limited access to females with the response from Reynolds (1985) being that there exists a relationship with the assertive particle use and power within society. The more assertive particles are therefore reserved for men or those with greater power and authority (boys would not be encouraged to use such particles when speaking to their fathers) and that as women are regarded as the weaker sex they are taught to use those particles with weaker assertion. For example, '*Yo*' has been analyzed to express the speaker's insistence and emphasis on the information and is considered mildly masculine although as McGloin (ibid) admits is soft enough to be used by women and by inferiors to a superior making it a more neutral particle.

### *Feminine particles*

As illustrated in Appendix A feminine particles can fall into the mildly feminine or strongly feminine category. '*Wa*' is commonly attributed to women's speech. It is used by women when addressing both intimates and acquaintances but can also be attributed to men in the Osaka region of Japan to express surprise and admiration. *Wa* with a rising intonation gives it a distinct classy feminine edge. Ide and Yoshida (1999) speak of the dual nature of the particle. Ide (1992) as in Ide and Yoshida (ibid) suggests that the softening function of *wa*, an effect of the negative politeness strategy (Brown and Levinson 1987), enables the creation of relaxation as it functions as a non-impositional particle with respect for the addressee. This leads to an atmosphere of sharing which is an effect of the positive polite strategy.

Ide and Yoshida (1999) suggest that the speaker who frequently uses *wa*, *wa yo* or

*wa ne* index their identity as female while those who use *zo* or *na* as SFP's index their identity as male. This would suggest a conscious choice can be made, however such a choice has social implications. Sasaki (2003) suggests that a man using feminine forms is giving the impression he wants to be feminine. A woman who uses masculine forms gives the impression she wants to be one of the boys (Reynolds 1990).

McGloin (1990) reveals that 'wa' and 'no' are used as tools that function as softeners of women's speech because of the effect of uncertainty created by them. *no* however may be more neutral in questions but when used in declarative sentences is considered feminine. Below are some cultural representations of 'wa' and 'no'.

### **Cultural representations of WA わ and NA NO なの**

#### **Female version**

あした友だちの結婚式なの  
*ashita tomodachi no kekkon shiki na no*  
Tomorrow is my friend's wedding

#### **Male version**

結婚式なんだ  
*kekkon shiki nan da*  
Tomorrow is my friend's wedding  
(From *Mangajin's Basic Japanese through Comics Ashizawa (1998)*)

#### **At school**

数学のテスト、何点取ったの？  
*Suugaku no testo, nan ten totta no?*  
What did you get on the Math test?

100点よ。あのテストは朝飯前だったわ  
*100 ten yo. Ano testo ha asameshimae data wa.*  
100%. That test was a piece of cake.

あなたにとってはね。。。  
*Anata ni totte wa ne...*  
For you, maybe...

(From *Nova city, An English conversational school magazine (2005) Various authors*)

Okamoto however (1997) as cited in Ide and Yoshida (1999) found that women

tend not to use the above particle *wa* instead opting for masculine particles in informal situations. Her informants commented on a lack of assertiveness in feminine SFPs and that such particles create a distance between the speakers so they are not likely to use them in conversations with close friends. They opted to choose particles such as *yo* preferred by men which emphasize intimacy toward the addressee because of its directness. She explains that the use of masculine SFPs such as *zo* reinforces solidarity among close friends.

Having provided a discussion of the two gendered forms of SFPs use it can be concluded that that we have the blunt, the aggressive and the forceful (masculine) juxtaposed with the gentle, the soft and the hesitant (female).

Matsumoto(2004b:255) however suggests that these divisions of masculine and feminine linguistic behavior can be misleading giving the "...impression that Japanese women and men speak differently at all times, as if they were originally from two different tribes with two different languages". While It has been noted that traditionally the male female dichotomy is a strongly embedded one within Japanese culture it appears that language forms especially amongst the young are changing.

## **Empirical Evidence**

Ozaki (1999) found that the use of feminine forms (SFPs) was extremely frequent in women aged fifty and over, but that women in their twenties hardly used them at all. Sasaki (2003) suggests that feminine forms peaked with *dankai no sedai* (post war baby boomer generation) and has since gradually decreased with the possibility that the forms may disappear in the future. Perhaps a more linguistically neutral future. Sasaki (ibid) does state however that more women are using masculine linguistic forms, not the strongly masculine forms, but that 80% of young women in their twenties are using forms that were previously thought of as purely masculine.

Sasaki (ibid) does not hold an optimistic future with regard to the longevity of the female linguistic form and suggests that if the use of feminine forms continues to decrease at the present rate, it is a possibility that they will become obsolete except in the world of literature, cinema and song.

Mizokami (2003) found that college women use expressions typically reserved for men concluding that they may not be tied to the idea of women's language than older women. Informants in her study of whether women are in fact politer than men revealed that TV dramas and novels exaggerate linguistic differences between the sexes

hinting at it being an ideological construct rather than a reality. Although her informants were aware of the sex distinctions of speech they suggested that context played a significant part in what sentence endings and expressions are used. Mizokami (2003:122) therefore sums up by stating that "... there is in fact no absolute difference between men's and women's language, rather the boundary between men's and women's language is re-marked according to the context at all times". She suggests that feminine language has not been so deeply internalized by the younger generation. Her study however looked at college students but as this investigation examines slightly older women, what happens to their language use as they enter their 20's and join the workforce. Do they as Eckert and McConnell-Ginet (2003) state grow into the language?

Okamoto and Sato (1992) in their study of 14 middle class Japanese women found that younger women from the 27-34 age group used 'feminine' forms 24% of the time compared with women in the 45-57 age bracket who used them 50% of the time. The youngest group (18-23) used them 14% of the time. Eckert and McConnell-Ginet (2003:187) state that "While it is unclear whether this represents change in usage through time or in the lifetime of the speakers, it certainly shows that at least nowadays feminine forms are not favored by younger speakers". Reasons to why are numerous. Matsumoto (2002) has argued that younger women have not used such forms in comparison to their elders because of the fact that they have not learned the 'delicacies of choice' and because the 'nature of their social relations is not as yet hierarchically complex'

Another probable reason could be that social change has decreased the need for such forms as women enter the marketplace and demand greater equality. This may be reinforced with the situation of women growing up with different expectations and dynamics among their peers (Eckert and McConnell-Ginet 2003) Reynolds (1985) however suggests that the phenomenon of women using masculine forms occurs with younger women conversing amongst themselves. She also states that expectations with regard to expected linguistic behavior of the sexes is so ingrained that as soon as younger Japanese women either enter the workplace or get married she modifies her speech to conform to social expectations. This point of view would suggest that such findings have no significant effect on the overall status of women or women's use of language in the foreseeable future.

Matsumoto (2002:339) points out that the categories of feminine and masculine can be problematic and suggests that the recent studies that have disputed the dichotomy between men's and women's language illustrate "... that the relationship between

linguistic expressions and the gender of the speaker is only probabilistic at most, rather than a strict correspondence” Furthering this point Ochs (1993) suggests that indexing gender is not simply a process of matching linguistic forms to a speakers sex but instead it should be realized that speakers draw from a menu of stereotypical forms to enact social identities. These identities can be seen to be changing and the linguistic forms chosen from this menu is also changing, but are women, particularly young women, choosing from the feminine menu, the neutral or masculine menu in terms of the sentence final particles they use?

Is femininity therefore something that you grow into as implied by Eckert and McConnell-Ginet (2003) and as you age consequently select from the feminine particle menu or is the fact that young Japanese using less feminine or deferential language (as illustrated in sentence endings) a reflection of social and linguistic change? Eckert and McConnel-Ginet (2003:329) do not see current behavioral changes as a process of women becoming masculine, but admit that social and linguistic change has taken place. They argue that it may be a sign that girls are making a claim for authority as their male peers do. They suggest

The linguistic changes are not something that have simply washed over the younger generation: they are the result of girls finding ways of constructing kinds of selves that were not available to earlier generations. They are the result of social and linguistic strategies. In other words, this linguistic change is part of identity work of finding ways of being in the world of creating new meanings for themselves. Young Japanese women who use stronger forms may be seen by some as speaking like men, and their motives may be attributed to their trying to be more ‘like’ men.....perhaps she is affirming her right to be assertive

### **The Informants**

It must be stressed that this study is not intended to reflect the population as a whole, rather it is intended to shed light on the linguistic practices of two generations of women who residing in rural Japan, taking into account how gender can interact with

other social variables, such as class and occupation. It differs from other studies on this subject (Mizokami, 2003; Okamoto & Sato, 1992, Okamoto,1995) in that it looks only at women from rural agricultural working class backgrounds in contrast to studies which focus on middle class women from the Tokyo area.

The majority of informants used were my own acquaintances. Others were introduced by friends, particularly those over 50. A total of 30 informants were interviewed. 15 of these women were between the ages of 21 and 29, with an average age of 25. The older group was comprised of 15 women between 50 and 63, with an average age of 53. The average age difference between the two groups made it possible to compare across distinctly different generations. All informants were born and raised in the rural areas of Akita and Aomori.

Of the fifteen older informants 13 were homemakers, two of whom held part-time jobs; the remaining two held full-time jobs. All but two were married, and all came from a rural agricultural ‘working class’ background. Most had worked in farming or agricultural related companies. None of the older group had lived abroad, though many had taken brief holidays overseas. Four of the informants, however, are friends with local foreigners and are very interested in foreign culture. The younger group was comprised of ten single women (eight of whom were working full-time), four married homemakers, and one married working professional. Occupational backgrounds were quite varied; none work in the agricultural industry. Compared to their older peers, the younger women are more ‘international’ Eight of the younger informants have been abroad to various extents, speak English, and socialize within foreigners on a regular basis.

The informants have been categorized as in the following examples:

**OJF1 (Older Japanese female 1)**

**YJF1 (Younger Japanese female 1)**

## **Methods**

By means of discourse elicitation tasks, informants spoken discourse was recorded and assessed for the number of masculine and feminine forms used. This was followed by a semi-structured group interview in which informant perceptions and opinions of language and gender were discussed.

The discourse elicitation tasks presented the informants with a series of statements for discussion. The tasks were broken down into two categories, the first of which asked informants to choose between a set of opposing pairs such as coffee or tea and to give reasons for their choices. This was followed by the second task which asked informants to comment upon statements or hypothetical questions such as ‘What would you do if...?’ These tasks were designed to get as much recorded discourse as possible with the time given which usually stretched to an hour. Feminine and masculine sentence final particles uttered by the informants during these informal conversations were counted.

After the recordings were transcribed, a total of 100 sentences were taken from the same point of the interview (from the discourse elicitation tasks). The same point usually meant when the author determined when the informants were comfortable with the interview which was usually about 5 to 10 minutes into the interview session. The number of strongly/slightly masculine particles and strongly/slightly feminine particles as well as neutral ones were counted and totaled as a percentage (See Appendix A for the SFPs and their forms).

Upon completion of the discourse elicitation tasks the session concluded with informants being asked a series of open ended questions in an informal interview that specifically attempted to investigate the question Is Japanese Women’s language in transition and if so why?

## **Results**

The table below illustrates the collective findings of the two groups from the discourse elicitation tasks and shows variation in the speech practices of the two generations with the younger group being less feminine and more masculine than the older group in the use of sentence final particles.

## Use of gendered sentence final forms for the two group

**Table 1.**

	<b>Final forms used by young group (20-29)</b>	<b>Final forms used by older group (50-63)</b>
<b>Strongly masculine forms</b>	45 items. (3%)	36 items. (2%)
<b>Slightly masculine forms</b>	265 items. (18%)	159 items (11%)
<b>Neutral</b>	1111 items. (74%)	1120 items (75%)
<b>Slightly feminine forms</b>	65 items (4%)	135 items. (9%)
<b>Strongly feminine forms</b>	14 items. (1%)	50 items. (3%)
<b>Totals</b>	1500	1500

### *The older generation*

In contrast to the studies of Okamoto and Sato (1992) the older generation here is radically different to the middle / upper class professional women of Tokyo in which they found that in females aged 45-57 strongly feminine SFPs were used 28% of the time and slightly feminine 50% of the time which lies in stark contrast to these working class homemakers from an agricultural background. (3% strongly feminine and 9% slightly feminine)

A number of reasons can be perhaps given here as to why the older generation are electing not to use feminine language and favoring a neutral, unisex one. (75% of utterances). Unlike other studies such as Okamoto and Sato (1992) this study focused on rural working class women with agricultural rural backgrounds. These rural backgrounds exclude them from the assertion that Japanese women's language hails from the perspective of highly educated women who are living in or aspiring to be associated with Tokyo. Sunaoshi (2004) argues that for women outside this category or who live in regional Japan as seen here, Japanese women's language plays a different role, if any at all. An example she gives is that "...women who live in regional Japan and who are in working-class occupations may not use features of 'Japanese women's language', not because they are unable to master them but because features of 'Japanese women's language' are simply not in their language repertoire" (2004:188)

The older women interviewed here formed part of a small yet close agricultural community, where perhaps the necessity to use women's language is not requisite when compared to the urban middle class equivalent. Perhaps then the notion of a feminine language is an ideologically construct not reflected in reality can be supported here, at least not for the rural homemaker. Sunaoshi (2004:200) argues "Indeed, the use of

“Japanese women’s language” is itself a regional phenomenon; “Japanese women’s language” is the ideal shared by women of a certain socioeconomic background who reside in Tokyo or aspire to Tokyo values, including language use”. The findings here would seem to support this.

### *The younger generation*

As reflected in the data here the younger generations use of their language appears to be abandoning feminine use of the language and adopting a more neutral stance similar to that of the older generation with the masculine uses of the language stemming largely from the ‘slightly masculine category’. The evidence here shows that among the young, speaking styles and sentence final particles that were once thought of as the domain of men, in the case here slightly masculine particles, are now in use by these women. There were over 100 more slightly masculine forms used with the younger generation than the older group with only an additional 10 in the strongly masculine category. Nevertheless results were not overwhelmingly different in their percentage form (18%) in comparison to 11% for the older group.

It can be argued however that these women have incorporated them into their daily conversations almost unconsciously allowing as suggested by Matsumoto (2004b) “some of the expressions considered “feminine” to fall into disuse (208)”. The data would certainly seem to support this notion. With the younger generation registering 4% and 1% for slightly feminine and strongly feminine forms respectively. In comparable studies Okamoto and Sato (1992) found that with the same age group of 18-23 year old women and 27-34 year olds their feminine utterances totaled 14% and 24% respectively. Again however it must be emphasized that the women in their study came from different socio-economical environments to the women here.

### **The Interview**

The interview initially asked informants to describe the younger generations language use and to explain the changes and reasons if any in their spoken discourse. A comparison was also asked of the informants to explain the differences in language use with the two generations of women here. Below are some of the views and opinions that the groups expressed.

### *Language use and changing gender roles*

Both generations agreed that it is the older generation who employ more feminine language use and that it is the young who are masterminding a trend that is moving away from what is considered Japanese women's language with their spoken discourse employing more masculine forms.

YJF14 suggests that the use of women's language creates a distance between the speaker and the addressee and does not cement a rapport between speakers. Maynard (1989:30) states "... frequent insertion of particles encourages rapport between the conversation partners and achieves a closer monitoring of the partners feelings". These particles of rapport are *sa / ne / no / kana / yo na / and ze*. The strongly masculine *Sa* (18 items) and *na* (27 items) was seen to be used by the young group with the strongly masculine *na* (29 items) favored more than the alternative softer and feminine *ne* by the older group. *Kana* was favored more by the younger group with the feminine alternative *kashira* only spoken by 4 older informants. The younger informants spoke of 'having a good time' with the language and that in intimate close relationships with same sex friends masculine usage of the language enabled this (See table below for when women elect to chose masculine language). This parallels Okamoto & Sato (1992) who found that the use of strongly masculine forms seem to be a highly conscious decision. Okamoto (1995:315) states "Their employment therefore functions to increase the expressiveness of an utterance, making the conversation between peers more interesting and spirited"

#### **When do you use masculine language?**

	<b>Older group</b>	<b>Younger group</b>
When angry	66%	24%
Do not use	23%	0%
Speaking with close friends	7%	57%
When doing sports	0%	10%
Other	4%	9%

YJF3 pointed out that the older generation have not changed the way they speak since they were young and that the encouragement of that generation on the young to use feminine forms is something she as well as other young people do not agree with. For this reason particles like *da wa* are fading out amongst the young. (Evident in the

fact that the use of *da wa* was not used once in the spoken recorded discourse among the young group). YJF7 suggests that young women do not worry about how they speak anymore. (perhaps the stigma and taboo is disappearing) YJF7 (aged 29) also points out that if a young woman were to use the language of women in their 50's then their peers would find it strange and that for her personally to speak '*kirei na kotoba*' beautifully is a little embarrassing. YJF8 is adamant that women have become stronger and that this is reflected in a more assertive language use which has been termed '*ranbo*' or rough by observers.

OJF14 whose language use was recorded as 84% neutral and 10% strongly masculine suggested that the borders between masculine and feminine language use is becoming blurred as perhaps shown in her own discourse.

OJF11 pointed out that language use is a growing process, perhaps as Eckert and McConnell-Ginet (2003) suggest it is something that you grow into. The informant suggested "We have experience compared to the younger generation so naturally we can use women's language"

YJF2 the youngest informant at 21 agreed that young women's language use is *hidoi* (awful, terrible). She suggested that before women reach the age of 50 that somehow their speech style changes in an unconscious process and that women in their 20's who go through changes such as employment, marriage and motherhood also witness their language change too.

Some informants however claimed that even though young Japanese women's language is perceived to be changing they in fact did not adhere to the change. YJF15 states that when she hears the 'rough' language of the young she feels disappointed and distances herself from such use as it is not reflected in the way she speaks. She continued that the language is changing as exemplified in the young abbreviating their Japanese and creating their own vocabulary.

The young point to a genderless language in the future and suggest that changing social roles of women are primarily the cause of this. The older generation may disagree but the evidence here certainly seems to suggest that very fact.

The younger generation suggested that social pressure on young women in particular to use feminine language is not strong, nor widespread, but that cultural representations of the feminine language as seen through Japanese TV drama's tend to exaggerate these forms and are not representative of all Japanese women. The younger informants believe there is a relationship between place of birth and language use. A woman from Tokyo is more prone to use feminine language than a woman from Akita or Aomori which would support the notion that Japanese women's language is a Tokyo

centric phenomena.

## **Conclusion**

This paper has tried to highlight the change in contemporary women's speech in an synchronic study with two generations. The data suggests the younger generation are adopting more masculine forms in their spoken discourse and are moving away from traditional Japanese women's language discourse.

A change in gender roles and new social identities are given to account for these trends in younger women's spoken discourse. However what this research has also attempted to SHOW is that these synchronic variations in Japanese women's language have challenged the concept that Japanese women's spoken discourse constitutes a discrete, homogeneous category.

Research on Japanese language and gender has tended to uphold the stereotypical *yamanote* speech of Tokyo women as the true sound of Japanese femininity.

Nevertheless the term 'Japanese women's language as suggested by Okamoto (1995) is a culturally and ideologically constructed, class-based norm that is too static and monolithic to account for the varied speech styles of Japanese women. The speech styles documented within this research are perhaps testament to this.

With the younger generation it can be argued that their language use is in a period of transition with the adoption of more masculine and neutral forms with the severe depletion of feminine forms within their spoken discourse. The data also indicates synchronic variation among the generations that can possibly raise questions for future investigation. Is this change temporary? Will the younger women bloom linguistically into a more feminine use of the language as they age? A diachronic study would be needed to answer these questions nevertheless based on the results of the older women's discourse here and within this region this may not be the case.

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## Appendix A

### Masculine and Feminine Sentence Final Particles

The observations below are based on the literature of (Okamoto1995. Okamoto & Sato, 1992 .Maynard, 1997. Ide & Yoshida,1999. McGloin, 1990. Smith,1992. Shibamoto, 1985. Reynolds, 1990. Matsumoto, 2004 . Makino, 1989).

Strongly masculine	Slightly masculine	neutral	Slightly feminine	Strongly feminine
		‘No’ used in interrogatives	‘No’ after a noun or na adjective	‘no’ after a noun or na adjective* in a statement
	‘da’ after nouns and na adjectives*	Nouns alone		‘wa’ proceeded by da or the past version datta
	Auxiliary ‘da’ followed by yo, ne or yone			‘wa’ proceeded by da / data and followed by ne, yo or yone.
	Auxiliary ‘n da’			‘wa’ proceeded by da / data and followed by

				ne, yo or yone.
	Auxiliary 'n da' followed by yo, ne or yo ne			
	Auxiliary 'daro(o) for expressing probability/ seeking confirmation/ agreement		Auxiliary 'desho(o)' for expressing probability / confirmation / seeking agreement	
	'Kana' Attached at the end of sentences meaning 'I wonder...'			'kashira' I wonder
Ze for strong assertion	Yo after a plain form of a verb or I adjective *			'yo' (with a high sustained intonation) after a noun or na adjective*

Strongly masculine	Slightly masculine	neutral	Slightly feminine	Strongly feminine
Zo for strong assertion (considered stronger than ze )		Plain form of verb or I adjective* for assertion		Wa (with rising intonation) for mild emphasis and its variants (wane ,wa yo ne)
'na' for eliciting agreement		Particle yo followed by ne for seeking agreement or confirmation	Ne after a noun or adjective	No followed by ne or yo ne for seeking confirmation or agreement
'ka yo' for expressing defiance / criticism				
The negative command 'na'				
	-oo ka? Used for an invitation or offer			
Strong imperative Yamero! Stop it!		Imperative Yamete Stop it		

	Sa. When used following verbs and adjectives	Sa. Used by both men and women. Feminine version may have the longer saa sound which acts like a colloquial filler		
	Jan Male equivalent and contraction of 'ja nai'? Considered neutral by some. Used to seek agreement with mild assertion		Ja nai? Like the particle 'ne' used to seek agreement with mild assertion considered neutral by some	

\*na adjective, an adjective that takes na to modify a noun. An \*I adjective ends in I.

- These sentences are found only in informal speech where gender differences are distinct
- Uchida (1983) found that men used 'Jan' which is considered neutral by Okamoto (1995)
- Kana is considered neutral by Okamoto (1995) but masculine by the majority of sources (Ide & Yoshida, 1999. Makino, 1989. Uchida, 1983)
- For the purpose of this study the particles as illustrated in the table were assessed

# **The Influence of Gender on the Prosody of Buenos Aires Spanish**

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## **Abstract**

The classic research on Spanish prosody ignored the sociolinguistic variables of gender and age. However, we found variation in the prosodic patterns of Buenos Aires Spanish according to these variables.

The population of our study includes 132 native speakers of BAS (66 males /66 females) divided equally in three age groups (5-8, 18-50 and 51-78). The corpus contains declarative; wh-questions and exclamatory sentences.

Our results indicate that: (1) there was an inverse proportion between the difficulty of the sentence and the range of prosodic variation among speakers, (2) females of all ages consistently prefer marked prosodic forms; (3) adult males have more random intonation patterns (4) younger adults of both genders show the most prosodic variation according to sentence type.

**Keywords:** prosody, Buenos Aires Spanish, gender, age.

## **1. Introduction**

The classic research on Spanish intonation (both Peninsular and Latin American) overlooked the sociolinguistic variables of gender and age (e.g. Navarro Tomás 1944/1974, Quilis 1993, Beckman et al 2002). Modern studies of Buenos Aires Spanish (BAS) prosody have also ignored these variables (e.g. Sosa 1999, Toledo 2000, Colantoni and Gurlekian 2002, 2004, Gurlekian et al. 2004, Barjam 2004). In our previous research, based on a limited number of speakers and sentences, we found variation in BAS prosodic patterns for these variables (Enbe et al. 2006, Enbe and Tobin 2007, 2008). Therefore, the goal of the present study was to compare and contrast the prosodic patterns of BAS in different sentence types according to gender and age analyzing a more extended population using a larger corpus of sentences. Our new results support and even further strenghten our original findings. The results were analyzed and explained according to: (1) the defintion that language is a symbolic tool whose structure is shaped both by its communication function and by the characteristics of its users (Tobin 1990, 1993, 1994) and (2) the principle that language represents a compromise in the struggle to achieve maximum communication through minimal effort (Diver, 1979, 1995; Davis 1984/1987; Tobin, 1997) associated with the Theory of Phonology as Human Behavior.

## 2. Experimental design

### 2.1. Participants

The participants for this study were 132 native speakers of BAS divided into 3 age groups: a) children (5-8 years); b) adults (18-50 years) and c) adults (51-78 years), with 22 males/ 22 females per group. The subjects were native, monolingual, middle-class speakers of BAS living in the Buenos Aires area. They had been diagnosed with normal hearing and have no physiological disorders of the vocal folds or of the vocal tract. Adolescents (9-17) were not included in our study because of hormonal changes affecting fundamental frequency (F0).

### 2.2. Speech material

The corpus was composed of the following seven sentences:

- (a) Declarative sentences: *El agua hierve.* ('The water is boiling.') (S-V), *El agua y el aire dan la vida.* ('Water and air give life.') ((S1+S2)-V-O); (b) Wh-questions: *¿Dónde vive el nene?* ('Where does the boy live?'), *¿Cómo era el avión?* ('How was the airplane?') and *¿Quién era el amigo?* ('Who was the friend?') (Wh-word—V—S); (c) Exclamatory sentences: *¡Gol!* ('Goal!') (Noun) and *¡Viva!* 'Hooray!' (V).

The sentences contained only voiced consonants and vowels in order to obtain an uninterrupted fundamental frequency contour. The target sentences were examined and verified by a board of eight experts (four speech pathologists, two linguists and two language teachers) who listened to the sentences and classified the utterances as typical BAS declarative, wh-question and exclamatory sentences.

### 2.3 Procedure

The current study is part of a larger research project (Enbe 2003, Enbe et al. 2004, Enbe and Tobin 2006, 2007, 2008) which initially investigated the prosodic patterns of typical versus atypical speech in BAS. Therefore, we employed sentences with a controlled prosodic pattern and similar content words using a repetition task to enable us to compare and contrast the utterances among speakers. We are aware that in sociolinguistic studies as close an approximation to spontaneous speech is preferred, and that the repetition task may present additional problems for the sociolinguistic aspects of our study from the point of view of context, pragmatics and the priming effect, among others factors, and must be taken with caution. However, being that the sociophonetic variables of gender and age in prosody in general and in BAS in particular have not been adequately researched previously, we view this study as a limited first step and would suggest a different elicitation methodology or methodologies for future sociolinguistic studies of prosody.

Moreover, we found that the use of a repetition task has advantages over the other elicitation tasks previously used in intonation studies (e.g. reading aloud, spontaneous speech) because of the following two reasons: a) the study includes children who do not necessarily read or do not read fluently and b) the speakers of atypical speech included in the original project restricted the kind of elicitation tasks because spontaneous speech and reading aloud were not suitable for speakers with speech disorders. We also avoided the use of other elicitation tasks such as picture naming, word identification, word production, and fragment completion frequently employed in the clinic because these tasks are also related to complex cerebral activity that not suitable for the atypical population of our original study.

The target sentences of our study were recorded by the first author, a native speaker of BAS who is also a speech language pathologist. The speaker was requested to produce each utterance using his/her own “natural” (or habitual) prosodic patterns for each of the specific grammatical sentence (declarative, interrogative or exclamatory). The utterances were recorded in a partially-isolated acoustic room, using AKG acoustics D50S dynamic vocal microphone on a Mini-disc Sony MZ-R37. Waveforms were digitalized and stored on a hard disc with a quantization rate 16 bits using a sampling frequency of 44 kHz. Acoustic analysis was performed with the “Anagraf” speech program (Gurlekian 1997/2004) and each utterance was labeled according to the principles of AM-Theory (Pierrehumbert 1980), following the guidelines of ToBI (Beckman and Ayers 1993/1997) within “ToBI-A” (a wide ToBI system proposed for Argentinian Spanish; Gurlekian et al. 2001, 2004). The results were interpreted within the framework of the theory of Phonology as Human Behavior (PHB) which attempts to explain linguistic phenomena in general and phonological and prosodic features, in particular, according to the axiom of “maximum communication with minimum effort.”

### 3. Results

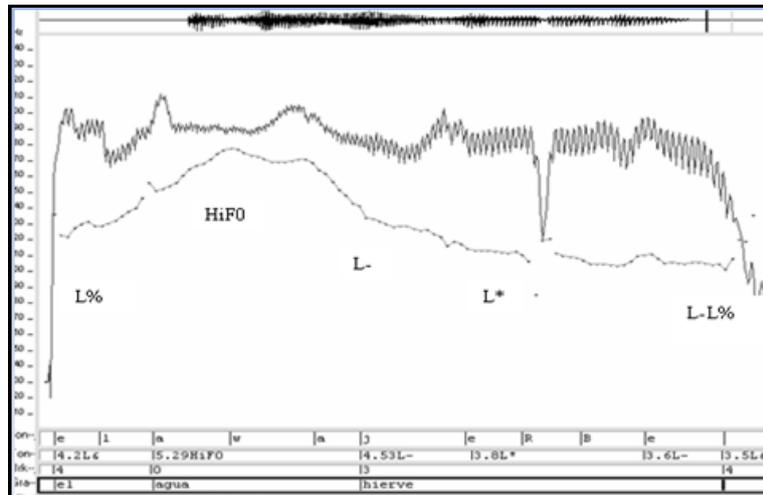
#### 3.1. Declarative sentences

##### 3.1.1. Simple declarative sentences (S-V)

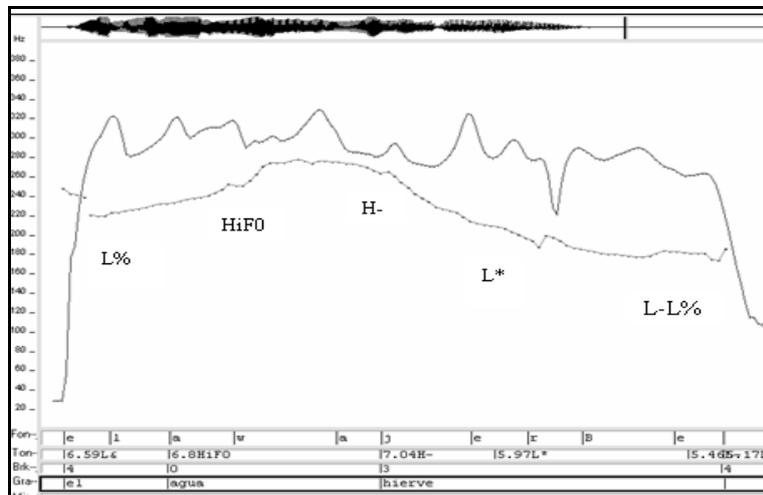
The results obtained based on 132 simple declarative sentences (S-V) show that the majority of speakers produce patterns similar to both classic Spanish patterns: the unmarked Type-1 (1a) and the marked Type-2 (1b) originally established by Navarro Tomás (1944/1974).

- (1)                    *El Agua HIERve*  
                          the water boils  
                          ‘The water is boiling.’

In (1) the sentence *El agua hierve* is uttered according to the classic unmarked and marked patterns Type-1 (1a) and Type-2 (1b) illustrated in figures 1 and 2 respectively.



**Figure 1:** Prosodic pattern Type-1 of the sentence *El agua hierve* ('The water is boiling.') uttered by a man aged 19.



**Figure 2:** Prosodic pattern Type-2 of the sentence *El agua hierve* ('The water is boiling.') uttered by a woman aged 21.

In both examples, the speakers divide the sentence into two melodic groups by a tonal change. Both BAS patterns have the highest tone of the sentence on the subject and a falling prosodic contour in the predicate. In the unmarked Type-1 pattern, however, the falling contour already starts at the subject of the sentence

and continues to fall in the predicate until the end of the sentence, thus requiring minor effort to produce the prosodic contrasts (see figure 1). The marked Type-2 pattern, however, requires more effort by maintaining the rising prosodic contour longer over the entire subject, followed by a shorter falling prosodic contour only in the predicate until the end of the sentence, thus producing a clearer contrast between both parts of the sentence (see figure 2).

The prosodic pattern distribution according to gender for S-V declarative sentences shows that half of the females prefer the marked classic contour pattern Type-2 (50%) over other non-classical patterns (29%) and the unmarked classic pattern Type-1 (21%). Males prefer other non-classical patterns (45%) over unmarked Type-1 (30%) or marked Type-2 (25%) classical patterns (see table 1).

**Table 1.** Pattern distribution in BAS S-V declarative sentences according to gender.

<b>Declarative sentences with simple subject (S-V)</b>						
	<b>Type-1</b>		<b>Type-2</b>		<b>Other patterns</b>	
	Tokens	%	Tokens	%	Tokens	%
<b>Males</b>	20	30%	16	25%	30	45%
<b>Females</b>	14	21%	33	50%	19	29%

Therefore, table 1 clearly shows that in the simple S-V declarative sentence, females prefer the marked classic pattern Type-2 while males randomly produce non-classical patterns more than both classic patterns unmarked Type-1 and marked Type-2. Children of both genders (45% of males and 52% of females) follow adult female speakers by favoring the marked classical Type-2 pattern.

### 3.1.2. Declarative sentences with compound subject ((S1+S2)-V-O)

Our results for declarative sentences with a compound subject ((S1+S2)-V-O) based on the sentence *El agua y el aire dan la vida* ('Water and air give life.') show that both males and females randomly prefer three different non-classical patterns uniquely found in BAS. We called them the unmarked BAS-Type0 (2a), and the marked BAS-TypeA (2b) and BAS-TypeB (2c) patterns, respectively.

- (2) El Agua y el Aire DAN la Vida  
the water and the air give the life  
'Water and air give life.'

In the three unique BAS patterns mentioned above, the subject consistently has two high pitch accents but we found different prosodic variations in the predicate. In general, BAS speakers prefer to place the highest pitch accent of the sentence



Analyzing the results in this more complex declarative sentence (S1+S2)-V-O, differences in gender seem to be neutralized because both males and females randomly prefer the three unique BAS patterns (see table 2).

**Table 2.** Pattern distribution in BAS declarative sentences with compound subject according to gender.

Declarative sentences with compound subject								
	BAS Type0		BAS TypeA		BAS TypeB		Other patterns	
	Tokens	%	Tokens	%	Tokens	%	Tokens	%
<b>Males</b>	14	21%	21	32%	18	27%	13	20%
<b>Females</b>	21	32%	13	20%	21	32%	11	16%

However, as we can see in the following table 3, we found prosodic variations according to age:

- a) Girls (5-8) and older females (51-78) prefer the marked pattern BAS-TypeB. The majority of younger females (18-50) produce the most basic and unmarked pattern BAS-Type0.
- b) Males of all ages randomly prefer the three BAS pattern types. However, the majority of younger males prefer the marked pattern BAS-TypeA.

**Table 3:** BAS distribution of declarative sentences with compound subject according to gender and age.

Declarative sentences with compound subject									
Participants		BAS-Type0		BAS-TypeA		BAS-TypeB		Other patterns	
		Tokens	%	Tokens	%	Tokens	%	Tokens	%
<b>Males</b>	<b>5-8</b>	7	32%	4	18%	8	36%	3	14%
	<b>18-50</b>	4	18%	14	64%	3	14%	1	5%
	<b>51-78</b>	3	14%	3	14%	7	32%	9	41%
<b>Females</b>	<b>5-8</b>	5	23%	2	9%	9	41%	6	27%
	<b>18-50</b>	15	68%	4	18%	3	14%	0	0%
	<b>51-78</b>	1	5%	7	32%	9	41%	5	23%

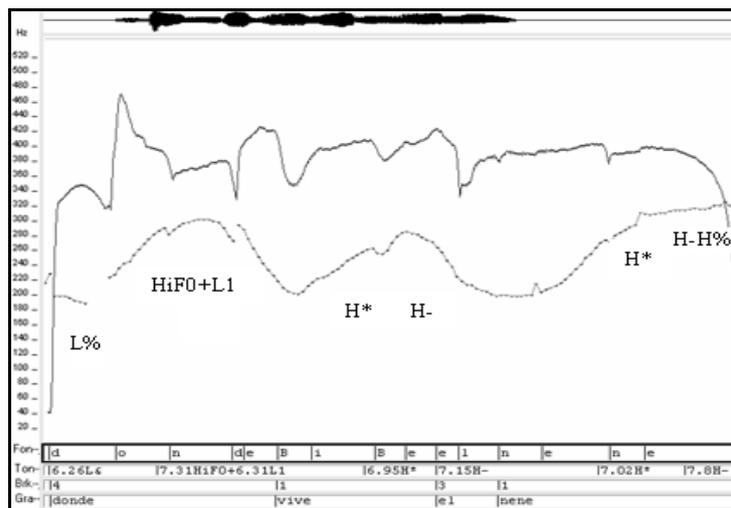
In summary, unlike the simple S-V declarative sentences of BAS which conserve the classic Spanish patterns unmarked Type-1 and marked Type2, the more complex (S1+S2)-V-O declarative sentences with compound subjects were produced by all speakers with unique Buenos Aires *porteño* intonational patterns: (a) unmarked BAS-Type0, (b) marked BAS-TypeA and marked BAS-TypeB or (c) other non classical patterns. Younger adult speakers of both genders (18-50) show more prosodic variation than the other age-groups. Children follow the prosodic pattern preferences of older female speakers (51-78).

### 3.2. Wh-questions

The BAS data are based on the following three simple wh-questions which have similar grammatical and syntactic structure (Wh-word-V-S): a) *¿Dónde vive el nene?* ('Where does the boy live?'), b) *¿Cómo era el avión?* ('How was the airplane?') and c) *¿Quién era el amigo?* ('Who was the friend?').

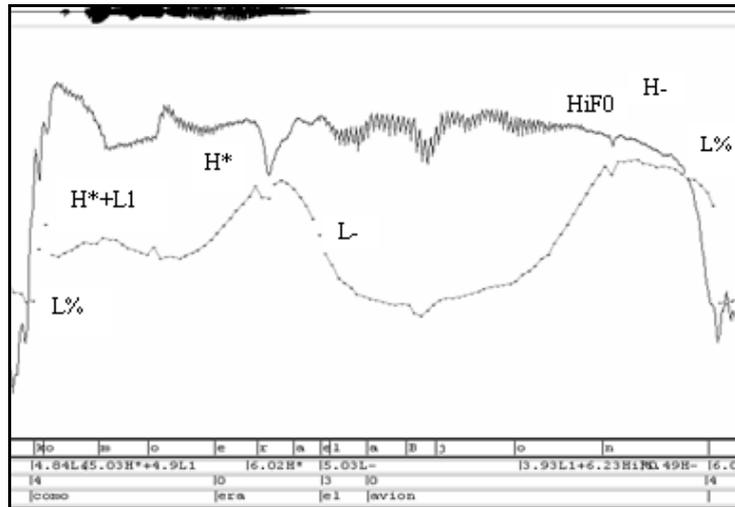
The analysis of the 396 BAS wh-questions shows that speakers have similar pitch accent preferences according to gender: the majority of speakers of both genders place high pitch accents on the wh-word (95% of males and 94% of females), in the verb (78% of both males and females) and in the noun subject (90% of males and 91% of females) (see examples 3a-3c and figures 5-7 respectively).

- (3) a.                   ¿DONde   Vive    el   NEne?  
                           where   lives   the   boy  
                           'Where does the boy live?'



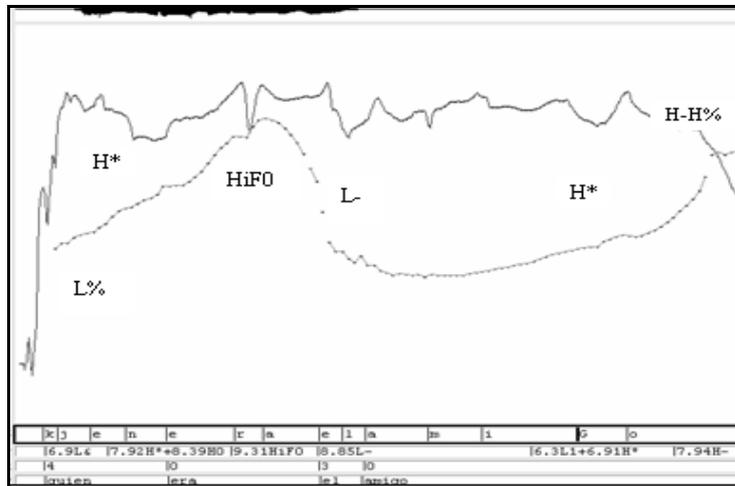
**Figure 5.** *¿Dónde vive el nene?* ('Where does the boy live?') uttered by a woman aged 27.

- b.                   ¿COMo   Era   el   aVION?  
                           how    was   the   airplane  
                           'How was the airplane?'



**Figure 6.** ¿Cómo era el avión ? ('How was the airplane ??') uttered by a man aged 63.

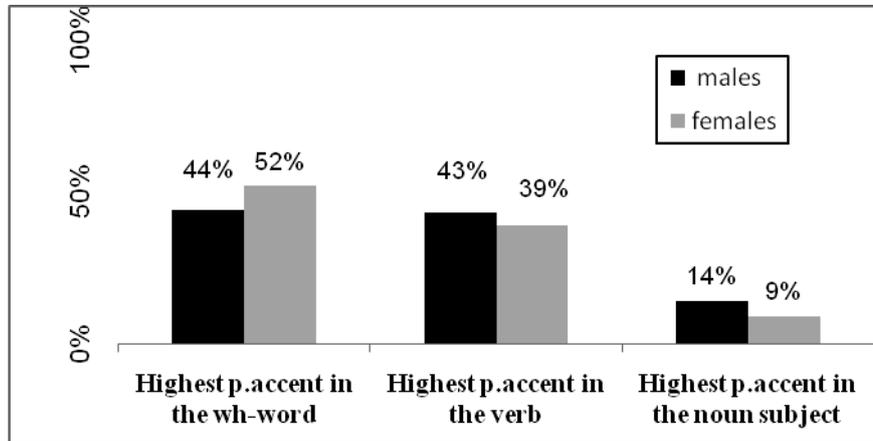
- c.                   ¿QUIEN Era el aMIgo?  
                           who was the friend  
                           'Who was the friend?'



**Figure 7.** ¿Quién era el amigo? ('Who was the friend?') uttered by a woman aged 68.

However, only 44% of males and 52% of females of BAS follow the classic prosodic model of wh-questions by having the highest pitch accent of the sentence in the wh-word. We also found -- that unlike the classic prosodic pattern -- 43% of males and 39% of females of BAS produce the highest pitch

accent of the sentence in the verb while 14% of males and 9% of females produce the highest pitch accent in the noun subject (see figure 8).



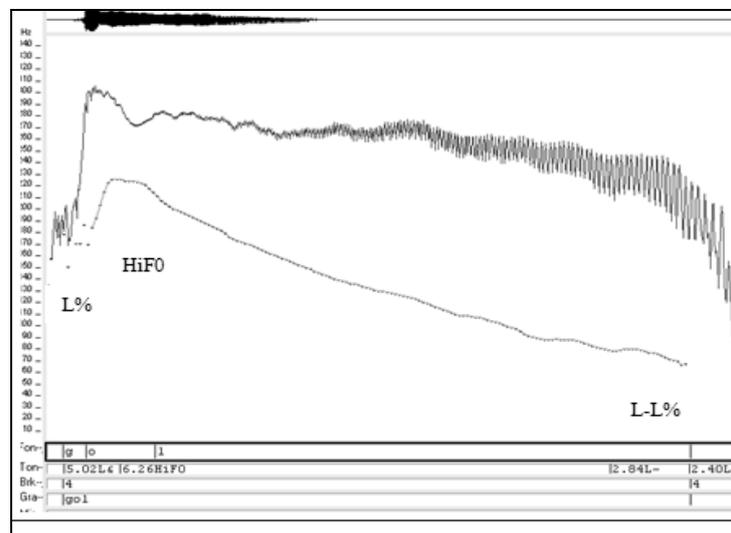
**Figure 8:** Highest pitch accent distribution in BAS wh-questions according to gender.

Moreover, we found prosodic variation in the terminal contour of the final position of BAS wh-questions according to gender: (a) 62% of females and 41% of males prefer the classic marked ‘polite’ rising terminal contour; (b) 45% of males and 30% of females prefer the classic marked ‘emphatic’ rising-falling terminal contour; (c) only 14% of males and 8% of females end the sentence with the classic ‘unmarked’ falling prosodic contour which is commonly used by the vast majority of Spanish dialects in wh-questions. We also found that children of both genders follow adult females in the preference for marked rising terminal patterns.

In conclusion, BAS speakers of both genders have similar preferences for high pitch accents throughout the wh-questions (Wh-word-V-S). The majority of BAS speakers of both genders prefer marked terminal contours (‘rising’ or ‘rising-falling’ patterns) over the classic falling terminal contour attested to in the literature on Spanish prosody (e.g. Alcoba & Murillo, 1998; Barjam, 2004; Canellada & Madsen, 1987; Navarro Tomás, 1921, 1944/1974; Quilis, 1993, Sosa 2003). However we do have gender differences in BAS wh-questions in the terminal contour: females and children prefer a marked rising contour pattern more than males. Finally, younger adults of both genders (18-50) have the most prosodic variation in BAS wh-questions by placing the highest pitch accent of the sentence in the verb and not in the wh-word, and by using the unmarked falling terminal contour rather than the marked ‘polite’ rising or ‘emphatic’ rising-falling terminal contours used by children and older adults.

### 3.3. Exclamatory sentences

Based on two familiar and popular exclamatory sentences used in BAS *¡Gol!* ('Goal!') and *¡Viva!* 'Hooray!' the analysis of 264 exclamatory sentences shows minimal contour pattern variations between both genders. The vast majority of BAS speakers produce the classic unmarked falling exclamatory pattern described in the research of classical Spanish prosody. In figure 9, the sentence *¡Gol!* is uttered by an older man aged 62. The prosodic pattern has the highest pitch accent of the sentence in the stressed syllable of the content word followed by the classic falling terminal contour.



**Figure 9:** Exclamatory sentence *¡Gol!* uttered by a man aged 62.

The results of BAS exclamatory sentences show that 99% of males and 100% of females produce the highest pitch accent of the sentence in the stressed syllable of the content word. The vast majority of speakers of both genders produce the classic falling terminal contour. Only 10% of speakers of both genders produce a marked falling-rising terminal contour which was not described in the Spanish classic research of Navarro Tomás (1944/1974). This variation is found mostly in children. In summary, the data of BAS exclamatory sentences - which are only one word utterances but require more effort to produce prosodic contrasts - show minimal prosodic variation according to gender and age.

#### 4. Conclusions

The analysis of 924 sentences of BAS (declarative, wh-questions and exclamatory) indicates that: (1) females of all ages consistently prefer marked prosodic forms for all sentence types; (2) children tend to follow adult female speakers' preference for marked prosodic forms; (3) adult males have more random intonation patterns and (4) younger adults of both genders (18-50) show the most prosodic variation for the more complex sentence types.

Furthermore, we found an inverse proportion between the complexity of the sentence and the range of prosodic variation between the speakers according to gender. First, in the most simple unmarked S-V declarative sentences, the differences between females and males were the greatest. Secondly, in the more complex declarative sentences with a compound subject and in marked exclamatory sentences, we found only minimal differences between males and females. Finally, in the most difficult, complex and highly marked wh-questions, gender differences were neutralized for pitch accents but we still found gender differences in the use of terminal contours.

All of the sentence types for BAS speakers exemplify the fundamental axiom of the theory of Phonology as Human Behavior (PHB) (Diver, 1979, 1995; Davis 1984/1987; Tobin, 1990, 1993, 1994, 1997) that language represents a struggle to achieve maximum communication with minimal effort. In the easiest S-V declarative sentences, which require the least effort to produce prosodic contrasts, we found the greatest prosodic variation between males and females. This may be because less effort was being invested in creating clear-cut communicative oppositions so more effort could be allotted to other issues such as speaker identity and gender. In the more complex (S1+S2)-V-O declarative sentences, exclamatory sentences and wh- questions, which require more effort to produce the prosodic contrasts, less variation was found for gender. The reason may be that for more complex sentences the speakers have to invest more effort in order to achieve the fundamental and basic communication oppositions. Thus, their efforts are directed and primarily focused on achieving maximum communication and therefore differences in gender are neutralized.

Regarding the interaction between gender and language in general, our research in BAS prosody provides further evidence found for different aspects of language in sociolinguistic studies of Western societies. These studies show that women favor marked forms that are considered to be more “conservative”, “polite”, “correct” and “prestigious” (Labov 1990; Foley 1997; Cameron 2000; Silva-Corvalán 2001; Chesire 2002; Tobin 2002; Moreno Fernández 2005). In addition, speakers of both genders use unique local prosodic patterns found only in the Buenos Aires *porteño* dialect in complex declarative sentences with compound subjects and in marked wh-questions patterns. These unique local patterns may signal a common social identity and can be added to other well-known segmental markers indicating the *porteño* BAS identity.

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# Social Status and Intimacy in the Characters of Shakespeare

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## Abstract

**Thee** is generally used in Shakespeare by a master to a servant. Being the appropriate address to a servant, it is used in confidential and good-humoured utterances. **You** was received by a master. Hindi **tu** and **aap** express roughly the same social meanings as English **thou/thee** and **you** used to express respectively.

The pronouns **thou, thee** and **you** have been reduced to **you** whereas in Hindi we still have all the three pronouns – **aap, tum** and **tu**. It reveals that our society has not yet reached the unidimensional solidarity semantics toward which the present European pronominal usage seems to be moving.

## Introduction

"Farewell to **you** ; and **you** ; and **you**, Volumnius,  
Farewell to **thee**, too, Strato".

(**Julius Caesar**. V.5.33)

The difference between **thee** and **you** is well illustrated by the farewell address of Brutus to his schoolfellow Volumnius and his servant Strato. **Thou/thee** is generally used in Shakespeare by a master to a servant. Being the appropriate address to a servant, it is used in confidential and good-humoured utterances. During Elizabethan age, pronoun **you** and **ye** were considered as honorific pronoun used to address to a single person in reverence and polite distance and pronoun **thou** and **thee** were nonhonorific- used by a superior to his inferior.

Pronouns are linguistic reflections of human relationships. “They indicate systematically a person's social status in terms of class, age, sex, education and so on. Their use also seems to be geared to a complex of attitudes, sentiments, and traditions and reveals a deeper cognitive and emotional aspect of the interlocutor's personality. Pronouns serve not merely as a bridge between the individuals but also as a kind of “Emotional capital” which can be invested and manipulated in order to achieve a specific result. The differential usage of pronouns has been institutionalized as a means of defining and affirming both the identity and the status of the speaker and the person addressed. In fact, a good deal of information regarding the social structure and psychological make-up of the addressing dyad can be inferred from an examination of these verbal art forms in their two indispensable and interrelated dimensions- linguistic and sociological. **Friedrich’s** work on the pronouns of nineteenth century Russian literature has led “to the inference of a relational system of positional slots in the status system and of other culturally specific categories” (1966:252). The study of linguistic etiquette in Java in **Clifford Geertz** (1960) also shows that honorific usage is built on a natural base and is correlated with the stratification of society. **Evans Pritchard** (1964:221), writing on the modes of address in Nuer, an African language, also testifies to the fact that, “names and titles of address.....symbolize a man’s social position in relation to the people around him”. **Samuel Martin’s** (1964) insightful article on speech levels in Japan and Korea also proves it.

**Brown and Gilman** (1960:253) who studied the use of *tu* and *vous* among the Parsian students at university in Boston affirm that "a man's consistent pronoun style gives away his class status and his political views". They also maintain that "society is now changing rapidly and, consistent with that change, the norms of pronouns usage are also changing". Some other linguists have identified Brown and Gilman’s ‘power’ and ‘solidarity’ dimensions as formality and informality (**Beidelmen**, 1963; **Pride**, 1971; and politeness levels (**Martin**, 1964), confidence and respect (**Moles**, 1973), and ‘socially remote’, ‘socially close’.

A sociolinguistic description of pronouns will describe not only the forms that occur but also how their choice is affected by the contexts in which they occur. In normal usage a speaker may use one pronoun for a person, but in his use of non-normal pronoun he

encodes some additional information he wants to convey in that particular context. The two dimensional analysis of **Brown** and **Gilman** in terms of 'power' and 'solidarity' is valuable for the study of the pronominal usage of marginalized characters of Shakespeare with a view to determine and analyze their normal and contextual meaning. It is in this framework that we have studied the pronouns used in English (**thou, thee ye, you**) and compared it with Hindi pronouns (**'tu', 'tum'** and **'aap'**) with a view to determine and analyze their normal and contextual meanings. Let us discuss the formal features of pronouns and their usage in different contexts.

". In a *Common School Grammar of English Language*, **Simon Kerl** (1866) tries to explain personal pronouns very carefully:

When objects are near to us, or already known by having been mentioned, we do not always use their names, but certain little words instead of the names. If I say, "William promised Mary that William would lend Mary William's grammar, that Mary might study the grammar," you can easily see that the sentence is clumsy and disagreeable, because I have repeated the words William, Mary, and grammar ..... The easiest way in which you can generally distinguish a pronoun from a noun is to consider whether the word denotes an object, without being itself the name of the object.

Kerl's description of personal pronouns omits important aspects of the behaviour of pronouns. In deep structure, pronouns are treated as a special class of noun. In modern English we have only one second person pronoun, **You**, used both as singular and plural, whereas in Hindi we have pronouns **tu, tum** and **aap**. The Hindi pronominal system makes a distinction between honorific, non-honorific and general uses, but English does not make such distinctions.

The development of the English pronouns can be divided into three periods:

Old English	:	449 - 1150
Middle English	:	1150 - 1500
Modern English	:	1500 - Present time.

In Old English personal pronouns not only had distinctive forms for gender, person and case but also preserved the dual number:

### Old English Second Person Pronouns

	Singular	Dual	Plural
N.	þu	git	ge
A.	þe	inc	eow
G	þin	incer	eower
D.	þe	inc	eow

In Middle English, it was still possible to express the idea of number in personal pronouns. As the singular of the second person pronoun **thou** was used as subject and **thee** as dative and accusative object, while in the plural **ye** served as subject and **you** as dative and accusative object. These grammatical functions **ye** and **you** were widely observed until the middle of the sixteenth century, and survived in the Biblical language. In the fourteenth century, however, the form **you** - with reference to one or more - sometimes replaced **ye** in the usual intercourse and later, during the sixteenth century, became more common than **ye**. In the Biblical language **ye** was uniformly employed as nominative and **you** as dative and accusative, as can be seen in the present version of the king James' version of the Bible.

### English - *thou, thee* and *you* Vs. Hindi - '*tu*', '*tum*', and '*aap*'

Like Hindi, **Aap**, **tum** and **tu** Shakespearean English has second person singular (**thou/thee**) and plural (**ve/you**) pronouns. But in the thirteen century, under the influence of French, the plural form became a mark of politeness in general and was used in speaking to an equal as well as to a superior. The new polite form of addressing one person by the plural **ye** and **you** did not at once displace the older usage of employing **thou** and **thee**.

#### 1. Pronouns in English :

## 1.1 Thou

**Thou** is the nominative singular second person pronoun derived from old English **þu** (cf. Old Teutonic **þu**, Latin **tu**, and Sanskrit **twam**). The paradigms of **thou** in modern English are as follows:

	<b>Singular</b>	<b>Plural</b>
Nom.	thou	ye, you
Dat./Acc	thee	you
Poss. (absol.)	thine	yours
(adj.)	thy	your

**Thou** and its transforms, **thee**, **thine** and **thy**, were in Old English (OE) used in ordinary speech; in Middle English they were gradually superseded by the plural forms, **ye**, **you**, **your** and **yours**, in addressing a superior, and (later) an equal, but were long retained in addressing an inferior. **Thou** is also used in addressing God or Christ, in homiletic language and in poetry, apostrophe, and elevated prose. **Thou** was also used in familiar intercourse, and **you** was employed as a polite form in formal relations. In Peacock's *Donet* (about A.D.449) the father throughout the book, addresses his son by **thou** and **thee**, while the son out of deference uses **ye** and **you** to his father. Similarly, in Hindi the father addresses his son by **tu** and **tum** while the son out of deference uses **aap**. Some British dialects of the South and South midland still distinguish between **thou** or **thee** used in intimate relation and **you** or **ye** employed in polite language in more formal intercourse. In eighteenth century, Richardson in his *Pamela* Lady Davers uses **thou** to her brother in moments of strong emotions and employs **thou** to Pamela in moments of anger and tenderness.

**Thou** in Shakespeare's time was, not unlike **du** in German, the pronoun of: (i) affection towards friends; (ii) good-humoured superiority to servants; and (iii) contempt or anger to strangers. It has, however, already fallen into disuse, though it is seen occasionally in a higher poetic style and in the language of solemn prayer.

In *Two Gentlemen of Verona*, Valentine and Proteus in the first twenty lines of earnest dialogue use nothing but **thou**. But as soon as they begin to jest, "thou art" is found too seriously ponderous and we have, "**you** are over boots in love" (I.i.25) while

the lighter **thee** is not discarded in "it boots thee not" (I.i.28). So in the word-fencing **you** and **your** are preferred, but an affectionate farewell brings them back again to **thou**.

**Thou** is generally used in Shakespeare by a master to a servant. Being the appropriate address to a servant, it is used in confidential and good-humoured utterances. The master, however, finding fault, may often resort to the unfamiliar **you**, (To the newly-engaged servant, Julia says: "I'll do what I can", Proteus blandly replies: "I hope **thou** wilt. (To Launce) How now, **you** whoreson peasant, where have **you** been these days loitering?")

**Two Gentlemen of Verona.** iv.4.48.

During the Elizabethan period, **thou** towards strangers who were not inferiors was an insult, "If **thou thouest** him some thrice, it shall not be amiss" (**Twelfth Night.** III.ii.48) is the advice given to Sir Andrew Aguecheek when he is on the point of writing a challenge. In present times, however, the pronoun **thou** is reserved for prayers and naive poetry, which was the form of familiar address to a single person in the past.

### 1.2 Thee

**Thee** is the accusative and dative singular second person pronoun, which was derived from: (i) OE accusative **dec, deh.** later **de** (cf. Latin **te**); (ii) OE dative **de, þe.** **Thee** is also used as nominative instead of **thou**. The Elizabethans reduced **thou** to **thee**.

"Hear **thee**, Gratiano !" (**The Merchant of Venice.** II.ii.189)

We have gone further and rejected it altogether.

### 1.3 Ye

**Ye** is the nominative plural (singular) second person pronoun, which was derived from OE **Ze** (cf. O. Teutonic **jus, juz**; Skt. **yuyam**). In ordinary use it is replaced by **you**. The first uses of **ye** as a reverential singular occurred in the thirteenth century (Kennedy, A.G. 1915) and seem to have been copied from the French nobility. When **you** displaced it as the ordinary nominative, it came to be used as objective singular and plural.

As the nominative or vocative plural of **thou**, OE **ye** was used in addressing a number of persons. In Middle English **ye** was used, instead of **thou**, in addressing a single person in order to show respect or deference. It was also used instead of **you** as objective singular or plural in 1449 (cf.OED).

The use of **ye** is found in the Bible but was disregarded by Elizabethan authors by whom it seems to have been generally used in questions, entreaties and rhetorical appeals. Ben Jonson said: "The second person plural is for reverence sake to some singular thing". He quotes from Gower:

"O good father dear,  
Why make **ye** this heavy cheer?"

A similar use is found in Shakespeare:

"Therein, **ye** gods, **you** make the weak most strong".

(Julius Caesar. III.i.91)

#### 1.4 You

**You** is an objective (nominative), plural (singular), second person pronoun, which was derived from OE accusative and dative plural **eow**. Originally restricted to accusative and dative plural uses, **you** gradually replaced **ye** as nominative plural in 14th - 15th centuries and also by extension of the deferential plural came into general use for **thou** and **thee**. **You** is now, in ordinary use, the second person pronoun for any number and case.

The singular **you** is used in addressing a person (or thing) in reverence and polite distance. In Modern English **you** serves both as singular and plural. For example:

- 1) **You** did it yourselves (Plural)
- 2) **You** did it yourself. (Singular)

The use of **you** to refer to a single person seems to be related to the royal use of **we**. Since kings saw fit to refer to themselves in the plural with **we**, it seemed only proper to address them in the plural with **you**. This usage was then extended to other royal people, to people who were noble but not royal, to people who were rich though not noble, and so on until eventually everyone was addressed as **you**, and **thou** went out of use. In some

parts of the United States a new plural, **you-all**, has been introduced. In these areas, **you** by itself may be thought of as a singular form.

(At last) in the thirteenth century, under the influence of French, the plural form became a mark of politeness in general and was used in speaking to an equal as well as to a superior. In the Standard English prose of the eighteenth century, **thou** and **thee** were entirely replaced by **you**, so that the form of polite address became general in the common intercourse.

## 2. Pronouns in Hindi :

### 2.1 Tu

Skt. **tvaya** > Prakrit **tuam** > Apbhransha **tuham** > Hindi **tu**.

Thus the nominative singular **tu**, of the second person, has arisen from the skt. Nominative singular, **tvaya**. Hindi **tu** expresses the same connotation as English **thou** used to express. The declension of **tu** and **thou** are as follows:

	<b>Tu</b>	<b>Thou</b>
N.	tu	thou
Ac.	tujhe/tujhko	thee, to thee
D.	tujhko/tujhe	thee, to thee
Ag.	tune	by thee
Ab.	tujhse	from thee
G.	tera	thy, thine
L.	tujh men/par	in/on thee

In Hindi **tu** is at once a pronoun of intimacy and insult. These meanings of **tu** are determined by the social distance. Where the distance is zero, it is expressive of intimacy used by a superior to an inferior, it shows distance and, therefore, authority but given by an inferior to his superior, it shows contempt for the addressee. Its use in the first two cases is normal and so is the meaning but the use in the last case is deliberate.

Children use it obligatorily for each other. Parents normally teach their children not to use pronoun **tu** for each other. Quite a few children reported that they did

not say or did not like to say **tu**, but it just slipped out of the mouth. An attitude of shame and self-hatred connected with **tu** makes it an 'undesirable' pronoun. But interestingly enough, men did not concede using it whereas women and children frankly said that they used it in spite of their dislike for it. In the case of the father **tu** is strictly prohibited, though the mother may receive **tu**. The status of the son and the daughter gets elevated after marriage. The son/daughter who got a mere **tu** from the father begin to receive **tum** or **aap** after they are married. Such a change or an elevation in status becomes evident when a person gets **tu** along with **tum**. Such a usage of **tu** and **tum** for the same person is subject to a context sensitive social distance.

The husband and the wife use **tu** to show anger or break off the bond. But in the case of young spouse it may also indicate deep love. This variety of **tu** is quite often used in Hindi film songs. Like English **thou**, Hindi **tu** is also used to address God in prayer.

The use of **tu** for superiors like parents, teachers, boss, etc., is one of the few prohibited usages of Hindi. Probably on account of the connotation of disrespect and insult associated with it, **tu** has become one of the most stigmatized words in the Hindi language.

The stigma attached to **tu** is a result of its probable use in asymmetrical relationship. When used by a superior to his inferior, it usually co-varies with **tum** or with polite intonation which makes it less authoritarian in general. The assumption behind the use of exclusive **tu** by the superior for the inferior (e.g. master-servant) or even among equals (e.g. friends) misled **Kellogg** (1876) into assigning it a meaning of insult or contempt. This resulted from a failure to see co-variation of pronouns.

## 2.2 Tum

**Tum** is derived from the Sanskrit pronoun **tvam** : Skt. **tvam** > Prakrit **tumha** > Apbhransha **tumhai** > Hindi **tum**. **Tum** is the most common form of the nominative plural of the second person, which has arisen from skt. Nominative singular **tvam**. Hindi **tum** is like English plural pronoun **you**. The declensions of **tum** and **you** are as follows:

	<b>Tum</b>	<b>You</b>
N.	tum	you
Ac.	tumhen/tumko	you
D.	tumko	you, to you
Ag.	tumne	by you
Ab.	tumse	from you, with you
G.	tumhaaraa (-re, -ri)	your, yours
L.	tummen or par	in or on you

**Tum** takes naturally the second person plural form in the verb : **Tum kahaan se aae ho ?** (Whence have you<sub>T</sub> come from ?) **Tum yahaan baitho** (you<sub>T</sub> sit here).

The plural pronoun **tum** is used for the singular whenever it is intended to express respect but the respect indicated by **tum** always lacks the formality and high respect of **aap**. The longer forms (**tum** and **aap**) are considered more respectful in Hindi than the shorter (**tu**). In order to avoid ambiguity, an additional lexical item **log** ('people') is used after the pronominal **tum** and **aap** to denote plurality (Vajpei, 196:237, ; Guru, 1962:96). Thus in a plural sense, instead of the forms given in the paradigms, in Hindi we preferably have :

N. : **tum log** (you<sub>T</sub> people), Ac. : tum logon ko (to you<sub>T</sub> people) Ac. : **tum logon ko** (of you<sub>T</sub> people). G.: **tum logon ka** (of you<sub>T</sub> people).

**Tum** is used when contacts are frequent, but the relationship demands some respect for the addressee or elegance on the part of the speaker. It is the most heavily used of all the second person pronouns in Hindi and is used in a greater number of social relationships and contexts than the other pronouns. It can be used in most relationships, if not all, without risking markedness of meaning.

The contexts in which **tum** is marked are less than those of **tu** and **aap**. It can be said that marked usage of an alternate is in inverse proportion to its normal usage. The greater the contexts of normal usage, the less the contexts of marked usage and vice versa. **Tum** tends to co-vary either both **tu** and **aap** in unmarked contexts. As a result, it loses its markedness in frequency as well as in intensity. That may be one reason why it

is the most favoured of all pronouns. The relationships where **tum** is marked are parents-children, brother and sister, school friends and master-servant.

### 2.3 Aap :

**Aap** has descended from Skt. **aatman** :, **aatman** > Prakrit **appo** > Hindi **aap** (Vajpei 1966 : 255).

It is an 'honorific' pronoun used instead of **tu** or **tum** whenever it is intended to show respect to the person addressed. Like **tum**, **aap** is also a plural pronoun used for singular to express more respect. Its declensions are given below:

	<b>Aap</b>	<b>You</b>
N.	aap	you
Ac.	aap ko	you
D.	apne ko	to you
Ag.	aapne	by you
Ab.	aapse	from you, with you
G.	apna (-ne, -ni)	your, yours
L.	aap/apne mein, par	in/on you

The plural forms of **aap** are the same as the singular, with the exception of the genitive **aapas ka** (of themselves), and the locative **aapas mei** (among themselves). In other cases when more than one person is addressed, the plural is denoted by affixing the word **log**.

The genitive **apnaa** sometimes assumes the plural termination **apnon** and is then used as a noun, in the sense of 'one's own people'. It is sometimes used elliptically in the singular, when the reference is clear as in **usne apne ko maaraa** (He stroked his own child/body, etc.).

We have one more type of **aap** in Hindi which is honorific and which behaves as the third person pronoun in its behaviour and form; e.g.

**Dr. Hari Singh Gour Sagar Vishwavidyalaya Ke Pratham Vice-Chancellor the. Aap bare Kushaagrabuddhi the.**

(Dr. Hari Singh Gour was the first Vice-Chancellor of Sagar University. He<sub>A</sub> was very intelligent).

In this context whether **aap** indicates more respect than **ve** may be a controversial question, but **aap** can be more impressive when it is used in the presence of the addressee and will certainly indicate more respect. In this special context the person addressed by **aap** may not be among the audience, though he may be listening to our statement:

Bhaaiyon ! hamaare aaj ke mukhya atithi shikshaa mantriji hain. Aapko apne bi:ch paakar ham sabhi dhanya hain.

(Brothers! the chief guest of today is the Education Minister. We feel honoured to find him<sub>A</sub> among us.)

According to **Kellogg** (1876:277), in such cases "where **aap** is used for the person spoken of, when that person is present (so that reference will be evident), it is better to use, instead of **aap**, the proper title of the person addressed, as, **saahib, pandit, laalaa**, etc."

**Scholberg** (1955:67), explains the use of the honorific **aap** as follows:

**Aap** is used honorifically for third person when it is indicated by a wave of the hand, or a nod of the head or by the context, to whom reference is made. For instance, referring to a speaker or some person known to the listeners, one may say, **aapne such kahaa** (He spoke the truth); **aap bahut dayaalu manushya hain** (He is very merciful man).

Among all the pronouns, **aap** shows maximum social distance between the speakers and the addressee. It is a pronoun of high respect and, whenever such respect is due to the addressee, **aap** is used for him. **Aap** is also used in the marked contexts. In public context inferiors within a family use it for superiors to show elegance or politeness towards the addressee. **Aap** is mostly used in ceremonial and social dyadic relationships.

**Brown and Ford** (1961:377), while analyzing the address system in American English, have suggested that "it is to be expected in a society whose values are more strongly linked to achieved personal attributes than to ascribed attributes... that occupation would prevail over age in the determination of deference". In the traditional Yiddish community, however, where values are at least as strongly linked to ascribed personal attributes such

as age, family history, learning, inherited wealth, etc., age prevails over occupation in the determination of deference (Slobin, 1963).

The process of personal interaction in a given society and its pronominal usage and address forms indicate differences of dominance, intimacy of distance, equality or differential status of the addresser and the addressee. The nature of the relationship between linguistic structures and social and cultural patterns is a central issue in sociolinguistics. Palkornkul's (1957:27) study of the Thai pronominal system has revealed that "A choice of a pronominal variant is not made arbitrarily. On the contrary, there are systematic variant rules to guide and govern the speaker's choice". Paul Friedrich's (1972:273) work on the Russian pronoun also points the same fact. His announced purpose is to demonstrate "how speech usage is determined by cultural principles" by positing a new set of semantic categories. Friedrich has supplemented Brown and Gilman's (1960) two dimensional (i.e. Power and Solidarity) analyses with an additional eight-fold system of his own, comprising topic of discourse, contexts of the speech event, age, generation, sex, kinship status, direct spoken, and group membership. Relative jural and political authority and emotional solidarity are also features of Friedrich's system. He asserts that the ten discrimination and their patterns of combinations account for nearly all the variability in his corpus.

## Conclusion

Thus Hindi **tu** and **aap** express roughly the same social meanings as English **thou** and **you** used to express respectively. Like Hindi pronouns, Old English and Middle English used to make the distinctions between honorific (ye, you) and non-honorific (thou, thee), general and specific uses of pronouns. A pronoun of intimacy is observed among friends, family, colleague of same age group and other familiar persons etc. People of higher status use lower pronoun to the people of lower status as to younger children or subordinate. Modern English does not make such distinctions and uses you in singular as well as in plural contexts. The pronouns **thou**, **thee** and **you** have been reduced to **you** whereas in Hindi we still have all the three pronouns – **aap**, **tum** and **tu**. It reveals that

our society has not yet reached the unidimensional solidarity semantics toward which the present European pronominal usage seems to be moving.

The semantic system of modern English is quite different from that of the Elizabethan English, so much so that we can no longer even follow the shifts which take place in the personal relationship of Celia and Rosalind in *As You Like It*, indicated by their sensitive switching between **thou** and **you** (Mc Intosh, 1963).

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# **Implications of a study on L2 interlanguage phonology for the learning of L2 pronunciation: The phonological variants of the syllable initial /n-/ in L2 English produced by Cantonese speakers in Hong Kong<sup>1</sup>**

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## **Abstract**

This research investigated the interlanguage phonology in English produced by Cantonese speakers, focusing on the phonological variants of the syllable initial /n-/. The study adopted Labov's (1972) and Tarone's (1983, 1988) research methodology. Six oral tasks were designed for collecting data from Hong Kong students. Results show that six [n-] variants were produced, and the new variant [l-] most frequently appeared. In this paper, the reasons for the frequent production of the variant of [l-], and the effects of L2 proficiency, phonological environment and contextual style on the shift from /n-/ to /l-/ are closely examined. The implications of the findings of this study for the learning of L2 pronunciation are discussed.

**Keywords:** interlanguage phonology, phonological variant, phonological environment, L2 pronunciation

## **1. Introduction**

Previous studies based on incidental observations or small-scale experiments on Hong Kong students indicate that substitution of /n-/ by /l-/ appears in Hong Kong English (Bolton and Kwok 1990, Chan 2000, Hung 2000, 2002, Au 2002). This study closely examined the phonological variants of the syllable-initial /n-/ produced by Hong Kong students of three different levels of English proficiency (elementary, intermediate, intermediate to post-intermediate). The factors which might lead to phonological variation of /n-/ in L2 English of Hong Kong students, including L2 proficiency, phonological environment and stylistic variation, were investigated.

## **2. Research background**

### *2.1. Previous studies on phonological variation of initial /n-/ in Hong Kong English*

The phonological feature of the merging of the initial /n-/ with /l-/ in English by Hong Kong students was described in a small number of publications (Bolton and Kwok 1990, Chan 2000, Hung 2000, 2002, Au 2002 ). Bolton & Kwok (1990) and Chan (2000) described the phonological variation of /n-/ and /l-/ based on a small quantity of incidental observation data. This phonological variation was more closely investigated in Hung (2000, 2002) and Au (2002). The data in these studies were collected from the reading of wordlists and controlled presentations by university students. Hung (2000, 2002) pointed out that the two initials, /n-/ and /l-/, were used interchangeably by students due to the influence of their mother tongue, Cantonese, in which /n-/ and /l-/ are merged. In Au's (2002) study, the phenomenon of the loss of /n-/ in a number of lexical items demonstrated that Hong Kong students have difficulty in producing the onset /n-/ in English. Au (2002) also suggested that the replacement of /n-/ by /l-/ in English is influenced by the non-distinction of /n-/ and /l-/ in Cantonese.

All the above studies claimed that mother tongue interference plays a significant role in the variation of /n-/ and /l-/ in L2 English of Hong Kong students. Unlike previous studies which mainly focused on university students, this study investigated the phonological variation of /n-/ in L2 English produced by primary school, secondary school and university students of elementary, intermediate and intermediate to post-intermediate level of English respectively. The involvement of these three student groups gives us a clearer picture of the phonological variation of /n-/ in Hong Kong English.

### *2.2. A multi-factor approach to L2 studies on interlanguage variability*

The multi-factor approach aimed to identify a number of factors that induce variability in learners language (Ellis 1994). These factors include: linguistic context, L2 proficiency of learners, speech style and situational context etc. VARBRUL computerised procedures are used to examine the effect and interaction of the factors on L2 variation (Young 1988, 1991, Preston 1989, and Adamson and Regan 1991). Adopting a multi-factor approach, this study analysed the phonological variation of /n-/ in L2 English of Cantonese speakers. The factors of L2 proficiency, phonological environment and contextual style on the phonological variation of /n-/, which have

received little attention in previous studies, were closely examined.

### **3. Aims of the study**

This study aimed to investigate phonological variation of the syllable initial /n-/ in L2 English of Cantonese speakers in Hong Kong. The following research questions were investigated:

- (a) What are the variants of /n-/ in L2 English produced by Cantonese speakers?
- (b) To what extent does the phonological variation of /n-/ in English correlate with the English proficiency of Cantonese speakers?
- (c) Do different variation patterns of the merging of /n-/ with /l-/ appear in different contextual styles?
- (d) To what extent does the merging of /n-/ with /l-/ vary in different phonological environments?

### **4. Research Methods**

#### *4.1. Participants*

This study involved elementary, intermediate and intermediate to post-intermediate English learners from primary school, secondary school and university in Hong Kong respectively. There were 14 participants in the elementary group, 14 in the intermediate group and 16 in the intermediate to post-intermediate group. Elementary learners were aged 10-12, intermediate learners 16-18 and intermediate to post-intermediate learners 20-23. There were equal numbers of females and males in each proficiency group. All participants were native Cantonese speakers who started to learn English as a second language in primary school. They participated in the study on a voluntary basis.

#### *4.2. Elicitation Tasks*

Adopting Labov's (1972) and Tarone's (1983, 1988) research methodology, this study designed six oral tasks of different styles for collecting data. These six tasks varied in terms of speech styles which require different amount of attention to speech, ranging from the most casual style (Task (a)) to the most careful style (Task (f)).

These six oral tasks were:

- (a) Conversation in pairs
- (b) Informal interview
- (c) Passage reading
- (d) Word reading
- (e) Minimal pair reading
- (f) Minimal pair repetition

(a) Conversation in pairs

Two students in the same subject group formed a pair. All of them knew each other.

Ten questions were given to them. They took turns to ask questions and give responses to their partner's answers. They were allowed to talk about something else they were interested in. Each pair was given 20 minutes for conversation.

Examples of questions:

- (1) What do you eat for lunch and for dinner?
- (2) Does your mother let you go out with friends at night? Why/Why not?
- (3) Do you wear new clothes at Chinese New Year? Why / why not?

(b) Informal interview

Each subject was interviewed by the investigator or a research assistant in a casual way. Ten questions were asked by the investigator. Each interview lasted about 20 minutes.

Examples of questions:

- (1) Do you have an English name? Would you like your friends to call you by your Chinese name or your English name?
- (2) Which language do you like more? Chinese or English?
- (3) What time do you wake up in the morning? Do you work late at night?

(c) Passage Reading

A passage in simple English of about 200 words was designed. About 40 words in the passage had a syllable initial /n-/. Students read the passage at their own pace.

Part of the English passage:

...Nancy only liked eating, not studying! Her mother gave her money to buy lunch at school every day. She spent all the money buying snacks, like chocolates, nuts and ice-cream. She never bought proper meals....

(d) Word reading

In the English wordlist, there were 53 words. The initial /n-/ was in the 1st, 2nd, 3rd or 4th syllable of the word. For example:

- (1) number, nation (18 words with an initial /n-/ in the first syllable)
- (2) morning, penny (13 words with an initial /n-/ in the second syllable)
- (3) questioning, cleverness (13 words with an initial n-/ in the third syllable)
- (4) unhappiness, examination (4 words with an initial /n-/ in the fourth syllable)

These 53 words could be divided into two groups: one group of 9 words with /n-/ followed by nasal coda, and another group of 42 words with /n-/ followed by non-nasal coda.

There were three words in which /n/ was in a consonant cluster: snake, snack and snow.

(e) Minimal pair reading

There were 22 minimal pairs. In each minimal pair, one word had an initial /n-/ and one had an initial /l-/.

There were 5 pairs of words with /n-/ and /l-/ followed by nasal coda. Examples:

- (1) nine/ line
- (2) name/ lame
- (3) net/ let
- (4) no/ low

There were four pairs of words in which /n/ or /l/ was in a consonant cluster.

- (1) snow- slow
- (2) snack - slack

(f) Minimal pair repetition

The minimal pair list for Task (e) was used. Informants listened to the model pronunciation of each minimal pair and then read it aloud.

#### 4.3. Administration procedure

Each informant completed all the tasks in one day. All informants did the six task types in the following sequence:

- (a) Conversation in pairs
- (b) Informal interview
- (c) Passage reading
- (d) Word reading
- (e) Minimal pair reading
- (f) Minimal pair repetition

Tasks (a) and (b) were conducted first to collect natural data, because tasks (c) to (f) give increasing clues to participants to pay attention to the pronunciation of /n-/.

All tasks done by the students were recorded by a professional MD in a sound-proofed phonetic lab.

#### *4.4. Methods of data transcription and analysis*

The data were transcribed by ear by four trained research assistants and then randomly checked by the investigator and a phonetician. Spectrographic analyses were done when the acoustic properties of /n-/ and /l-/ produced by the students were difficult to identify. In a few cases, the initial /n-/ or /l-/ was not clearly pronounced. Those data were not included in the analysis.

VARBRUL computerised procedure was used to analyse the effect of each independent variable on the phonological variation of /n-/ in L2 English produced by Cantonese speakers.

## **5. Results**

### *5.1. The variants of [n-] in the oral production*

The following [n-] variants appeared in the English production of Cantonese speakers:

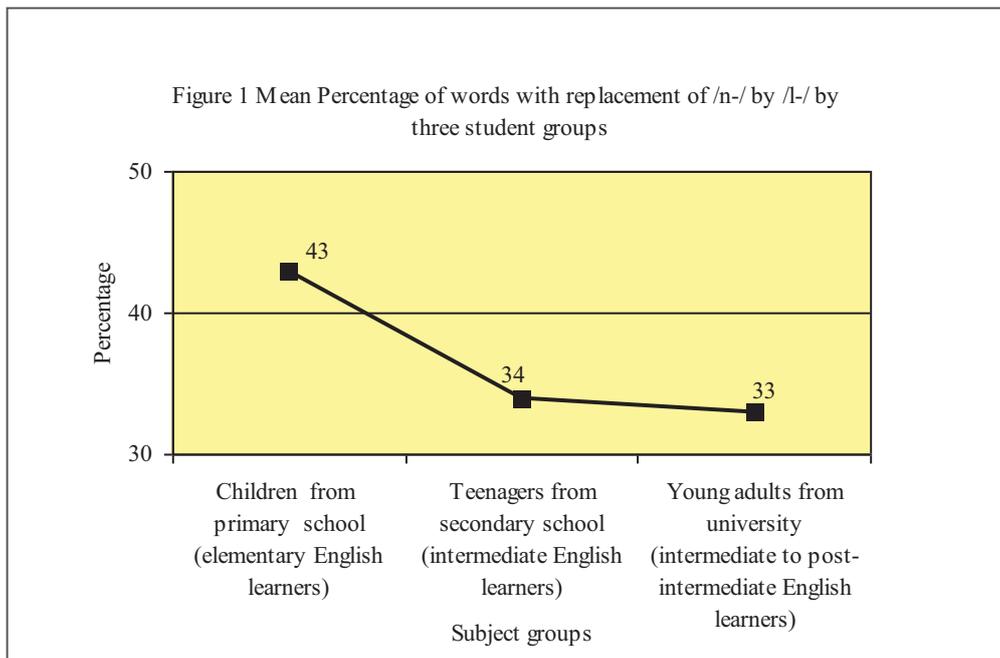
- (a) [l] : substitution of [n] by [l-];
- (b) nasalized [l];
- (c) [j] : [n] weakened to a glide;
- (d) Ø: deletion of [n] sound;
- (e) [n] pronounced as a [n-l] sequence;
- (f) [n<sup>d</sup>] : oral release in the [n] sound,

Among these six [n-] variants, the first variant [l], which substituted [n], most frequently appeared (96% of the [n-] variants). As argued in the L2 studies reviewed in Section 2.1, the shift from /n-/ to /l-/ in English by Cantonese speakers is due to L1 phonological transfer. Previous studies indicated the loss of initial /n-/ and the replacement of /n-/ by /l-/ in Hong Kong Cantonese (Hashimoto-Yue 1972, Yeung 1980, Bauer 1982, 1997, Bourgerie 1990, Zee 1999, Ho 2004).

## 5.2 . Replacement of /n-/ by /l-/

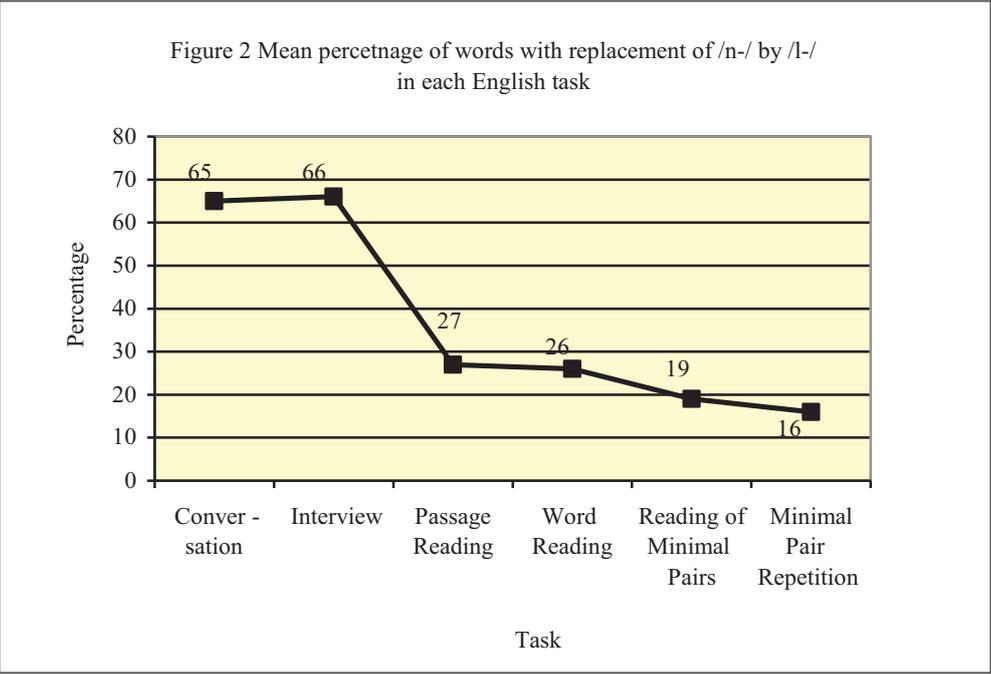
### 5.2.1. By three proficiency groups

Figure 1 shows that the replacement of /n-/ by /l-/ by elementary English learners from primary school was more than that by the intermediate and post-intermediate learners from secondary school and university respectively.

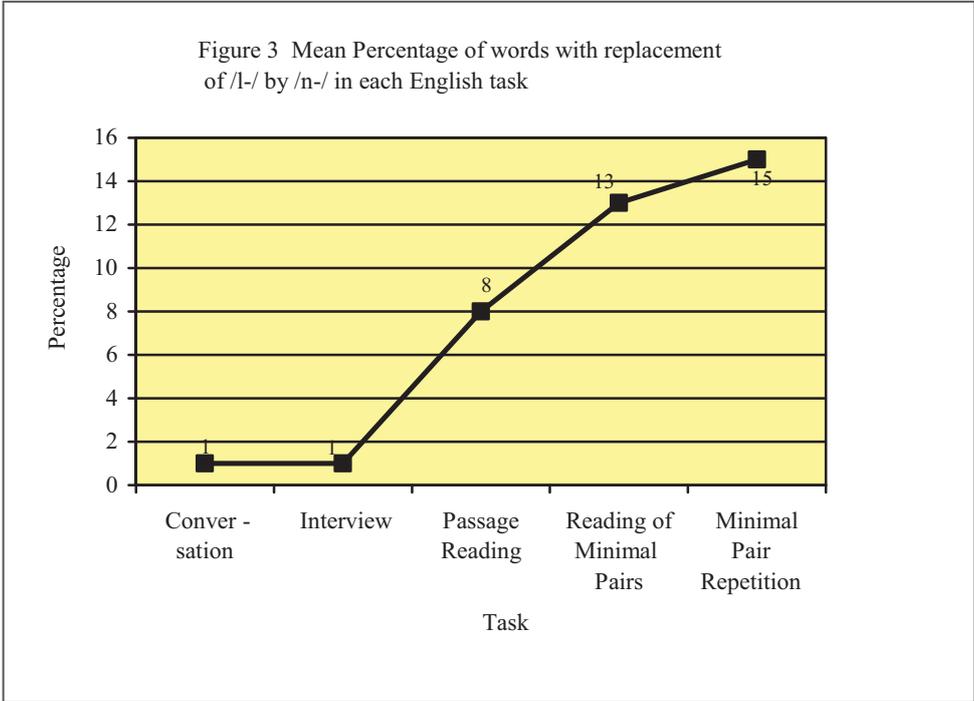


### 5.2.2. In different contextual styles

Figure 2 indicates that the highest percentage of /n-/ words (about 60%) replaced by /l-/ was shown in the two casual spontaneous oral tasks (i.e. conversation and interview tasks), the percentage decreased sharply in the passage reading task, and then decreased gradually in the other three oral tasks.



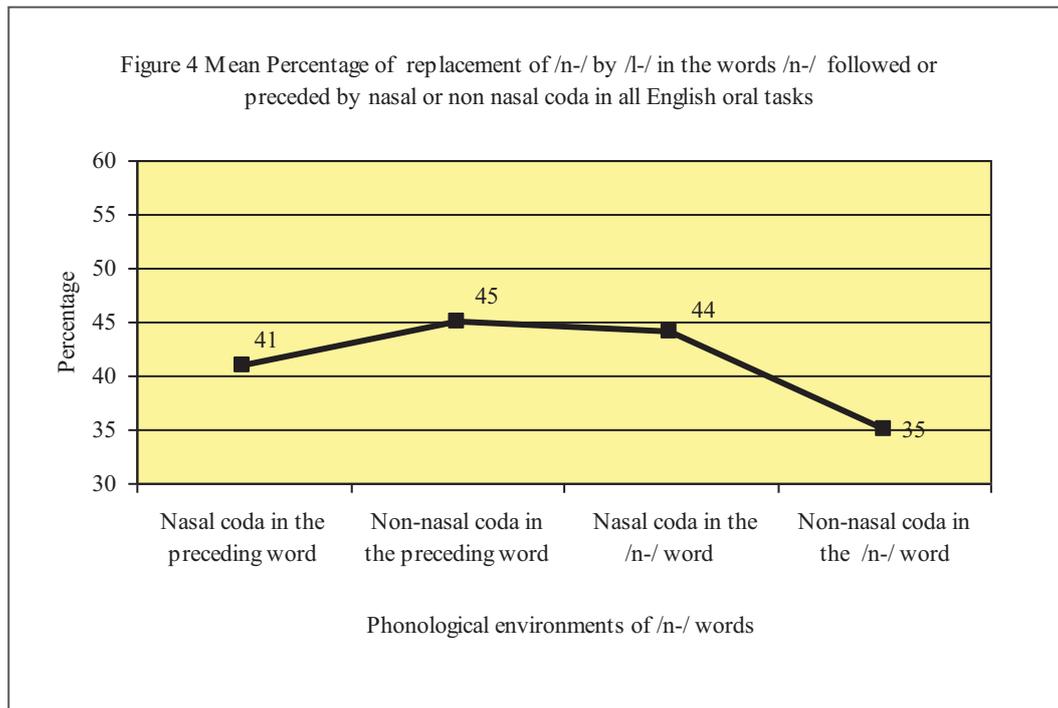
In addition, hypercorrection occurred in the reading tasks. As shown in Figure 3, the replacement of /l-/ by /n-/ clearly appeared in the passage reading task and the two minimal reading tasks.



### 5.2.3. In different phonological environments

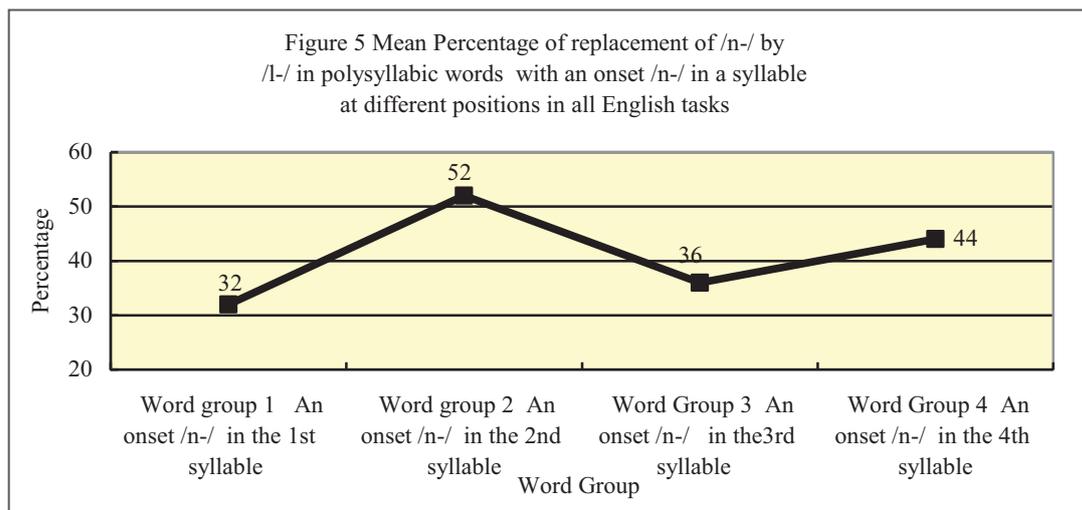
In the oral tasks, the words with /n-/ was followed by nasal or non nasal coda, or preceded by a syllable with nasal or non-nasal coda.

We predicted that, due to assimilation, when the /n-/ is preceded or followed by nasal coda, it is less likely for the speakers to substitute /l-/ for /n-/. The results shown in Figure 4 are not completely in line with our prediction.

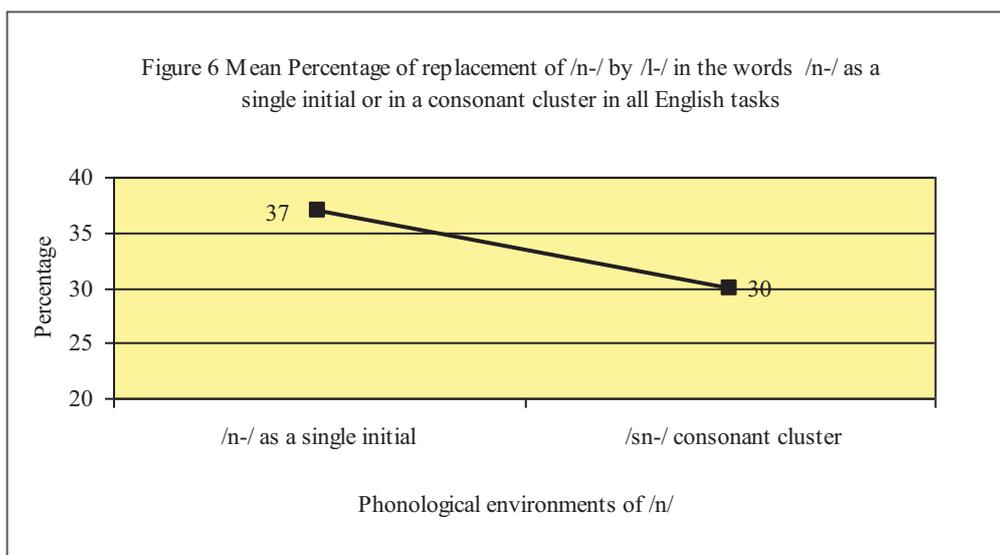


We also speculated that if /n-/ is in a syllable in an earlier position of a polysyllabic word, the replacement of /n-/ by /l-/ will be less likely to appear. This is because speakers normally pay more attention to the pronunciation of the syllable in an earlier position.

Results given in Figure 5 partly support this speculation. The pronunciation of /n-/ was most accurate in the first syllable. But the pronunciation of initial /n-/ in the third syllable and fourth syllables of polysyllabic words was more accurate than that in the second syllable of polysyllabic words.



We further predicted that if /n/ is in a consonant cluster, not as a single initial, it will be more likely to be replaced by /l-. This is because consonant clusters are less easy to pronounce than a single consonant. Results given in Figure 6 seem to support our prediction. But this independent variable was not selected in the Variable Rule Analysis, which will be presented later.



#### 5.2.5. Comparison of the effects of L2 proficiency, contextual style and phonological environment on the phonological variation of /n-/

The results of Variable Rule Analysis in Table 1 show that contextual styles had the strongest effect on the phonological variation of /n-/ (0.546). The effect of L2 proficiency was moderate (0.143). As for phonological environment, the effect of single phonological variable ranged from very minimal to moderate (0.005-0.14). The onset

/n-/ in a syllable at different positions had a moderate effect (0.282), which was the strongest phonological environment factor. The consonant type (single consonant/consonant cluster) was not selected for analysis.

Table 1 Variable Rule Analysis of substitution of /n-/ by /l-/ by all participants (9844 tokens)

Factor Groups and Factors		n→l	
		Means	Probability
<b>Learners' English Proficiency</b>			
Young adults from university (intermediate to post-intermediate English learners)	3581(36%)	33%	0.455
Teenagers from secondary school (intermediate English learners)	3267(33%)	34%	0.459
Children from primary school (elementary English learners)	3010(30%)	43%	0.598
			<b>(0.143)</b>
<b>Contextual Styles</b>			
Conversation	1211(12%)	66%	0.790
Interview	1871(18%)	65%	0.822
Passage reading	1936(19%)	27%	0.421
Word reading	2552(25%)	26%	0.322
Reading of minimal pairs	1144(11%)	19%	0.322
Minimal pairs repetition	1144(11%)	16%	0.276
			<b>(0.546)</b>
<b>Coda in the /n-/ word</b>			
Nasal coda	930(9%)	44%	0.611
Non-nasal coda	7834(79%)	35%	0.471
			<b>(0.140)</b>
<b>Coda in the preceding word</b>			
Nasal coda	686(10%)	41%	0.504
Non-nasal coda	5432(85%)	45%	0.499
			<b>(0.005)</b>
<b>Onset /n-/ in a syllable at different positions</b>			
1 <sup>st</sup> Syllable	6874(69%)	32%	0.442
2 <sup>nd</sup> Syllable	1872(18%)	52%	0.591
3 <sup>rd</sup> Syllable		36%	0.685
4 <sup>th</sup> Syllable	201(2%)	44%	0.724
			<b>(0.282)</b>
<b>Consonant type of /n/</b>			
Single consonant	9103(92%)	37%	/
Consonant cluster	755(7%)	30%	/
<b>Input Probability</b>			0.331
<b>Log Likelihood</b>			-5405.527

## 6. Discussion

### 6.1 Why does /l-/ substitute /n-/ in the L2 English of Cantonese speakers?

We argue that “ease of articulation” may initiate the replacement of /n-/ by /l-/ in L1 Cantonese, and that the phonological variation in L1 is transferred to L2 English.

As given in the literature of sound change and variation, it was argued that

phonological systems are organised such that they are easy to produce. There are inevitable tendencies of phonological change because of ease of articulation, which is castigated as “laziness” (Aitchson 2001, Silverman 2006). Phonetically, /n/ and /l/ are both alveolar, but /n-/ is a nasal sound. When the /n-/ sound is produced, the soft palate is lowered, which opens a passageway into the nasal cavity and air continually escapes through the nose. Compared with the /n/ sound, the /l/ sound is therefore relatively easier to produce as lowering the soft palate is not involved. Therefore, as shown in our study, it is very rare for students to substitute /n-/ for /l-/ in spontaneous speech in English.

### *6.2. Why does English proficiency play a role in the substitution of /n-/ by /l-/ in L2 English?*

Word pronunciation training receives attention at early stages of English learning in Hong Kong. More advanced English learners have more exposure to spoken English and therefore L1 phonological transfer in terms of the replacement of /n-/ by /l-/ is not very persistent. We conducted a follow-up interview with students and it was found that Hong Kong students aimed at accurate pronunciation in English. Students’ positive learning attitudes towards English may help them improve their L2 pronunciation.

### *6.3. Why does the extent of replacement of /n-/ by /l-/ vary with different contextual style?*

Regardless of English proficiency, our students’ accuracy of pronunciation of /n-/ is affected by the variation of task types. The task types differed in terms of contextual styles and vary with the amount of attention students’ paid to pronunciation, and with the degree of their phonological awareness of making a distinction between /n-/ and /l-. Learners’ attention to pronunciation and phonological awareness of making a distinction between /n-/ and /l-/ was least in spontaneous casual production (i.e. conversation and interviews), and most in the minimal reading tasks. Therefore, the replacement of /n-/ by /l-/ was most in two casual speech productions, but least in the minimal reading tasks of the most careful style. The highest degree of phonological awareness of making a distinction between /n-/ and /l-/ causes hypercorrection (i.e. replacement of /l-/ by /n-/) in the careful minimal reading tasks.

In contrast with the two casual conversational tasks, the passage or word reading task of careful and formal style does not require participants’ attention to the speech

content, but only to pronunciation, and therefore the replacement of /n-/ by /l-/ decreased.

*6.4. Why do most of the phonological environments of /n-/ included in our study play weak roles in the substitution of /n-/ by /l-/?*

We argue that it is not the phonological environment itself which affects the phonological variation of /n-/. It is a speaker's attention paid to pronunciation that makes a difference.

Therefore, only the factor group of syllable position played a relatively more important role in the replacement of /n-/ by /l-/. When /n-/ is in the first syllable of a polysyllabic word, not in the 2nd, 3rd or 4th position, the /n-/ is least likely to be replaced by /l-/. This is because speakers normally pay more attention to the pronunciation of the first syllable than to the syllable in a later position of a polysyllabic word.

## **7. Implications**

The findings of this study shed light on teaching English pronunciation to Cantonese speakers. We suggest that the perception and production of /n-/ should be one of the teaching focuses in English lessons for Hong Kong students. They should be taught to feel and observe the phonetic features of /n-/, which are similar to or different from those of /l-/:

We propose that: (1) variation of styles should be paid attention to in the training of L2 pronunciation; and (2) the Consciousness Raising approach (Sharwood Smith 1981, Rutherford & Sharwood Smith 1988, Schmidt 1990, 1995), which was originally adopted for learning L2 grammar, could be used to raise Cantonese speakers' phonological awareness between /n-/ and /l-/ in English. The most careful styles of minimal pair reading and repetition can be used for raising learners' phonological awareness. The word reading task can arouse learners' attention to /n-/ which is in a syllable at a later position of a polysyllabic word.

## 8. Conclusion

This study shows that among six phonological variants of [n-], [l-] is the most dominant. The substitution of /n-/ by /l-/ in English by Cantonese speakers is caused by L1 phonological transfer and initiated for phonetic reasons. Different variation patterns of the merging of /n-/ with /l-/ appear in different contextual styles. The variation of contextual styles plays the most important role in the phonological variation in focus. The substitution of /n-/ by /l-/ in English does not significantly vary in most of the phonological environments of /n-/ included in this study. The phonological factor is not important in the sound variation in focus.

It is suggested that the teaching of L2 pronunciation aims at arousing learners' attention to pronunciation with different speech styles, raising learners' phonological awareness and linking learners' sound production with perception.

## Notes

1. Research supported by CityU SRG Grant (7001657) and CERG Grant (CityU 1438/05H). The whole research investigated the merging of /n-/ with //l-/ in Hong Kong Cantonese, Putonghua and English. This paper only reported the results regarding Hong Kong English.

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# E-tailing English Language Teaching

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## Abstract

This study examines e-tailing practices commonly observed in the English language teaching (ELT) industry in South Korea. The findings of the study indicate that technology, economy, and native speakerhood (Nayar 1994 and Gupta 1999) are overarching themes in the ELT marketing materials in cyberspace. In providing instructions and services for student-initiated learning activities, the majority of the ELT institutes in this study depend on technologies such as live video streaming, podcasts, audio files, voice recognition/pronunciation correction software, daily English text messages, and e-dictionaries. The topic of economy is articulated in conjunction with various complimentary services and cost-effective programs. This study argues that the South Korean ELT industry's heavy reliance on e-tailing is a direct response to accommodate techno-savvy and Internet oriented consumers.

**Keywords:** ELT business, e-tailing, English education, private language institute (*hakwon*), South Korea

## 1. Introduction

As technology evolves, the way we live our lives changes as well. These days many consider life without the Internet to be inconvenient, if not impossible. The Internet is an integral part of modern day business transaction, including vending and purchasing products. In this paper, I address one of the "hottest" commodities in contemporary South Korea, that is, English and how it is marketed in cyberspace. Although English is not what you would call a typical commercial product, its consumer appeal is quite irresistible worldwide, South Korea being no exception. Some might perceive English as a luxurious designer label that many wish to possess but few can afford. Perhaps this used to be the case, but English is now considered to be a necessity item rather than a luxurious rarity in South Korea. Lee (2007) observes that English is now recognized as essential linguistic capital for academic and professional advancement in South Korea. Considering the widely acknowledged importance of English in South Korea, I argue that English language programs and courses are among the most popular and essential products and services Koreans purchase and consume.

Whang (2000) reports that approximately 3000 language schools exist in Korea and the business is growing. Prospective employees have shifted their job search preparation focus from the Test of English for International Communication (TOEIC) to interview and business negotiation skills (Lee 2008). It is quite common that Korean working

professionals take a course at a language institute called *hakwon* to improve their English. According to a report on SBS TV, most one to one English speaking classes at *hakwon* maintain a 90% enrollment rate and 68% of working professionals take some courses to further their education after work. In particular, those in their 20s and 30s show a 20% increase in their endeavor to improve themselves, and 45% of the surveyed report that they study more than three hours a day (SBS TV May 19, 2003). Yook (2007) characterizes this type of unusual passion for improving English as “the national zeal” and “a sign of sheer madness.” Jeong (2004:40) goes so far as to say that “[c]urrently, it is no exaggeration to say that the Korean peninsula is overwhelmed by a zest for English. The whole country seems to be in the grip of ‘English fever’, and many factors, internal and external, have added fuel to the flames.” In accounting for the driving force behind this heightened interest in English, Lee (2008) argues that discourse such as “segeywha” or “global Korea” pushes speaking English to be all the more desirable qualification in contemporary Korea and the globalization ideology is often incorporated into various cyber-texts promoting English and English education.

There is no shortage of research on English language acquisition or English language teaching (ELT) in South Korea. However, marketing and retailing—the essential components of ELT—particularly in private education, have been mostly neglected. ELT is a booming business with private language institutes aggressively marketing their programs to secure more students through various channels. Among the marketing channels these institutes use, the Internet plays a prominent role as their programs, instructors, and services are often advertised there. Since these programs are marketed directly for an individual learner, the term *retailing* is more suitable than *wholesale*. Retailing is defined as “a business that sells products and/or services to consumers for their personal or family use and encompasses “the interface of retailers with both vendors and consumers, as well as other topics that impact retailers” (*Journal of Retailing* accessed 7 June, 2008 from <http://www3.babson.edu>).

In this paper, I opt for the term *e-tailing* to focus on retailing ELT in cyberspace. According to *Free Encyclopedia of Ecommerce*, electronic retailing (e-tailing) is defined as “the practice of selling goods and services over an electronic medium like the Internet” (accessed 10 July, 2008 from <http://ecommerce.hostip.info/pages/423/E-Tailing.html>). *Wikipedia* notes that there are two types of e-tailers: *pure plays* and *bricks and clicks*, the former using “the Internet as its primary means of retailing (e.g., Dell and Amazon.com) and the latter using “the Internet to push its good or service but also has the traditional physical storefront available to customers (accessed 11 October, 2008 from <http://en.wikipedia.org/wiki/E-tailer>). South Korean ELT institutes are bricks and clicks; they do have brick-and-mortar operations, but at the same time the Internet serves as a business growing tool for marketing programs, offering and improving services, and recruiting and managing customers, that is, English learners.

Marketing of products and services is often facilitated and can become successful through effective advertising. Advertising, as a discourse of persuasion, aims to convince potential consumers to purchase a product presented. According to Hermerén, (1999:4), advertising is “an activity which normally involves language, the purpose of which is to sell a product or service” and the main purpose of advertizing is “to make the listener, viewer or

reader adopt a certain viewpoint and/or act in a certain way” (p.5). Similarly, Stern (1996:62) views advertising text as “any media artifact designed to persuade consumers and generated, composed, recorded, and analyzed by sponsorial agents and/or researchers.”

In this study, I focus on e-tailing, one of the most recent advertising/marketing strategies commonly used by the South Korea ELT business and discuss how the speech act of persuasion is carried out by English language institutes in cyberspace.

## **2. Data**

The data were collected in August 2007 from the *Yahoo Korea* website, which provides one of the most popular Korean Internet search engines. I conducted a key word search using the phrase 영어학원 (*yenge hakwen* ‘English language institute’) and examined the first 20 items on the list. The English language institutes discussed in this study were not selected because of their importance or reputation. Rather, my goal was to simulate a search as closely as possible to an actual situation in which Korean learners of English may find themselves when they do not have a specific language institute in mind but engage in a general Internet search to find an English program suitable for their needs. I visited each of these 20 randomly selected English language institutes’ websites and examined their main homepages in terms of what is highlighted visually and emphasized linguistically regarding their programs and institutes. Rhetorical strategies and predominant themes exploited in the marketing materials available on these websites are classified first into categories by emphasis, and tokens of each category are subsequently tallied up to investigate a frequency factor.

## **3. Results and Discussion**

A textual analysis of the e-tailing materials of these 20 ELT institutes reveals seven predominant discourse strategies. The results are summarized in Table 1. The strategy categories are presented in descending order of frequency, that is, how many times it is mentioned in the data, and an example of each strategy category is provided to illustrate what a representative text is like. A more detailed discussion of different e-tailing texts will be presented subsequently.

Most e-tailing texts in this study resort to more than one advertising strategy; in fact, no language institutes in the data use only one type of e-tailing text. Technology-driven instructional methods and complimentary services and/or materials are commonly mentioned across different ELT institutes websites. In addition to technology, the concept of cost-effectiveness is often articulated in advertising. For instance, the majority of the institutes emphasize that their programs are reasonably priced, considering the amount of instruction and attention given to individual students and the many kinds of free services and materials available for enrolled students.

Table1. Categories and Frequency of ELT e-tailing strategies

	Frequency Times mentioned	Example
Technology-driven instructional methods	23	“Voice recognition software”
Complimentary services/ materials	22	“Free English text service”
Native speaker instructor	15	“Native speaker 100% authentic English”
Sensitive to individual needs	13	“One to one tailored consulting”
Time and cost effective	12	“60,000 won (less than \$60) per month 30% discount for three consecutive enrolled courses”
Emphasis on experience	6	“Everyday <i>okam cheyhem</i> ” (‘five sensory experience’ meaning ‘experiential learning’)
Convenience (flexible time/location)	4	“ <i>Call study</i> for busy working professionals” (‘instruction offered over the phone’)

### 3.1 Technology

The orientation to technology in ELT e-tailing is evident in a plethora of services and perks enrolled students are entitled to. Technology-dependant tendencies exist both in teaching and learning practices. Podcasts of sample lectures, Video-on-Demand showing streaming videos, and audio-files are mainly advertised for the teaching component. For the learning component, a variety of self-study or student-initiated learning maintenance tools such as daily English text service, e-dictionary, voice-recognition and pronunciation correction software, podcast and MP3 downloads of lectures are highlighted. These services are provided so that students can review the material and initiate their own learning in their free time. Thus, technology is closely tied to convenience as well.

The term *high-tech* appears fairly frequently on these websites. For instance, several websites feature an English pronunciation assessment software program as their “pride and joy” and provide detailed instructions as to how to use this program. One ELT institute’s e-tailing text indicates that two modes are available for enrolled students to take advantage of: *thought unit* and *role play*. Students are warned that if they score 50 or below, they cannot pass a test, which normally consists of 9-10 sentences. According to a picture on this website, when the “speaker bar” is blinking on a computer screen, students are supposed to talk into a microphone. To help students avoid failing the test, this ELT provides some practical tips for students to consider to improve their score on the institute’s English pronunciation evaluation test, which is presented in Excerpt (1).

- (1) GnB English Software 를 사용해서 최적의 영어 발음 인식을 높이는 방법은 **정확한 발음 (미국식 발음)**, 정확한 말하기 시점, 좋은 마이크, 좋은 컴퓨터도 중요하겠지만 가장 중요한 건 바로 여러분의 자신감입니다.

GnB English Software-lul sayonghayse choycekuy yenge palum insiklyul-ul Nophinun pangpepun **cenghwakhan palum (mikwuksik palum)**, cenghwakhan malhaki sicem, cohun mic, cohun computer-to chwungyo hakeyssciman kacang chwungyo hanken palo yelepwnunuy casinkamipnita.

‘The best way to improve your score using our GnB English pronunciation recognition software is to have **accurate pronunciation (American Accent)**, perfect timing, a good quality microphone and computer. But the most important thing is to have confidence.’

Excerpt (1) enumerates what the institute believes to be important components in successful use of this software, including accurate pronunciation, perfect timing, a good quality microphone and computer, and confidence. The “accurate pronunciation” is explicitly equated with “an American accent” in parenthesis, which is literally translated into “the US style” pronunciation. Although the main point of this text is to help the students see the value of confidence in learning English, the valorization of native speaker pronunciation, particularly American English, is hard to overlook. What is implied in the text is that speaking English with a Korean accent is something students should avoid if they want to score high enough to pass the test.

Technology is factored into advertising instructors as well. Some institutes feature video clips of teachers in which instructors briefly introduce themselves, mentioning their name and where they are from, and invite potential students to join the language institutes they work for. Their welcoming messages frequently include instructors’ excitement about the program and/or the possibility of working together with whoever views a video-clip.

As several interactive telecommunication technologies have become available, offering a course in a traditional classroom setting is no longer the only way to teach English. Live video streaming and simultaneous video conferencing enable teachers to teach from anywhere in the world. In other words, English teachers instructing Korean students do not necessarily have to reside in Korea. As it turns out, some ELT institutes employ teachers who currently live outside Korea somewhere in an English speaking country. Technology allows them to upload videos of “self introduction” and lessons. Thus, being present in the same physical and temporal space is no longer required in English teaching. This indicates that ELT is going global without distinctive borders, resulting in an increasing sense of interconnectivity around the world.

The notion of “staying connected” is relevant not only to teacher-student interaction but also peer interaction. The concept of “English community” in cyberspace is a case in point. Several English communities are created and managed via chatting with and blogging to peers around the world using English. For instance, the ELT institute called *Bilingual Korea Shall E* maintains “E Space” (<http://espace.shalle.com>) to provide opportunities for members and visitors to communicate with *yenge chinkwu* (‘friend via the English language) dubbed e-friends, *e-* dubiously indicating perhaps both English and electronic. I would argue that this is an Internet generation version of pen pals. Visitors are asked to post their biographical notes (e.g., gender, English proficiency level, age) and preferred time to be connected (e.g., available time). E-friends meet at the “Talk station,” which has the following ad: “Speak English with friends. More friends better English.” To demonstrate what kind of verbal interaction is normally exchanged at the talk station, I introduce two e-friends’ texts below. These are verbatim texts with all typographical and syntactic deviations intact.

- (2) hello..! this s Cris! thanks for visiting my Minishall. we dont know anything each other but i believe we wanna enjoy ourselves through english ! so just do it~
- (3) ~! This is sun mi. I really can't speak english well.. ㅏ.ㅏ  
But I want to speak english well. let's try~ Why don't you speak with me? \*^^\*

Excerpts (2) and (3) contain several features of computer mediated communication (CMC) or *Netspeak* (Crystal 2001), including colloquialisms and informal language use (Baron 2003), no or minimum capitalization (e.g., *english, i*), omission of punctuation marks (e.g., *dont*), and emoticons (e.g., \*^^\*, ㅏ.ㅏ). Even with a few “non-native” English features such as the omission of a preposition (e.g., *know anything each other*), the message in excerpt (2) is not obscure: friendship can develop though speaking English and speaking English can be enjoyable when you do it with friends.

Excerpt (3) unequivocally demonstrates that the participant is not satisfied with her current proficiency level, has a strong desire to improve English, and believes that speaking English with others can facilitate the process. Her invitation to peers suggests that she views staying connected with those who speak English as a collaborative partnership in improving English. It is noteworthy that the participant recognizes her limited English with the emotion indicating depression or discouragement (i.e. ㅏ.ㅏ), which demonstrates that learning English can often be a daunting task to learners such as herself emotionally as well as intellectually. When she invites “e-friends” to join her, she uses the emoticon conveying shyness or bashfulness (i.e. \*^^\*). Although these two emoticons are very common in Korean CMC and not readily found in Western CMC, the concept of e-friend is not limited to Koreans. In fact, Koreans who do not speak English might experience difficulties in becoming e-friends. As long as one can and is willing to communicate in English, anyone can join as an e-friend regardless of nationality. They do not have to be fluent in English or native speakers of English. This rather non-discriminatory nature of membership seems to work because your e-friend is your equal not your teacher; he or she does not formally teach you English but can help you improve English through friendship. However, this kind of flexibility is not available when there is a clear role to play as a teacher or a student because the student-teacher relationship often entails asymmetrical power dynamics and each has certain expectations about the other’s responsibilities—the teacher, as an expert, provides instructions and the student relies on the teacher’s expertise.

### 3.2 Native speakerdom

According to Gupta (1999), native speakerdom in ELT is generally limited to a high prestige Standard English using person from one of the traditionally English as a Native Language (ENL) countries. Similarly, Nayar (1994) notes that “in the native-nonnative paradigm there is no doubt or dispute about who owns English. The native speakers own it,

but are willing to transfer controlled possession and award guided right of use to the non-native speakers, but may be forever unwilling to cede even a share of the ownership.”

Many e-tailing texts in this study show native speaker favoritism, which is the one and only recurring rhetoric related to instructors and linguistically manifested under the title “wenemin” (‘native speaker’). 75% of the surveyed institutes explicitly mention *wenemin* teaching staff in their marketing material, and among these only one institute opts for the English word *native* which is orthographically presented in Korean, 네이티브, the rest using the Korean equivalent, 원어민(*wenemin*). The discourse about *wenemin* is prevalent not only in language institutes’ hiring practice but also in students’ instructor preference. It can be argued that ELT institutes, as vendors, simply try to provide what consumers demand. The need for hiring native speakers is often fueled by the desire to learn “original” English or “authentic” English. In Excerpt (4), this particular institute advertises its program as a tool to help students learn to speak “real English,” which is understood as native-like fluency. What is implicit in the text is that English taught by non-natives is “fake,” and this institute provides no such teaching.

- (4) **100% cincca yenge** sengkong haseyyo. (<http://www.jungchul.com/>)  
‘(I hope) you will succeed in (speaking) **100% authentic (real) English.**’

Telephone English is marketed for busy students with a full-time job, who find it challenging to attend an English class on a regular basis. It is an appealing method of learning because (1) financially it is less burdensome (2) it is much more flexible in terms of location and time (3) it is not as strenuous as regular one hour in-class English lessons since it is normally 10 minutes and (4) it can be done more frequently. A text from the website of a phone English specialized institute called *Oxphone Yenge* shows another illustrative example of native speaker favoritism. Even the name of their program contains a hindclipping of a prestigious British university *Oxford*.

- (5) 원어민과 매일매일 직접 전화를 통해 다양한 상황극과 교재를 이용하여 영어로대화하는 학습 방법 입니다. 영어학습에서 가장 중요한 것은 영어사용을 일상화하는 것이며 영어를 원어민으로 배우는 것입니다. 이런 방법을통하지 않고는 제대로된 영어학습의 효과를 거두기 어렵습니다.수많은 방법과 엄청난 금전과 시간을 투자하고도 우리 주위에는영어로 부터 고통받는 많은 사람들이 있습니다.옥스포드 허브 영어에서는 이러한 단점을 개선하여 원어민과의직접대화 방식으로 여러분을 새로운 영어 학습의 장으로 초대합니다.

**Wenemin**-kwa mayil mayil cikcep cenhwa-lul thonghay tayangan sanghwangkuk-kwa kyocay-lul iyonghaye yenge-lo tayhwanun haksup pangpep ipnita. Yengehaksup-eyse kacang cwungyohan kesun yengesayong-ul ilsanghwanun kesimye yenge-lul **wenemin**-ulo paywunun kesipnita. Ilen pangpep-

ul thonghaci anhkonun ceytaylorloyn yengehaksup-uy hyokwa-lul ketwuki elyepsupnita. Swumanhun pangpep-kwa emchengnan kumcen-kwa sikan-ul thwucahakoto wuli cwuwieynun yenge-lo pwuthe kothongpatnun manhun salam-tul-i issupnita. Oxford Herb yenge-eysenun ilehan tancem-ul kaysenhaye **wenemin-**kwaury cikcep tayhwa pangsik-ulo yelepwn-ul saylowun yenge haksupuy cang-ulo chotayhapnita.

‘Our program is designed to help you practice communication in English by utilizing a variety of role plays and materials and by enabling you to talk to a **native speaker** on the phone on a daily basis. The most important thing in learning English is to use it in a daily conversation and to learn it from a **native speaker**. Without this it is difficult to achieve a desirable outcome in learning English. Even with numerous methods and significant investment of time and money, we witness many suffer from English. Oxford Herb English has dealt with these limitations and created a new space to directly communicate with a **native speaker**. You are all invited and come and join us.’

Excerpt (5) points out a predicament many learners are faced with—not being able to use English on a daily basis through a conversation with a native speaker. It states that learning English from a native speaker is a necessary process to fix previous ineffective English learning.

The “obsession” with native speaker teachers sometimes leads to ethnocentric, misguided recruitment practices which perpetuate the view that all “white” instructors are native speakers and therefore they do not have an accent. Tsuda’s (1992:32) observation about “an emotional attachment to and obsessive infatuation with Western, primarily American culture; elevation of ‘the native speaker’ and the ‘Caucasian race’ to a status of ‘cultural superiority’ in Japan’s *eikaiwa* seems to be quite salient in Korea as well. My personal encounters with some of the English instructors working in Korea confirm that some of them indeed have benefited from this hiring practice, enabling them to work as “native speaker” instructors despite the fact that they are originally from Francophone Canada or an Eastern European country, English their second language. What they have in common is their “foreigner look.”

One website features video clips called “messages to the students” showcasing non-local teachers including a Korean American and a Latino whose self introduction indicates that she resides in Florida but originally is from Argentina. The Korean American teacher does not have “an accent,” whereas the Argentinean teacher does. Physical attributes seem to play an important role in teacher recruitment. If the instructor is of East Asian descent, he or she needs to speak “perfect” English, but instructors with western features are not necessarily subject to the same standards. Thus, the native speaker rhetoric poses different often conflicting forms of discrimination against Asian teachers, going beyond just English proficiency.

The *wenemin* rhetoric is often reinforced by a visual aid as in Figure 1. At least this institute attempts to convey that its teaching staff are diverse in terms of gender and race. However, the most prominent is an attractive Caucasian female and the least memorable an Asian male, whose image is blurred and fades into the background. It is not clear whether the Asian male is Korean or not, since nowhere in the text or the picture is this information made specific. The native speaker preference is not driven solely by the desire to be exposed to “perfect English,” as some e-tailing texts of several ELT institutes seem to claim. It is also triggered by physical trait-based ethnocentrism that those looking different from Koreans speak “correct” English and those looking like Koreans speak “incorrect” English.

Figure 1. Picture of teaching staff (<http://www.global-academy.co.kr>)



The majority of the e-tailing texts feature the term *wenemin* but other qualification criteria are not mentioned at all. In other words, as long as the potential employee satisfies the most important requirement of being a native speaker, lack of other qualifications will not prevent the job candidate from getting hired as an English teacher. This type of minimum requirement is not applicable to eligible Korean teachers since they need to fulfill other requirements such as a few years of teaching experience, a teaching certificate, a Master’s degree from an accredited university in an English speaking country, and so forth. Excerpt (6) below is the only exception in the data, advertising native speaker teaching staff who have extra credentials other than just being native speakers.

(6) **Wenemincwung palum cohko phyocwune kwusa** kangsa cakyekcung  
(<http://www.native79.com>)

‘Among **native speakers**, those **speaking Standard English with good pronunciation** and a teaching certificate.’

Unlike some other marketing texts about native speakers, this excerpt puts some emphasis on a teaching certificate and equates Standard English with “good pronunciation” and suggests that not all native speakers have good pronunciation or are speakers of Standard

English. This website boasts its rigorous instructor selection process and stresses how this company differs from others who indiscreetly and carelessly hire people simply because they are native speakers of English.

The preferential treatment of native speaker instructors is also shown in terms of financial compensation and student-teacher ratio. For instance, excerpt (7) states that this institute offers “one to one tailored” English courses, but if it is with a Filipino instructor, it will be a private lesson but if it is with a teacher from America, England, or Canada, it will have to be in a group discussion format along with three other classmates. Thus, there is a clear difference in terms of the level of individual attention a student will be given. Although it is a positive development to have instructors both from the *Inner Circle* and *Outer Circle* (Kachru 1998), the Outer Circle teachers are not treated equally as those in the Inner Circle. Teachers from the *Expanding Circle*, especially Koreans, are not favored as conversation instructors.

- (7) One to one English 1:1 맞춤과정 (필리핀 선생과 온라인 교재), 1:4 그룹회화(미국/영국/캐나다선생과의토론방식) (<http://www.otoe.co.kr>)

One to one English 1:1 macchwumkwaceng (Philippine sensayng-kwa online kyocay), 1:4 group hoyhwa (Mikwuk/Yengkwuk/Canada sensayng-kwaury tholonpangsik).

‘One to one English 1:1 customized class (online material with a Filipino teacher), 1:4 group conversation (discussion with American/British/Canadian teachers.’

### 3.3 Experiential learning: Learning by doing

Experience is another buzz word in ELT marketing. An ambitious idea of creating an experience-oriented English immersion learning environment, *English Village*, has already produced three campuses in Gyeonggi and many mini campuses all over Seoul (Lee 2008). As the motto “creating global Koreans” indicates, these villages are attempts to bring the world to Korea and enable ordinary Korean citizens to experience travelling outside Korea. The Paju Campus I visited features a mock town that is similar to a village in the US or England (Lee 2007). Thus, *global* does not mean any place in the world but a place in which English is spoken. All the street signs in the English Village are in English and the medium of instruction and means of communication are supposed to be English as well.

Similar to English Villages, several private ELT institutes also stress the importance of “experience” in learning. The emphasis on experience is a reaction to traditional textbook-based English teaching in the classroom which is often criticized for being ineffective in producing fluent English speakers. What is referred to as experience is to get to do things and take care of daily business in English. Excerpt (8) argues that their program is a more convenient version of the English Village because students do not live in

the Village but can commute from home. The e-tailing text of this institute makes its purpose explicit as follows:

- (8) UN English 글로벌 영어인재를 양성하기 위한 “통학형 영어마을”  
대한민국의 30 후를 이끌어 나갈 글로벌 인재 양성을 위하여 설립된  
신개념 통학형 마을 Everyday 오감체험 영어.

UN English global yenge incay-lul yangsenghaki wihan “thonghakhyeng  
yengemaul” tayhanminkwukuy 30hwu-lul ikkule nakal global incay yangseng-ul  
wihaye seliptoy sinkaynyem thonghakhyeng maul Everday okam **cheyhem yenge.**

‘UN English is a new concept based commute enabling English Village with the  
aim of nurturing global English human resources who will lead Korea in 30  
years. Everyday five sensory **experiential English.**’

They claim that the institute has approximately 5000 “experiential educational spaces” and they are normally upgraded twice a year. The website also states that the United Nations Future Forum and Life University sponsor their institute. Although a world organization such as the United Nations has nothing to do with the institute, the mere linguistic association and what the UN represents can easily evoke a sense of authority or global good will which can enhance the legitimacy of the institute’s claim and program. A comparative allusion to the English Village is used positively to stress this institute’s experience-oriented teaching methods and facilities and sincere desire to realize a truly authentic overseas ESL environment, which is articulated in Excerpt (9). Furthermore, it is argued that the institute is not simply an amusement park, which resonates with some of the negative criticisms English Villages are subject to.

- (9) 단순놀이동산이 아닌 해외현지와 같은 진정한 ESL 환경 구현.

Tanswunnoli tongsan-i annin hayoyhyenci-wa kathun **cincenghan ESL  
hwankyeng kwuhyen.**

‘It is not a mere amusement park. It is a **true ESL environment** emulating  
overseas.’

The majority of the ELT e-tailing texts in this study reinforce one of the most powerful language ideologies in circulation in Korea, that is, English is necessary, if not indispensable, for social advancement and global competitiveness. The text below is a prime example of that idea.

- (10) 지앤비영어전문교육(주)은 그동안의 GnB 영어전문학원이라는 결과에  
만족하지 않고 대학생들과 일반 성인들을 위한 최첨단의 효과적인

영어교육프로그램도 개발·완료하여 “이 땅의 모든 사람들이 영어가 되는 그날까지” 최선의 노력을 경주하여 21C 영어교육을 선도하는 **세계적인 영어교육전문회사**로 성장하려고 합니다. 영어 의사소통 능력을 원하는 세상의 모든 사람들에게는 영어라는 언어가 더 이상 **장애물이 아닌 개인의 경쟁력**이 될 수 있도록.

GnB yenge cenmwunkyoyuk (inc)-un kutonganuy GnB yengehakwenilanun kyelkwaey mancokhaci anhko tayhaksayng-tul-kwa ilpan sengintulul wihan choychemtanuy hyokwacekin yenge kyoyuk program-to kaypal·wanlyohaye “ittanguy motun salam-tul-uy yenge-ka toynun kunalkkaci” choysenuy nolyek-ul kyengcwuhaye 21C yengekyoyuk-ul sentohanun **seykyeycekin yengekyoyuk cenmwunhoysa**-lo sengcanghalyeko hapnita. Yenge uysasothong nunglyek-ul wenhanun seysanguy motun salam-tul-eykey-nun yengelanun ene-ka te isang **cangaymwul-i anin kayinuy kyengcaynglyek-i toyl swu isstolok.**

‘GnB is no longer content with the reputation simply as an institute specializing in the English language. We will continue to develop and run high-tech, effective English programs for college students and adults until “English is possible for everyone on this soil” (i.e. every Korean can speak English). We aim to grow to be **a leading English language teaching institute in the world** so that English may **not be an obstacle but a competitive force** for those who want to communicate in English.

This institute does not view Korea as the only market. Its vision is to become a leading ELT institute “in the world” not just in Korea. This is an indication that the ELT industry is a business subject to the pressure of improving competitiveness in the global economy just like any other business. It is not immune to the “Global Korea” campaign, which is aggressively promoted in many domains of contemporary South Korea.

#### **4. Conclusion**

The findings of the study indicate that technology, economy, and native speaker preference are overarching themes in ELT marketing materials in cyberspace. Interactive telecommunication technologies are involved both in teaching and learning. Most ELT institutes make instructions available through live video streaming, podcasts, or audio files. Students can also actively manage their own learning maintenance activities by utilizing pronunciation correction software, daily English text message to their cell phones, and e-dictionaries and by downloading audio files and video podcasts of lectures they have already completed or missed.

The discourse of economy is often articulated in relation to time, cost, and complimentary services. The majority of ELT e-tailing texts mention reasonable tuitions, relatively short duration of a semester, and a variety of free services enrolled students can benefit from. Most ELT institutes claim to be willing to work hard to be sensitive to each student's needs by providing one to one tailored or customized teaching and flexible times and locations for instruction so that students may decide when and where to take a course.

Subtexts idolizing native speakers and emphasizing experiential learning are common. Almost all of the ELT institutes in the data advertise their *wenemin* ('native speaker') teaching staff as a main "selling" point and often highlight the importance of learning English from native speakers and argue how that is directly related to speaking so-called authentic English.

This study argues that the ELT industry in South Korea relies heavily on computer mediated communication for providing English instructions and retailing English language programs in response to changing needs of techno-savvy and Internet oriented learner consumers.

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# **The Minimal English Test: A New Method to Measure English as a Second Language Proficiency\***

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## **Abstract**

Maki et al (2003) developed the Minimal English Test (MET), which is a five-minute ESL test. The Maki Group has investigated whether the MET really measures ESL proficiency, in terms of its validity and reliability since the development of the MET. In this paper, we show that the MET, more or less, measures the same ESL proficiency as other widely used ESL tests, and the scores on the MET are moderately reliable. Therefore, the MET can be used as a useful ESL test in ESL research as well as ESL class.

**Keywords:** Minimal English Test, proficiency, reliability, validity.

## **1. Introduction**

Maki et al (2003) developed the Minimal English Test (MET), which is a five-minute English as a Second Language (ESL) test which requires the test taker to fill a correct English word with 4 letters or fewer into each of the 72 blank spaces of the given sentences, written on one piece of A4 paper, while listening to the CD on which the sentences are recorded. The MET is based on Lessons 1 and 2 of the textbook for college freshmen, written by Kawana and Walker (2002), and the CD that accompanies it. The contents of the textbook are essays on the modern society of the United States. The sentences on the CD last about five minutes at a speed of 125 words per minute.

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The Maki Group has investigated whether the MET really measures ESL proficiency or not since the development of the MET, by seeing the correlations between the scores on the MET and the scores on other widely used ESL tests. This paper examines whether the scores on the MET are reliable or not in two ways: the Guttman split-half estimate and the Spearman Brown equivalent forms estimate. We found that the scores on the MET show statistically significant relatively high correlations with the scores on other widely used ESL tests, whose correlation coefficients are around .7. Therefore, it can be said that the MET is a valid ESL test. Furthermore, the reliability coefficients of the MET were around .9, and thus, moderate as an ESL test, in terms of the interpretation of the reliability coefficient by Lado (1961). Therefore, it can be said that the MET is a reliable ESL test. Hence, the MET is a valid and reliable ESL test. These results indicate that it might be possible to measure ESL proficiency within a short period of time, and that the MET can be used as a useful ESL test in ESL research as well as ESL class.

The organization of this paper is as follows. Section 2 introduces the MET. Sections 3 and 4 discuss the validity and reliability of the MET, respectively. Finally, Section 5 concludes this paper.

## 2. The Minimal English Test

The MET is a simple test which requires the test taker to fill a correct English word with 4 letters or fewer into each of the 72 blank spaces of the given sentences written on one piece of A4 paper, while listening to the CD which produces the sentences. The MET is based on Lessons 1 and 2 of the textbook for college freshmen by Kawana and Walker (2002) and the CD that accompanies it. The contents of the textbook are essays on the modern society of the United States. The CD lasts about 5 minutes at a speed of 125 words per minute. The MET is shown below.

### *The Minimal English Test (MET)*

Please fill an English word with 4 letters or fewer into each blank spot, while listening to the CD.

1. The majority of people have at least one pet at (     ) time in their (     ).
2. Sometimes the relationship between a pet (     ) or cat and its owner is (     ) close
3. that (     ) begin to resemble (     ) other in their appearance and behavior.
4. On the other (     ), owners of unusual pets (     ) as tigers or snakes

5. sometimes ( ) to protect themselves ( ) their own pets.
6. Thirty years ( ) the idea of an inanimate ( ) first arose.
7. This was the pet ( ), which became a craze ( ) the United States and
8. spread ( ) other countries as ( ).
9. People ( ) large sums of money for ordinary rocks and assigned ( ) names.
10. They tied a leash around the rock and pulled ( ) down the street just ( ) a dog.
11. The rock owners ( ) talked ( ) their pet rocks.
12. Now ( ) we have entered the computer age, ( ) have virtual pets.
13. The Japanese Tamagotchi---( ) imaginary chicken ( )---
14. ( ) the precursor of ( ) virtual pets.
15. Now there ( ) an ever-increasing number of such virtual ( )
16. which mostly young people are adopting ( ) their ( ).
17. And ( ) your virtual pet ( ),
18. you ( ) reserve a permanent resting place ( ) the Internet in a virtual pet cemetery.
  
19. Sports are big business. Whereas Babe Ruth, the ( ) famous athlete of ( ) day,
20. was well-known ( ) earning as ( ) as the President of the United States, the average
21. salary ( ) today's professional baseball players is ( ) times that of the President.
22. ( ) a handful of sports superstars earn 100 times ( ) through their contracts
23. ( ) manufacturers of clothing, ( ), and sports equipment.
24. But every generation produces ( ) or two legendary athletes ( ) rewrite
25. the record books, and whose ability and achievements ( ) remembered ( ) generations.
26. ( ) the current generation Tiger Woods and Michael Jordan are two ( ) legendary
27. figures, ( ) of whom ( ) achieved almost mythical status.
28. The ( ) that a large number of professional athletes ( ) huge incomes
29. has ( ) to increased competition throughout ( ) sports world.
30. Parents ( ) their children to sports training camps ( ) an early age.
31. Such ( ) typically practice three to ( ) hours a day,
32. ( ) weekend ( ) during their school vacations
33. in order ( ) better their chances of eventually obtaining ( ) well-paid position
34. on a professional ( ) when they grow ( ).
35. As for the ( ) young aspirants who do ( ) succeed,
36. one wonders if they ( ) regret having ( ) their childhood.

The test taker is verbally given the following 3 instructions in advance: (1) Fill an English word with 4 letters or fewer into blank spaces, while listening to the CD; (2) The CD lasts about 5 minutes; and (3) There is about a three-second interval between Line 18 and Line 19.

### **3. Validity of the MET**

The Maki Group, since the development of the MET in 2003, has investigated whether the scores on the MET had statistically significant correlations with the scores on two other tests: (1) the Center Test (English Part) (CT) from 2002 to 2007, which is the common Japanese university entrance examination (The University Entrance Examination Center (2007)), and (2) the Paul Nation Vocabulary Test (PNVT) (Nation (2001)), which is a widely used test in ESL research. They discovered statistically significant correlations between the scores on the MET and the scores on the CT 2002 ( $r=.68$  and  $n=154$ ) (Maki et al (2003)), the CT 2003 ( $r=.72$  and  $n=629$ ) (Maki et al (2004)), the CT 2004 ( $r=.72$  and  $n=657$ ) (Maki et al (2005)), the CT 2005 ( $r=.60$  and  $n=611$ ) (Maki, Kasai, Goto, Morita, von Fragstein, Yumoto, Ochi, Oku, and Date (2006)), the CT 2006 ( $r=.62$  and  $n=611$ ) (Maki, Kasai, Goto, Ito, Miyamoto, and Oku (2007)), the CT 2007 ( $r=.67$  and  $n=851$ ) (Maki et al (2008)), and the PNVT ( $r=.81$  and  $n=159$ ) (Kasai et al (2005)). The subjects were all Japanese university freshmen. These results suggest that the MET measures more or less the same sort of ESL proficiency as the CT and the PNVT do. Furthermore, the Maki Group has investigated whether the MET can efficiently be used to measure ESL proficiency of other populations. They have investigated whether there are statistically significant correlations between the scores on the MET and the scores on (1) Shinken-Examination (English Part) in 2005 (SE), by the second grade high school students, which is a mock examination for the Japanese university entrance examinations (Maki, Morita, Ichihara, Furukawa, Kasai, and Goto (2007)), (2) the College Scholastic Achievement Test (English Part) 2005 (CSAT) by Korean university freshmen, which is the common Korean university entrance examination (The Korea Institute of Curriculum & Evaluation (KICE) (2007)) (Maki, Kasai, Goto, Lee, Lee, and Kim (2006)), and (3) the PNVT by Chinese university freshmen in 2005 (Maki, Bai, Kasai, Goto, and Hashimoto (2007)). They found statistically significant correlations between the scores on the MET and the scores on the SE ( $r=.63$  and  $n=135$ ), the CSAT ( $r=.61$  and  $n=155$ ), and the PNVT ( $r=.70$  and  $n=549$ ). Therefore, the MET seems to measure ESL proficiency of not only Japanese

university freshmen, but also Japanese second grade high school students, Korean university freshmen, and Chinese university freshmen. Evidence from a series of research by the Maki Group suggests that the MET seems to be able to measure the same ESL proficiency as the other four widely used ESL tests to some degree. Therefore, it can be said that the MET is a valid ESL test.

#### 4. Reliability of the MET

In order to use the MET as a tool to measure ESL proficiency, the MET must be a reliable ESL test. In this study, we examined the reliability coefficients of the MET in two ways: (1) the Guttman split half estimate (Guttman (1945)), and (2) the Spearman-Brown equivalent forms estimate (Spearman (1910) and Brown (1910)). First, we examined the results of the MET obtained in 2006 in terms of the Guttman split-half estimate. The data was collected from freshmen at four universities in Japan. The Guttman split-half reliability coefficient of the MET was .88 ( $s^2_{h1}=35.5$ ,  $s^2_{h2}=29.4$ ,  $s^2_{h1+h2}=116$ , and  $n=693$ ). Also, the estimate of the standard error of measurement (SEM) of the MET was 3.66 ( $s_x=10.8$ ,  $r_{xx}=.88$ , and  $n=693$ ). Therefore, the 68 percent confidence interval for an observed score of X was  $X \pm 3.66$  out of 72.<sup>1</sup> Second, we examined the results of the MET obtained in 2005 and 2006 in terms of the Spearman-Brown equivalent forms estimate, using other 7 versions of the MET. The subjects were all Gifu University freshmen, and about half of the entire data samples were collected in

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<sup>1</sup> Bachman (2004, 173) provides an explicit explanation of the confidence interval. He states the following:

“The three most commonly used probabilities for confidence intervals are .68, .95, and .99. We choose the appropriate level of probability depending on how confident we want to be in our estimate we want to be in our estimate of the test taker’s ‘true scores.’ In high-stakes situations, ..., we would choose the .99 probability level, .... On the other hand, for low-stakes situations, where we may be willing to accept a lower degree of confidence, we might choose the .68 probability, which means that we would be 68 percent certain that the test taker’s ‘true score’ is within the confidence interval.

(68 per cent confidence interval)  $CI_{.68} = X \pm 1.00 \text{ SEM}$

(90 per cent confidence interval)  $CI_{.90} = X \pm 1.96 \text{ SEM}$

(95 per cent confidence interval)  $CI_{.95} = X \pm 2.58 \text{ SEM}$ ”

2005, and the other half were collected in 2006. The reliability coefficients were around .9, as shown in Table 1, which is moderate for an ESL test.

*Table 1: Reliability Coefficients for MET 2 to MET 8*

	MET2	MET3	MET4	MET5	MET6	MET7	MET8
Reliability Coefficient	.895	.841	.886	.918	.896	.888	.864
Standard Error of Measurement (68%)	3.19	3.91	3.20	2.73	3.09	3.22	3.51
Observations	134	124	126	127	126	120	129

Therefore, it can be said that the MET is a reliable ESL test.

## 5. Conclusion

Through a series of research by the Maki Group since 2003, it has become clear that the MET is a valid and reliable test, and measures, more or less, the same ESL proficiency as four other widely used ESL tests, in spite of the fact that it takes only five minutes to administer it. Therefore, the MET could be a very practical and useful tool to predict one's scores of those widely used ESL tests, and could also function as a placement test for ESL learners. Furthermore, with the MET, researchers are able to conduct ESL research projects more easily.

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# Perception versus Production in Korean L2 Acquisition of English Sibilant Fricatives

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## Abstract

An important question in the L2 acquisition of phonemic distinctions is whether learners have to perceive contrasts before they can successfully produce them. In this paper, data on both the perception and production of the English /s/-/ʃ/ contrast were elicited from native speakers of Korean, a language in which [s] and [ʃ] are allophones of the same phoneme. General principles of phonology predict that, in acquiring this contrast, Korean learners will suppress the application of the allophonic rule relating these sounds across a morpheme boundary only if they can prevent the rule from applying within morphemes. This study examines these predictions in both production and perception of the /s/-/ʃ/ contrast as a function of learner's training.

**Keywords:** production, perception, interlanguage grammar, second language, fricatives, Korean.

## 1. Introduction

This paper reports data from a pilot project that is part of an ongoing study investigating the acquisition of phonemic contrasts in second language acquisition. The focus of the research is the second-language (L2) acquisition of a target-language (TL) contrast between two phonemes where the native language (NL) contains the sounds in question as allophones of the same phoneme. The task of the L2 learner in this case is to acquire the contrast by suppressing the application of the NL allophonic

rule in the pronunciation of the TL words.

For the purposes of this study, we are interested in the acquisition of the contrast in two phonological contexts, in production as well as perception. The two general phonological contexts, or environments, are termed *morphologically basic* and *morphologically derived*, and refer to the morphological structure of representations that would trigger the application of the NL allophonic rule. Morphologically basic (henceforth, basic) environments are mono-morphemic words containing the appropriate segments for the application of the allophonic rule. For our purposes morphologically basic environments can be further subdivided into three phonological contexts: word-initial position before a vowel, word-medial position between vowels, and word-final position following a vowel. Morphologically derived environments (henceforth, derived) refer to words containing a representation to which the allophonic rule would apply, but the segments in question are separated by a morpheme boundary.

General principles of phonology predict that learners will be able to acquire a contrast in some positions before they can acquire the contrast in other positions. In basic environments, learners should acquire a contrast in word-initial and word-medial positions before they acquire the contrast in word-final position. This is because word-initial and word-medial positions are both syllable-onsets and word-final position is a syllable coda. Contrasts in onsets have been shown to be acquired before contrasts in codas.

General principles of phonology also make predictions about the acquisition of contrasts involving the learner having to split two NL allophones into separate TL phonemes by virtue of suppressing the application of the allophonic rule. The prediction is that learners will be able to suppress the application of the allophonic rule across a morpheme boundary only if they are also able to prevent the rule from applying within morphemes. In other words, a learner will acquire the contrast in derived environments only if that learner has acquired the contrast in basic environments. These general principles have always been formulated, and to date, have always been tested, on only production data. The purpose of this study is test whether these principles hold also for perception data.

The remainder of this paper is structured as follows. The next two sub-sections present the context for this study in terms of the connection between a learner's perception and production of a contrast, as well as the relationship between acquisition and phonological context. Section 2 outlines the methodology for eliciting the production and perception data, and Section 3 reports the results, which are, in turn, interpreted and discussed in the following section. The last section concludes the

paper.

### *1.1. The production-perception relationship*

One of the overarching questions in the L2 acquisition of phonemic distinctions is whether learners have to perceive contrasts before they can successfully produce them. Although it would seem to be intuitively clear that a learner must perceive any given contrast before being able to implement it in production, the literature in fact attests all four logical possibilities.

Two of these possibilities are straightforward and require little or no elaboration. There are numerous documented examples of learners who can neither perceive nor produce a TL contrast, as well as instances in which L2 learners can both perceive and produce TL contrasts (e.g., Bion, Escudero, Rauber and Baptista 2006, and others). The other two logical possibilities are not as straightforward, and therefore require discussion.

Flege's (1995) Speech Learning Model (SLM) is predicated on the notion of "equivalence classification", in which an L2 learner sets up categories for TL phonemes on the basis of that learner's perception of the segments in question. Flege (1999) examined correlations between perception and production in results from selected studies on L2 consonants and vowels (Flege, Bohn & Jang, 1997; Flege, MacKay and Meador, 1999), and found that L2 segmental production and perception are generally correlated, although factors such as age limits or methodological differences among the variables investigated by different researchers may weaken the correlation. Thus, the results from a number of studies support the claim that L2 learners perceive contrasts before they can successfully produce them.

The fourth logical possibility has also been documented. Sheldon and Strange (1982) reported that L2 learners' production of certain contrasts can exceed their ability to perceive that contrast. The authors tested native speakers of Japanese learning English on their ability to perceive and produce the distinction between /r/ and /l/, a contrast lacking in Japanese. Specifically, it was found that native speakers of English, when listening to recordings of the subjects' productions of minimal pairs containing /r/ and /l/, could successfully distinguish /r/ from /l/ better than the subjects could distinguish this contrast in their own productions.

Given the conclusion that all four logically-possible combinations of learning to perceive and produce a contrast have been attested, we turn our attention to the phonological environment in which the contrast is acquired.

## 1.2. *The relationship between acquisition and phonological environment*

Within the context of the above-referenced work on the relationship between the production and perception of phonemic distinctions by L2 learners, we investigated the ability of Korean L2 learners of English both to produce and perceive the contrast between /s/ and /ʃ/ in derived as well as basic environments. This contrast was chosen because the phonemic status of these two segments is different in Korean than it is in English. In Korean [s] and [ʃ] are in complementary distribution, with [ʃ] occurring only before high front vowels, [s] elsewhere.

General principles of phonology predict that learners will be able to acquire a contrast in some positions before they can acquire the contrast in other positions. In basic environments, learners should acquire a contrast in word-initial and word-medial positions before they acquire the contrast in word-final position, because word-initial and word-medial positions are both syllable-onsets and word-final position is a syllable coda. Contrasts in onsets are acquired before contrasts in codas, in both first and second language acquisition (Eckman and Iverson 1994; Goldsmith 1990).

General principles of phonology also make predictions about the acquisition of contrasts involving the learner having to split two NL allophones into separate TL phonemes by virtue of suppressing the application of the allophonic rule. The prediction is that learners will be able to suppress the application of the allophonic rule across a morpheme boundary only if they are also able to prevent the rule from applying within morphemes (Eckman, Elreyes and Iverson 2003). In other words, a learner will acquire the contrast in derived environments only if that learner has acquired the contrast in basic environments.

To be more specific, at the beginning stages of acquisition the learner's IL grammar lacks the contrast altogether and the transferred NL rule will apply "across the board" in both basic and derived environments. This causes words such as *sip* and *ship* as well as *messing* and *meshing* to be pronounced homophonously. As the learner begins to acquire the contrast in question, the two segments become part of the IL lexicon, and the principles in question restrict the rule to apply only in derived contexts, causing the learner to distinguish the pronunciation of *sip* and *ship*, but to continue to pronounce *messing* and *meshing* homophonously. The last stage would be one in which the contrast has become acquired to the point where the rule is suppressed altogether.

As pointed out above, these general principles have always been formulated on, and to date, have always been tested on, only production data. The purpose of this study is to test whether these principles hold also for perception data.

## 2. Methods

### 2.1. Study participants

Ten native speakers of Korean served as participants of the study. All were students at the City University of Incheon, Korea, ranging in age from 19-25 years. All participants learned English in a formal school setting (for 8-10 years) and none of them had any direct informal experience with English, neither by means of a personal native-English-speaking tutor or travel to an English-speaking country. They were enrolled in various majors at the University but none of them included English, linguistics, or other language-related studies. The English teachers of the participants in their elementary, middle, and high school years were also native speakers of Korean. While in the college, however, they were enrolled in a conversation course taught by native English speakers.

### 2.2. Stimulus materials

Two sets of stimuli were used in the study, one pertaining to the production of the target sounds and one to their perception. These two sets were used twice to collect subjects' responses at two points in time: (1) as a pretest, at the beginning of the study before each subject entered the training phase, and (2) as a posttest, after the training had been completed.

#### 2.2.1. Production stimuli

A set of 60 target words and 30 fillers were selected. All words were existing lexical items in English. Each target word contained /s/ or /ʃ/ in three different positions in a morphologically basic word: initial (e.g., *sip/ship*), medial (e.g., *lesson/ocean*) and final (e.g., *pass/crash*) and in one additional position (medial, at the juncture with another morpheme) in morphologically derived words such as *passing/brushing* or *messy/bushy*. In the word-initial position, /s/ or /ʃ/ occurred before a high front vowel which was also the case for the derived words, in which it was followed by the suffix *-ing* or *-y*. No high front vowel followed /s/ or /ʃ/ in either the medial or final position in the basic word. A complete list of the target words used in the production task can be found in Appendix A.

#### 2.2.2. Perception stimuli

Stimuli for the perceptual testing consisted of naturally produced single words

recorded by a male native speaker of American English. The words were existing lexical items in English. Only minimal pairs were used in which /s/ or /ʃ/ occurred in initial and final positions in basic words and in medial position followed by the suffix *-ing* or *-y*, e.g., *seep/sheep*, *plus/plush*, *classing/clashing*. The stimulus set consisted of 72 items (4 stimuli x 2 contrastive segments x 3 positions in a word x 3 repetitions). Appendix B lists all words used in the perception task.

### 2.3. Experimental procedures

Several custom programs were written in MATLAB for the purposes of the present study. First, a program controlling the recordings in the production task displayed on a computer screen a set of pictures, clues, and commands such as “Wait” or “Speak” designed to guide the subject and the experimenter in order to elicit the word in question. If a word could not be elicited through the picture display or written clues that followed, a verbal model was played and the subject repeated the word. The stimuli were presented in a random order. They were recorded directly into a hard disc drive at the sampling rate of 44.1 kHz. The subject spoke into a head-mounted microphone at a distance of 1 inch from the lips.

Another MATLAB program controlled the perception experiment. In this task, a single-interval two-alternative forced choice (2AFC) identification procedure was used with the two response choices, /s/ and /ʃ/, displayed on the computer monitor. After hearing the stimulus word, the subject indicated with the press of a mouse button whether the word contained an /s/ or an /ʃ/. The stimuli were presented in a random order over Sennheizer HD600 headphones at a comfortable listening level (~70 dB HL). Each subject was tested individually. First, the stimuli were presented in a no-masker condition so that no signal degradation was introduced to mask the signal. To make the perception task more demanding, the stimuli were then presented in multitalker babble and in masking white noise at two different levels of sound-to-babble (S/B) sound-to-noise (S/N) ratios: 0 dB, and -4 dB.

The testing took place in Incheon, Korea, in a quiet room near the University. All experiments were completed over two days. In the first day, each subject completed a production and a perception task to elicit the pre-training data. Next, the subject was trained on the production of the /s/-/ʃ/ contrast. This was done through a series of training steps which were developed as a part of a training phase whose implementation was guided by a separate MATLAB program. Only nonsense words were used in the training phase. The training was administered to the subject in a way somewhat similar

to the production task, using appropriate pictures and verbal models which were repeated and learned by the subject.

In the second day of testing, the same production and perception tasks were conducted to elicit subjects' production and perception responses to the /s/ - /š/ contrast. These tasks were administered as post-training tests to assess the effects of learning.

#### *2.4. Data analysis*

The production data were first transcribed by a native speaker of American English. All transcriptions were completed at The Ohio State University. The transcription process was fully automated using a custom MATLAB program that displayed the following choices on the computer monitor: "strong palatal," "weak palatal," "non-palatal" and "other, with comments." The data were transcribed in terms of degree of palatalization rather than categorically, i.e., as an instance of an /s/ or an /š/, because in some instances, it was difficult to determine for a native speaker of American English which fricative was produced. Degree of palatalization was easier to detect and therefore it was considered a more reliable measure of the difference between /s/ and /š/. After hearing each word, the transcriber selected an appropriate box on the computer screen to register her choice.

In analyzing the production results, we determined the percentage of correct productions for each fricative. The production of /s/ was considered correct if it was transcribed as "non-palatal" while the production of /š/ was considered correct if it was transcribed as either a "strong palatal" or a "weak palatal."

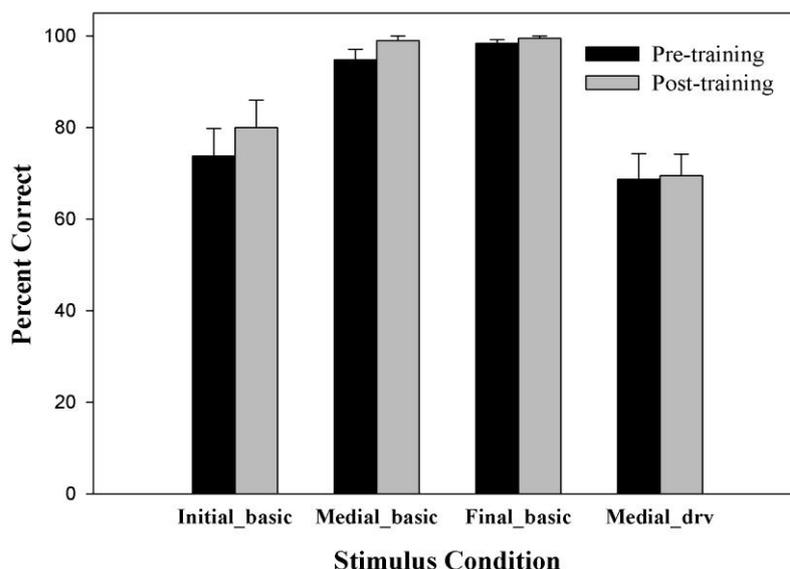
The perception results were analyzed in terms of overall percent correct score for both segments, i.e. an /s/ and an /š/. The total percent score provides information regarding the listener's ability to make a perceptual distinction between the two fricatives. As for the production data, we examined the perception responses for each position in the word.

### **3. Results**

#### *3.1. Results of production tests*

Shown in Figure 1 are the overall mean percent correct scores for productions in the pre-training and post-training tests. The data are displayed as a function of

morphological context (basic and derived) and position in a word (initial, medial and final).



**Figure 1.** Mean correct productions of the /s/-/ʃ/ contrast before and after training. Error bars indicate one standard error.

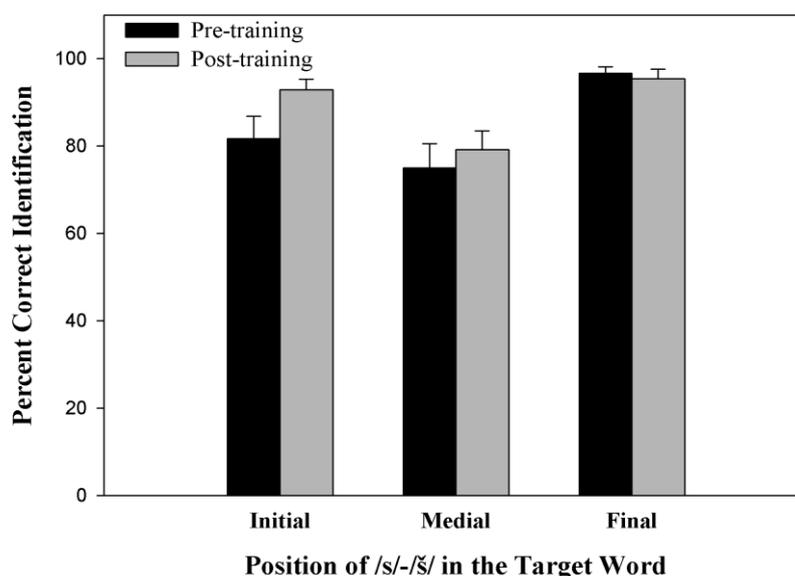
The production data were first analyzed using a two-way repeated measures ANOVA with the factors stimulus condition (initial\_basic, medial\_basic, final\_basic and medial\_derived) and test time (pre-training and post-training). The results showed a significant effect of stimulus condition ( $F(3,27)=20.65$ ,  $p<.001$ ,  $\eta^2=.696$ ), indicating that the percentages of correct productions in the medial and final basic contexts were significantly higher than in either the initial basic or medial derived conditions. The main effect of training on speakers' production just failed to reach significance ( $F(1,9)=4.88$ ,  $p=0.54$ ,  $\eta^2=.352$ ), primarily because there was very little improvement in either the final basic or medial derived positions. There was no significant stimulus condition by test time interaction.

Looking at only the basic contexts using a two-way repeated measures ANOVA with the factors position (initial, medial and final) and test time we find a significant effect of training ( $F(1,9)=9.89$ ,  $p=.012$ ,  $\eta^2=.523$ ), with the greatest improvement found in the production of /s/ and /ʃ/ in initial position. There was a significant main effect of position as well ( $F(2,27)=14.18$ ,  $p<.001$ ,  $\eta^2=.612$ ). The percentage of correct productions was significantly lower in initial position than in either medial or final position.

Of particular interest in the current study is the effect of the occurrence of the fricative in a derived vs. basic word. A two-way repeated measures ANOVA with the factors morphological context (basic medial and derived) and test time of the production data in medial position only showed a significant effect of morphological context ( $F(1,9)=52.51$ ,  $p<.001$ ,  $\eta^2=.854$ ) but no significant overall training effect or morphological context by training interaction. Matched-pairs t-tests showed that speakers did have a higher percentage of correct productions following training for the basic condition ( $t(9)=2.44$ ,  $p=.037$ ) but not for the derived condition ( $t(9)=.192$ , n.s.).

### 3.2. Results of perception tests

Each set of identification tests (in the no-masker, the babble, and the noise condition) was analyzed using the appropriate repeated-measures ANOVAs with the factors position and test time, with the additional factors babble-to-noise or signal-to-noise ratio in the later two conditions. Note that all tokens in which the target fricative occurred in medial position were derived words and the remaining tokens were basic words.



**Figure 2.** Mean correct identification of the /s-ʃ/ contrast in no-masker condition before and after training. Error bars indicate one standard error.

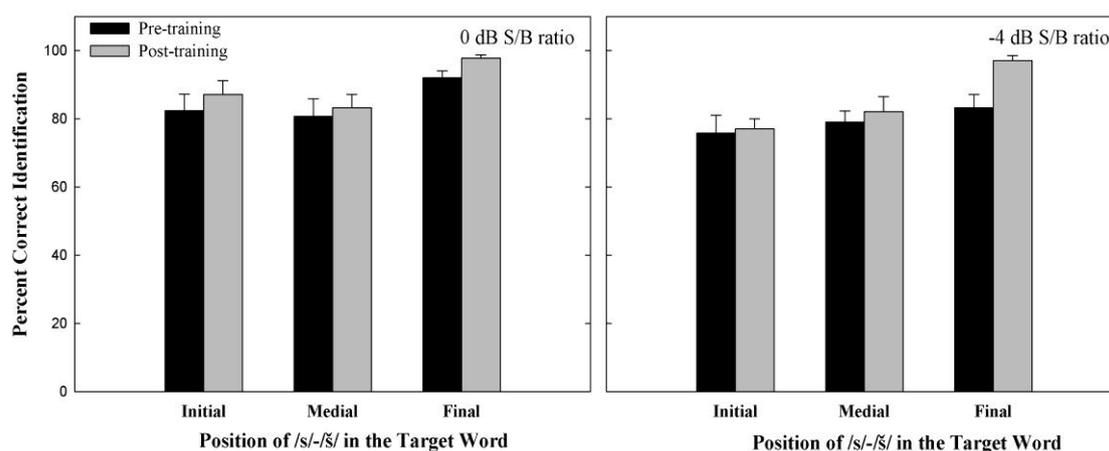
#### 3.2.1. Identification in no-masker condition

The no-masker identification task represents the perceptual condition that makes the least demands on the perceptual system and should show the best listener

performance. Shown in Figure 2 are the mean percent correct identifications of the fricatives in three different positions both before and after training. There was a significant effect of position ( $F(2,18)=17.9$ ,  $p<.001$ ,  $\eta^2=.666$ ), indicating that listeners had the lowest percentage of correct identifications in medial (derived) position (77%). There was also a main effect of test time ( $F(1,9)=6.18$ ,  $p=.035$ ,  $\eta^2=.407$ ). Overall, subjects improved in their identification of /s/ and /ʃ/ following training by an average of 5%. However, this must be evaluated in light of the significant test time by position interaction ( $F(2,18)=4.73$ ,  $p=.022$ ,  $\eta^2=.345$ ). Matched-pairs t-tests showed that listeners improved significantly after training only in initial position ( $t(9)=3.42$ ,  $p=.008$ ). There was no significant improvement in final position ( $t(9)=0.61$ , n.s.), but this was likely because listeners were already close to ceiling performance (over 95% correct) before training. Again, as in the production tasks, the performance was poorer in the medial (derived) position compared to the positions in the basic environment.

### 3.2.2. Identification in babble masker condition

The target-in-babble condition represents a more challenging testing condition for the listener than does the no-masker condition as it adds a masker. In particular, since babbling is a combination of different talkers producing speech (or speech-like) sounds, babbling may introduce both energetic masking (i.e., “noise” at speech frequencies) and informational masking (linguistic content).



**Figure 3.** Mean correct identification of the /s/-/ʃ/ contrast in target-in-babble condition before and after training. Error bars indicate one standard error.

Shown in Figure 3 are mean percent correct identifications of the fricatives in three different positions in the word both before and after training. The left panel

presents the responses in the 0 dB S/B ratio condition and the right panel presents the responses in the -4 dB S/B ratio condition.

As might be expected due to the increase in masking energy, the percentages of correct identifications were, overall, significantly lower (by 5%) in the -4 dB S/B condition than in the 0 dB S/B condition ( $F(1,18)=16.96$ ,  $p=.003$ ,  $\eta^2=.653$ ). There was also a significant main effect of position. The percentage of correct identifications of fricatives in the final position (92.6%) was significantly higher than the identification of fricatives in either initial (80.6%) or medial (derived) position (81.3%). The latter two positions did not differ significantly from one another.

There was an increase in the percentage of correct responses (5%) following training ( $F(1,9)=6.00$ ,  $p=.037$ ,  $\eta^2=.400$ ). However, the effect of training was strongest for final position in the -4 dB S/B condition (14%), producing a significant training-by-position interaction ( $F(2,18)=3.55$ ,  $p=.05$ ,  $\eta^2=.283$ ). None of the other interaction effects was statistically significant. These data continue to demonstrate that subjects had greater difficulty correctly producing and perceiving these fricatives in initial and medial (derived) positions. Conversely, their performance was significantly better when the fricative occurred in final position.

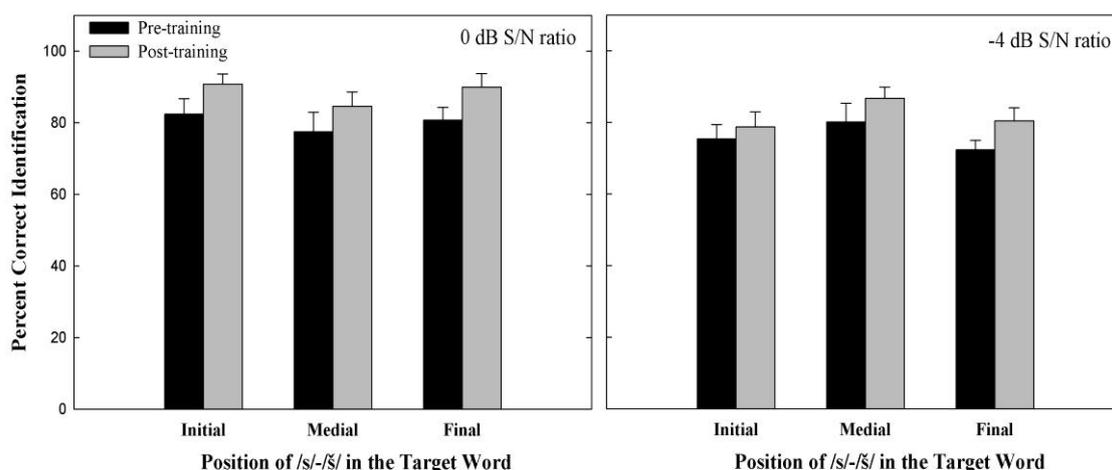
### 3.2.3. Identification in noise masker condition

The target-in-noise condition also presents a more challenging testing condition for the listener than does the no-masker condition. However, the noise masker is different acoustically from the babble masker. In the target-in-noise condition, the masker is Gaussian noise whose energy is spread across the spectrum (and not concentrated in the frequency range of human speech). The addition of “white noise” represents the introduction of energetic masking only (without any linguistic content whatsoever). The difference between the two maskers (babble and noise) almost certainly accounts for the different patterns we find in the perceptual responses.

Shown in Figure 4 are mean percent correct identifications of the fricatives in three different positions both before and after training. The left panel presents the responses in the 0 dB S/N and the right panel presents the responses in the -4 dB S/N ratio condition.

A three-way repeated-measures ANOVA of these data with the factors test time, position and S/N level revealed a significant effect of S/N level ( $F(1,9)=15.68$ ,  $p=.003$ ,  $\eta^2=.635$ ) and training ( $F(1,9)=10.01$ ,  $p=0.01$ ,  $\eta^2=.527$ ). Identification performance improved by 7% following training and was 5% better in the 0 dB than the -4 dB condition. However, for these data, the main effect of position was not significant.

Instead, there was a significant S/N level by position interaction ( $F(2,18)=20.46$ ,  $p<.001$ ,  $\eta^2=.695$ ) produced by the fact that the identifications of the fricatives in medial (derived) position were significantly better than expected in the -4dB condition. In fact, the mean percent correct identification of the fricatives in medial position was actually higher in the -4 dB condition (83.4%) than in the -0 dB condition (81.0%). It is important to examine each of these S/N conditions separately in order to understand better this unexpected outcome.



**Figure 4.** Mean correct identification of the /s/-/ʃ/ contrast in target-in-noise condition before and after training. Error bars indicate one standard error.

The pattern of responses in the 0 dB S/N condition matches many of the patterns that we found in the production data and in the perception results for the no-masker and target-in-babble conditions. Namely, the mean percent correct was lower in the medial (derived) condition (81%) than in either initial (86%) or final position (85%). This was true for data collected both before and after training.

The pattern of responses in the -4 dB S/N condition does not match earlier patterns in an important way. Although, as expected, the mean percent correct identifications for initial and final positions drop (by 9%) for both positions in the -4 dB S/N condition compared to the 0 dB S/N condition, mean percent correct identifications actually improve by 2% in the -4 dB S/N condition for medial (derived) position. The anomalous behavior in the -4 dB S/N condition can be explained, we believe, by more closely examining the acoustic characteristics of the target stimulus (/s/ and /ʃ/), the nature of the masker and the likely strategies used by the listeners in the identification tests.

Phonetically, both /s/ and /ʃ/ are voiceless, sibilant fricatives. Acoustically, these two fricatives differ primarily in terms of their spectral mean (/s/ has more energy in the higher frequencies than does /ʃ/). The babble masker will include spectral energies across the speech range (and the talkers in the background babble are producing the entire range of English speech sounds). The noise masker, on the other hand, is actually more like the fricatives themselves in that it represents acoustic noise. In the no-masker and babbling conditions we are assuming that listeners are making their decisions on the basis of a linguistic judgment (i.e. whether there is an /s/ or an /ʃ/ in the word). The lower performance of listeners in the medial (derived) position (even after training) matches their difficulties as speakers in producing these fricatives in the same derived context.

Although listeners are likely making decisions on a linguistic basis in the 0 dB S/N condition, one can explain the anomalous pattern of identifications by suggesting that, in the -4 dB S/N condition, the present listeners have adopted a non-linguistic strategy in making their identification decisions. In particular, they may have been listening to the nature of the noise and when they heard a higher-pitched noise embedded in the noise masker, they responded with /s/ and when they heard a lower-pitched speech noise, they responded with /ʃ/. Why would this occur for only the medial (derived) fricatives and not the initial and final fricatives? The answer is that the rms levels (a measure of mean amplitude) of the fricatives in the medial (derived) position are approximately 7 dB higher than the fricatives in either the initial or final position. Thus, the strategy will benefit listeners when the fricative is in medial position, but not when it is in initial or final position.

#### **4. Discussion**

This study examined the relationship between production and perception of English fricatives /s/ and /ʃ/ by native speakers of Korean along linguistic variables (morphological context and position in a word) and as a function of subject's training. The results indicate a close relationship between production and perception for the above factors in most of the testing conditions.

The production data indicated a positional asymmetry, which was manifested in significantly lower accuracy in initial position in a word for the basic environment and in medial position for the derived environment as compared to medial and final positions in the basic environment. Moreover, for the two positions in which the

accuracy was lower, the improvement with training was found only in the initial basic position and not in the derived. This indicates that the English fricatives in initial position in a morphologically basic word are difficult to produce by a Korean speaker, which is comparable with a difficulty encountered in a morphologically derived context. However, while the pronunciation in initial position improved with training, the production in the derived context remained essentially the same. Conversely, fricatives in the medial and final positions in a basic word were produced with greater accuracy, which was reflected in high number of correct classifications by a transcriber who was a native speaker of American English. The question arises whether the asymmetry in production is matched in the perception results from the same subjects.

Although we can compare the production and perception data only for selected positions in a morphologically basic word due to the lack of the medial position in the present design, we still find a correspondence between the lower performance in initial position in production and poorer identification in this position in perception. Furthermore, both the production and perception were significantly better in the final position in a word. As for the derived context, the production and perception results show again a close match in that the accuracy in both tasks was significantly lower. Finally, as was found for the production data, the improvement with training in perception was most evident in the word-initial position.

It needs to be pointed out that this close production-perception relationship was found only when the perception stimuli were delivered in the no-masker condition, i.e., when no distortion was introduced to the speech signal. When the target stimuli were presented in a multitalker babble, we found some variation in this pattern. In particular, although the identification was again highest in final position in a basic word, the improvement with training was also significant in this position. Unlike for the no-masker condition, no improvement was found in initial position when target stimuli were presented in a babble masker. However, listeners continued to show lower accuracy in initial and medial (derived) positions, which is consistent with the pattern observed for the no-masker condition.

Using noise as a masker introduced yet another type of variance to the general pattern found thus far in perception. Most importantly, there was no significant effect of word position, indicating no difference in the accuracy of identification of the fricatives across all positions and morphological contexts. Another discrepancy was found in the -4 dB condition, where the percentage of correct identifications significantly increased in medial (derived) position. This anomalous effect can be explained on the basis of differences in processing of a fricative sound in background noise as opposed to

background babble, as already discussed. Another discrepancy between the target-in-noise condition and the two other listening conditions lies in the significant improvement after training in all positions in a word, not only in selected positions (either initial or final). This improvement was observed in both 0 and -4 dB S/N conditions.

In summary, the present data support the existence of a production-perception link in the acquisition of segmental contrast in a second language. However, this relationship may not be manifested in all testing conditions and, especially in perception, listener behavior may depend on other than linguistic factors in processing the second language sound. We have observed a departure from the general pattern of a close match between production and perception when the fricatives were presented with background noise. This environmental factor “successfully” interfered with the linguistic processing of both fricatives so that the positional asymmetry found in other testing conditions was to a great extent lost in the target-in-noise condition. This result suggests that for some types of speech sounds, the acoustic content and distribution of spectral energy may contribute to increased confusion or to unexpected improvement in performance. This may happen when the listener is uncertain about the source of the noise, i.e., linguistic or environmental, when attending to a speech signal which itself contains a great portion of noise, such as fricatives and aspirated stops.

The lower accuracy in word-initial position, both in production and perception, was an unexpected finding in the present study. It has been widely accepted that word-initial position is the strongest and most salient, so that a consonant in this onset position tends to be acquired earlier than a consonant in the final position (or coda position in a CVC syllable structure). The syllable-initial position is often linked to early babbling, which is composed mostly of CV syllables (Locke, 1993). A consonant in the coda (and not in the onset) tends to be deleted or mispronounced in early child language (Smith & Stoel-Gammon, 1983; Vihman, 1996). Similarly, second language learners were shown to produce more errors in word final position than in word initial position (e.g., Flege & Davidian, 1984). The current results clearly depart from this established view.

However, a possible explanation of the present outcome may be linked to models of lexical access which emphasize the importance of word initial information for word recognition (e.g., Cole & Jakimik, 1980; Walley & Metsala, 1990, Vitevich, 2002). Accordingly, word initial information is essential for activating words in lexical processing, which stresses the importance of accurate production of initial consonants. It has been shown that errors in word initial position produced by second language

speakers are more detrimental to word intelligibility for native speakers of a language than errors in word final position (Bent et al., 2007). The present second language listeners had reduced ability to make a distinction between minimally contrastive words when the contrast was in word-initial position, indicating that the contrast between the two fricatives may not have been yet fully acquired. Consequently, they might not have developed lexical representations of English words which contrast /s/ and /ʃ/ word initially and their perceptual identification of this contrast was also poorer than in other positions in the morphologically basic word. This possibility must be tested in further experiments, however.

## **5. Conclusion**

This study investigated the ability of Korean L2 learners of English both to produce and perceive the contrast between /s/ and /ʃ/ in derived as well as basic environments. The results show a close relationship between production and perception for each position in the word. This was the case when listeners' perception was tested in no-masker listening condition. The perceptual responses did not always match the production pattern when the stimuli were presented in background babble or noise, which introduced considerable distortion to the signal. However, this outcome can be somewhat expected in the case of L2 learners.

Of particular interest here is the close production-perception relationship found for the contrast occurring across a morpheme boundary, i.e. in derived environments. This indicates that learners' perceptual response corresponds to their ability to produce the contrast in this difficult position. An unexpected finding of the study was that the current learners seemed to acquire the contrast in word-final position (in a syllable coda) before they acquired the contrast in the initial position (in a syllable onset). Although this matter warrants further investigation, it is noteworthy that this pattern was reflected again in both production and perception of the contrast, showing that these two systems are closely related.

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## Appendixes

### Appendix A: Words used in the production task

sink	fish	race	dressy
sick	wash	pass	passing
scissors	wish	price	pricey
seats	rush	kiss	pricing
see	crush	she	brushing
bicycle	brush	sheet	bushy
lesson	crash	ship	crashing
license	splash	sheep	fishing
message	polish	shoe	crushing
motorcycle	busing	ocean	splashing
bus	crossing	parachute	washing
cross	grassy	patient	wishing
dress	kissing	tissue	polishing
grass	messy	vacation	rushing
mess	racing	bush	

### Appendix B: Words used in the perception task

ship  
sip  
shock  
sock  
sheep  
seep  
shed  
said  
clashing  
classing  
leashing  
leasing  
meshing  
messaging  
mashing  
massing  
clash  
class  
leash  
lease  
mesh  
mess  
plush  
plus

# **The discourse of the teacher of Portuguese as a foreign language and the building of textual competence**

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## **Abstract**

This paper studies the didactic materials of Portuguese as a foreign language (PFL) and the building of textual competence. Our work is developed in the context of the Luso-Chinese schools – official schools in Macau. We consider that the classroom is a social situation constructed by a particular type of interaction. Therefore we adopt the theoretical approach of the Interactional Sociolinguistics. We assume that the discourse of the teacher in foreign language classes has to be viewed as didactic materials. Consequently, it needs to be planned, aiming the development of the textual competence. To undertake this study, we analyze the teacher's discourse, applying the ethnographic method of qualitative analysis, based on two concepts: textual cohesion and coherence.

**Key-words:** textual competence, didactic materials, Portuguese as a foreign language, discourse of the teacher, cohesion, coherence

## **1. Introduction**

### *1.1. A glimpse of the History of the Portuguese language in Macau*

Macau is a Special Administrative Region in China. In 1557, Portugal established the first settlement in Macau. Since then, the presence of the Portuguese language and culture and the cross-cultural contact with the Chinese community created an idiosyncratic environment. It is not our objective, in this paper, to explore the nature of this relation. For us, it is sufficient to understand that Portugal had the administrative power under this region and it is impossible to ignore its presence. Because of this cross-cultural relationship, the basis of the cultural and social organization is formed by three principal groups: the Chinese, the Portuguese and the Macanese (descendants of the miscegenation between Portuguese and Asian women).

Despite the presence of this European nation, the teaching and imparting of the Portuguese language has only recently become a central concern. Because of, but not limited to, this aspect, the Portuguese language could never be a widely used language in Macau. It was always employed in very particular contexts.

In 1999, the Portuguese government gave back the administration of Macau to China. Now Macau is known as a SAR (Special Administrative Region) in China and the government system will be maintained until 2049.

In the contemporary context, however, the status of the Portuguese language has changed within the past decade. Now more and more people, especially from mainland China, are interested in learning the Portuguese language. The major reason behind this change is not cultural but basically economical.

The government of Macau has a group of official schools called Luso-Chinese which offer kindergarten, primary and secondary levels. In all levels, from kindergarten 3 (preparation for the primary level) to the secondary level, the curriculum offers Portuguese language classes. Therefore, these schools can have an important role in the preparation of specialized professionals in the field of Portuguese language: teachers, translators and interpreters.

Our research context takes place within this context.

### *1.2. Teaching Portuguese language in Macau' context*

I have participated in various activities concerning the teaching of Portuguese in Macau, both as assessor and as well as coordinator.

Through that experience I was able to observe that the state of affairs regarding the teaching of Portuguese in Macau is rather complex. Apart from the sociocultural environment, one of the central points of this situation is the didactic materials in use.

Didactic materials may provide significant information on the practical teaching of foreign languages. It is fundamental for our paper to state here that we consider the discourse of the teacher, also, as didactic material – one of the most important.

Based on a set of pedagogical activities to which I had access, I noticed that the materials (including the teacher's discourse) do not reveal concern with the development of textual competence (oral or written). Textual competence is the ability to construct adequate texts to each particular social contexts in which interactants are. Without it, we cannot interact with competence in a language.

Therefore, the research will, consequently, deal with investigating the discourse of the teacher as didactic material in the development of textual competence of the students.

## **2. Theoretical base**

### *2.1. Interactional Sociolinguistics*

The theoretical basis of our research builds upon interactional sociolinguistics (Silva, 2004; Ribeiro e Garcez, 2002; Schiffrin, 1994; Tannen, 1984; Gumperz, 1982a/b; Goffman, 1967] 2002), which analyzes language in its use, as a living organism, within society.

Interactional Sociolinguistics has its roots in linguistics, in sociology and in anthropology. Therefore, in our study, language, society and culture are engaged.

Given the above, it is essential that the teacher be aware that, culturally, Portuguese has its specific features and uses, like any language. Thus it is essential to deeply immerse oneself into the culture that involves this language, in order to learn the language and interact in it appropriately.

This means that it is very important to show to students the social and cultural meanings of the language that they are learning. For example, the Portuguese word “desculpa” (sorry or excuse me) is applied in different situations and it is connected to learning politeness in various Lusophone cultures. Therefore, it is not only “a word” it is “a world” that the students are facing. In this way, it is not adequate to teach this and

other linguistic aspects out of a cultural and social context. The context informs us about the socio-cultural rules which determine the use of the language.

At the same time, the teacher cannot forget to take into consideration the culture of the students; in our case, the Chinese culture (Watkins & Biggs, 1999; Kelen, 2002): to teach is also a cross-cultural event.

By importing these perspectives to an educational context, what is sought, in the teaching and learning of a language, is the development of the communicative competence (Hymes, 1972), comprised of a set of knowledge.

Considering that language is interaction, then in teaching it is not feasible to merely focus on, for example, linguistic structural knowledge. It is necessary to be aware of the different knowledge that surrounds the interaction by language.

It is, thus, necessary to know the system of language – the grammar rules that differentiate it from other languages; one also needs to have a knowledge of the world, of the set of experiences that guide us in relation to what things are (or what we are told they are supposed to be), of how to act and how we expect the others to act towards us at every interaction; and further, we need to have the interactional knowledge which will help us to mold language appropriately to the interactional situations we may find ourselves in.

As part of the interactional knowledge, there is the *supra-structural knowledge*, which deals with textual genres (letters, poems, C.V., dialogues). Each interaction implies the use of a different genre of text (oral and written); the interaction will determine the most appropriate in order to achieve the desired effect (Koch, 2004 & 1994).

It should be noted that the interactional knowledge is an important contribution to the creation of didactic materials, as well as in the assessment process of the learners' productions. We believe that the discourse of the teacher needs to be carefully prepared under an interactional approach. The teacher who can have access and discuss this type of theories will, undoubtedly, be better prepared to build a more appropriate vision of language and of teaching. This will allow the educator to be able to interact qualitatively with his/ her students.

Based on the consideration of all of this knowledge, I will focus on the building of textual competence, studying the *supra-structural knowledge*.

## 2.2. What is a text?

First of all, it is necessary to understand two concepts: *text* and *discourse*.

Some discussions indicate that *text* is what we can call a *concrete linguistic object* with its limits. It is the “material manifestation of the discourse” (Verdonk, 2002:17), constructed by a number of words and sentences, structured according to general rules.

The discourse, on the other hand, is the language in use; texts are produced in singular contexts and, thus, can make sense. In this point of view, discourse is constructed through texts. The type and genre of texts are created according to various kinds of discourse that we must use in different concrete interactions. “The process of activation of a text by relating it to a context of use is what we call *discourse*” (Verdonk, 2002:18).

Here, however, we will consider that this separation of concepts is inadequate. Text as “material manifestation” actually does not exist. What exists are the real situations and the discourse that we produce in order to interact within society. Any linguistic element of this “concrete object” is chosen according to real necessities of communication, according to contexts. Thus, it does not seem adequate to separate the concepts.

Here we will use *text* and *discourse* synonymously. We will consider that they are organized through two principles: coherence and cohesion.

### 2.2.1. Cohesion

Cohesion can be classified into two types: referential and sequential. The first is related to textual elements that make references to other elements in a text. The second is related to linguistic processes that establish semantic and pragmatic connections among the sequences of a text (Koch, 1991).

Cohesion is related to the superficial organization of the sequences of the texts. However, it is not sufficient to give textuality to sequences of a language: the coherence is responsible for the textuality. The coherence transforms a single word into a text.

### 2.2.2. Coherence

Coherence can be studied in different perspectives. There is the intratextual coherence (semantic and syntactic); for example, the choices of words, the adjusted syntax organization. But there is, as well, a global coherence, that we will call pragmatic coherence. In our paper, we will observe the second type of coherence. Therefore, in order to undertake our objectives the context is the key. Koch (2004) says that “o recurso ao contexto é indispensável para a compreensão e, deste modo, para a construção da coerência textual”<sup>1</sup>.

The meaning of the texts is not basically inside that *concrete object*, the material manifestation of the discourse, but within discourse (text + context). It appears based on the interaction in written and oral situations. As Koch (ibidem) claims:

(...) o tratamento da linguagem, quer em termos de produção, quer de recepção, repousa visceralmente na **interação produtor - ouvinte/leitor**, que se manifesta por uma antecipação e coordenação recíprocas, em dado contexto, de conhecimentos e estratégias cognitivas.

Desta forma, a explicitude de um texto deve ser avaliada em termos da interação entre produtor e leitor/ouvinte tal como mediada pelo texto (Nystrand & Wiemelt, 1991)<sup>2</sup>.

That is why the context is fundamental for producing and understanding texts. We will discuss some of the aspects involved in the contextualization.

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<sup>1</sup> “the context is indispensable for the understanding and, thus, the construction of the textual coherence.”

<sup>2</sup> (...) using/studying/approaching language, both in terms of production and reception is strongly connected to the interaction between producers and listeners/readers. This interaction shows us a reciprocal anticipation and coordination of knowledge and cognitive strategies. Thus, the explicitness of a text should be evaluated in terms of interaction between producers and listeners/readers as mediated by the text (Nystrand & Wiemelt, 1991).

### 3. Contextualizing our data

Our data comes from a video-recorded lesson of a 1st grade class in an official primary school in Macau. The interaction between teacher and students is our object of study. We will analyze an excerpt from the fifth class.

**Content of the class:** expressions of the Portuguese Language:

<b>In Portuguese</b>	<b>Literal translation in English</b>
Bom dia	Good day/ good morning
Boa tarde	Good afternoon
Boa noite	Good night/Good evening
Adeus	Good bye
Obrigado/a	Thank you
Desculpa	Sorry / excuse me
Posso entrar?	Can I come in?
Posso sair?	Can I leave?

#### **Interactants:**

- Students :
  - 22 Chinese students, around 06 years old, native speakers of Cantonese and Mandarin;
  - 01 Filipino student, around 06 years old, native speaker of Tagalog.
- Teacher:
  - 01 Chinese teacher of PFL, bilingual, native speaker of Cantonese.

#### **Didactic materials:**

- Pictures/Images;
- A puppet;
- Audio-Cassette.

In class – especially at the beginning of the academic year – the teacher uses both Portuguese and Chinese (Cantonese). In our data, when the teacher and students are speaking in Portuguese we have a regular transcription. When the teacher or students speak in Cantonese, the transcription (which is a translation from Cantonese) is made in ***bold and italic***.

The examples are indicated as follow:

- Class/page/line, for example: 05/01/30;
- ↑↓ - indicates that the excerpts are in sequence.

### 4. The discourse of the teacher

First, let us see the excerpt that we have chosen for our analysis.

#### *4.1. The excerpt*

**05/01/38-58 (class 05, page 01, lines 38 to 58)**

38.	Roberta	Sim! Olá! (a professora passa a falar através do fantoche, um porco)	Yes! Hello! (the teacher starts to speak through a puppet, a little pig)
39.	Alunos	Olá!	Hello!
40.	Roberta	Hoje eu vou apresentar algumas expressões.	Today, I am going to present some expressions.
41.	Roberta	<b><i>Vou ensinar algumas expressões!</i></b>	<b><i>I am going to present some expressions!</i></b>
42.	Roberta	<b><i>Ora!</i></b>	<b><i>Well.</i></b>
43.		(A Roberta coloca um desenho no quadro.)	(Roberta puts an image on the board.)
44.	Roberta	<b><i>Ora! Vocês sabem o que significa este desenho?</i></b>	<b><i>Well. Do you know what this image means?</i></b>
45.	Alunos	<b><i>Sei...</i></b>	<b><i>I know...</i></b>
46.	Roberta	<b><i>Vamos ouvir.</i></b>	<b><i>Let us listen.</i></b>
47.	Cassette	(Todos começam a ouvir o cassette)	(Everybody starts to listen to the cassette)
48.		Unidade 01: convívio social. // <b><i>Unidade 01: convívio social.</i></b>	Unit 01: social interaction// <b><i>Unit 01: social interaction</i></b> A) Let us read.//
49.		A) Vamos ler. // <b><i>A) Vamos ler.</i></b>	<b><i>A) Let us read.</i></b>
50.	Roberta	<b><i>Ouçam o que eles dizem.</i></b>	<b><i>Listen to what they say.</i></b>
51.	Cassette	<b><i>I.</i></b>	<b><i>I</i></b>
52.	Cassette	Bom dia	Good morning.
53.	Roberta	<b><i>O que ele diz?</i></b>	<b><i>What did he say?</i></b>
54.	Alunos	Bom di-a!	Good – mor – ning!
55.	Roberta	O que significa “bom dia”?	What does “good morning” mean?
56.	Roberta	<b><i>O que significa “bom dia”?</i></b>	<b><i>What does “good morning” mean?</i></b>
57.	Alunos	<b><i>Bom dia!</i></b>	<b><i>Good morning!</i></b>
58.	Alunos	<b><i>Bom dia!</i></b>	<b><i>Good morning!</i></b>

↑05/02/01-51 (class 05, page 02, lines 01 to 50)

1.	Roberta	<b><i>Vamos ouvir se está certo.</i></b>	<b><i>Let us listen if it is correct.</i></b>
2.	Cassette	<b><i>Bom dia!</i></b>	<b><i>Good morning!</i></b>
3.	Roberta	<b><i>É certo!</i></b>	<b><i>It is correct!</i></b>
4.	Roberta	<b><i>Lembrem-se!</i></b>	<b><i>Remember!</i></b>
5.	Roberta	<b><i>Estão lembrados?</i></b>	<b><i>Do you remember?</i></b>
6.	Alunos	<b><i>Já!</i></b>	<b><i>Yes!</i></b>
7.	Aluno	Está bom!	It is good!
8.	Roberta	Bom /	Good/
9.	Alunos	di-a!	mor-ning!
10.	Roberta	Ora bem! E agora? Vamos ver.	Very well! And now? Let us see.
11.	Aluno	(ruído) Fa/	(noises) Fa/
12.	Roberta	O que, o que é que eles estão a fazer?	What, what are they doing?
13.	Aluno	(ruído)	(noises)
14.	Roberta	Ah?	Ahn?
15.	Roberta	Estão a comer.	They are eating.
16.	Roberta	<b><i>O que significa esta expressão?</i></b>	<b><i>What does this expression mean?</i></b>
17.	Roberta	<b><i>Já aprendemos.</i></b>	<b><i>We have already learned.</i></b>
18.	Roberta	<b><i>Já aprendemos.</i></b>	<b><i>We have already learned.</i></b>
19.	Alunos	Professora	Teacher.
20.	Roberta	Professora?	Teacher?
21.	Alunos	Boa tarde.	Good afternoon.
22.	Roberta	Boa tarde.	Good afternoon.
23.	Roberta	Boa tarde?	Good afternoon?
24.	Roberta	Vamos ouvir!	Let us listen!
25.	Aluno	Bo-a tar-de.	Good – after – noon.
26.	Roberta	<b><i>Vamos ouvir está certo?</i></b>	<b><i>Let us listen and check if it is correct.</i></b>
27.	Aluno	Boa tarde	Good afternoon.

28.	Cassette	2.	2.
29.	Cassette	Boa tarde.	Good afternoon.
30.	Roberta	Bo-a tar-de!	Good – after – noon!
31.	Aluno	Ehhh! (fica animado porque está certo)	Yeah! (a student feels very happy with the positive answer)
32.	Roberta	<i>O que é significa “Boa tarde”?</i>	<i>What does “good afternoon” mean?</i>
33.	Aluno	<i>Almoço!</i>	<i>Lunch!</i>
34.	Roberta	<i>Almoço?</i>	<i>Lunch?</i>
35.	Aluno	<i>Boa tarde!</i>	<i>Good afternoon!</i>
36.	Roberta	Boa tarde! <i>Vamos ver:</i> boa/	Good afternoon! <i>Let us see:</i> good/
37.	Alunos	<i>Boa tarde!</i>	<i>Good afternoon!</i>
38.	Roberta	<i>Vamos ouvir se está certo.</i>	<i>Let us listen if it is correct.</i>
39.	Alunos	<i>Boa tarde!</i>	<i>Good afternoon!</i>
40.	Roberta	<i>O nosso porquinho, ora o nosso porquinho.</i>	<i>Our little pig, look our little pig.</i>
41.	Cassette	<i>Boa tarde!</i>	<i>Good afternoon!</i>
42.	Alunos	Ehhh!	Yeah!
43.	Roberta	<i>Boa tarde!</i> Está bom?	<i>Good afternoon!</i> All right?
44.	Alunos	Está bom!	All right!
45.	Roberta	Está bom?	All right?
46.	Alunos	Está bom!	All right!
47.	Roberta	Vamos ver mais uma vez...	Let us see one more time...
48.	Roberta e alunos	Bo-a tar-de	Good – after – noon
49.	Roberta	Muito bom! Meninos!	Very good, boys and girls!
50.	Roberta	<i>Ora bem, vamos ouvir a terceira expressão.</i>	<i>Well, let us listen to the third expression.</i>

Considering that the language classroom is a space for interaction and also considering that for interactions we need to use texts, let us observe the organization of the discourse of the teacher. For the theoretical discussion of this excerpt, we will reflect upon what is necessary in order to produce texts through the concepts of cohesion and coherence.

#### 4.2. Aspects of cohesion

##### 4.2.1. Conjunction and enumeration

In a class, we should have two clear movements:

- the text of the teacher (that should generate the organization of the lesson and that should help to generate/stimulate the discourse of the students);
- and the text of the students (that should be constructed in the class in order to make them able to create texts and, thus, to interact in PFL).

These two movements are the base of the texts that teachers and students need to construct in the classroom interaction

As we could see in the above excerpt, the cohesion of the discourse of the teacher was constructed by the use of the coordinating conjunction “and” as well as enumerations.

- 05/02/10 – E agora, vamos ver. / And now, let’s see.
- 05/02/50 – Vamos ouvir a terceira expressão. / Let us listen to the third expression.

- 05/03/34 – E agora, o que é que eles estão a fazer? / And now, what are they doing?

The choice of the conjunction “and”, in addition to the “enumeration”, indicates that the discourse in construction aims to make a list of elements. As the teacher says, she wants “apresentar algumas expressões / present some expressions” (05/01/41). Therefore, we can see that the objective for the class is to teach a group of linguistics resources to the students.

A list is a genre of text. For example, when we go shopping, we prepare a list for the supermarket. Similarly, when we have many things to do at work, we can make a list of tasks etc. In these contexts, the lists are texts. Each element of the lists makes sense and is related to the others.

In the situation of that class, the list of expressions taught could be united in a text as well. However, here, those expressions are unrelated. The way they are shown indicates a complete independence between them. They do not have any kind of relation, nor are they applied in a real context of use. They do not contribute to the development of textual competence because there is no text.

The teacher’s discourse in this case is the text that she uses to organize the class: “Hoje, eu vou apresentar algumas expressões. /Today I am going to present some expressions”(1/41). She explains to the group what she intends to do: to teach some linguistic elements.

Supposedly, such discourse intends to give elements that are necessary for the students to learn and to apply in the creation and development of texts.

Nevertheless, the list of expressions is presented without any connection. They are independent elements. There is no cohesion among them.

#### 4.2.2. Repetition

In the teacher’s discourse, there is yet another important cohesive resource: the use of repetition.

This resource is extensively used by the teacher. She asks the students to repeat the list of expressions twice. It seems as though her repetition could help the students to understand the meaning and social contexts in which they could apply such expressions. This shows us about the beliefs of the teacher about what it means to teach a foreign language. However, repetition does not guarantee comprehension.

Here we can see a moment in which the students are trained to repeat.

After showing the 08 expressions, the teacher says:

- 05/06/12 Ora, vamos rever. / Well, Let us review.
- 0510/19 Primeiro, vamos rever, vamos rever. / First, Let us review, let us review.

Repetition is linked to memorization. Memorization can be a learning/teaching strategy, but it certainly is not the more adequate pedagogical resource in order to achieve social or cultural meanings in language interaction.

This resource also does not help the student to understand how to organize a text in Portuguese.

#### 4.2.3. Summary

To summarize, the discourse of the teacher is essentially fragmented. It has a type of cohesion that indicates that she will present a list. The teacher does not create a discourse in which the linguistic elements exist as active elements in real context of use. Each element is presented without any kind of significant linguistic link with the others.

The elements are not organized as a text. Therefore, there is no cohesion between them. As results, the students did not have contact with a text, thus they could not produce an oral discourse. They did not have the opportunity to start to construct their textual competence. As we can observe, a simple juxtaposition of sequences (expressions) does not guarantee textuality.

#### 4.3. Aspects of coherence

The text will be incoherent if the speaker/writer does not know how to adapt it to the situation. It is necessary to take into consideration the communicative intention, the objectives, the interactants, the socio-cultural rules, other elements of the situation, linguistic resources and so on (Koch, 1994).

The concept of coherence is not linked to linguistic forms (words, sentences, types/genre of texts... expressions.). It is linked to the process of interaction; it is linked to the concept of context.

Therefore, to present forms, or to present expressions, does not help in understanding texts. The meanings come from the relation between texts in contexts and interactants in concrete situations (real or fictitious).

In our data, when the teacher is presenting the expression “boa tarde / good afternoon”, she tries to contextualize the expression, using images and translations.

The image show us two students on a table, eating. Beside the table, there is a woman standing and looking at them. Above them, on the wall, we can see a clock: the time is 12:40.

Let us see what happened in the dialogue of the teacher with the students. She shows the image to the class.

#### 05/02/10-22

10.	Roberta	Ora bem! E agora? Vamos ver.	Very well! And now? Let us see.
11.	Aluno	(ruído) Fa/	(noises) Fa/
12.	Roberta	O que, o que é que eles estão a fazer?	What are they doing?
13.	Aluno	(ruído)	(noises)
14.	Roberta	Ah?	Ahn?
15.	Roberta	Estão a comer.	They are eating.
16.	Roberta	<b>O que significa esta expressão?</b>	<b>What does this expression mean?</b>
17.	Roberta	<b>Já aprendemos.</b>	<b>We have already learned.</b>
18.	Roberta	(??)	(??)
19.	Alunos	Professora	Teacher.
20.	Roberta	Professora?	Teacher?
21.	Alunos	Boa tarde.	Good afternoon.
22.	Roberta	Boa tarde.	Good afternoon.

The first thing that the students can identify, looking at the image, is the woman standing like a teacher.

Let us follow the rest of the dialogue.

05/02/23-39

23.	Roberta	Boa tarde?	Good afternoon?
24.	Roberta	Vamos ouvir!	Let us listen!
25.	Aluno	Bo-a tar-de.	Good – after – noon.
26.	Roberta	<i>Vamos ouvir está certo?</i>	<i>Let us listen and check if it is correct.</i>
27.	Aluno	Boa tarde	Good afternoon.
28.	Cassette	2.	2.
29.	Cassette	Boa tarde.	Good afternoon.
30.	Roberta	Bo-a tar-de!	Good – after – noon!
31.	Aluno	Ehhh! (fica animado porque está certo)	Yeah! (a student feels very happy with the positive answer)
32.	Roberta	<i>O que é significa “Boa tarde”?</i>	<i>What does “good afternoon” mean?</i>
33.	Aluno	<i>Almoço!</i>	<i>Lunch!</i>
34.	Roberta	<i>Almoço?</i>	<i>Lunch?</i>
35.	Aluno	<i>Boa tarde!</i>	<i>Good afternoon!</i>
36.	Roberta	Boa tarde! <i>Vamos ver:</i> boa/	Good afternoon! <i>Let us see:</i> good/
37.	Alunos	<i>Boa tarde!</i>	<i>Good afternoon!</i>
38.	Roberta	<i>Vamos ouvir se está certo.</i>	<i>Let us listen if it is correct.</i>
39.	Alunos	<i>Boa tarde!</i>	<i>Good afternoon!</i>

Theoretically, the use of pictures is a very ambiguous resource. It can make the students think that words and things have a cartesian relation. But we know that the meanings are social constructions.

However, pictures can be resources for contextualization of the language. Here, the picture shown does not help the students. The picture guides them to understand the meaning “lunch”.

The teacher asks “what does ‘good afternoon’ mean?”. But the correct answer does not appear. Actually, the expression does not have exactly a meaning, but a social function: to express politeness. Only in an appropriate context the students could understand that. The same thing happens with “good night” in another moment during the class; the students answer “to sleep”. The contextualization fails and the influence of the image, here, is fundamental for that.

However, there is a more serious consequence of the example “good afternoon”: there is no relation between the use of this expression in Portuguese and in Cantonese. In Portuguese we can use the expression in many situations when we meet someone (in the street, at home, at work...); in Cantonese, on the other hand, the expression is used only in formal contexts, like at work meetings, for example.

In this way, the literal translation (that the teacher uses very often) is an inadequate resource because the expressions have no social or cultural correspondence.

In summary, the attempt to contextualize made at least two mistakes:

- It gave a wrong cue to understand the basic meaning of the expression (“lunch” instead of “good afternoon”);
- It gave a wrong cue to understand the social and cultural use of the expression.

The instructor does not give useful contextual elements for the students to understand texts in PFL. However, the context (linguistic and extra-linguistic) is essential for understanding and, thus, for the construction of textual coherence.

Without context, her discourse cannot create a text with the students. She talks about the expressions instead of encouraging the students to use the expressions. It is

important to say that she is teaching children. One appropriate strategy is to allow children to experiment before constructing any knowledge.

#### 4.4. Conclusion

It appears that the class was organized by interactive principles. The elements that the teacher has chosen have explicit interactional characteristics. They are not, for example, a group of grammatical information. However, the way that they were presented did not show their interactional characteristic; they did not constitute a text.

The architecture of the class did not work. As we can see in this last excerpt, the students at the end of the class do not know how to apply one of the expressions taught. Instead of saying “Can I leave”, they say “Can I come in”.

05/13/41-49

41.	Roberta	<i>Ora! Todos estão saindo; então como se diz?</i>	<i>Well! Everybody is leaving; then what do we say?</i>
42.	Alunos	Posso entrar?	Can I come in?
43.	Roberta	Posso sair?	Can I leave?
44.	Alunos	Posso sair?	Can I leave?
45.	Alunos	Posso entrar?	Can I come in?
46.	Roberta	Po-ssó... ?	Can I... ?
47.	Alunos	En-trar	Come-in
48.	Roberta	Po-ssó... ?	Can I... ?
49.	Alunos	En-trar	Come-in

The teacher corrects the students, explaining in Cantonese the meaning of “come in”.

05/13/50-55

50.	Roberta	“entrar” é “ <i>entrar</i> ”	“to come in” is “ <i>to come in</i> ”
51.	Roberta	Po-ssó...?	Can I...?
52.	Alunos	Sa-ir?	Lea-ve?
53.	Roberta	Mais uma vez	One more time
54.	Roberta e alunos	Po-ssó sa-ir?	Can I leave?
55.	Roberta	Sim! Podem!	Yes! You can!

The students, therefore, choose the adequate expression. After this, the teacher asks them to repeat again (05/13/53 - “mais uma vez/ one more time”). Then, finally, they repeat the adjusted expression.

Finalizing, in these last examples, we could see that the students did not experience an interaction in Portuguese. They did not have contacts to any particular contexts of language. They were taught a list of expressions which do not make a text. They did know how to apply these expressions. They did not have a cultural experience because they, actually, did not have contact with the new language that they should have been learning.

The class was not organized with the aim to develop textual competence. The students did not participate in a real situation of communication. The type of interaction

was traditional in that the teacher only asks yes/no questions. These kinds of questions do not stimulate interaction because the students do not need to sustain a conversation.

In language classes, if we must learn to adapt texts to different situations, the class is not ultimately successful.

## 5. Final comments

We are in a moment in which the communicative perspective is one of the most debated. And we can see for example this influence in the class analyzed. The linguistic elements that the teacher chose seem to be according to the communicative approach: the expressions are applied for interactions and the title of the lesson is “social interaction”. However, the way that the expressions were presented does not show their interactional characteristic because they do not constitute a text.

They were presented exactly in a traditional way: lists of elements, analysis of the language instead of the usage, no contextualization, no concern about social, cultural aspects and so on.

It is important to say that the teacher is very dedicated to her job. She works hard trying to motivate her students. As she said in an interview, she was trying to use a communicative approach when she was preparing the class. However some beliefs about what to teach a language are making her take some decisions that are not according to a communicative approach.

In consequence:

- The teacher’s discourse is not constructed to generate and stimulate the discourse of the students.
- The language is presented in pieces that make no sense.
- There is no development of the textual competence.

The teacher’s discourse should be constructed as didactic material. It should help students learn how to choose and apply cohesion elements that construct the superficial organization of the text (not explaining, but making them use the language). It should also show how to adjust these elements in order to make coherent texts for each context in everyday life.

When I decided to study the process of teaching-learning of PFL, I was, at the beginning, interested in the progression of the students’ discourse. However, because of the methods applied in classroom, the students could not produce discourse in Portuguese.

Without an appropriate discourse of the teacher, students have many difficulties in learning and, thus, in achieving communicative competence. Therefore, depending on the conditions and on the methods adopted in classroom, it is impossible to undertake a study of the process of learning a foreign language.

As Fabrício (1999:06) claims,

a interação social pode ter um impacto decisivo (facilitador ou impedor) no processo de ensino/aprendizagem (Vygotsky,1978), apontando para a necessidade da investigação dos tipos de interação que são mais favoráveis à aprendizagem.<sup>3</sup>

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<sup>3</sup> The social interaction can have a significant impact on the teaching/learning process, making it more or less easy

To investigate the interaction in classroom is fundamental. The quality of this interaction is one of the most important elements for the teaching-learning process. Especially, the contact with all types/genres of texts (oral and written) is the way to reach textual competence.

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(Vygotsky,1978). It is important to point out that it is necessary to investigate different types of interaction that are more favorable to learning.

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# Cornetto Tools and Methodology for Interlinking Lexical Units, Synsets and Ontology

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## Abstract

This article presents a lexical database of Dutch, called Cornetto, that is interconnected with corresponding English synsets and a formal ontology. The Cornetto database is based on two existing electronic dictionaries - the Referentie Bestand Nederlands and the Dutch wordnet. The former holds Dutch FrameNet-like information and the latter is structured as the English wordnet. Three different collections are maintained for lexical units, synsets and ontology terms. The database interlinks these collections and clarifies the relations. We describe the work processes, the design and the implementation of new tools. The tools are based on the DEB platform as special dictionary clients for the DEBVisDic wordnet editor and browser. Finally, we discuss the complex relations between the synsets and the ontology.

**Keywords:** Wordnet, Synsets, Lexical Units, Ontologies, databases, editors.

## 1. Introduction

Lexical data and knowledge resources have rapidly developed in recent years both in complexity and size. The maintenance and development of such resources require powerful database systems with specific demands. In this paper, we present an extension of the DEBVisDic environment (Horák et al. 2006) for the development of a lexical semantic database system for Dutch that is built in the Cornetto project. The system holds 3 different types of databases that are traditionally studied from different paradigms: lexical units from a lexicological tradition, synsets within the wordnet framework and an ontology from a formal point of view. Each of these databases represents a different view on meaning. The database system is specifically designed to

create relations between these databases and to allow edit the information in each. It represents a complex editing environment but also a research tool to study the relations between languages, as defined in a lexicon and wordnet, and knowledge, as defined in an ontology.

The paper is further structured as follows. In the Section 2, we will describe the Cornetto project in terms of the design of the database structure and the major editing actions. The Section 3 introduces the DEB platform and the new features that have been introduced for the Cornetto project. Next, we describe the specific client interface for viewing and editing the data in section 4. Finally, we discuss the relation between the lexicon and the ontology in section 5.

## **2. The Cornetto Project**

Cornetto is a two-year Stevin project (STE05039) in which a lexical semantic database was built, that combines Wordnet with FrameNet-like information (Fillmore et al. 2004) for Dutch. The combination of the two lexical resources resulted in a much richer relational database that may improve natural language processing (NLP) technologies, such as word sense-disambiguation, and language-generation systems. In addition to merging the Wordnet and FrameNet-like information, the database was also mapped to a formal ontology to provide a more solid semantic backbone.

The database was filled with data from the Dutch Wordnet (Vossen 1998) and the Referentie Bestand Nederlands (Maks, Martin and Meerseman 1999). The Dutch Wordnet (DWN) is similar to the Princeton Wordnet for English, and the Referentie Bestand (RBN) includes frame-like information as in FrameNet plus additional information on the combinatoric behaviour of words in a particular meaning.

An important aspect of combining the resources is the alignment of the semantic structures. In the case of RBN these are lexical units (LUs, Cruse 1986) and in the case of DWN these are synsets (Fellbaum 1998). Various heuristics have been developed to do an automatic alignment. Following automatic alignment of RBN and DWN, this initial version of the Cornetto database has been extended both automatically and manually. The resulting data structure was stored in a database that keeps separate collections for lexical units (mainly derived from RBN), synsets (derived from DWN) and a formal ontology (SUMO/MILO, Niles and Pease 2003) plus extensions. These 3 semantic resources represent different view points and layers of linguistic and conceptual information. The alignment of the view points was stored in a separate

mapping table. The database was set up so that the formal semantic definition of meaning can be tightened for lexical units and synsets by exploiting the semantic framework of the ontology. At the same time, we wanted to maintain the flexibility to have a wide coverage for a complete lexicon and encode additional linguistic information. The resulting resource is available in the form of an XML database, and can be licensed for free for research. The Cornetto database provides a unique combination of semantic, formal semantic and combinatoric information.

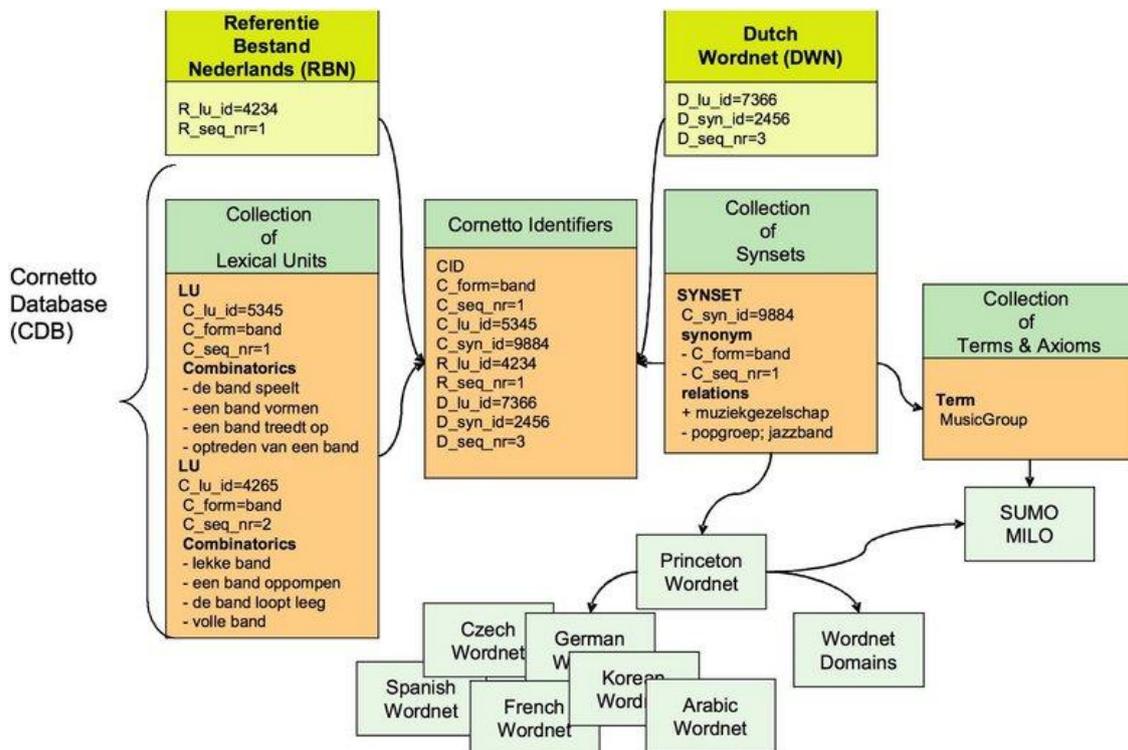
### *2.1. Architecture of the Database*

The Cornetto database (CDB) consists of 3 main data collections:

1. Collection of Lexical Units, mainly derived from the RBN
2. Collection of Synsets, mainly derived from DWN
3. Collection of Terms and axioms, mainly derived from SUMO and MILO

The Lexical Units are word senses in the lexical semantic tradition. They contain all the necessary linguistic knowledge that is needed to properly use the word in a language. The Synsets are concepts (as defined by Miller et al 1991) in a relational model of meaning. Synsets are mainly conceptual units strictly related to the lexicalization pattern of a language. Concepts are defined by lexical semantic relations. For Cornetto, the semantic relations from EuroWordNet are taken as a starting point (Vossen 1998).

Outside the lexicon, an ontology provides a third layer of meaning. The Terms in the ontology represent the distinct types in a formal representation of knowledge. Terms can be combined in a knowledge representation language to form expressions of axioms. In principle, meaning is defined in the ontology independently of language but according to the principles of logic. In Cornetto, the ontology represents an independent anchoring of the relational meaning in Wordnet. The ontology is a formal framework that can be used to constrain and validate the implicit semantic statements of the lexical semantic structures, both the lexical units and the synsets. In addition, the ontology provides a mapping of a vocabulary to a formal representation that can be used to develop semantic web applications. In addition to the 3 data collections, a separate table of so-called Cornetto Identifiers (CIDs) is provided. These identifiers contain the relations between the lexical units and the synsets in the CDB but also to the original word senses and synsets in the RBN and DWN.



**Figure 1: Data collections in the Cornetto database.**

The Figure 1 shows an overview of the different data structures and their relations. The different data can be divided into 3 layers of resources, from top to bottom:

1. The RBN and DWN (at the top): the original databases from which the data are derived;
2. The Cornetto database (CDB): the ultimate database built;
3. External resources: any other resource to which the CDB is linked, such as the Princeton Wordnet, wordnets through the Global Wordnet Association, Wordnet domains, ontologies, corpora, etc.

The center of the CDB is formed by the table of CIDs. The CIDs tie together the separate collections of LUs and Synsets but also represent the pointers to the word meaning and synsets in the original databases: RBN and DWN and their mapping relation.

The LUs will contain semantic frame representation. The frame elements may have co-indexes with Synsets from the wordnet and/or with Terms from the ontology. This means that any semantic constraints in the frame representation can directly be related to the semantics in the other collections. Any explicit semantic relation that is

expressed through a frame structure in a LU can also be represented as a conceptual semantic relation between Synsets in the Wordnet database.

The Synsets in the wordnet are represented as a collection of synonyms, where each synonym is directly related to a specific LU. The conceptual relations between Synsets are backed-up by a mapping to the ontology. This can be in the form of an equivalence relation or a subsumption relation to a Term or an expression in a knowledge representation language. Finally, a separate equivalence relation is provided to one or more synsets in the Princeton Wordnet.

The construction of the database was divided in 4 steps:

1. Automatic alignment of the word meanings of the two resources
2. Import of the result of the alignment into the database
3. Import of the SUMO ontology and WordNet domains to the synsets of the Dutch wordnet
4. Manual revision of the lexical units, the synsets and the ontological mapping

In the next paragraphs, we will discuss these steps briefly.

## 2.2. *Aligning Word Meanings*

To create the initial database, the word meanings in the Referentie Bestand Nederlands (RBN) and the Dutch part of EuroWordNet (DWN) have been automatically aligned. The word *koffie* (coffee) for example has 2 word meanings in RBN (*drink* and *beans*) and 4 word meanings in DWN (*drink*, *bush*, *powder* and *beans*). When we try to automatically align these meanings, we can get a complete match, no match or a partial match between these meanings. This may result in 4, 5, or 6 distinct meanings in the Cornetto database depending on the degree of matching across these meanings. Note that this alignment is different from aligning WordNet synsets because RBN is not structured in synsets. We can for example not use the overlap of synonyms because RBN has no synonyms. For measuring the match, we used all the semantic information that was available in both resources: e.g. definitions and domain labels. The alignment of the word meanings is discussed in detail in Vossen et al. (2008a and 2008b). As a result of the alignment, a new list of lexical units and synsets is generated. All the relevant data for these lexical units and synsets are copied from the RBN and DWN, respectively.

### *2.3. Importing External Data*

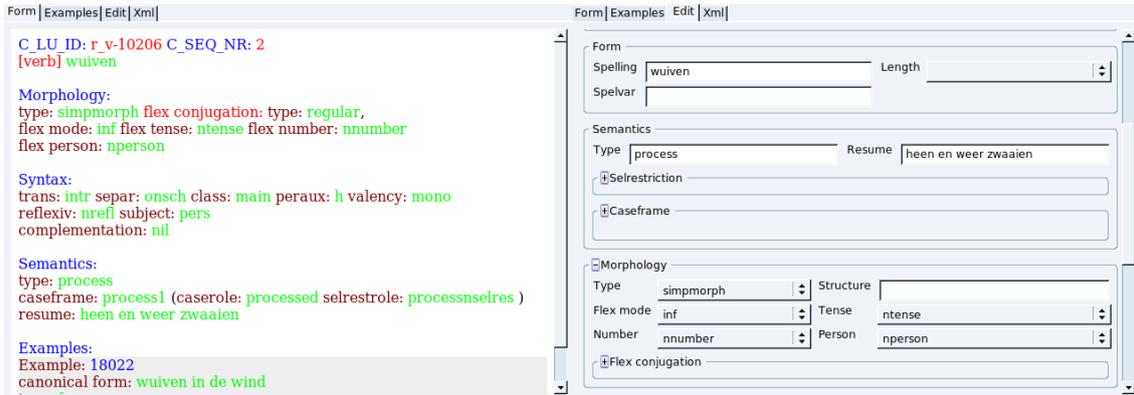
DWN was linked to WordNet1.5. WordNet domains are mapped to WordNet1.6 and SUMO was mapped at that time to WordNet2.0. In order to apply the information from SUMO and WordNet domains to the synsets, we needed to exploit the mapping tables between the different versions of Wordnet. We used the tables that have been developed for the MEANING project (Daude et al. 2003). For each equivalence relation to WordNet1.5, in DWN we consulted a table to find the corresponding WordNet1.6 and WordNet2.0 synsets, and via these we copied the mapped domains and SUMO terms to the Dutch synsets. In the end, the Dutch synsets were mapped to WordNet2.0 and contained imported mappings to both SUMO and WordNet domains. The structure for the Dutch synsets thus consists of:

1. a list of synonyms;
2. a list of language internal relations;
3. a list of equivalence relations to WordNet2.0;
4. a list of domains, taken from WordNet domains;
5. a list of SUMO mappings, taken from the WordNet2.0 SUMO mapping

The structure of the lexical units is fully based in the information in the RBN. The specific structure differs for each part of speech. At the highest level it contains:

1. orthographic form
2. morphology
3. syntax
4. semantics
5. pragmatics
6. examples

A snapshot of this information is given in Figure 2 below, which is a screen dump of the Cornetto client that gives access to the lexical unit data.



**Figure 2: Cornetto Lexical Units, showing the preview and editing form**

#### 2.4. Manual Editing

The aligned data was further manually edited through various cycles of editing. For this purpose, special editing clients have been developed. We will discuss the editing clients in more detail below. The editing process itself consisted of a number of steps, where we focused on different types of information. In the first cycle, we manually verified the alignment of word-meanings. For this purpose, selections of words and word meanings were made. This selection involved the following criteria:

1. Frequent nouns and verbs
2. Words with many meanings
3. Lexical units with a mapping to a synset with a low score
4. Lexical units without a mapping with a synset
5. Synsets with many (low-scoring) equivalence relations to WordNet2.0

During this work, we typically carried out the following actions:

1. Confirm or delete a mapping
2. Create another mapping
3. Split a single lexical unit in two lexical units
4. Merge two lexical units into one
5. Add lexical units or delete lexical units
6. Split a synset unit in two synsets
7. Merge two synsets into one

8. Add synsets or delete synsets
9. Add or delete synonyms to synsets
10. Select a proper WordNet2.0 equivalent
11. Revise the SUMO mapping
12. Revise the WordNet domain mapping

At the end of actions 1-9, we got a new and revised list of senses and mappings to synsets, representing new sense and synset structure of the Cornetto database. Table 1 gives an overview of the final database. For more details on the final database, see Vossen et al. (2008c).

	ALL	NOUNS	VERBS	ADJECTIVES	ADVERBS	NEW SYNSETS/ LEXICAL UNITS
<b>Synsets</b>	70,434	52,888	9,053	7,703	220	570
<b>Lexical Units</b>	118,466	85,278	17,363	15,731	73	21
<b>Lemmas (form+pos)</b>	91,991	70,556	9,055	12,307	73	n.a.
<b>Synonyms in synsets</b>	102,572	74,893	14,091	12,899	84	605
<b>CID records</b>	103,668	75,812	14,093	13,089	484	190
<b>Synonym per synset</b>	1.46	1.42	1.56	1.67	0.38	1.06
<b>Senses per lemma</b>	1.29	1.21	1.92	1.28	1.00	n.a.

**Table 1: Overview data for the Cornetto repositories**

The second phase of the editing involved the relation of the synsets to the ontology (actions 10-12), which will be discussed in more detail in section 5.

### 3. The DEB Platform

The Dictionary Editor and Browser platform (Horák et al 2006) offers a development framework for any dictionary writing system application that needs to store the dictionary entries in the XML format structures. The most important property of the system is *client-server* nature of all DEB applications. This provides the ability of distributed authoring teams to work fluently on one common data source. The actual development of applications within the DEB platform can be divided into the server part (the server side functionality) and the client part (graphical interfaces with only basic functionality). The server part is built from small parts, called *servlets*, which allow a

modular composition of all services. The client applications communicate with servlets using the standard HTTP web protocol.

For the server data storage the current database backend is provided by the Berkeley DB XML (DBXML), which is an open source native XML database providing XPath and XQuery access into a set of document containers.

The user interface, that forms the most important part of a client application, usually consists of a set of flexible forms that dynamically cooperate with the server parts. According to this requirement, DEB has adopted the concepts of the Mozilla Development Platform (Feldt 2007). Firefox Web browser is one of the many applications created using this platform. The Mozilla Cross Platform Engine provides a clear separation between application logic and definition, presentation and language-specific texts.

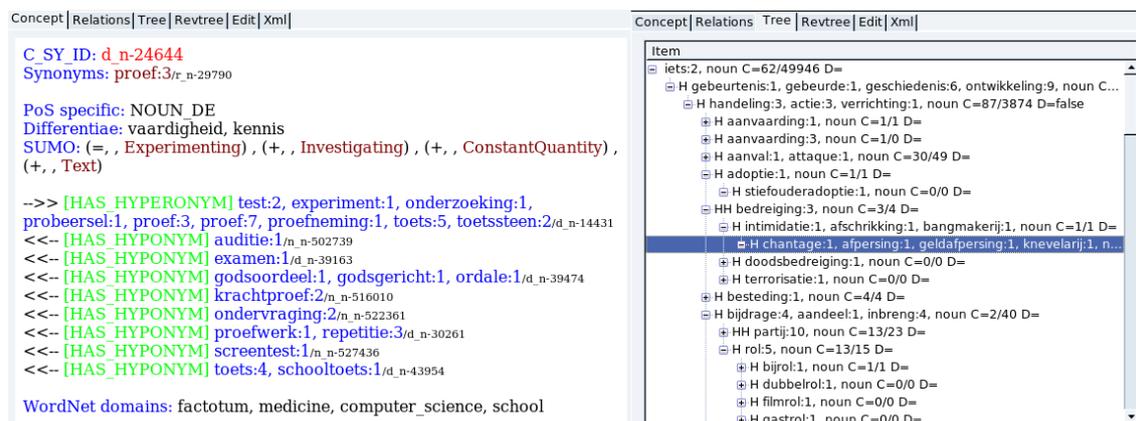


Figure 3: Cornetto Synsets window, showing a preview and a hyperonymy tree

### 3.1. New DEB Features for the Cornetto Project

During the Cornetto project the nature of the Cornetto database structure has imposed the need of several features that were not present in the (still developing) DEB platform. The main new functionalities include:

1. **entry locking** for concurrent editing. Editing of entries by distant users was already possible in DEB, however, the exclusivity in writing to the same dictionary item was not controlled by the server. The new functions offer the entry locking per user (called from the client application e.g. when entering the edit form). The list of all server locks is presented in the DEB administration interface, allowing the handling of the locks either manually or automatically on special events (logout, timeout, loading

new entry, etc.).

2. *link display preview caching*. According to the database design that (correctly) handles all references with entity IDs, each operation, like structure entry preview or edit form display, runs possibly huge numbers (tens or hundreds) of extra database queries displaying text representations instead of the entity ID numbers. The drawback of this compact database model is in slowing down the query response time to seconds for one entry. To overcome this increase of the number of link queries, we have introduced the concept of *preview caching*. With this mechanism the server computes all kinds of previews in the time of saving a modified entry in special entry variables (either XML subtags or XML metadata). In the time of constructing the preview or edit form, the linked textual representations are taken from the preview caches instead of running extra queries to obtain the computed values.

3. *edit form functionalities* The lexicographic experts within the Cornetto project have suggested several new user interface functions that are profitable for other DEB-based projects like collapsing of parts of the edit form, entry merging and splitting functions or new kinds of automatic inter-dictionary queries, so called AutoLookUps.

All this added functionalities are directly applicable in any DEB application like DEBVisDic or DEBDict.

#### **4. The New DEBVisDic Clients**

Since one of the basic parts of the Cornetto database is the Dutch WordNet, we have decided to use DEBVisDic as the core for Cornetto client software. We have developed four new modules, described in more details below. All the databases are linked together and also to external resources (Princeton English WordNet and SUMO ontology), thus every possible user action had to be very carefully analyzed and described.

During the several months of active development and extensive communication between Brno and Amsterdam, a lot of new features emerged in both server and client and many of these innovations were also introduced into the DEBVisDic software. This way, each user of this WordNet editor benefits from Cornetto project.

The user interface is the same as for all the DEBVisDic modules (see Figures 2 and 3): upper part of the window is occupied by the query input line and the query result list and the lower part contains several tabs with different views of the selected entry.

Searching for entries supports several query types -- a basic one is to search for a word or its part, the result list may be limited by adding an exact sense number. For more complex queries users may search for any value of any XML element or attribute, even with a value taken from other dictionaries (the latter is used mainly by the software itself for automatic lookup queries).

The tabs in the lower part of the window are defined per dictionary type, but each dictionary contains at least a preview of an entry and a display of the entry XML structure. The entry preview is generated using XSLT templates, so it is very flexible and offers plenty of possibilities for entry representation.

#### *4.1. Cornetto Lexical Units*

The Cornetto foundation is formed by Lexical Units, so let us describe their client package first. Each entry contains complex information about morphology, syntax, semantics and pragmatics, and also lots of examples with complex substructures. Thus one of the important tasks was to design a preview to display everything needed by the lexicographers without the necessity to scroll a lot. The examples were moved to separate tab and only their short resume stayed on the main preview tab.

Lexical units also contain semantic information from RBN that cannot be published freely because of licensing issues. Thus DEBVisDic here needs to differentiate the preview content based on the actual user's access rights.

The same ergonomic problem had to be resolved in the edit form. The whole form is divided to smaller groups of related fields (e.g. morphology) and it is possible to hide or display each group separately. By default, only the most important parts are displayed and the rest is hidden (see Figure 2).

Another new feature developed for Cornetto is the option to split the edited entry. Basically, this function copies all content of edited entry to a new one. This way, users may easily create two lexical units that differ only in some selected details.

Because of the links between all the data collections, every change in lexical units has to be propagated to Cornetto Synsets and Identifiers. For example, when deleting a lexical unit, the corresponding synonym has to be deleted from the synset dictionary.

#### *4.2. Cornetto Synsets*

Synsets are even more complex than lexical units, because they contain lots of

links to different sources -- links to lexical units, relations to other synsets, equivalence links to Princeton English WordNet, and links to the ontology.

Again, designing the user-friendly preview containing all the information was very important. Even here, we had to split the preview to two tabs: the first with the synonyms, domains, ontology, definition and short representation of internal relations, and the second with full information on each relation (both internal and external to English Wordnet). Each link in the preview is clickable and displays the selected entry in the corresponding dictionary window (for example, clicking on a synonym opens a lexical unit preview in the lexical unit window).

The synset window offers also a tree view representing a hypernym/hyponym tree. Since the hypero/hyponymic hierarchy in Wordnet forms not a simple tree but a directed graph, another tab provides the reversed tree displaying links in the opposite direction (this concept was introduced in the VisDic Wordnet editor). The tree view also contains information about each subtree's significance -- like the number of direct hyponyms or the number of all the descendant synsets (see Figure 3).

The synset edit form looks similar to the form in the lexical units window, with less important parts hidden by default. When adding or editing links, users may use the same queries as in dictionaries to find the right entry.

#### *4.3. Cornetto Identifiers*

The lexical units and synsets are linked together using the Cornetto Identifiers (CID). For each lexical unit, the automatic aligning software produced several mappings to different synsets (with different score values). At the very beginning, the most probable one was marked as the “selected” mapping.

In the course of work, users have several ways for confirming the automatic choice, choosing from other offered mapping, or creating an entirely new link. For example, a user can remove the incorrect synonym from a synset and the corresponding mapping will be marked as unselected in CID. Another option is to select one of the alternate mappings in the Cornetto Identifiers edit form. Of course, this action leads to an automatic update of synonyms.

The most convenient way to confirm or create links is to use ***Map current LU to current Synset*** function. This action can be run from any Cornetto client package, either by a keyboard shortcut or by clicking on the button. All the required changes are checked and carried out on the server, so the client software does not need to worry about the actual actions necessary to link the lexical unit and the synset.

## 5. Cornetto Ontology

### 5.1. Ontological principles

The ontology is seen as an independent anchoring of concepts to some formal representation that can be used for reasoning. Within the ontology, Terms are defined as disjoint Types, organized in a Type hierarchy where:

1. a Type represents a class of entities that share the same essential properties;
2. Instances of a Type belong to only a single Type: => disjoint (you cannot be both a *cat* and a *dog*);

Terms can further be combined in a knowledge representation language to form expressions of axioms, e.g. the Knowledge Interchange Format (KIF, Genesereth and Fikes 1992), based on first order predicate calculus and primitive elements. Following the OntoClean method (Guarino and Welty 2002a, 2002b), identity criteria can be used to determine the set of disjoint Types. These identity criteria determine the essential properties of entities that are instances of these concepts:

1. **Rigidity**: to what extent are properties of an entity true in all or most worlds? E.g., a *man* is always a *person* but may bear a Role like *student* only temporarily. Thus *manhood* is a rigid property while *studenthood* is non-rigid.
2. **Essence**: which properties of entities are essential? For example, *shape* is an essential property of *vase* but not an essential property of the clay it is made of.
3. **Unicity**: which entities represent a whole and which entities are parts of these wholes? An *ocean* or *river* represents a whole but the *water* it contains does not.

The identity criteria are based on certain fundamental requirements. These include that the ontology is descriptive and reflects human cognition, perception, cultural imprints and social conventions (Masolo et al 2003). The work of Guarino and Welty (Guarino and Welty 2002a, 2002b) demonstrated that the WordNet hierarchy, when viewed as an ontology, can be improved and reduced. For example, roles such as agents of processes are often non-rigid. They do not represent disjunct types in the ontology and complicate the hierarchy. As an example, consider the hyponyms of *dog* in WordNet, which include both types (races) like *poodle*, *Newfoundland*, and *German shepherd*, but also roles like *lapdog*, *watchdog* and *herding dog*.

"Germanshepherdhood" is a rigid property, and a German shepherd will never be a Newfoundland or a poodle. But German shepherds may be herding dogs. The ontology would only list the *rigid* types of dogs (dog races): Canine => PoodleDog; NewfoundlandDog; GermanShepherdDog, etc.

The lexicon of a language then may contain words that are simply names for these types and other words that do not represent new types but represent roles (and other conceptualizations of types). From this basic starting point, we can derive two types of mappings from synsets to the ontology (Fellbaum and Vossen 2007, Vossen and Fellbaum fc.):

1. Synsets represent disjunct types of concepts, where they are defined as:
  - 1.1. names of Terms;
  - 1.2. subclasses of Terms, in case the equivalent class is not provided by the ontology
2. Synsets represent non-rigid conceptualizations, which are defined through a KIF expression;

For example, English *poodle*, Dutch *poedel* and Japanese *pudoru* are simple names for the ontology type: => (instance x PoodleDog). On the other hand, English *watchdog*, the Dutch word *waakhond* and the Japanese word *banken* should be related through a KIF expression that does not involve new ontological types:

(and (instance, ?C, Canine), (instance, ?G Guarding) (role, ?C, ?G) )

where we assume that *Guarding* is defined as a process in the ontology as well. The fact that the same expression can be used for all the three words indicates equivalence across the three languages.

The naming relation thus corresponds more or less with the way SUMO is currently mapped to the Princeton Wordnet, using equivalence and subsumption relations. The KIF expressions for non-rigid mappings are more similar to the axioms found in SUMO, except that one of the variables in the axioms correlates with the denotation of the synset that is being defined. In the case of the above example, the variable “?C” thus correlates with the possible referents of expressions with the syntactic head of the nouns *watchdog*, *waakhond* and *banken* in the different languages.

In a similar way, we can use the notions of Essence and Unicity to determine which concepts are justifiably included in the type hierarchy and which ones are dependent on such types. If a language has a word to denote a lump of clay (e.g. in

Dutch *kleibrok* denotes an irregularly shaped chunk of clay), this word will not be represented by a type in the ontology because the concept it expresses does not satisfy the Essence criterion. Similarly, a Dutch word *rivierwater* (river water) is not represented by a type in the ontology as it does not satisfy Unicity; such words are dependent on other valid types through a more complex semantic relation.

## 5.2. *Ontological implementation in Cornetto*

The ontology mappings in Cornetto are currently restricted to triplets consisting of the relation name, a first argument and a second argument. It is thus not possible to represent complex KIF expressions as is done in the axioms of SUMO. However, by assuming default values for the KIF syntax, we can generate expressions that come close to these. The default operator of the triplets is AND, and we assume default existential quantification of any of the variables, specified as a value of the arguments. Furthermore, we follow the convention to use a zero symbol as the variable that corresponds to the denotation of the synset being defined and any other integer for other denotations. Finally, we use the symbol  $\langle = \rangle$  for full equivalence (bidirectional subsumption). In the case of partial subsumption, we use the symbol  $\Rightarrow$ , meaning that the KIF expression is more general than the meaning of the synset. If no symbol is specified, we assume an exhaustive definition by the KIF expression. The symbol  $\langle = \rangle$  applies by default.

The following simplified expression can then be found in the Cornetto database for the above non-rigid synset of *waakhond* (watchdog): (instance, 0, Canine) (instance, 1, Guarding) (role, 0, 1). This should then be read as follows:

*The expression exhaustively defines the synset ( $\langle = \rangle$ ), AND there exists an instance 0 of the type Canine (instance, 0, Canine), AND any referent of an expression with the synset waakhond as the head is also an instance of the type Canine (the special status of the zero variable), AND there exists an instance of the type Guarding (instance, 1, Guarding), AND the entity 0 has a role relation with the entity (role, 0, 1).*

For names of types, we use the following expressions in Cornetto:

Hond ( $=$ , 0, Canine); the synset *hond* is a Dutch name for the rigid type Canine

Bokser ( $+$ , 0, Canine); the synset *bokser* is a Dutch name for a rigid concept which is a subclass of the type Canine

Naming relations are mostly imported from the SUMO mappings to the English Wordnet through the equivalence relation of the Dutch synset to the English synset. In the case of *bokser*, the mapping is manually added because it is dog race that is not in the English Wordnet and not in SUMO. Possibly, SUMO could be extended with this Type.

Another case of mixed hyponyms are words for *water*. In the Dutch wordnet there are over 40 words that can be used to refer to water in specific circumstances or with specific attributes. Water is in SUMO a CompoundSubstance just as other molecules. We can thus expect that the synset of *water* in Dutch matches directly to Water in SUMO, just as *zand* matches to Sand. However, *water* has 3 major meanings in the Dutch wordnet: water as liquid, water as a chemical element and a water area, while there are only two concepts in SUMO: Water as the CompoundSubstance and a WaterArea. In SUMO there is no concept for water in its liquid form, even though this is the most common concept for most people. Most of the hyponyms of *water* in the Dutch Wordnet are linked to the liquid. To properly map them to the ontology, we thus first must map water as a liquid. This can be done by assigning the Attribute Liquid to the concept of Water as a CompoundSubstance. A SUMO axiom for this is: (and (exists ?L ?W)(instance, ?W, Water),(instance, ?L Liquid) (attribute, ?L, ?W)). In the Cornetto database, this complex KIF expression is represented by the simpler relation triplets: (instance, 0, Water) (instance, 1, Liquid) (attribute, 1, 0).

The hyponyms of water in the Dutch Wordnet can further be divided into 3 groups:

1. Water used for a purpose, e.g. *theewater* (for making tea), *scheerwater* (for shaving).
2. Water occurring somewhere or originating from e.g. *putwater* (in a well), *slootwater* (in a ditch).
3. Being the result of a process, e.g. *pompwater* (being pumped away), *smeltwater*, *dooiwater* (melting snow and ice), *afvalwater* (waste water).

These concepts can be related to the ontology using the following expressions:

***theewater*** (tea water):

(instance, 0, Water) (instance, 1, Tea)(instance, 2, Making)(hasPurpose, 1, 0)(resource, 0, 2)(result, 1, 2)

***putwater*** (water in a well):

(instance, 0, Water)(instance, 1, MineOrWell)(located, 1, 0)  
*slootwater* (in a ditch):

(instance, 0, Water)(instance, 1, StaticWaterArea)(part, 0, 1)

Through the complex mappings of non-rigid synsets to the ontology, the latter can remain compact and strict. Note that the distinction between Rigid and non-Rigid does not down-grade the relevance or value of the non-rigid concepts. To the contrary, the non-rigid concepts are often more common and relevant in many situations. In the Cornetto database, we want to make the distinction between the ontology and the lexicon clearer. This means that rigid properties are defined in the ontology and non-rigid properties in the lexicon. The value of their semantics is however equal and can formally be used by combining the ontology and the lexicon.

### 5.3. *Ontology progress*

The work on the ontology was mainly carried out manually. The mappings of the synsets to SUMO/MILO are primarily imported through the equivalence relation to the English wordnet. We used the SUMO-Wordnet mapping provided on: <http://www.ontologyportal.org/>, dated on April 2006. If there is more than one equivalence mapping with English wordnet, this may result in many-to-one mappings from SUMO to the synset. The mappings have been manually revised traversing the Dutch wordnet hierarchy top-down, giving priority to the most essential synsets. Furthermore, we revised synsets with a large number of equivalence relations or low-scoring equivalence relations. Finally, we clarified the synset-type relations for some sets of co-hyponyms as shown above for water. Single triplets with the relation ‘+’ are still most frequent, i.e. a subsumption to a SUMO concept without a statement about rigidity. We hope to make more explicit mappings in a future extension of the database.

## 6. Conclusions

In the paper, we have described the Cornetto project workflow using the new lexicographic tools developed for this project. We have presented how a combination of automatic scored strategies with the human lexicographic work can be used for merging large databases of previous dictionaries to obtain a new qualitative language resource with complex morphological, syntactic and semantic information. The presented project

tools are, however, not a single purpose programs but they fit in the general framework of the Dictionary Editor and Browser (DEB) platform used for developing other publicly available language data tools.

## 7. Acknowledgments

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# Linguistically Conventionalized Ontology of Four Artifact Domains: A Study Base on Chinese Radicals

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## Abstract

Semantic symbols are essential components of Chinese characters. ShuoWenJieZi (Xyu Shen 121), the oldest dictionary of Chinese, is organized according to the radical forms as semantic symbols.. In this research, we use the semantic symbols representing four Artifact Domains in ShuoWenJieZi , “皿 (min3, ‘basin/container’)", “耒(lei3, ‘plow/a farm tool’)", “刀(dao1, ‘knife/weapon’)" and “网 (wang3, ‘net’)" as our research objects. In this study ,two interesting finding are discovered. First, the primary meanings of characters that shared the same radical symbol are indeed conceptually dependent on the basic concept of that radical. Second, although the four radical of artifacts have similar conceptual extensions, the capabilities of generating new characters, of each individual radical are rather different.

**Keywords:** Ontology; HanZi ; Semantic Lexicon

## 1. Introduction

Chinese radical (*yi4fu2*, ideographs ;semantic symbols) system offers a unique opportunity for systematic and comprehensive comparison between formal and linguistic ontologies. Previous studies adopt either WordNet-based representation.(Wong et al 2002)(Hsieh 2005) or SUMO-based mapping (Chou 2005). Among these studies, Chou and Huang (2007) suggests that the family of Chinese

characters sharing the same radical can be linked to a basic concept by Qualia relations. This approach has great implications of accounts for radicals as linguistically conventionalized ontology. In this paper, we take this approach further and try to account for each radical group as domain ontology headed by one basic concept. In particular, we examine in details 4 radicals of artifacts: 皿 (min3, basin/container), 耒 (lei3, plow/a farm tool), 刀(dao1, knife/weapon) and 网 (wang3, net).

## 2. Theory

The two important theoretical problems that we would like to resolve are: First, If and how the conceptual extensions encoded by these radicals of artifacts differ from those by natural objects? Second, If the design features of these artifacts play a role in their possible conceptual extensions? By answering these two problems, we aim to elaborate on how shared experience and cognitive salience affects the formation of linguistic ontology.

### 2.1 *Qualia Structure*

Our theoretical foundation is Pustejovsky's *Qualia Structure*(Pustejovsky, 1995), and the original analysis of 'ShuoWenJieZi'(Xu 121). In *ShuoWenJieZi*, all Chinese characters are classified as derived from 540 radicals. In this study, we assume that these radicals each represent a basic concept and that all derivative characters are conceptually dependent on that basic concept. Our study aims at accounting for the exact nature of these conceptual dependencies. Combined with previous work, we suggest that conceptual extensions from the basic concept encoded by a radical can be classified into seven main types: formal, constitutive, telic, participant, participating, descriptive

(state/manner) and agentive.

## *2.2 The Semantic Symbol Ontology*

The Semantic Symbol Ontology is a system expressing the relations of Hanzi and its meaning cluster. This ontology system extended the basic structure constructed, (Chou, 2005), which maps the meanings of 540 radicals in *ShuoWenJieZi* with IEEE SUMO. We use the results from analyzing derivative concepts to express the Semantic Ontology for each radical. Our current working interface allows easy query of existing database as well as recording of new entries.

### *2.2.1 Radical Search*

There are two searching methods for the semantic symbol ontology:

#### (i) Search on SUMO concepts classification

Choose certain SUMO concept, then this concept and its lower SUMO concept will show up on the interface.

#### (ii) Search on the radical word forms

Key in the radical word form, and users can get the data of that radical directly.



Figure1:Radical search in semantic ontology system

### 2.2.2 The classification of Hanzi semantic symbols

Based on the definition in *ShuoWenJieZi*, our structure classifies the relationship between deriving meaning cluster and the basic concept of a radical. We use Pustejovsky's *Quilia Structure* as base and observe the analysis on the definitions in *ShuoWenJieZi*, and then classify the deriving concepts of Hanzi radicals into 7 categories, expanded from the original four qualia aspects of Formal, Constitutive, Agentive, and Telic:

- (i) Formal: This category can be further divided into 5 small categories: “sense,” “characteristic,” “proper names,” and “atypical.” The “sense” categories can be further divided into 5 small categories: “vision,” “hearing,” “smelling,” and “taste.”
- (ii) Constitutive: This category can be further divided into 3 small categories: “part,” “member,” and “group.”
- (iii) Telic: Concepts related to function or usage.

(iv) Participant: Words are classified into this category when the definition in *ShuoWenJieZi* mentions the participant involved.

(v) Participating: According to different events, concepts are divided into 6 small categories: “action,” “state,” “purpose,” “function,” “tool,” and “others.”

(vi) Descriptive: This category can be further divided into two categories: “active” and “state.”

(vii) Agentive: The relationship between the radical and its meaning cluster coming from production or giving birth are classified in to agentive.

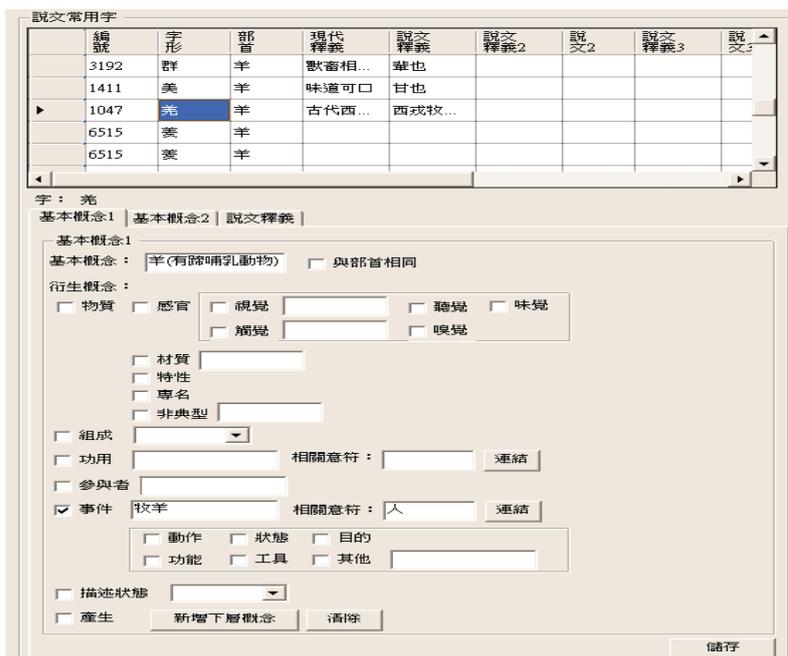


Figure2: The classification of Hanzi semantic symbols

### 2.2.3. The link of related semantic symbol

Under “telic” and “participating,” we add a column for “related semantic symbol” to

show and link the related deriving concepts. For example, the character “羌”is explained as “西戎羊種人也.”(the person whoe herds sheep in Xiyu) and involves two basic concepts that are represented in the character: bovid and human sincethe Chinese character form of “羌,” contains bothe “羊”(bovid) and“人” (human). Our ontology system links “羌”with its related semantic symbol “人” to offer cross-referencing in order to build a more realistic ontology of the conceptual convention.

### **3. Domain Ontologies of Four Artifact domains as Conventionalized by radicals**

According to our analysis, we observe that the basic concept of four radicals of Artifacts is:皿 (min3, ‘container’), 耒(lei3, ‘a farm tool’), 刀(dao1, ‘1.knife,2.weapon’) and 网 (wang3, 1.catching/fishing, 2.net ).

The following figures is The Qualia Structure on derivative concepts of 皿,耒,刀 and 网.

#### *3.1 The Quilia structure on Derivative Concepts of Four Artifact domains*

##### *3.1.1 皿(min3) Basic concept : container*

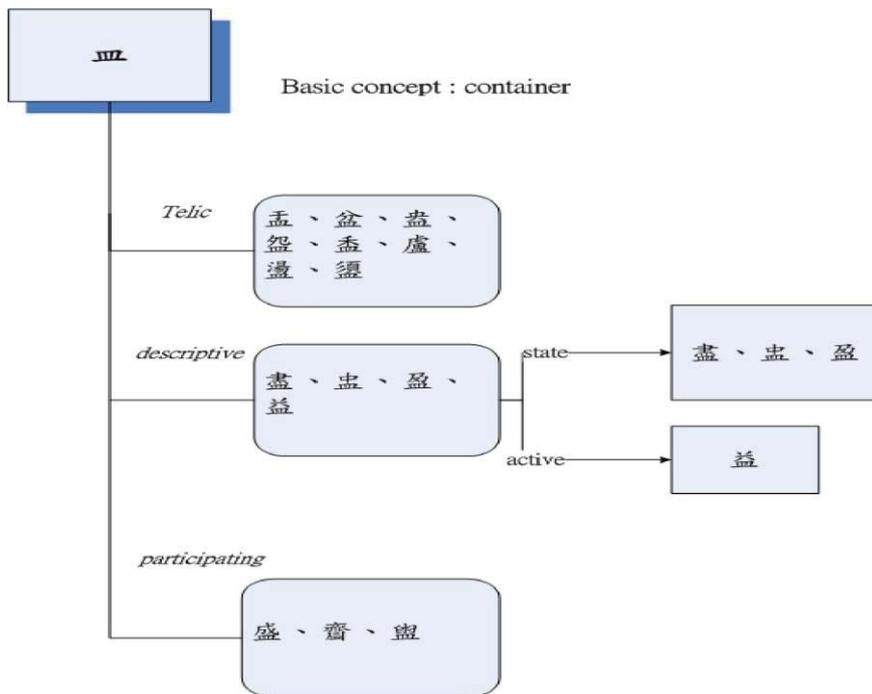


Figure3: The Quilia structure on Derivative Concepts of 皿.

### 3.1.2 耒(lěi3) Basic concept :a farm tool

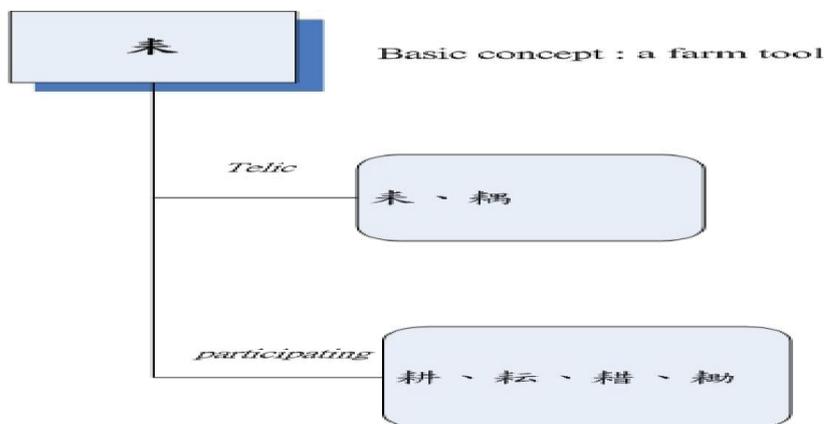


Figure4: The Quilia structure on Derivative Concepts of 耒

### 3.1.3 刀(dāo1) Basic concept : 1.knife 2.weapon



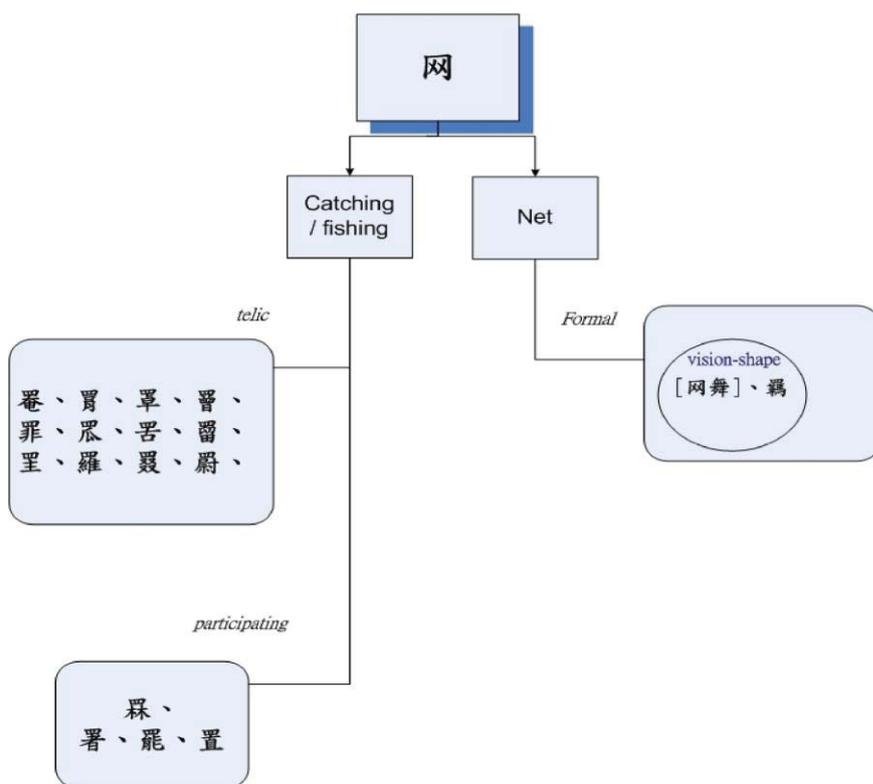


Figure6: The Quilia structure on Derivative Concepts of 网

### 3.2 Findings

Two interesting findings are discovered in this study. First, the primary meanings of characters that shared the same radical symbol are indeed conceptually dependent on the basic concept of that radical. For instance, the basic concept of radical 网(wang3) listed in ShuoWenJieZi is “a tool made from string for fishing”, which covers two key meanings on “weaving a net” and “catching/fishing”. Characters with the radical 网(wang3) are generated based on these two key meanings, such as 罗(luo2) is a tool to catch bird; 网舞(wu3) refers to a latticed window that looks like a reticulation. Second,

although the four radical of artifacts have similar conceptual extensions, the capabilities of generating new characters, of each individual radical are rather different. These preliminary findings have the following theoretical implications:

### *3.2.1 Dimensions of conceptual extensions*

The conceptual relations between these four radicals of artifacts and their derivative characters are all centered on telic, participating and descriptive. This differs from the those of derivative characters and radicals of natural object “艸”, where formal, constitutive and telic relations are the main foci (chou 2006). Artifacts are designed with a specific functionality, so most of the modes of conceptual extensions between characters and artifact radicals belong to telic relations. In addition, the concept of an artifact can best be understood by how it is used, hence a character often denotes a typical event in which the artifact is a main participant. For example, “耕(geng1)” is from the radical symbol “耒”(‘plow /a farm tool’) and refers to the activity of farming; “刑” (xing2) is from the radical symbol “刀”(‘knife/weapon’) and means inflicting punishment. Figure7 shows the result of comparison schematically.

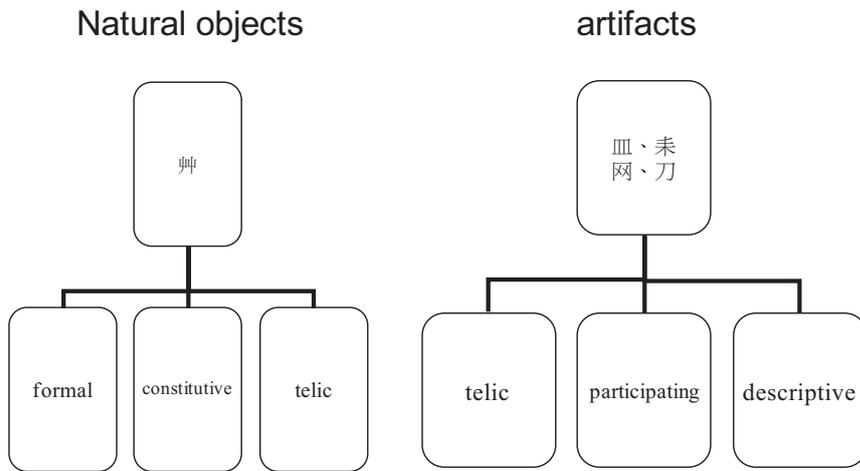


Figure7:comparison of Natural objects & artifacts

### 3.2.2 Semantic coverage and generative power

Our proposed modes of conceptual extension capture the generative nature of radical creativity. However, The generation scopes of the four chosen radicals of artifacts are quite different. Our account involves two possible perspectives:(1) generalized vs. specific functions, and (2) imitation vs. invention.

(1) “皿” (‘basin/container’, with 28 derived characters) and “耒” (‘plow /a farm tool’, 8 characters) have very different generative power: We note that their designedfunction types are different. “耒” is a kind of farming tool, so its event function is task-oriented and socially defined. Therefore, the generative power of “耒” is more restricted. On the contrary, “皿”, as a container, is a basic tool with generic purpose, so its capability of generating new characters is less restricted.

(2) It is also possible that an artifact that is a human imitation of natural object or function is conceptually more versatile, and can serve as the base of conceptual extensions similar to a natural object. A human invention with functional components, however, is directly restricted by its intended function and limited in conceptual extensions. In both cases, however, eventive conceptual extension occurs frequently based on the event associated with the function of that artifact. This hypothesis may also explain why only certain artifacts are considered as basic words.

#### **4. Conclusion**

In sum, our study supports the null hypothesis that all derived characters are conceptually dependent on the basic concept. We also revealed the specific contrasts between conceptual extensions from artifacts and from natural objects. We further discovered that even dependencies on artifact concepts can vary according to the design features of the artifact concept. The result of our analysis will be formally represented as ontologies in OWL format.

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# **Ontological representation of event structure across languages: the case of psych verbs**

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## **Abstract**

The paper addresses the problem of cross-linguistically valid ontological representation of predicates from different languages. Using a complicated linguistic problem of psych verb classification as an example, we demonstrate an efficient solution to cohesive representation of psych verb classes in English and Finnish within event structure framework. The proposed classification takes into account verbal semantics (agentivity, causality, etc.), morphology, possible alternation of syntactic frames, and argument structure. We further argue that such event-based approach to predicate representation is cognitively based, and can be adapted for any linguistically-oriented applied ontology system.

**Keywords:** ontology, event structure, psych verbs

## **1. Introduction.**

Ontological knowledge representation used for Natural Language Processing (NLP) aims to approach the results of human language processing. As such it needs to either model the human cognitive capacity used for a linguistic representation of the world, or model the results of it. The quest for cognitive constraints on possible human ontologies, and the reflection of those ontologies in language is formulated by Shalley and Zaefferer (2006), who define the focus of ontolinguistics in “relating linguistic to non-linguistic phenomena with a focus on decompositional structures and the network of connections”.

We propose that a human cognitive representation of the world plays a major role not only in providing ‘encyclopedic information’ to the lexicon, or conceptual selectional restrictions to syntactic structures, but also in encoding the minimal structures – events – represented in natural languages (see O’Bryan 2003, Folli, R. and Harley, H., 2006, Wilbur, R. 2007). In this work, we connect recent developments from linguistic theory and behavioral psycholinguistics to the problem of cognitive approaches to ontological representation of events for Natural Language Processing.

We specifically address a widely known linguistic problem of Subject/Object alternation in psych verb predicates (such as Jake fears bears/Bears frighten Jake), and use event structure to account for the assignment of the Subject or Object syntactic role to semantic Experiencer arguments of such predicates. We show that the class of psych

predicates is cognitively homogenous across languages (in that psych verbs do not allow for an internal event Initiator), and that the alternations in the surface syntactic structures can be predicted from the language-specific event-structure configurations (see Ramchand 2008, Pustejovsky 1991). We demonstrate that event structure can be coded at the ontological level, and applies across different lexical items, as well as cross-linguistically. We further argue that the application of event structure to ontological representation, as demonstrated in the specific domain of psych verbs, shows applicability of such an approach to developing cognitively-based ontologies for Natural Language Processing.

Shalley and Zaefferer (2006) distinguish the two main questions of ontolinguistic research: 1) how the ontological status of a concept restricts the ways it can be coded in the world's languages, and 2) which concepts figure in everyday ontologies of humans, and how they are structured. The present work seeks to address both questions, as they are applied to the domain of verbs of psychological state, or psych verbs.

## 2. Psych verb classes: definition and models.

Psych verbs are an interesting group of predicates from the event-structure perspective. Cognitively, psych verbs are united by the feature of having an Experiencer, but not an Agent. The same feature considered from the event-structural perspective means that psych verbs consistently lack the argument role associated with the Initiator of the event. Nonetheless some psych verbs license Subjects. The Experiencer may surface as Subject (1), Direct Object (which in some language may be marked with Accusative case (2)), or Indirect Object, which may bear Dative or other cases (3).

(1) Jake fears bears.

(2) Bears worry Jake.

(3) Bears appeal to Jake.

This phenomenon has long been of interest to linguists (Belletti & Rizzi 1988, Grimshaw 1990; Jackendoff 1990; Dowty 1991). Treatments of syntactic properties of psych verbs using a thematic hierarchy simply assign verbs to several different classes based on their Case grids. Then, the obvious question arises: can these verb classes be derived from something deeper that is invariant cross-linguistically, and rooted in human cognitive representations?

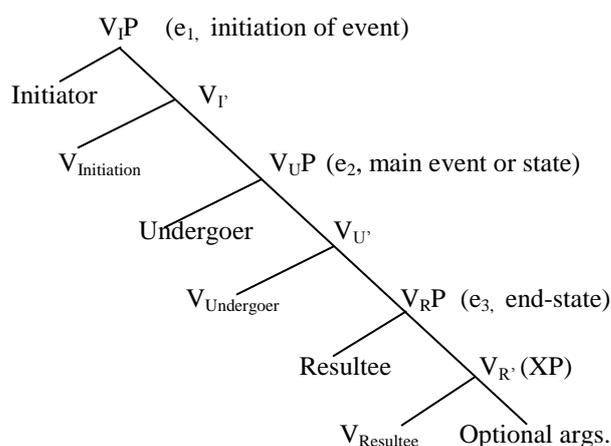
We would like to demonstrate that syntactic properties of psych verbs cross-linguistically can be explained by variations in their event structure patterns, which themselves can be deduced from the factorial typology of event structures. We show specific results (syntactic role assignments) of event structure interactions with argument structure. We do not go into details of the mechanism that links particular argument structures to syntactic roles of subject and object here, because the representation of this mechanism will depend on the NLP system in use, and also because we expect some cross-linguistic variability in terms of subject/object assignment (e.g. there is a rule for required subjects in English, but no such rule in Catalan or Russian). The present analysis simply aims at revealing consistent patterns of event structure in psych verbs, taking English and Finnish as examples of languages with partially overlapping psych verb typologies, and demonstrating convergent results

of syntactic role assignment according to event structure and semantic patterns. As a result of this analysis, we can relate decomposed structures of psych verb meanings in the two languages, and demonstrate the possibility of constructing a cognitively-based NLP system, that can interact with varying lexical and syntactic patterns across languages.

### 3. Modelling event structure.

We use the model of event structure proposed by Ramchand (2003), as the one that has adopted the most from psycholinguistic (e.g. O’Byran 2004) and neurolinguistic (Metzinger and Gallese, 2006) research. This model, while formal in its representation, structurally incorporates the features that have been demonstrated to be salient for human processing of language and perception: causality, orientation of actions towards goals (posited as telicity), distinction among semantic Agents, Experiencers, and Themes of the predicate, and close interaction between decomposed semantics of verbs and argument structure. We adopt the following ‘full’ First Phase Syntax event structure tree as a basis for our modeling (Figure 1), adapted from Ramchand 2008.

**Figure 1. Full model of possible event structure tree.**



This structure shares several assumptions with ontological descriptions used for NLP, namely:

- Lexico-syntactic information is available at word-level;
- This information is internally structured and systematic across predicates (i.e. affecting more than just Subject/Object alternation).

The arboreal model for event structure is a conventional representation; the same information about event structure can be encoded for systems that make no use of syntactic trees, or do not have a syntactic representation level altogether (see Malaia, 2006 for examples).

Linguistic conventions surrounding the phenomenon of Subject/Object Experiencer alternation include the following: 1) In psych verbs, the Initiator role cannot be filled by an independent argument; 2) Verbs with “similar” semantics in different languages can fall into different pattern categories with respect to their event

structure (i.e. the main cognitive restriction is the event structure itself); 3) In languages with rich overt morphology (Finnish, Russian), affixation is an available method of modifying the event structure of the root morpheme of the psych verb.

Finally, in the event structural approach, each phase is related to the previous one by causal relations: i.e. Initiation is the cause of the main event, and the main event causes the Resultant State. One of the corollaries to this system has immediate importance for analyzing Finnish psych verbs: if the Initiator and Undergoer roles in event structure are filled by different individuals (lexical items), the event is interpreted as causative (i.e. the action taken by one actor has a causing effect onto another); if Initiator and Undergoer are co-indexed to one lexical item (i.e. entity initiating the event is the same entity that is affected by it), the event is agentive, but not causative.

### 3.1. *Finnish psych verbs*

#### 3.1.1. *Finnish verbal morphology.*

There are several morphological features of Finnish that require special attention. First, Finnish allows morphological derivation of Object Experiencer verbs from Subject Experiencer verbs by adding the suffix –TTA- “causative”. Following Belletti & Rizzi’s (1988) typology, Nelson (2003) identifies Subject Experiencer verbs as Class 1, and observes that derived Object Experiencer verbs can be divided into two classes: Class 2 derived from inchoative roots, and Class 3 stative, which do not allow agentive readings and display unaccusative features (Nelson 2003, 194).

Another morpheme participating in formation of Finnish psych predicates is the inchoative –stU. Pylkkänen (2000) notes that verbs with this morpheme are nonstative, and the interpretation of their object is more complex than that of –TTA- verbs: namely, when stacked with –TTA- (i.e. *raivo-stu-tta* ‘cause to become furious’), the verb allows either an Accusative or Partitive Experiencer Object (which correspond to complete and incomplete telic readings, and presence of the Resultant Phrase in event structure). A verb with only an inchoative suffix (e.g. *raivo-stu* ‘become furious’) has an Experiencer Subject in Nominative case - the suffix contributes the Resultative Phrase to the structure of the verb.

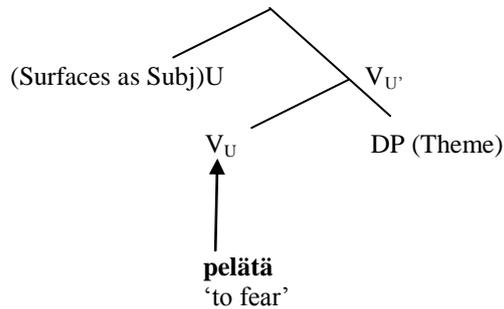
Nelson (2003) attempts to explain why it is impossible in normal discourse to get Accusative case with Class 3 (causative, stative) psych verbs. We address a larger issue of cross-linguistic typology of psych verbs, by way of re-considering the classes of Finnish psych verbs with respect to their event structure, especially since Finnish overt morphology allows the language to form one event structure from another by deriving new types from the two basic ones.

#### 3.1.2. *Four classes of Finnish psych predicates.*

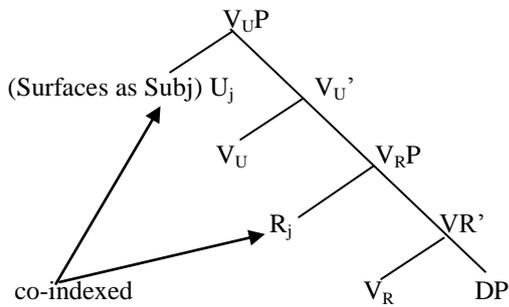
We build event structure representations of each of the four classes of psych verbs and describe each class in detail, followed by an event-structure tree, and some discussion of possible bearing that such a structure can have on the sentence-level syntactic behavior of the verbs. Within Class 1 there are two basic Subject Experiencer roots: a transitive one (Class 1a; Figure 2) and an intransitive one (Class 1b; Figure 3).

In both of these subclasses the Undergoer, the highest argument role, surfaces as Subject.

**Figure 2. Event structure of Class 1a intransitive stative Finnish Subject Experiencer verbs.**

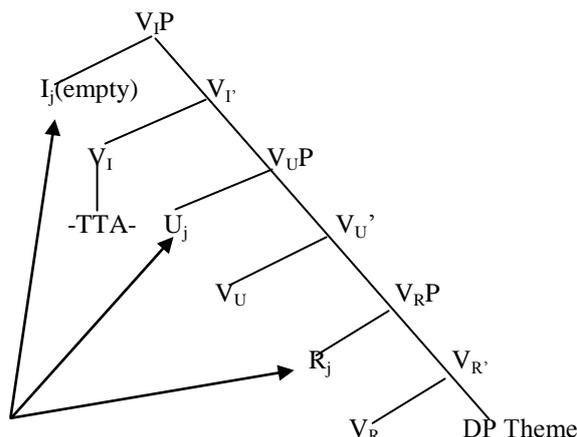


**Figure 3. Event structure of Class 1b inchoative Finnish Subject Experiencer predicates, with inchoative –stU- and Resultant Phrase.**



The suffix –TTA- introduces the Initiator phase into the event structure when added to Class 1 verbs. For psych verbs, however, no independent Initiator argument is possible. Thus, instead of allowing a new argument to be introduced, the new Initiator slot must be co-indexed with an available lexical item, which already fills the Undergoer slot. The resulting reading is agentive. Semantically, it can also be interpreted as “causing self to become...” Class 2, derived from Class 1b by addition of -TTA, has the event structure in Figure 4.

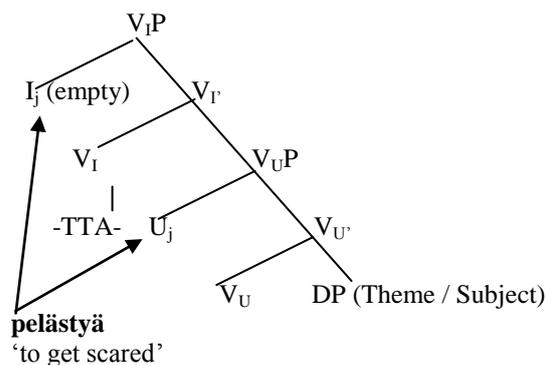
**Figure 4. Event structure of Class 2 of Finnish psych verbs derived from Class 1b with –TTA**



This class demonstrates that the co-indexing of argument roles does not allow the (I)-U-R lexical item to surface as the subject. In regard to case marking, these verbs exhibit the following traits: 1) Impersonal passivization is preferable with the use of Accusative case (note that the Undergoer/Resultee is the affected entity, projecting Accusative case); 2) The Experiencer allows both Accusative and Partitive case.<sup>1</sup>

Class 3 Finnish psych predicates are derived from Class 1a with –TTA and are thus ‘causative’ and stative; their event structure tree is presented in Figure 5.

**Figure 5. Event structure of Class 3 Finnish psych predicates, derived from Class 1a with -TTA.**



This system of event-structure pattern derivation does not preclude Class 1a predicates from being converted to Class 1b (in a manner similar to English optional

<sup>1</sup> The co-indexing of the existing argument with an argument that is newly introduced by overt morphology is not the only way to explain the peculiar distribution of syntactic roles in psych verbs. An alternative explanation would involve a mechanism for the empty Initiator slot to ‘block’ the Undergoer argument from the syntactic position of a subject. Our reasons for adopting the co-indexing explanation are both semantic and syntactic. First, although an Undergoer that follows an empty Initiator slot is precluded from surfacing in the subject role, the theme (from the RP), is not – and it is located low enough on the tree as to not constitute a compulsory argument. Thus, from the syntactic standpoint, co-indexing is a more plausible explanation for this phenomenon, as compared to simple ‘blocking’ mechanism. Secondly, in Finnish, as well as in Russian (see Ramchand 2003), the morphology responsible for the introduction of the Initiator phase into the event structure is interpreted semantically as “causative” and “reflexive”, which strongly points to semantic correlation between the Undergoer and the Initiator roles. The most obvious way to solve this discrepancy at the syntax-semantics interface is to allow an Undergoer-linked lexical item to co-index to an empty Initiator role, and vice versa.

transitivity alternation). On the contrary, given their similarity of argument structure (with a single required argument), this is a likely possibility. Indeed, a single psych root (such as *pelä-/pelo-* ‘fear’ or *nolo-* ‘embarrassed’) can be associated with 4 predicates, corresponding to those is Figures 2-5 (or Classes 1a, 1b, 2, and 3).<sup>2</sup>

All psych verb event structures employed in Finnish are summarized in Table 1 (we use the equals “=” sign to show that the argument positions in event structure are co-indexed to the same lexical item in the particular pattern).

**Table 1. Typology of Finnish psych verbs.**

Event structure\argument structure		I not co-indexed w/U	I co-indexed w/U
<b>Telic (RP present)</b>	U = R	Class 1b	Class 2 (derived)
<b>Atelic</b>		Class 1a	Class 3 (derived)

### 3.2. English psych verbs.

We use Levin’s work on English verb classes (1993) to present specific classes of English psych verbs, and to describe how they can be classified, and their behavior explained, using event-structural approach. We demonstrate the patterns of event structure that are possible in English psych verbs, then compare and contrast them with corresponding structures in Finnish.

Levin singles out 4 categories of psych verbs in English - two transitives and two intransitives; as in Finnish, the difference in argument role assignment and in surface syntactic roles can be exhaustively explained by alternations in event structure; the four classes in both languages, however, are not completely overlapping.<sup>3</sup>

#### 3.2.1. “Amuse” verbs.

Example: *The clown amused the children.* Levin (1993, p.189) notes that this class has the following properties: 1) The argument with the thematic role of

<sup>2</sup> Nelson notes that the same ‘causative’ suffix –TTA – can be applied more generally to verbs other than psych verbs. Under our analysis, the prediction is that this suffix would introduce an Initiator argument. Without the cognitive restriction of psych verbs that prohibits an explicit Agent, the Initiator argument should be filled overtly – as, indeed, it is (the resulting structure is recursive, with two Agent arguments, of which only the topmost surfaces as subject). Unfortunately, we can not include the analysis of –TTA- in non-psych verbs for consideration of space.

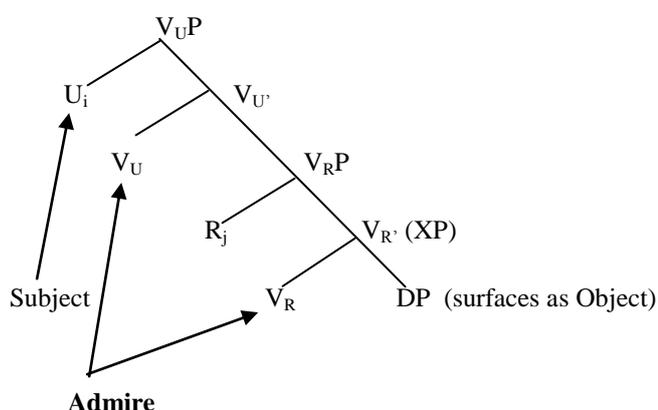
<sup>3</sup> Semantically, the ‘absence of causer’ and the motivation for the use of argument co-indexing in English is somewhat less apparent than in Finnish. However, if we take the ‘amuse’ verb class, and consider an animate vs. inanimate ‘causer’, such as “The book amused the children” and “The clown amused the children”, we have to conclude that while the sentences behave syntactically the same way, semantically only the animate subject can possibly be the Agent. This leads to conclusion that actually neither of the subjects is the semantic Agent – they are both Instruments, promoted to the syntactic role of the subject.



Levin (1993) identifies these verbs as having the following properties: 1) the Experiencer (our Undergoer) surfaces as the subject; 2) no middle alternation is possible with this class (e.g. “*I admire paintings*”, but not “*Paintings admire easily*” in the sense that it’s easy to admire them.<sup>5</sup>

The properties of this class can be explained using the tree illustrated in Figure 7, as follows: 1) The highest, independent argument U surfaces as the subject; 2) Middle alternation is impossible, since U and R are not co-indexed to the same argument; 3) While a resultant reading is possible with this group of verbs (“*I love him to death*”, “*she likes it to pieces*”), and would, indeed, be predicted by the fact that a  $V_{RP}$  is present, this resultant reading is not as easily acquired as for the *Amuse* group. For the resultant readings here it has to be clear that the Undergoer (surfaced as a subject) is not the holder of the resultant state: the Resultee is. This could explain a lower incidence of use of verbs of this group in resultative constructions.

**Figure 7. Event structure of Admire-class verbs in English.**

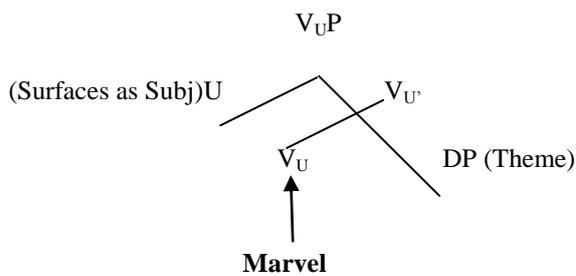


### 3.2.3. “Marvel” verbs.

These verbs, as identified in Levin (1993), behave in the following manner: 1) while the verbs are intransitive, the Experiencer (Undergoer) argument surfaces as a subject; 2) if used transitively, these verbs pattern with the “admire” verb class. Figure 8 represents the event structure of this verb class – the minimal one among English psych verbs. (Note that Finnish class 1a is the exact counterpart of the English “marvel” verb class, while Finnish Class 1b does not have an English counterpart.)

**Figure 8. Event structure of Marvel-class verbs in English.**

<sup>5</sup> We are not using and interpreting the full range of verb class diagnostics given in Levin; for example, Derived Nominal, Sentential Components, and Extrapolation of Sentential Components are out of the picture for the time being. The reasons are two-fold: first, we mainly want to present a clear case for cross-linguistic comparison of psych verbs, and second, we feel that work remains to be done on connecting these diagnostics to the event structure model, and that has to be the subject of a separate investigation.



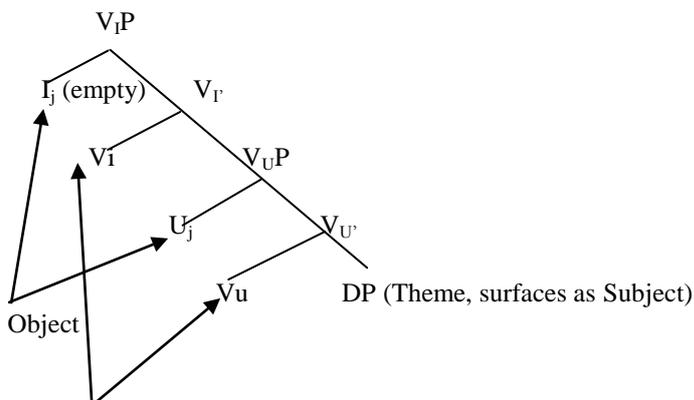
The behavior of this class can be interpreted as follows: 1) The highest-ranking argument (U) surfaces as a subject; 2) Optional transitivity (patterning with “amuse” verbs) includes a simple extension of the tree to include a Resultant Phrase.

With regard to verb class alternations in English, we propose that if a certain ‘pattern of utilization’ of event structure is already available, a lexical item can switch between the patterns to which it conforms (cf. use of overt morphology in Finnish to accomplish the same goal). As an example of this phenomenon in English psych verbs, consider optional transitive alternation of verb “to worry”, an atelic predicate of ‘marvel’-type, and its extension into an ‘amuse’-type telic/resultative predicate<sup>6</sup>: *I worried over the outcome of my exam/ The exam worried me (silly)*.<sup>6</sup>

### 3.2.4. “Appeal” verbs.

These verbs are distinguished by the following characteristics: 1) in these intransitive verbs, the Stimulus argument surfaces as the subject of the sentence; 2) the (required) Experiencer (or Undergoer) surfaces in a PP or DP (in Dative case); 3) no passive alternation is possible for these verbs.<sup>7</sup> Figure 9 presents illustrated the structure of this verb class.

**Figure 9. Event structure of Appeal-class verbs in English.**



<sup>6</sup> This mechanism accounts not only for verb class alternations in psych verbs, but for optional transitivity in general. How can one lexical item exhibit behavior diagnostics of two distinct verb classes? We suggest that once certain event structure patterns are available in a given language, lexical items (verbs) can be re-interpreted as potentially conforming to several of them. From the cognitive standpoint, there is a logic of event structure preservation in reinterpreting “marvel” verbs as “amuse” verbs: namely, the Undergoer remains the single required argument. From the “marvel” event structure, a verb can simply extend into V<sub>I</sub>P and V<sub>R</sub>P, keeping argument structure intact, and be re-interpreted (and behave) like an “amuse”-group verb.

<sup>7</sup> They also resist modification by temporal adverbials. The issue merits separate investigation; we mention it here as corroborative evidence for separating ‘appeal’ verbs into a natural class.

## **Appeal**

The properties of this class can be explained as follows: 1) Like in Finnish, the co-indexed argument roles do not allow the (I)-U lexical item to surface as the subject in the presence of ANY other arguments (and the “instrumental” DP gets the subject position); 2) Causative alternation with spec- $V_1$  is empty AND co-indexed; 3) Passive alternation is impossible, because it would involve promotion of the Undergoer to the subject position, which a co-indexed I-argument slot would not allow.

The overall typology of English psych verbs is presented in table 2.

**Table 2. Typology English psych verbs.**

Event structure\argument structure		I ≠ U	I = U
Telic (RP present)	U ≠ R	“Admire”	
	U = R		“Amuse”
Atelic (no R present)		“Marvel” English	“Appeal” English

#### 4. Event structure of psych verbs across languages: factorial typology and its ontological salience.

In the previous sections we have demonstrated that the event structure patterns realized for psych verbs in English and Finnish include both telic and atelic verbs in which the roles of I, U and R can be co-indexed to produce a factorial typology in Table 3.

**Table 3. Factorial typology of Finnish and English psych verbs.**

Event structure\argument structure		I not co-indexed w/U (Experiencer Subject)	I co-indexed w/U (Experiencer Object)
Telic (RP present)	U ≠ R	“Admire” English	
	U = R	1b Finnish	2 Finnish, “Amuse” English
Atelic		1a Finnish, “Marvel” English	3 Finnish, “Appeal” English

The co-indexing of argument roles has the following effect on syntactic role realization: an argument co-indexed with an empty argument role (spec-V<sub>P</sub>-slot in psych verbs) does not surface as a subject. Thus, an event structure breakdown of psych verbs explains the language-internal dichotomy of Subject and Object Experiencers, and makes valid cross-linguistic predictions for the realization of syntactic roles. Thus, the event-structural approach emerges as a cognitively-based tool for solving problems at the semantics-syntax interface, including syntactic role and case assignment. It also explains verb frame alternations within a language, and makes valid predictions as to

cross-linguistic syntactic behavior of verbs conforming to specific event-structure patterns.<sup>8</sup>

The problem of capturing complete and exhaustive verbal meanings cross-linguistically has been a problem for many ontologies (see Shalley and Zaefferer 2006, for review). The main advantage of the event-structural approach to capturing predicate meaning in an ontology lies in its ability to represent minimal units of meaning for verbs (not just psych verbs, but other verb groups as well – see Malaia, 2005, for examples) of different languages in a single ontology. That ontology can then be linked to lexical items in ways that capture the specifics of their meaning relevant to a verb's semantics, syntactic combinability, and argument structure. The event-structural approach to the ontological representation of verbs that we offer is cognitively motivated, and independently confirmed by psycholinguistic (e.g. O'Bryan 2004). It is also supported by corroborative evidence from research in theoretical linguistics for both spoken (e.g. van Hout 2000, Ramchand 2003) and signed languages (e.g. Wilbur, 2007).

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<sup>8</sup> We will not expand on specific examples of ontological representation and linking of lexical items to an ontology for a specific verb or framework, both because various kinds of NLP frameworks can represent event structure, and for considerations of space. For examples of event-structural approach to linking ontological and lexical items within Purdue Ontological Semantics project, see Malaia 2006.

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# **An Ontology-based Account of Argument Selection in Nominals**

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## **Abstract**

This paper presents a semantic account of argument selection of nominals in terms of ontological relations formally represented in the model of Generative Lexicon (Pustejovsky 1995). I argue that argument-taking nominals are either “relational” or “thematic”, depending on how the denotation of the head noun is determined with reference to the ontological relations encoded in its lexical semantic representation. Based on an analysis of semantic interpretation of nominals within the GL framework, I claim that the arguments related with an Agentive qualia role can be syntactically realized under the eventive interpretation of the head noun whereas those related with a Telic qualia role are syntactically inert. The nominals whose denotation has only indirect relevance to an event interpretation select arguments on the basis of ontological relations encoded in their Constitutive roles in qualia structure.

**Keywords:** argument selection, agentive noun, qualia, ontology, Generative Lexicon.

## **1. Introduction**

Verbs are a prototypical argument-taking category. They need to select proper arguments because the event denoted by a verb is represented in terms of semantic or thematic roles that the arguments of the verb (namely, the set of individual event participants) bear in relation with each other. Thus, the argument selection of verbs is in substantial sense a linguistic manifestation of eventiveness. Is this the case in other argument-taking categories? Obviously nouns are an argument-taking category, but the expression of eventiveness is not so much self-evident as that of verbs because they denote individuals as well as events. Then, do they select arguments in a manner substantially different from verbs? If so, how is the eventiveness concerned with the syntactic or lexical realization of semantic relations associated with arguments of nouns?

In this paper I would like to explore a semantic account of argument selection of nouns in terms of ontological relations formally represented in the model of Generative Lexicon (Pustejovsky 1995). I argue that argument-taking nominals are either “relational” or “thematic”, depending on how the denotation of the head noun is determined with reference to ontological relations encoded in lexical structure. In the next section, with a brief review of two different approaches to the eventiveness in nominals, I will show that the notion of eventiveness has correlations with the distinction in the interpretation of nouns and the selection of arguments. Then, we will see that eventiveness of agentive nominals is not morphologically marked in English but in Japanese eventive and noneventive agentive nominals are differentiated morphologically. In sections 3 and 4, I will show that the arguments associated with the Telic qualia role are not syntactically realized as the complements to the noun but those of the Agentive qualia role are syntactically realized under the eventive interpretation of the head noun. In section 5, a closer look at complex agentive nominals in Japanese reveals that a third type of nouns should be identified in relation with eventiveness. Two pieces of evidence are given to show that this type of agentive nouns is more like event nouns than stage-level nominals.

## 2. Eventive Interpretation

Rappaport Hovav and Levin (1992) propose an analysis of *-er* nominals in terms of the distinction between event and non-event nominals. According to their analysis, the two types are characterized as follows:

(1) a. Event *-er* nominals:

- typically receive an agentive interpretation (*driver, walker, baker*).
- inherit the complement structure of the base verb.
- presuppose that the entity expressed by the nominal have actually participated in the event denoted by the base verb.

b. Non-event *-er* nominals:

- receive a variety of interpretation, including an instrument interpretation (*dryer, grinder, printer*).
- do not inherit complement structure.
- do not presuppose that the event has occurred.

What is important in their analysis is the correlation between the presence of complement structure and the event interpretation of nouns. Compare the nouns in the *-er* form in (2a) and (2b). In (2a) the head noun selects the argument of the base verb as its syntactic complement while in (2b) the complement noun is missing, or in a compound form, it appears as a word-internal noun:

- (2) a. a grinder of imported coffees  
b. a grinder, a coffee grinder

Rappaport Hovav and Levin note that there is a difference in the denotation of the nominals in (2a) and (2b). The nominal in (2a) denotes a person who has actually been engaged in the action of grinding coffee and thus presupposes that an event of grinding has occurred. This is what they call an event interpretation. In contrast, a grinder on the instrumental interpretation in (2b) may properly denote a machine designed for grinding something even if it has never been used in an actual situation. The instrumental interpretation is not eventive because it does not presuppose that the event has occurred. The contrast in (2) shows that the event interpretation of an agentive noun has a correlation with the presence of complement structure. In (2a), the argument of the verb from which grinder is derived is syntactically realized as the complement to the noun. In (2b), the argument is absent in the simple noun, or it is expressed word-internally in a compounding form.

The event/non-event distinction is also embedded in Pustejovsky's (1995) and Busa's (1996) analyses of nominals in the Generative Lexicon framework. Pustejovsky proposes that the distinction between individual-level predicates (e.g. *Firemen are intelligent.*) and stage-level predicates (e.g. *Firemen are available.*) can be extended to the distinction in nominals. For example, *violinist* and *pedestrian* are different in this respect. The former may refer to a person who is not engaged in the activity of playing the violin at the time of reference. The noun is thus not eventive because we need not assume a particular situation that determines the proper denotation of the noun. In contrast, the noun *pedestrian* is eventive, i.e. a stage-level nominal, because it properly denotes an entity only if the entity is identified as being involved in the walking event. The difference in eventiveness shows up in the contrasts in (3) and (4)(Busa 1996).

- (3) a. Watch out, there is a pedestrian on the crosswalk!  
b. Watch out, there is a violinist on the crosswalk!

- (4) a. a frequent passenger/customer  
 b. ?a frequent violinist/teacher/doctor

The sentence in (3a) implies that the person referred to as a pedestrian is walking on the crosswalk at the time of the utterance whereas the sentence in (3b) lacks this implication. The examples in (4) show that stage-level nouns can collocate with temporal adjectives such as *frequent* whereas individual-level nouns cannot. Stage-level nouns have an implication for an event-related interpretation of the noun but individual-level nouns lack such an implication, or they only indirectly invoke an event.

In the GL model of lexical semantics, the two interpretations are associated with different qualia relations in lexical representation. According to Pustejovsky, the event interpretation of stage-level nominals follows from the Agentive role of the noun, while the non-event interpretation of individual-level nominals is associated with the Telic role of the noun. This leads to the following representations of qualia structure.

- (5) a. violinist  
 Qualia = FORMAL = x  
 TELIC = play (e, x, y: violin)  
 ...  
 b. pedestrian  
 Qualia = FORMAL = x  
 AGENTIVE = walk (e, x)  
 ...

Notice that in Pustejovsky's account of agentive nominals the correlation between the eventiveness of nominals and the presence of complements is not put into question—a matter on which Rappaport Hovav and Levin have put particular focus.

Given those two approaches to the semantics of nominals, two questions arise as to the eventive interpretation of nominals in relation with the selection of arguments. The first question is if there are any empirical differences between the two analyses of eventiveness in nominals. The second one is how the eventive interpretation of nouns is correlated with the presence of complement structure and the interpretation of the noun?

Pustejovsky's and Busa's arguments for the individual/stage-level distinction are not particularly confined to agentive nouns in *-er* form; however, it should be noted that the distinction can be applied to a single lexical item, resulting in a polysemous

interpretation of the agentive nominal. For example, *driver* can be interpreted either as a individual-level or stage-level noun. A person may be referred to as a driver if his or her job is operating a vehicle, or if he or she has actually been engaged in the activity of driving. The former is an individual-level (noneventive) reading and the latter is a stage-level (eventive) reading. In light of this distinction, compare the examples in (6):

- (6) a. Police have arrested the driver of a double-decker coach that overturned on a motorway slip-road near London's Heathrow Airport.  
b. Police officers pulled over the stolen car and arrested the driver.

In (6a), *driver* has an individual-level reading whereas in (6b) driver is most likely to be understood as a stage-level noun.

The eventiveness distinction explicitly shows up if the two types of nouns are modified by distinct types of modifiers. In (7a), with a temporal modifier the agentive noun has a stage-level interpretation, while in (7b), with a property modifier it allows an individual-level interpretation.

- (7) a. an occasional driver  
b. a talented driver

As shown in (6) and (7), English does not have any morphological markers to differentiate the two types of nominals, but Japanese has distinct affixes for the individual-level and stage-level nominals, as noted in Kageyama (2002). Japanese has the derivational morphemes, *shu* and *sha*<sup>1</sup>, which are affixed to verbs (or more precisely verbal nouns) to derive agentive nominals. The two affixes roughly correspond to the individual and stage level distinction of nominals. Take a look at the following examples in which the two affixes are attached to the verbal noun *untēn* 'to drive'

- (8) a. *untēn-shu* (DRIVE-*shu*) 'driver'  
b. *untēn-sha* (DRIVE-*sha*) 'driver'

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<sup>1</sup> *Shu* and *sha* are Sino-Japanese morphemes, which literally mean 'hand' and 'person' respectively. One of the anonymous reviewers has pointed out to me that the same distinction may hold in languages that share the etymologically related morphemes, Japanese, Korean and Chinese. This point is beyond the scope of the present paper.

*Unten-shu* normally refers to a professional driver, while *untensha* simply means a person who drives a car. So, *driver* in (6a) would be translated as *untenshu*, and *driver* in (6b), *untensha*.

The polysemic interpretation of individual nouns in English can be represented in lexical semantic structure, associated with different qualia of a single lexical item. *Driver* has the following lexical representation<sup>2</sup>:

- (9) driver  
Qualia = FORMAL = x  
TELIC = drive (e, x, y: vehicle)  
AGENTIVE = drive (e, x, y: vehicle)

Given that the activity of driving is specified for the value of the telic role and the agentive role, the polysemic nature of the agentive noun may be attributed to the multiple encoding of the eventiveness in the lexical semantic representation.

On the other hand, in Japanese, the individual-level and stage-level distinction is made by the morphologically distinct affixes. Thus, the interpretation of *untenshu* (DRIVE-shu) is associated with the value in the Telic quale and that of *untensha* (DRIVE-sha) is associated with the value of the Agentive quale:

- (10) a. *untenshu* (DRIVE-shu) ‘driver’  
Qualia = TELIC = drive (e, x, y)  
b. *untensha* (DRIVE-sha) ‘driver’  
Qualia = AGENTIVE = drive (e, x, y)

Agentive nominals affixed with *sha* from a large class of agentive nominals in the lexicon of Japanese; however, the *shu/sha* distinction of complex nominals does not completely correspond to the eventiveness distinction. There are some irregularities between the form and meaning of agentive nominals. For example, in each pair of examples (11) through (13), (a) has an individual-level (telic) interpretation while (b) has a stage-level (agentive) interpretation. The distinction is morphologically marked as such pairings as *shu/sha*, *ka/sha*, *ko/te*.

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<sup>2</sup> We put aside here the question of how instrumental interpretations of *driver* (a computer program or a golf club) should be represented in qualia structure. We will return to this question shortly.

- (11) a. unten-shu (DRIVE-shu) ‘driver’  
 b. unten-sha (DRIVE-sha) ‘driver’
- (12) a. ensoo-ka (PERFORM-ka) ‘performer’  
 b. ensoo-sha (PERFORM-sha) ‘performer’
- (13) a. odori-ko (DANCE-ko) ‘dancer’  
 b. odori-te (DANCE-te) ‘dancer’

Obviously, a more detailed analysis of agentive morphemes is needed. But these morphological irregularities show at least that the distinction between the Telic and Agentive interpretations are not established by means of derivational rules<sup>3</sup>.

In short, Rappaport Hovav and Levin’s distinction between event and non-event –*er* nominals does not tell anything about the regular polysemy of agentive –*er* nominals in English. We can account for the regular polysemy in terms of Pustejovsky’s stage-level and individual-level distinction in agentive nominals. This would answer the first research question addressed in the previous section. In the next section, we will turn to the second research question and discuss how the presence of complement structure in a nominal is correlated with the eventiveness of nominals.

### 3. Argument selection and nominal types

*Novelist* in (14a) is an individual-level nominal. It does not take a complement. But *author* and *writer* are stage-level nominals, licensing a complement as shown in (14b).

- (14) a. \*the novelist of this best-seller  
 (Individual-level noun)
- b. the author/writer of children’s books  
 (Stage-level nouns)

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<sup>3</sup> *Sha* may attach to the non-verbal nominal base as in *gengogaku-sha* (LINGUISTICS-sha, ‘linguist’), *tetsu-gaku-sha* (PHILOSOPHY-sha, ‘philosopher’), or it may form lexicalized nouns such as *isha* (doctor), *gakusha* (scholar), *kisha* (journalist), *ninja* (ninja) and so on. Notice that in those cases –*sha* affixes to non-verbal elements and the resulting noun form has an individual-level interpretation. But there are some exceptions : *sakusha* (author), *haisha* (loser), *kanja* (patient) are formed in this way but they have a stage-level interpretation.

Under the GL account of eventiveness in nominals, we propose that stage-level nominals license the inheritance of arguments from the Agentive role, and the arguments are syntactically realized as the complement to the head noun, but individual-level nominals do not license the inheritance of arguments from the Telic role.

(15) a. novelist

Qualia = FORMAL = x

TELIC = write (e, x, y)

b. author/writer

Qualia = FORMAL = x

AGENTIVE = write (e, x, y)

The same observation holds for the stage and individual-level nominals in Japanese. -*Shu* agentive nominals and -*sha* agentive nominals differ in the inheritance of complement structure from the base verb. In (16a), *torakku-no* ‘of a truck’ is not a complement but a restrictive modifier of the head noun because, as (16b) shows, it can be incorporated in a compound form of the noun (cf. (2b)).

(16) a. torakku-no unten-shu (Individual-level)

truck-GEN driver

‘the driver of a truck’

b. torakku unten-shu

truck driver

‘the truck-driver’

In contrast, the stage-level nominal in (17a) does license a complement. And the complement NP cannot be incorporated in the compound form.

(17) a. zikosha-no unten-sha (Stage-level)

crashed-car-GEN driver

‘the driver of the crashed car’

b. \*zikosha unten-sha

crashed-car-GEN driver

‘\*the crashed-car driver’

Thus, the arguments of the Agentive role may be realized as syntactic complements but

those of the Telic role cannot.

Rappaport Hovav and Levin (1992: 131) point out that if a complement is expressed within a noun phrase, the head noun can only refer to a person, not an instrument. For example, a wiper of the windshield in (18a) refers to a person that wipes the windshield. In contrast, a wiper for the windshield in (18b) refers to an instrument. The only difference is that the windshield is marked with the preposition *for*, which, according to them, is used in the sense of “intended for”.

- (18) a. a wiper of the windshield  
b. a wiper for the windshield

Evidently, the *for* phrase is not a complement but a modifier of the head. It can be incorporated in the compound form of the nominal as in a windshield wiper. We will discuss more about the instrument nominals in the following section.

As for the complement selection and eventive interpretation of nominals, Barker and Dowty (1993) make a relevant proposal. They propose that “Nominal” proto-roles govern the argument-selection of nominals in a parallel fashion that “Verbal” proto-roles govern the argument-selection of verbal predicates. Verbal proto-roles consist of Proto-Agent and Proto-Patient (Dowty 1991) and nominal proto-roles are Proto-Part and Proto-Whole. One of the hypotheses that they present in their work is that if a noun denotes an event, the verbal proto-roles are relevant, but for those nominals whose denotation merely indirectly refers to an event, only nominal proto-roles are relevant (Barker and Dowty 1993: 60). In the spirit of their analysis, I would like to claim that the syntactic presence of the complement within a nominal has crucial relevance to an eventive interpretation, i.e. a stage-level interpretation, of the nominal.

#### **4. The instrument interpretation of *-er* nominals**

The class of instrumental *-er* nominals is one of the largest subclasses of *-er* nominals (*printer, dryer, grinder, heater, computer, etc.*). To see how an *-er* nominal is interpreted as an instrument, consider *printer*, for example. We assume that an instrument is a value specified for the Telic qualia relation of the verb in the Extended Qualia Structure (Busa et al. 2001). The idea underlying this is that in the activity of printing, an instrument is an indispensable part for carrying out the action.

(18) print

Qualia = AGENTIVE = print (e, x, y)

TELIC = create (e, x, y: printed matter)

Assume further that the Telic role of the base verb is mapped onto the Telic role of the derived noun. Consequently, we have the following representation:

(19) printer

Argument Structure = AG1 = R(z)

Qualia = FORMAL = z

AGENTIVE = print (e, x, y)

TELIC = create (e, x, y: printed matter)

It is the Telic relation of means/instrument that brings about the instrumental interpretation of the noun.

Note that *-er* nominals on the instrumental interpretation systematically do not inherit the complement of the base verbs. This fact suggests that the instrumental *-er* nominal is an individual-level noun. With respect to this point, Roeper (1987: 294) makes an interesting observation. In (20), the nominals with syntactic complements have an agentive reading (that an human being is involved), whereas in (21) each compound form has either an agentive or instrumental reading.

(20) a. a trimmer of trees

b. a cutter of hedges

(21) a. a tree-trimmer

b. a hedge-cutter

This phenomenon yields to the same explanation given in the previous section. If an *-er* noun on the instrumental interpretation is an individual level nominal, then it does not inherit the complement structure of the verb from which the nominal derives. Thus, in short, arguments that are associated with the Telic qualia relations are not syntactically realized as the complement to the noun but arguments of the Agentive quale are realized syntactically under the eventive interpretation of the head noun<sup>4</sup>.

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<sup>4</sup> Lieber (2004) notes a few examples of *-er* nominal which are derived from a nominal base, e.g. *freighter*, *Londoner*. They are problematic for an analysis based on verbal argument structure. But our

## 5. Event-related nominals and event nouns

We have so far distinguished two types of agentive nominals in terms of eventiveness. Kageyama (2002) claims that stage-level nominals may be divided further into two types. Evidence in support of this claim comes from the existential construction illustrated below. The stage-level nominals in (22a) can appear as the subject of the verb of existence *aru*, whereas those in (22b) cannot. Call the former class of nouns event-related nominals.

- (22) a. *sanka-sha/ riyoo-sha/ mokugeki-sha ga aru.*  
participant/ user /witness –NOM aru.  
b. *\*unten-sha/ \*ensoo-sha –ga aru.*  
driver / performer –NOM aru.

In order to understand how the nominals in (22a) are interpreted in the existential construction, we need to give a brief explanation of the verb of existence in Japanese. In Japanese, the verb of existence has different forms depending on the animacy of the subject. *Iru* is used with an animate subject and *aru* is used with an inanimate subject.

- (23) a. *nakaniwa-ni gakuseitai-ga iru/\*aru.*  
patio-LOC students-NOM iru/aru.  
'There are some students in the patio.'  
b. *teeburu-no ue-ni hon-ga aru.*  
table-LOC book-NOM aru  
'There is a book on the table.'

(23a) shows that *aru* cannot be used with the animate subject *gakuseitai* ('students'). Because of this animacy condition on the selection of verb form, the *aru* form is used when the subject is a so-called 'event noun'. In (24) the event nouns MEETING and ACCIDENT cooccur with the verb *aru*.

- (24) a. *3ji-ni kaigi-ga aru.*  
at 3 o'clock meeting-NOM aru  
'The meeting is at 3 o'clock.'

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analysis can be extended to incorporate those cases in terms of qualia structure of the nominal bases.

- b. kinoo koosaten-de jiko-ga atta.  
 yesterday intersection-LOC accident-NOM aru-PAST  
 ‘An accident occurred at the intersection yesterday.’

Keeping in mind the usage of the verb described above, let us now see what happens if an event-related nominal occurs with *iru* or *aru*. Because event-related agentive nominals in (22a) are animate, they can cooccur with the *iru* form of the verb. Thus, we have the *iru* form for event-related agentive nominals as illustrated in (25a), along with the *aru* verb in (25b) (cf. (22a)).

- (25) a. toshokan-ni riyoo-sha-ga ita.  
 In the library users-NOM iru-PAST  
 ‘There are some users in the library.’  
 b. toshokan-ni riyoo-sha-ga atta.  
 In the library users-NOM aru-PAST  
 ‘There was an event that people use the library.’

The sentences in (25a) and (25b) are subtly different in meaning. (25a) simply conveys the meaning that some users are in the library, but (25b) means that an event takes place at the time of reference. Thus, with the verb *aru*, event-related nominals are interpreted in a similar fashion as the event nouns in (24).

In addition to the eventive interpretation that event-related agentive nominals have in the *aru* verb construction, they behave like event nouns in another respect. Recall that stage-level nominals can express their arguments as the complement to the head noun. Event-related nominals can express adjuncts as well as complements from the verb they are based on. USERS in (22) can have an argument (THE LIBRARY) and an adjunct (IN WHEELCHAIRS).

- (26) Event-related nominals  
 a. toshokan-no riyoo-sha  
 library-GEN users  
 ‘the users of the library’  
 b. kurumaisu-de-no toshokan-no riyoo-sha  
 wheelchairs-GEN library-GEN users  
 ‘the users of the library in wheelchairs’

Similarly, event nouns license both arguments and adjuncts. CONSOLIDATION (27a) is an argument and in IN THE MEETING ROOM (27b) is an adjunct.

(27) Event nouns

- a. gappeimondai-no      giron  
consolidation-GEN    discussion  
'the discussion of consolidation'
- b. kaigisitu-de-no          giron  
meeting room-LOC-GEN discussion  
'the discussion in the meeting room'

Event-related nominals and event nouns syntactically license adjuncts specifying for time, location and means within the noun phrase. But stage-level nominals do not license adjuncts at all. See the examples in (28).

(28) Stage-level nominals

- a. zikosha-no          unten-sha  
crashed-car-GEN driver  
'the driver of the crashed car'
- b. \*koosoku-dooro-de-no zikosha-no          unten-sha  
freeway-LOC-GEN    crashed-car-GEN driver  
'the driver of the crashed car on the freeway'

Thus, event-related nominals are more like event nouns than stage-level nominals. In other words, event-related nominals are more 'verbal' than other stage-level nominals.

## 6. Conclusion

In this paper, I have shown that the notion of eventiveness in nominals has correlations with the interpretation of nominals and the syntactic realization of arguments and adjuncts. We have seen that eventiveness of agent nominals is not morphologically marked in English but in Japanese eventive and noneventive agent nominals are differentiated morphologically. Within the GL framework, I have argued that the qualia relations in Telic are not syntactically realized as the complement to the noun but those of Agentive are realized syntactically under the eventive interpretation of

the head noun. A closer look at complex agentive nominals in Japanese reveals that the third type of nouns should be identified in relation with eventiveness. Two pieces of evidence are given to show that this type of agentive nouns is more like event nouns than stage-level nominals.

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# Endangered Mongolian Dialects in the North-western China \*

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## Abstract

Though Mongolian is regarded as one of China's regional dominant languages, some dialects of it, especially outside Inner Mongolia, face danger of disappearing in the next several decades, used in limited social domains. Endangerment of some subdialects of the Oirat dialect and Khalkha dialect distributed over the north-western China is a case in point. Emergence of such endangerment is mainly caused by the following reasons: a) sparse population; b) Urbanization and immigration; c) Educational reasons; d) other reasons such as religious reasons, language attitude and intermarriage.

**Keywords:** Endangerment, Mongolian, Oirat Dialect, North-western China.

As is known to all, China is a multi-ethnic country with abundant language resources. According to statistics by Chinese scholars, more than 120 languages are being used in today's China although there are only 56 nationalities in the country. Of those languages, most are included in the Sino-Tibetan and the Altaic groups while some are typologically belong to the Indo-European and Austro-Asiatic families.

At the same time, China is also a country facing endangerment of some languages and dialects. Scholars say that half of the languages in China are gradually declining in social function, and some 20 of them are in danger of disappearing in the next several decades. Currently included in the list of severely endangered languages are: Manchu, Tatar, Orchun (Elunchun), She, Hezhe, Xiandao, Tujia, Melao, and some other ethnic languages in the southern China.

In early 1990s, the language endangerment had been popularly paid attention by international scholars. Although there were some different points of view on the

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language endangerment, Chinese linguists responded actively by attaching importance to the issue since mid 1990s. As a result, some research projects on endangered languages have been conducted, and field works on some endangered languages and dialects have been done in succession. For instance, the Institute for Ethnology and Anthropology, Chinese Academy of Social Sciences completed China's part of *The World Languages Report* by UNESCO, and some works on China's endangered languages were published.

According to the *Language Vitality and Endangerment* (2003: 7-8) by UNESCO Ad Hoc Expert Group on Endangered Languages, the language endangerment can be ranked into 7 degrees: (1) safe; (2) stable yet threatened; (3) unsafe; (5) definitely endangered; (6) severely endangered; (7) critically endangered. Although the degree classifications are approved by most Chinese scholars, other criteria for language vitality and different classifications of endangerment degrees were suggested. For instance, some scholars made a proposal that the languages in China may be classified into three groups: dominant, vulnerable, and endangered.

In any case, many factors show that Mongolian should be listed in the safe or dominant group together with Chinese, Tibetan, Uighur, Kazakh, Korean, and some other languages in the southern China. Why can Mongolian be regarded as a safe or dominant language? Reasons are as follows:

1. Among the Mongols in China, some 70% are native Mongolian speakers, which means the absolute number of the Mongolian speakers is at least more than 4,000,000. (According to the census in 2000, the total population of Mongolian nationality in China has reached 5,810,000.)

2. Written Mongolian is used not only in Inner Mongolia Autonomous Region but also in other 7 provinces (autonomous region), including Xinjiang, Qinghai, Gansu, Heilongjiang, Jilin, Liaoning, and a small part of Hebei province.

3. Both written and spoken Mongolian are used in kindergartens, schools, and colleges. In other words, younger generations can receive education in their mother tongue at all levels, and teaching materials are considerably complete.

4. The Mongolian language is actively used in everyday media. Inner Mongolian Satellite TV broadcasting covers all over the country and the Mongolian radio broadcasting stations extend everywhere especially in Inner Mongolia. According to the latest statistics, close to 60 newspapers, and magazines are published in Mongolian. In Inner Mongolia, Xinjiang, Beijing, and Liaoning, there are 10 publishing houses which publish Mongolian books.

5. Protective regulations and measures are adopted; language policies are

favourable for Mongolian. For example, rules for Mongolian language use have been enforced in Inner Mongolia and Fuxin Mongolian Autonomous County, Liaoning Province.

At the same time, however, some indications also show that Mongolian is not such safe or dominant. For example:

1. Pupils at schools teaching in Mongolian have been reducing year by year since 1990s, resulting in that many primary and middle schools have closed down.

2. Although Mongolian has the legal status of the first official language in Inner Mongolia as well as in other autonomous prefectures and counties of Mongolian nationality, its actual use in administration etc. is very limited.

3. Because of the strong influence from other dominant languages such as Chinese, not only bilingualism has been more popular, but also creolization is becoming increasingly serious even in Inner Mongolia.

4. Although Mongols' language attitudes towards their own language are usually not negative in most areas, some have less positive attitudes towards it. What is more, some view their own language as a hindrance to economic mobility and integration into mainstream society. For the reason, more children are sent to schools where all of classes are taught in Chinese.

Considering the factors mentioned above, some suggest that Mongolian should be put into the unsafe or vulnerable group in spite of its official status and relatively wider use at present.

Surveys carried out outside Inner Mongolia Autonomous Region indicate that the Mongolian language is in a more unfavourable situation. Endangerment of some Mongolian dialects or subdialects over the north-western China (Xinjiang, Qinghai, Gansu) is a case in point. Apart from Khkha dialect distributed over Gansu province and Xinjiang Uighur Autonomous Region, all Mongolian subdialects in this region belong to Oirat dialect, which is classified as a separate Mongolic language by western scholars. Up to early 1990s, Oirat dialect was more stable than those in the eastern part of China. However, endangerment of the dialects is today deeply concerned by people and experts, who are engaged in research on Mongolian.

Severely endangered Mongolian dialects and subdialects in the north-western China are as follows:

1. In Xinjiang Uighur Autonomous Region:

- (a) Uriyangkhai subdialect in Altai City, Qinghe County, Fuyun County, Bu'erjin County;

- (b) Xinjiang Chakhar subdialect in Emin County, Tuoli County, and Tacheng

City;

(c) Jakhacin subdialect in Wusu City;

(d) Ölet subdialects in Yili Prefecture;

(e) Khalkha dialect in Balikun County.

2. In Qinghai Province: Khoshut subdialect in Haiyan County, Qilian County, Mengyuan County, Henan County, and Gonghe County;

3. In Gansu Province: Khalkha dialect in Sunan County.

Besides the above, some other subdialects such as Torghut subdialect in Hebukesair County and Chakhar subdialect in Bo'ertala are also at risk even though the Mongolian speakers inhabit in compact communities.

Scholars say that some Chinese dialects are on a path toward extinction due to the popularisation of Mandarin Chinese. Contrary to this, all of those endangered Mongolian dialects or subdialects in the north-western China are actually not under the threat from the standard Mongolian or local dominant Mongolian dialects but mainly under the threat from Chinese. Mongols in this region are bilingual or multilingual; however, Chinese has become their first preference for education and social communications. Especially in towns, the social position of Mongolian has been weakened, with the result that it has become a family language or a communicative language for elderly people.

On the other hand, some of the dialects or subdialects have been extremely influenced by other local dominant languages such as Tibetan and Kazakh, and will be replaced by the languages in the near future. For example, most Mongols in Henan County of Qinghai Province have become Tibetan speakers while only a small number of elderly people there still speak Mongolian. Similarly, younger Uriyangkhai Mongols in Qinghe County of Xinjiang Uighur Autonomous Region have also lost their own language, and Kazakh has become their adults' first language instead of Mongolian.

Occurrence of such endangerment is mainly caused by the following reasons:

1. Sparse population. As it is known to all of us, Mongols in the north-western China account for the absolute minority within the total population. For example, some 160,000 Mongols in Xinjiang are distributed over many counties or towns, one with the largest Mongolian population (ca. 27,000) of which is Hejing County of Bayinguoleng Mongolian Autonomous Prefecture. As for other counties or towns, amounts of the Mongolian speakers vary from several hundreds to some 15,000. Without doubt, the sparse population is an important cause led to the endangerment of Mongolian dialects in the north-western China, as a small speech community is always much more vulnerable than larger one. Moreover, Mongols in this region are usually surrounded by

people who speak a dominant language other than Mongolian.

**Mongolian population in chief prefectures and cities (2000)**

provinces (region)	prefectures (cities)	amounts	percentages (%)
Xinjiang	Bayinguoileng	43,544	4.1
	Bo'ertala	23,927	5.6
	Yili	26,624	1.3
	Aletai	5,486	1.0
	Tacheng	29,759	3.3
	Changji	6,062	0.4
	Hami	1,970	0.4
	Urumqi	7,252	0.3
	Kelamayi	1,842	0.6
Qinghai	Haixi	24,020	7.2
	Haibei	13,087	5.1
	Hainan	2,637	0.7
	Huangnan	29,071	14
	Xining	10,709	0.6
Gansu	Jiuquan	4,958	0.5
	Zhangye	916	0.07
	Lanzhou	2,802	0.09

2. Urbanization and migration. For ecological and economic reasons, many rural people in China have moved to towns or cities in recent years, and the migrants include many Mongols including those from western China. Surveys indicate that urban Mongols in Urumqi, Bole, Ku'erle, Yili, Jiuquan, Zhangye, Lanzhou, Xining, and Delingha have doubled in the last ten years. For example, more than 70 Mongolian households from Hebukesai'er County bought houses in Urumqi in 2007 alone although the adult members of them were still working in the county.

When the Mongols are in the countryside, everything is certainly more favourable to learning and safeguarding their mother tongue. After they move to towns or cities, situations will be entirely different: (1) Mongols will become the absolute minority within the total population; (2) the Mongolian language and culture will lose their original social basis and more beneficial environments; (3) most of Mongolian children have to study in Chinese schools.

3. Educational reasons. As mentioned above, Written Mongolian is also officially used among the Mongols in the north-western China. At the same time, Mongols in Xinjiang have their own dialectal writing system named *Todo üsüg* "clear script", which was created in 1648 by Zaya Pandida Namkhajjamsu. In other words, Mongols in this region receive basic education in their mother tongue. However, a harsh fact is that pupils at primary and middle schools teaching in Mongolian have rapidly decreased in recent years. More seriously, many Mongolian schools were streamlined or

amalgamated because of a short supply of school-age children and pupils. With several thousands of pupils, there were in all 104 Mongolian schools (67 primary schools, 26 junior middle schools and 11 senior middle schools) in Xinjiang Uighur Autonomous Region in early 1990s. Of them, only a few are today still existing by themselves and continuing to teach in Mongolian. In most places, however, all classes except *Mongolian language and literature* are taught in Chinese on the basis of bilingual educational system. At the same time, there are also some places without any Mongolian schools, including the counties Qinghe, Haiyan, Qilian, Mengyuan, Henan, and Mongolian townships in Zhangye City of Gansu Province, although where Mongols live. Mongols there who do not like to lose their language and culture have to send their children to schools in other places. For example, a few Khakha Mongolian pupils from Baiyin township of Zhangye City are studying in schools in the neighbouring counties such as Subei Mongolian Autonomous County of Gansu Province, Alashan League of Inner Mongolia. Additionally, Mongols left their native places for cities to earn their living have to send their children to Chinese schools as mentioned above. As a result, the younger generation has begun to forget their mother tongue, and the intergenerational transmission of the language will be interrupted.

(4) In addition to the reasons listed above, there also seem to be some other causes, including religious reason and language attitudes. As for the religious reason, complexion in Henan County is a case in point. According to the census in 2000, there are more than 28,000 Mongols living in the county, and the Mongols account for over 89% within the total population of the county. As brought up above, however, most people there have become Tibetan speakers except only a few elderly people. Experts think that the native language loss of them was partially caused by strong influence of the Lamaism, besides other causes. In 1980s, Henan Mongols tried to revive their own language by teaching Mongolian in schools. However, the attempt failed after more than 10 year efforts. An important cause of the failure is that people there do not like to lose their language of Buddhist scripture — Tibetan.

In many places, young people educated in Chinese usually gain the upper hand, for instance, they easier to obtain employment than those educated in Mongolian. Of course, this has led to some changes in Mongols' language attitudes towards their own language.

Obviously, Mongolian is a vulnerable language used in limited social domains in the north-western China. On the other hand, the endangered dialects themselves exhibit two outstanding characteristics: (a) in addition to the common corpus of loanwords, a number of loan elements provisionally borrowed are widely used in everyday life even

tough the conceptions can be expressed in Mongolian; (b) some borrowings are also seen at morphological level. Of course, the same phenomena are seen in some Inner Mongolian dialects as well.

Like a language, a dialect is an instrument for communication and a medium for expressing thoughts. At the same time, it is also a carrier of regional culture. Disappearance of a dialect means the permanent loss of the regional culture and the serious damage to the diversity of human language. Emergence of dialect endangerment within a language evidently presages endangerment of the language. As linguists as well as members of the speech community, we have a long-term task and responsibility to safeguard those endangered dialects. In recent years, some research projects and fieldworks on those endangered dialects were carried out. Besides collecting and archiving material sources, most importantly, what we should do is to attract attention from all circles by making an urgent appeal so that more effective and valuable policies and measures can be adopted.

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**To save language is to save ethnos**  
**(on experience of the Kalmyk language revitalisation)**

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**Abstract**

The paper considers revitalisation process of one of lesser-used languages of the Russian Federation the Kalmyk language, its role in life of the Kalmyks in Republic of Kalmykia who represent a part of Russian state super ethos, prospects of the Kalmyk language vitality and problems it faces in its current revitalisation process.

**Key words:** language in danger of extinction, language situation, language policy.

In modern world in conditions of globalisation the world community sets new requirements to multilingualism, it has come to conclusion that ethnic culture and ethnic languages are the main heritage that should be passed to future generations. The world has become more concerned about problems of minority and lesser-used languages. No doubt that the majority of languages are in danger of disappearance within several generations.

Linguists are of different points of view on the ways of managing the problem of linguistic endangerment. Some linguists are sure of possibility of saving endangered languages by active measures along with proper decision-making (Wurm, 1997), other linguists consider this endangerment linguistic problem as an inevitable natural evolution of languages and in the world there will be a single dominant language, for example English (Krauss Michael, 1997; Ladefoged Peter, 1992). Nevertheless, nowadays great attention is given to maintenance, preservation of language variety, revival of minority languages.

Some linguists are of the point of view that the greatest threats to linguistic diversity causes European model of nation-state that is followed by all European nation-states. In spite of the fact that this model was designed to stimulate the use of national languages and in the policy of these countries there is a tolerance towards different ethnicities and languages, yet programmes of nation-building based on the forced use of a single language, it does not favour linguistic diversity. Linguist Juha Janhunen considers that linguistic diversity can be better safeguarded in the countries build on empire model. It comprises several ethnic groups, speaking several different languages. The dominant language of an empire does not have to exterminate the other minority languages of the country. Empire model can be the only serious alternative to the nation-state as a basis for political consolidation. He assumes three important empires in present-day world that is China, Russia and India (Juha Janhunen, 2000). There is an opinion that linguistic process passes more quiet in the countries based on territory principle, more critical in the countries based on national-administrative division. In this context the Russian Federation is given a special role as it is a multiethnic state whose basis is formed by 176 national groups and a similar number of languages. It's quite natural that languages are on different levels of development. The languages which function within the Federation belong to different language families - Slavic, Turkic, Finno-Ugric, Caucasian, Mongolian and others. There exist old-written, new-written languages, languages without written tradition, most of them are severely threatened. Nowadays in Russia attempts are being made to make a transition to civic society. These features make the present language situation in Russia complicated, contradictory and fraught with potential conflicts. Many of ethnic languages mentioned above have been proclaimed the eponymous languages of the respective republics. National state bilingualism is quite pertinent as a way of compromise, that is the adoption of two national languages in accordance with federal and republican legislation. In this case certain republics within the Russian Federation become territories of national state bilingualism, in fact three-component multilingualism, since foreign languages are studied and partially used everywhere. The UNESCO Red Book of Endangered Languages identifies only three languages in Russia which are not threatened - Tatar, Yakut and Tuvinian. All other languages are "in process of extinction" or "endangered", the Kalmyk language included.

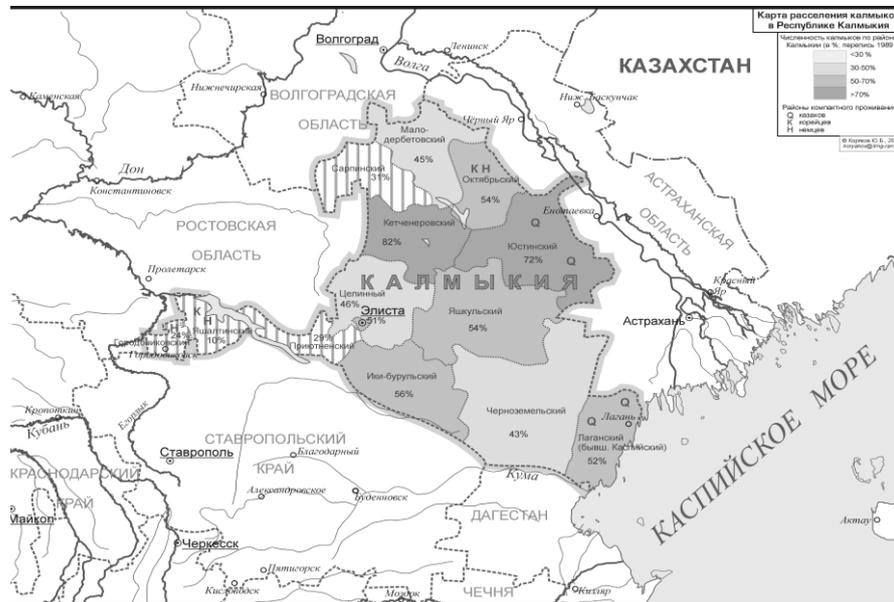
Experts point out several positive factors for revitalization process of ethnic languages in present-day Russia: 1) desire most of the native speakers of ethnic languages to expand the functions of their mother tongue, 2) definite linguistic ground for broadening of social functions of ethnic languages of Russia (publication of literature, availability of text-books, dictionaries, phrase-books in these languages etc., 3) formed traditions of national educational system where ethnic languages are languages of instruction, 4) definite social perspective for the use of these languages in different spheres of communication that is caused by the state status. But experts define also negative factors that do not favor the optimal development of ethnic languages in Russian Federation: 1) limited use of most of ethnic languages in official spheres, socio-political activity, mass-media etc., 2) “language nihilism” of some part of the population of republics, that is revealed in most cases through unwillingness to learn mother tongue on the reason of its social unprestigious status, 3) insufficiently developed language system of most of the languages to carry out functions in some important social spheres (Mikhalchenko, 1994:12-15).

Among the main trends of contemporary linguistic life in the republics of the Russian Federation is an active revitalisation process of ethnic languages and their expansion in various spheres of communication. But in most cases we face the striving for exaggeration of social role of these languages, very often insufficient lexical, semantic, functional, stylistic basis of the minority or lesser-used languages disturbs their functioning as state languages in official spheres of communication. Besides, in several republics there arises a very difficult problem of correlation between supposed communicative functions of the language and proficiency of the population in this language.

In the paper there will be considered the revival process of the present-day Kalmyk language that belongs to the west branch of Mongolian languages (Altaic language family). Nowadays Kalmyk is one of lesser-used languages of the Russian Federation, language of the ethnos that in its history went through great socio-political transformations, suffered from hardship and now happen to be scattered over different parts of the world. The Kalmyks living in the southeast part of Russia are the only Kalmyk group with a separate autonomous territory — The Republic of Kalmykia (see Tab. 1). The Kalmyks of the Republic of Kalmykia represent a part of Russian state

super ethos, their history is closely connected with all-Russian history and should be considered in all-Russian context.

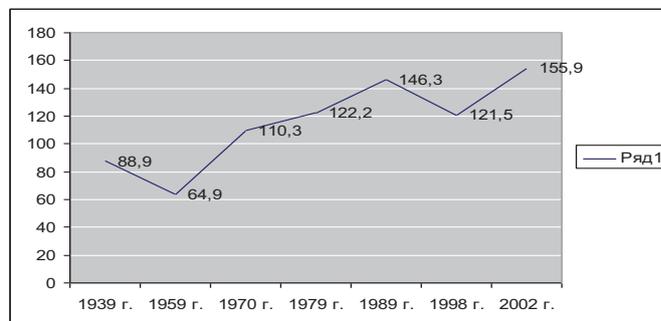
**Table 1**



Geographic situation of Kalmykia in the northern border of Caucasus on the one hand, its Asian origin as well as its cultural traditions on the other hand, have made of the Republic a crossroad of nationalities unique in Russia. The population of the Republic is 290,000 including 155,000 Kalmyks, representing 53 % of the whole population (Kegdeeva 2004) (see table 2).

**Table 2**

**Dynamics of Kalmyk population (1939-2002)**



Ethnic composition of Kalmykia is relatively balanced, according to the 2002 census about 60 ethnoses live in Kalmykia. All the factors cause a peculiar language situation and language policy in the region that is worth of special consideration.

Before the twentieth century the Kalmyks were mainly monolingual. The greatest changes in the Kalmyk language occurred after the Russian revolution of 1917. Yet with the formation of a national educational system with its plan to eradicate illiteracy Kalmyk–Russian bilingualism took off, and Kalmyk was subject to changing language policy. Kalmyk is an old-written language, the old-Kalmyk script “Todo bichg” (Clear Script) was worked out in 1648 by Zaya Pandita. In 1924 the old-Kalmyk script was replaced with Cyrillic with addition of six letters ә, ө, ү, һ, һ, ж. Later Kalmyk was transferred into Latin and then again back to Cyrillic. Nowadays Kalmyk in the Republic is written in Cyrillic.

Kalmyk language transmission patterns were weakening dramatically as far the deportation of the entire Kalmyk population during 1943-1956 produced a severe breakdown of the intergenerational transmission of the language and almost the loss of the native language by the Kalmyks. Much of this was the result of regulations prohibiting spoken Kalmyk and also the teaching of only Russian in school practised during the Soviet period. Yet in 1956 when the Kalmyks were exonerated and allowed to return to the Kalmyk Republic they tried to revive culture and language. Unfortunately, it has not been successful. Gradually Kalmyk lost its social status, most of Kalmyk speech community adopted negative attitude towards the mother tongue ceasing to pass it to the next generations.

The second half of 1980<sup>th</sup> is characterized by socio-economical, political, ideological changes in Russia. From this time there started the revision of language policy of previous years. It led to the adoption of language laws in allied republics then in autonomous republics of Russian Federation. Since 1990<sup>th</sup> there has started an aimed Kalmyk language revitalisation process. In 1991 Kalmyk was proclaimed the state language of Kalmykia along with Russian. The realization of the language legislation assumed creation of conditions for the further development of these languages, increase of the role of the languages in spiritual and cultural life of the Republic. The status of Kalmyk and Russian as state languages of Kalmykia doesn't limit rights and interests of other ethnic groups of the Republic as it guarantees and provides national equal rights,

governmental and financial assistance to cultural and language development of ethnoses living in Kalmyk Republic, preservation of their ethnic uniqueness.

In Kalmykia there is a three-component socio-communicative system: Kalmyk+Russian+other ethnic languages (including foreign ones). At the present time the first priority of language policy in Kalmykia is given to harmonization of social functions of two state languages of the Republic, moreover in the first instance enhancing of social functions of “the weak component of state bilingualism” – the Kalmyk language. The status of state one gives to the eponymous language of a particular republic more possibilities for its functional enhancement, that means its use in more various spheres of organised communication. But language that occupies high level in the system of spiritual values of society should have well-developed functional and style system for adequate representation of extra linguistic reality. There arises a very difficult problem of correlation between supposed communicative functions of the language and proficiency of its native speakers in it. Being juridically equal state languages of Kalmykia are not equal functionally in fact. Russian is used in all spheres of social activity of the Kalmyks, it carries out information, business, educational and scientific functions. Kalmyk functions in the spheres connected with national culture that is education, mass-media (TV, radio, periodicals), theatre, belles-lettres, folklore. It is partially used in the sphere of state administration, socio-political activity of the Republic of Kalmykia.

In cultural sphere the Kalmyk language is also actively promoted among the population. Kalmyk is widely used in the performances of the Kalmyk national drama theatre, folklore ensembles and groups. Traditional holidays and customs are being revived. Cultural and economic progress has promoted Kalmyk language in various spheres of mass-media. This sphere also contributes to language revitalization by popularization of Kalmyk language on TV, radio, in periodicals. The following periodicals are issued in Kalmyk language: a newspaper "Khalmg yunn" (Kalmyk truth), a literary magazine "Teegin gerl" (Light in the steppe), a magazine for children "Bair" (Happyness), an educational magazine "Gegyarlt" (Education). On Kalmyk TV and radio official languages of Republic are used in proportion 50 % of the local broadcasting time in Russian, 50 % in Kalmyk. Though for the recent time there has

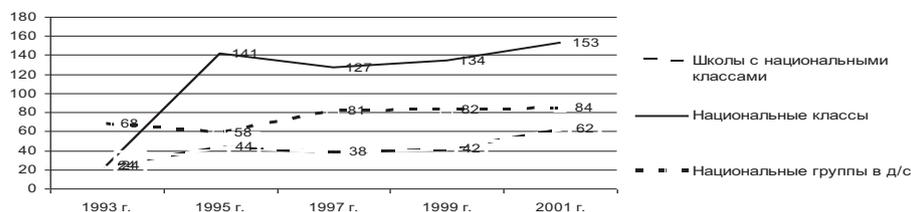
taken place a negative tendency of reduction of broadcasting time in ethnic languages, in Kalmyk in particular.

But as a rule in these spheres the use of Russian is predominant. Knowledge of Russian by Kalmyks is total as competence in Russian means social promotion, chance to get an education, good work, mobility in the all-Russian context.

One of the factors of language vitality is the use of mother tongue by the young generation. It is necessary to start the revival of the functions of the language with the sphere of school education. We can easily recount stories of the ways in which school was an important weapon in suppressing lesser-used or minority languages at some time in the past. Such facts happened to the Kalmyk language. It was the school that imposed the conviction of the superiority of Russian culture to the Kalmyk. A change in the mentality has certainly taken place. Pupils and parents blamed the ‘backwardness’ of Kalmyk for the poor career prospects of their children. It is strange that the same education system that was once used as important weapon in suppressing the language is currently playing a vital role in its preservation. Last national Kalmyk classes were closed at the beginning of 1960<sup>th</sup>. From the beginning of 1990<sup>th</sup> there has been started the process of restoration of national Kalmyk educational system. In 1993 after 30 years pause 67 national Kalmyk classes and 83 Kalmyk kindergarten groups were opened, where teaching process is carried out in Kalmyk (see Table 3).

**Table 3**

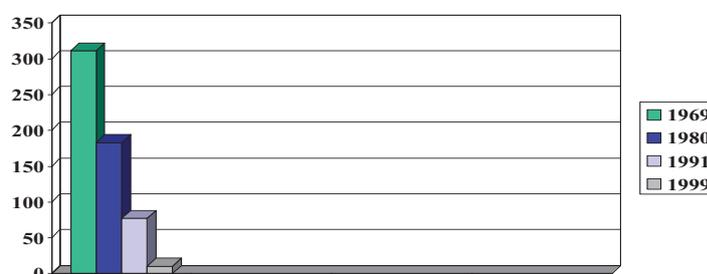
**Dynamics of the number of Kalmyk kindergartens, schools, classes (1993-2001)**



In 2001 there were already 153 Kalmyk classes and 84 Kalmyk kindergarden groups. The statistics of the Ministry of Education of Kalmykia shows the stable tendency of the rapid increase in the number of national classes with Kalmyk as a method of instruction and number of young people who speak Kalmyk. It proves the efficiency of the education system in language transmission. All the same the question remains whether that contribution is enough to ensure the long term future of the language. In spite of the positive changes the national school system doesn't work properly yet. Actually the teaching process in Kalmyk is limited to primary and secondary level of school even in Kalmyk national schools. It would appear that many of the children who have received a bilingual education make a clear division between their school and social lives and switch to Russian when they leave school. In fact the majority of children who haven't spoken in Kalmyk before school doesn't become bilingual after leaving it. There must be continuity in Kalmyk language teaching: kindergarden-secondary school-high school. Then there arises another problem the Kalmyk education system faces today, that is an urgent need in an optimal and efficient methodical complex that provided continuity in teaching process of Kalmyk as a method of instruction, this system should include various methods of teaching aimed at different social groups of population starting from children up to adults, who are eager to acquire or to improve their native language skills. There are conditions for this as nowadays the Kalmyk standard language has developed clearly defined norms that ensure its comprehensibility and accessibility to all its native speakers. The standard features have been elaborated and established in the rules of orthography and orthoepy, in bilingual and terminological dictionaries, in scientific works of Kalmyk researchers. But language of scientific sphere is mainly Russian while Kalmyk is used mainly in works, articles on the problems of Kalmyk philology (see Table 4).

**Table 4**

**Publication of Kalmyk literature  
(1969-1999)**



It is quite understandable that without social demand, incentive of the ethnos itself it is difficult to gain quick positive changes, but the case is that there exists social demand, there is corresponding legislation that regulates functional distribution of the languages in Republic, but the revitalisation process goes very slowly, to my mind it is caused mainly by the lack of language environment where Kalmyk language skills could be applied. First attention should be paid to family to attempt to influence the intergenerational transmission of languages. There is an urgent need in creation of natural language environment in which person will be surrounded by information written in his native language – advertisements, billboards, papers, TV, radio. The corresponding Kalmyk language environment should be provided in offices, transport, other spheres. In this way the media is assigned a special role in activation of interest towards the problems of the Kalmyk language. This is the main point for language revival, when language is the way of life of the ethnos. Only under these conditions language is able to survive.

Recent survey carried out by us (in the frames of Russian Presidential Programme on state support of research of young scholars) presented interesting data on real language situation among the present-day Kalmyks. Among important language vitality parameters there are demographic and communicative capacities of the language. The demographic capacity of Kalmyk is based on percentage of the Kalmyks speaking their native language in correlation to the whole number of population of the Republic. In Kamykia it makes up 43, 5 %. Communicative capacity includes the number of

communicative spheres served by the language in correlation to all the number of these spheres in the society. The Kalmyk language serves in 15 social spheres of 22 existing, but we should say in many spheres it functions partially. Age parameter of native speakers of the language is also one of the main factors of language vitality. If all age groups of the ethnos include those who speak it then next 40-50 years the language will keep its function.

The following specificity in distribution of the languages among Kalmyks was defined according to age, geographical, social parameters. Kalmyk is mainly spoken by elder generation of Kalmyks (above 60 years), it is rare used by the middle-age (30-40 years) and young (below 30 years) generations of the Kalmyks.

89 % of surveyed elder generation speak in Kalmyk intensively in everyday communication with people of their age and 12,4 % respondents use Kalmyk in communication with youngsters. Kalmyk is used by 3 % of respondents of young generation in communication with middle generation, 35,8 % of respondents among middle generation speak in Kalmyk in communication with elder generation (see Table 5).

**Table 5**

Parameter	In communication of youngsters with middle generation	In communication of middle generation with elder generation	In communication of elder generation with youngsters
Speak in Kalmyk	3 %	35,8 %	12,4 %
Speak in Russian	35,4 %	22,6 %	57 %
Speak in Kalmyk and Russian	64,6 %	63,6 %	75,9 %

The correlation of Kalmyk use by different age groups is variable and it is explained by the following reasons. The elder generation uses Kalmyk in everyday situations, in communication with the representatives of their age, middle generation and younger generation. The fact that Kalmyk youngsters communicate with each other

in Russian can be explained that education system at school is based mainly on Russian. If the interlocutor is a representative of middle and young generations he is addressed in Russian, it is explained by the fact that this generation of Kalmyks do not know or have passive skills of Kalmyk language and prefers Russian in everyday communication.

Concerning the qualitative parameter of native language proficiency then on the first place is elder generation of Kalmyks (above 60 years), students and pupils who studied in schools with Kalmyk as a method of instruction. Most of them speak fluently, understand Kalmyk speech. The worst knowledge or lack of it presented the age of 35 years, some of them understand Kalmyk speech but can't answer, native language skills are passive, some of them refuse speaking in Kalmyk being afraid of making mistakes.

The language assimilation goes faster among urban Kalmyks, it is caused by multinational structure of the town population and high percentage of international marriages. In office, in public places mainly Russian is used. But there are regions in Kalmykia (Ketchenerovsky, Yustinsky, Iki-Burulsky) where Kalmyks live compactly. In these regions the number of the Kalmyks in comparison with other ethnic groups is higher, compact living provides natural language environment, therefore this group of Kalmyks always present good knowledge of Kalmyk.

Subjective estimations of native speakers on their mother tongue independently of their veritability or falsity are very important elements reflecting the language situation. This is very interesting material from scientific point of view as it represents orientations of the ethnos, the stereotypes deep-rooted in ethnic identity of the language community. Kalmyk as mother tongue has stable position in ethnic identity of the Kalmyks. But it should be told that this correlation between native language and ethnic identity is controversial. In fact, among the Volga Kalmyks there exists a correspondence between low level of Kalmyk language proficiency and high level of ethno-language identity. In previous Soviet population censuses there was a category "native language," and the 1989 census showed that of 146,000 Kalmyks — 3.9 % claimed Russian as their native language, 96 % marked Kalmyk as their mother tongue (Goskomstat SSSR 1991: 97). In the course of the survey, however, it turned out that the census data actually represent an emotional factor. It reflects mainly the wish of Kalmyks to know their native language. Thus 96 % of respondents may consider Kalmyk as their mother tongue, but among them there are also those who do not know it

at all. The term “native language\mother tongue” usually means language of family communication since first speech skills are formed in this language. “Ethnic language,” on the other hand, means language as an ethnic symbol. Most Kalmyks confuse these two concepts. Being unable to speak their native language they identify it as their mother tongue and subconsciously take it for an ethnic symbol. Moreover, this gap is also compensated by other important elements of national identification: common historical past, ethnic traditions, customs, religion etc. It also shows that native language is still a key to Kalmyk ethnic identity in spite of the fact that in the course of recent transformations it has started to yield functionally to the language of the dominant culture — Russian. The fact that in many cases the Kalmyks do not speak Kalmyk in everyday communication is explained by unequal functional distribution of Kalmyk and Russian in Kalmykia. Everyday language need turns to be more important factor than innovations in language legislation. Nevertheless the Kalmyks are conscious of importance of preservation of their ethnic specificity. This fact depends on internal unity of the group. It turns out that at low and high degree of the native language competence the mother tongue remains an important factor of ethnic identification of the ethnic group.

During the last decades of the twentieth century the Kalmyks experienced great changes, but their mother tongue problems are still urgent issues of the day. Real language situation in Kalmykia in regard of Kalmyk is still critical. It is obvious that Kalmyk language revitalisation process faces pluses and minuses. Although Kalmyks have a sentimental attachment to their language and culture, this may not be enough to ensure that young people will acquire a good command of the language or, more importantly, that they will use it. I share the point of view of the independent consultant on language planning Dónall Ó Riagáin that the Acquisition planning (teaching the language to children) alone doesn't work. Status planning and Corpus Planning need to go hand in hand with it (Donall O'Riagain 2006). That is one of the main problems that the Kalmyk language revitalisation faces. Some other important points that should be covered by the language planning are as follows. Language problems mustn't be treated isolated but in complex way, for example there is little sense in teaching language if its use inside the educational sphere is not realised, as it happens in Kalmykia, then the revitalisation program shouldn't be burdened with unnecessary political, religious or

ideological meaning as it usually happens, there should be created an image of modern, dynamic language.

These are the results of the Kalmyk revitalisation process, how this will develop is still unclear. Experts are mostly of optimistic point of view, that is encouraged by the fact that the overwhelming majority of young people have positive emotional attitude to the mother tongue as a part of their ethnocultural identity and express readiness to take part in language preservation activities, it indicates positive results of language policy in the Republic of Kalmykia. I'm inclined to believe in the wisdom "make haste slowly" and hope that Kalmyk will get its former prestige and social meaning in life of the Kalmyk community as in previous times.

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**The vocabulary of games and competitions non-involved in Altaic studies  
(from Tungusic-Manchurian and Turkic languages)**

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There are no any serious doubts that the comparative and historical research of, the Altaic languages as a whole or, their separate groups – Turkic, Mongolian, Tungusic-Manchurian as well as Korean and Japanese is important notwithstanding the considerable difficulties arising in this area of comparative studies. One of the problems in this area is that not all the actual materials on some languages of Altaic family are collected yet. The more and more new facts, which may serve as the confirmation of the genetic kinship of languages while conducting the comparative linguistic research, continue to be elicited.

The given below words are not mentioned in the comparative research of Altaic languages or these words are not involved in the mentioned meanings of word.

For example:

Even *dović* means ‘draughts’. Evenki *dovat* - ‘draughts’. Orok *dovitu* - ‘draughts, chess’. Buryat *doibod* - ‘draughts’. Sakha (Yakut) *duobat* - ‘draughts’.

Even *kurukän* – ‘top (child’s toy)’.

Even *munükan* – ‘to compete in lassoing a moving object which is tied to a pole’.

Even *nedaldavun* – ‘throw of stone’. Its synonym is the word *ulä* – ‘to throw’, ‘to throw away’. Evenki *ulä* – ‘to spawn’. Nanai *ol’a* – ‘to throw’, ‘to cast a sweep-net’, ‘to lose’. Manchurian *val’a* – ‘to throw’, ‘to throw away (something as an unnecessary thing)’.

Even *ninkami* – ‘running with pole’. Its synonym is the word ‘*ninkan*’ – ‘crook’, ‘stick (for leaning when riding on reindeer-back)’, ‘walking stick’, ‘crutch’, ‘pole’, ‘landmark’. Evenki *nginnukan* – ‘(dry and thin) larch’, ‘dead standing trees’, ‘pole’.

Even *tangchinmai* – ‘pulling’. Its root is *tang* – ‘to pull out’. Evenki *taldi* – ‘to help to pull’. Solon *tan* – ‘to pull’. Orochi *tan-a* – ‘to pull’. Udegei *tan-a* – ‘to pull’, ‘to pull out’. Ulchi *tami* – ‘to stretch’, ‘to spread’. Oroki *ton* – ‘to pull’, ‘to tug’, ‘to stretch’, ‘to cock a gun’, ‘to bite (of fish)’. Nanai *toan* – ‘to pull’, ‘to

weave a net'. Manchurian *tanggiku* – ‘machine (for stretching a bowstring to a bow)’. Korean *tanggi-da* – ‘to pull’, ‘to attract’.

Èven *hamnubahah* – ‘a fish-leather sac used in a game’. Its root is *ham* – ‘to mix (with)’, ‘to intermix’, ‘to connect’, ‘to unite’. Oroki *poptali* – ‘to mix (with)’, ‘to intermix’.

Èven *bul'divun* – ‘a wood stick which is decorated from its both ends with tin’. It is used in the *ninkami* game (‘running with stick’) as well as it serves as a protector which is hanged up to a handle of cradle and which wishes a child to have many reindeer in the future and which wishes his/her reindeer not to run away.

Èven *digapan* – ‘a men’s cap of elk’s or reindeer’s leather’. Men put it on, when they compete in tugging lasso with their neck.

Èven *dänngäpän* – ‘a women’s headgear’. Women put it on, when they participate in the games in tugging lasso with their neck.

Èven *imangga* – ‘a stick for high-jump competition and for competition in jumping from sledge’.

Èven *inngatac härächä* (idiom) – ‘a men’s decoration in a form of wide strip, which is made of elk mane and is sewed on to an elk’s or reindeer’s leather’. It shows elk’s or wild reindeer’s track and that a man is lucky in hunt. The winners of various games and competitions are awarded it.

Èven *inrämi* – ‘in Èven fairy-tales, it is a winter cap for bogatyrs’.

Èven *kangdun* – ‘a block of wood tied to a reindeer’s neck in order to prevent a reindeer from running far away’. It is used in a load-transporting (stone-transporting) game.

Èven *kamn'ai* – ‘a men’s costume for participating in summer games, competitions’.

Sakha *tutum ärgiir* (idiom) is a traditional competition of the Sakha people. *Tutum* – ‘fist-height-size distance’ (long measure of the Sakha). *Ärgiir* – ‘circle’, ‘turn’, ‘cycle’. Èven *ärgin* – ‘to circle’, ‘to soar’ (in the air – of birds, planes). Evenki *ärgäktä* – ‘to circle’, ‘to soar (in the air)’. Manchurian *ärguvä* – ‘to encircle’, ‘to go round’, ‘to take round’, ‘to tie round’, ‘to wind’, ‘to roll up’. Old-written Mongolian *ergi* – ‘to circle’, ‘to rotate’, ‘to revolve’. Mongolian *ärgüülä* – ‘to turn’, ‘to wind’. Buryat *är'e* – ‘to circle’, ‘to rotate’, ‘to revolve’.

Sakha *homuur hapsağai* (idiom) is Sakha wrestling. Verbatim: *homuur* comes from the word *homulunnar* – ‘to crush’, ‘to press in’. *Hapsağai* – ‘adroit’, ‘dexterous’, ‘quick’. *Hapsağai kihi* – ‘a quick person’.

Sakha *kilii* – ‘long jumps on one leg’.

Sakha *istanga* – ‘long jumps on each leg in turn’.

Sakha *kuobah* – verbatim: ‘hare’. It means ‘long jumps on both legs simultaneously’.

Sakha *oğus uonna chöngöchök* – ‘rope tugging’. Verbatim: *oğus* – ‘ox’, *chöngöchök* – ‘stump (of tree)’.

Sakha *külüüstähii* is the name of game. It means ‘tugging with fingers’. It comes from the word *külüüs* – ‘lock’.

Sakha *öhös torbos* – verbatim: ‘obstinate calf’. It means ‘competition in tugging with neck’.

Sakha *kirinaastiir* – ‘jumping while relying on hands’. It comes from the word *kirinaas* – ‘ermine’.

Sakha *harah simsii* – ‘to play hide-and-peek’. Verbatim: ‘to screw up one’s eyes’.

Sakha *halbas haratin miinii* (idiom) is the name of game. *Halbas* – ‘a rope hauled tight between two pillars’. Children are to sit down on the rope in special way and they are to try to keep their place, balancing. Here they are to count all the parts of horse, while striking the rope with stick.

Sakha *it buutun ohsuhuuta* (idiom) is the name of game. Verbatim: ‘wrestling while standing on one foot’.

Sakha *aiah hostoohuna* – ‘tugging’. Verbatim: ‘to pull out with one’s mouth’.

Sakha *ann’a bördö* (idiom) is the name of game. A participant is to push his rival beyond a certain line.

We have only emphasized the theme of the names of games and competitions. This layer of vocabulary is interesting, first of all, by the fact that some above mentioned words have no parallels in the noted above languages but they may be parallels in the other Altaic languages.

The main directions of the research in demonstrating the Altaic commonality are set forth in the works of the classical scholars, founders of the Altaic theory as well as in the published works of the Section of Altaic Languages at the Institute of Languages of the USSR Academy of Sciences founded in 1957 in Leningrad. From its foundation, the Section of Altaic Languages became an organizing and scientific centre of Altaic studies in the USSR. At present, there is no such united

centre except the Department of Ural-Altai Languages at the Institute of Linguistics of RAS (Moscow) and the foreign centres in Korea, the USA, Germany, China and other countries.

In this report, we have only touched on the question of, the non-involved layers of vocabulary, concretely, the part of the vocabulary of physical training.

We think that one should continue to collect the data.

After identifying the new lexemes, one has to work carefully to prove whether these lexemes belong true to the vocabulary of the Altaic commonality of languages.

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## About creating the grammatical terminology in the Evenki language

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Terminology is a special lexical layer and is one of aspects of the complex and multi-faceted problem of the development of languages that is connected with the development of society. Terminology is the area where one can see more brightly and clearly the connection between the development of language, its lexical system and the history of material and spiritual culture of people (Vinogradov, V.V. *O neobhodimosti usovershenstvovani'a nashego pravopisani'a*: 19-20). This thesis is true for all the languages: 1) for the languages having a written form since ancient times as well as 2) for the languages which recently developed a written form. In the second group of languages, one can see the formation of terminology as a consequence of the functional development of these languages stipulated by the needs of social development of their speakers.

The aim of this article is: to show how the need in creating the grammatical terminology in the Evenki language is realized in concrete way.

Terminology in different languages is not identical, it has different sizes. As linguists believe, it is stipulated by a number of social factors connected with the general objectives and the curriculum in a given language, with the size and system of teaching it in school, with the development of special linguistic literature in a given language (Treskova S.I. 1975. "K voprosu o sozdanii grammaticheskoi terminologii na mladopis'mennih iazikah," *Sb. Sotsiolingvisticheskie problemi razvivaiutshihs'a stran*: 315. M.)

The material for the article was extracted from the Evenki textbooks for schools and teachers training colleges.

The specialists conventionally divide languages into sub-groups from the point of view of teaching the languages in schools. These are 1) the languages in which they teach in all grades of secondary school; 2) the languages in which they teach in incomplete secondary school; 3) the languages in which they teach in elementary school; 4) the languages in which they teach in preparatory, first and second grades.

The decision about teaching the native Northern languages in secondary school was made at the federal level almost twenty years ago. These are Chukchi, Nenets, Èven, Evenki, Khanty, Nganasan languages (Burikin A.A. 2002. "Voprosi sozdani'a UMK dl'a srednei shkoli i podgotovki kadrov po iazikam narodov Severa," *Sb. Obrazovanie na Severe: rol' natsional'no-regional'nogo komponenta v sohranении edinstva obrazovatel'nogo prostranstva Rossii, etnicheskoi identichnosti i zdorovia detei Severa*: 94-95. M.)

The main way of creating and developing terminological systems in the languages of the numerically small indigenous peoples of the North is: to form the terminology on the basis of such main sources as the native lexical material of mother literary tongue and its dialects, as the generally accepted international terms, as the loan-translation and the loan-words.

In creating the grammatical terms on the basis of native vocabulary, one may distinguish the following methods: 1) extending the meaning of native words, for example, Evenki *ig*, Russian *zvuk* mean 'sound', Evenki *ävädi turän*, Russian *evenkiiskii iazik* – 'Evenki language', etc. 2) loan-translation: *äsipiti vrem'a*, *ucäläpti vrem'a*, *goropti vrem'a*, *umuntägir élenil*, *sotkul élenil*, *et al.*

Among these are the names of cases: *gärbivudi padezh*, *ovudi*, *gälävudi*, *buvudi*, *suruvudi*, *ämävudi*, *ngägävudi*, *nungnivudi*, *ngänuvudi*, *üvudi I*, *üvudi II*, *havalivudi*, *umunuvudi padezhil*, etc.

The Evenki language has many grammatical terms loaned from the Russian language. The group of terms was loaned without changes: *alfavit* – 'alphabet', *bukva* – 'letter', *glagol* – 'verb', *naklonenie* – 'mood', *vid* – 'aspect', *zalog* – 'voice', *číslitel'noe* – 'numeral', *pričastie* – 'participle', *deepričastie* – 'gerund', *mestoimenie* – 'pronoun', *narečie* – 'adverb', *mezhdometie* – 'interjection', *padezh* – 'case', *suffiks* – 'suffix', *sinonim* – 'synonym', *antonim* – 'antonym', *skazuemoe* – 'predicate', *soiuz* – 'conjunction', *fonetika* – 'phonetics', etc.

The grammatical terms loaned from, or through, the Russian language are formed according to the laws of this language. For example, the loan-terms are used in Evenki sounding: Evenki *častitsä*, Russian *častitsa* – ‘particle’, Evenki *soglasnäi*, Russian *soglasnii* – ‘consonant’, Evenki *glasnäi*, Russian *glasnii* – ‘vowel’, *prodol'nai* (from Russian *prodol'nii*), *otlozhitel'nai* (from Russian *otlozhitel'nii*), *napravitel'nai* (from Russian *napravitel'nii*), *napravitel'no-mestnai* (from Russian *napravitel'no-mestnii*), *lično-prit'azhatel'näi* (from Russian *lično-prit'azhatel'nii* – ‘personal possessive’), *bezlično-prit'azhatel'näi* (from Russian *bezlično-prit'azhatel'nii* – ‘impersonal possessive’), *vtorostepennai* (from Russian *vtorostepennii*), etc.

The compound loan-terms are also formed according to the laws of Evenki language: *sotkul členil*, *vtorostepennail členil* (from Russian *vtorostepennie členi*), *umukändi turärdi*, *pričastie grammatičeskäi razborin*, *glagol deistvitelnäi zalogin*, *perehodnail*, *neperhodnail glagolil* (from Russian *perehodnie*, *neperhodnie glagoli* – ‘transitive, intransitive verbs’), etc.

Thus, the creating and forming of the grammatical terminology in the Evenki language is a complicated process. The facts considered by us reflect some moments in this process. Among social factors playing a dominant role in the creating and developing of terminological system in the Evenki language, the factor of conscious influence of society on the functional development of languages is of the major place. The system of grammatical terminology was formed in the Evenki language in accordance with the intra-structural laws of its development. The methods of creating terms (usage of native lexical units, loanwords, etc.) are specific for the Evenki language.

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# Some variations of vowels in spoken Manchu<sup>1)</sup>

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## Abstract

The purpose of this paper is to inquire into some aspects of variations of vowels in spoken Manchu in Sanjiazi village, Fuyu County, Heilongjiang Province, China. Based on the data collected through fieldwork which had been carried out twice, we investigated variations of vowels in Manchu, by using a formant chart to decide the number and the inventory of vowels, and classifying them into two types of facultative and combinatory ones. Most of the variations belonged to the former. As a result, we established 16 phonetic vowels which were reduced to 5 phonemic vowels.

**Keywords:** vowel, Manchu, formant, facultative variation, combinatory variation, endangered language.

## 0. Introduction

The purpose of this paper is to inquire into some aspects of variations of vowels in spoken Manchu. It was reported that Manchu had nine phonemic vowels (Qinggeltei 1982), but it has only five phonemic vowels, that is /i, a, u, o, ə/, according to the result of our analysis. Some of these vowel phonemes are realized in various phonetic forms.<sup>2)</sup>

The subject for our Manchu data is Mr. Meng Xianxiao (孟憲孝), who was in his seventies and lived in Sanjiazi village, Fuyu County, Heilongjiang Province, China at that time. He spoke Manchu only in simple and daily conversation when he was a child, but began to study it from about 12 years old.

Fieldwork for collecting Manchu data was carried out twice. Dates and participants of the fieldwork are as follows:

(1) Preliminary fieldwork

Dates: May 3~ 8, 2005

Participants: KWON Jae-il, KIM Juwon, KO Dongho, Chaoke, Zhao Wenyu

Place: Qiqihar city

(2) Full fieldwork

Dates: February 7~14, 2006

Participants: SEONG Baegin, KIM Juwon, SHIN Yongkwon, KANG Huijo

Place: Qiqihar city

In the fieldwork, we prepared a questionnaire and asked him in Chinese, and he was requested to answer it twice in Manchu. After both fieldwork, we collected about 2,000 words, 300 basic dialogs, and 300 sentences for grammar, using the questionnaire. This paper is the result of analysis of some of these data. In principle, the data of our analysis are the forms which were uttered in the second answer.

We will decide the number and inventory of phonetic vowels in the first, and reduce them to phonemic ones by classification of them into facultative and combinatory variants.

## **1. Number and inventory of vowels**

To seize a phonemic vowel system of which we do not know, we must decide the number of phonetic vowels. In most of phonetic researches, it is assumed that in general the researcher does know a phonemic system of language concerned, and distribution of variants of vowel phonemes is dealt with. This is spoken well for by the following note in Ladefoged (2003: 1). "Without knowing the phonology of a language you cannot describe the phonetics." But, in the case of Manchu in Sanjiazi, the only and last investigation by Qinggeltei etc. was made in 1961.



(Ladefoged 1982: 178-179). The second base of this is the fact that, in usual books on phonetics, there are formant charts in which positions of vowels are presented in points, not in area divided by numerical value.

Thirdly, we made a final formant chart by correcting the tentative one, comparing it with the result of hearing and formants measuring of the rest data. We decided the phonetic value of vowels which is not clear according to the final formant chart.

As a result of analysis of 557 tokens of vowel in 230 words, there are the following 16 phonetic vowels in spoken Manchu: [i, y, ɪ, e, ø, ε, a, ɔ, ʌ, o, ɤ, u, ʉ, ɯ, ɨ, ə]. The followings are examples of these vowels, in which (3) is all of mono-syllabic words, and (4) is some of poly-syllabic words:

- (3) a. [ɑ]: [nɑ] 'earth', [pja] 'moon, month', [(ə)l'gəŋ] gam] 'to take (a breath)', [vɑ] 'smell'
- b. [ə]: [sə] 'age', [səŋ] 'blood', [nəm] 'to be sick'
- c. [i]: [pi] 'I', [çi] 'you (sg.)', [ni] 'sweat', [pim] 'to exist'
- d. [o]: [po] 'house', [tʰoŋ] 'thread', [so] 'undress (yourself)!', [kjo] 'roe (deer)', [dzɔ ('bjɑ)] '2 (month)' (=February), [(sə) tʰon] '(age) number'(=age)
- e. [u]: [ʃun] 'sun', [sun] 'milk', [nun] 'younger sister'
- f. [ʊ]: [tʰʊn] 'forest'
- g. [ʌ]: [tʃwʌn ('bjɑ)] '10 (month)' (=October)
- h. [y]: [tyn ('bjɑ)] '4 (month)' (=April)
- i. [ε]: [sɛ:n] 'good', [pɛ:m] 'to seek'
- (4) a. [ʉ]: [dʉlʌ] 'face', [ə'muŋ] 'saddle', [mʉl'γən] 'a fine-toothed bamboo comb', [ni'mjʉŋ] 'snow'
- b. [ɪ]
- i. [ç'ɪskʌ] 'yesterday', [tɕɪ'γɑ] 'money', [dʒɪl'γǎ] 'voice'
- ii. [qjɪ] 'year', [jʌmɕɪ] 'evening', [fa'kʰolɪ] 'trousers'
- c. [ɨ]: [xɨŋ'namʌ] 'woman', [sɨ'dzənsɑ] 'shafts'
- d. [e]
- i. [tɕʰe'ɲuŋ] 'the day before yesterday', [tʰujle] 'bean'
- ii. [ʌlke] 'alcohol', [tʃwɛjle] 'summer',
- e. [ɔ]
- i. [ʉʉzʌ] 'net', [ʉl'γwʌ] 'firewood', [pɕʉʃkʰwə] 'kidney'
- ii. [to'ʉolɔ] 'night', [ʉŋtʰɔ] 'bridle', [ʉktʰɔ] 'gunpowder, medicine'
- f. [ø]: [tø'lin] 'middle', [sø'jin] 'yellow'
- g. [ɤ]

- i. [ʰxŋgʌ] 'mother-in-law', [ʰsxwʌ] 'teacher', [ʰtʂxwʌ]
- ii. [ʰtʰoʷswxʰ] 'village', [ʰamxʰ] 'father', [xɑŋ]ʲnɑmʰ 'man'

In the next sections, we will reduce these phonetic vowels to 5 phonemic ones.

## 2. Facultative variation

There are cases in which different vowels appeared in the same position in one and the same word. It can be said that these vowels are not different phonemes. Of course, there is a possibility that, like the first vowel in English *economics*, the variants are different phonemes. But the rigid method of analysis cannot be applied to endangered languages, as mentioned above.

(5) a. [ə] ~ [ɤ] ~ [ʌ]

[i:ʲnʰŋ] 'day' ~ [i:ʲnʰŋ](dɛle) '(every) day' ~ [(ʰəmu)i:ʲnʰŋ] '(one) day'  
 [(ʰʌmm)ʌl'də] '(one) early' (=morning) ~ [(ʰʌmm) əl'dʌ] '(one) early'  
 (=forenoon)

b. [u] ~ [ə]

[ni:mjʷŋ] 'snow' [ʰu:ʲnɑ] 'mother' ~ [ʰə:ʲni (ʰamə)] 'mother (and) (father)' ~  
 [ʰu:dujʲni:mjʷŋ] 'snowstorm'

From examples in (5), we consider that [ə], [ɤ], [ʌ], and [u] belong to one phoneme of /ə/.

(6) a. [ɪ] ~ [i]

[ʰɛiskʌ] ~ [ʰɛiskʰʌ] 'yesterday', [mi'tɕʰin] 'an iron pot' ~ [mi'tɕʰɪn] 'pot'

b. [ɪ] ~ [e]

[ʰtʰɔjle] ~ [ʰtʰɔjli] 'bean' [ʲjʌmdʒes'kɔŋ] ~ [ʲjʌmdʒis'kon] 'afternoon'

c. [e] ~ [ɛ] ~ [i] ~ [ɪ]

[i'tɕʰi'ɑjɲe] 'new year' [ʰɑjɲi'bja] 'january' [ʰɑjɲi], [ʰɑjɲɛ] [tʌl'kʰɑɲɛ]

d. [ɛ] ~ [e]

[ʂɑ'lʌmbjɛ] 'to grow light' [u'tʂʰuləmbje]

From examples in (6), we consider that [i], [ɪ], [e], and [ɛ] belong to one phoneme of /i/. But [e] and [ɛ] in this case are confined only to word-final position, in view of

their environment of occurrence.

(7) [u] ~ [ʊ]

[ʊ:'duj (ni'mjiŋ)] 'wind (snow)' (=snowstorm) ~ [u'dun] 'wind', [tʰʊl'gɪn] ~ [tʰʊl'gɪn] 'cloudy', [pʊ'da] 'meal' ~ [pu'da (ɑləl) ('bɑ)] 'meal (to make) (place)' (=kitchen)

From examples in (7), we consider that [u] and [ʊ] belong to one phoneme of /u/.

(8) [ɛ] ~ [ɑj]

[sɛ:n] 'good', [(tʃə'tʃʰəl) sāj] '(to eat together) delicious'

From examples in (7), we consider that [ɛ] and [ɑj] belong to one phoneme of /ɑj/.

Many researchers regard  $\bar{u}$  as a phoneme in written Manchu.<sup>4)</sup> (9a), (9b), and (9c) show that reflexes of  $\bar{u}$  in written Manchu appears as [o], [ʊ], and [u]. In other words,  $\bar{u}$  in written Manchu corresponds to /o/ and /u/ in spoken Manchu.

(9) a. [xo'tɕʰin] 'well' (cf. hūcin), [tʃu'ʏon] 'way' (cf. jugūn)

b. [mo'kʰʊn] 'family' (cf. mukūn), [kuj'nin] 'will' (cf. gūnin)

c. [xul'ʏa] 'thief' (cf. hūlha), [kʰu'zun] 'power' (cf. hūsun)

### 3. Combinatory variation

There are three types of Combinatory variations. The first is *i*-umlaut which assimilates back vowels in preceding syllable when vowel *i* is in following syllable.

(10) a. [i'tʰim] 'to win' (etembi), [i'vɪʏʌ] 'to have a full stomach' (ebimbi)

b. [ʏjɛli] 'meat' (yali)

c. [vɛi'l'ʏm] 'expose to the sun' (waliyambi), [tʰɛl'kʰin] 'lightning' (talkiyan), [tɛl'tʰi] 'for a moment' (dartai)

d. [to'oldy'lin] 'midnight' (dabori dulin)

e. [tø'lin] 'middle' (dulin), [sø'jin] 'yellow'

(11) [i'tɕʰi'ɑjne] 'new year' (ici aniya), [tʃwɛjle] 'summer' (juwari), [i:'nəŋ'bɛjɛ] (inenggi baru) 'noon', [kuj'nin] 'will' (gūnin)

Vowels of [ɪ], [e], [ɛ], [y], [ø] in (10), and diphthongs of [aj], [ɛj], [uj] in (11) are all the result of the *i*-umlaut. Considering written forms which is presented in parentheses after meaning, relations of each variant with its phoneme are summed up as follows:<sup>5)</sup>

variants	[ɪ]	[e]	[ɛ]	[aj]	[ɛj]	[uj]	[y]	[ø]
phoneme	/ə/	/ɑ/				/u/		

Table 1. Variants according to *i*-umlaut

- (12) a. [ɪ'yin] 'husband' (eigen), [ti'ɕim] 'to burn' (deijimbi)  
 b. [ɲi] 'sweat' (nei)

(12a) is examples which are not obvious whether they are results of *i*-umlaut or not. But we think that they are not so, for (12b) is an obvious example of contraction. If we recognize this contraction, vowels in the first syllable are explained by it, and, furthermore, [ø] in [sø'jin] 'yellow' (suwayan) can be explained by the contraction, too.

The second type of combinatory variations is a tendency of lowering height of the highest point of the tongue in vowels /ə, i/ in the open word-final syllable.<sup>6)</sup> On chart 2, F1 of /ə/ in the open word-final syllable is about 100 Hz larger than those in the other positions, and F1 of /i/ in that position is also about 50 Hz larger than the others. This situation is the same as that of /o/, although the difference is not large.

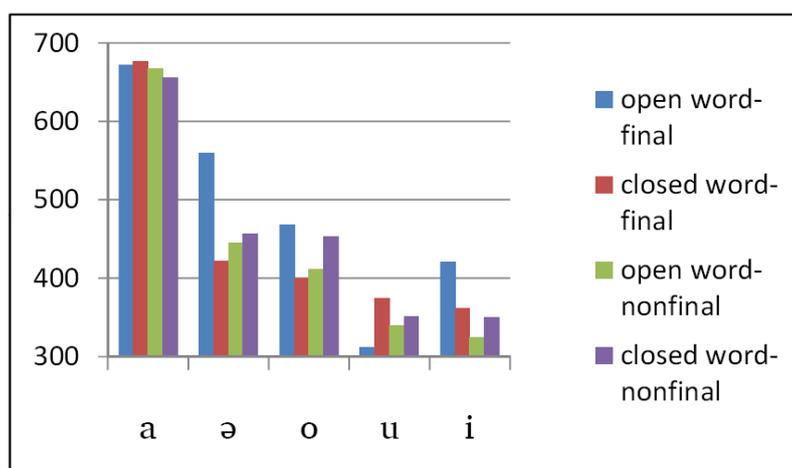


Chart 2. F1 of vowel phonemes according to syllable structure

But /a/ shows little difference between open word-final syllable and the other positions, and F1 of /u/ in open word-final syllable is smaller than those in the other positions, on the contrary.

The third type of combinatory of variations is a tendency of diphthongization of /i/ in front of /ŋ/. In such a position, /i/ is realized as a rising diphthong in which nuclear vowel is /ə/. Examples of this phenomenon are as follows:

- (13) a. [(u'duj) ni'mjɨŋ] '(wind) snow' (=snowstorm), [ɲɨŋ'niɮ] 'spring', [(fuy'zi) 'iɲɨŋ] '(first) day' (=the first day of the month), [(ʌm) 'iɲɨŋ] '(one) day'  
 b. [ni'mjuŋ] 'snow'
- (14) a. [ɲəm] 'to be sick', [i:'ɲəŋɔ] 'daytime', [i:'ɲəŋ ('bɛjɮɛ)] 'day (toward)' (=noon), [ɕəŋ'ɲən] 'smoke'  
 b. [tʰo'xoŋ'iɲɨŋ] 'the fifteenth day of a month', [i:'ɲɨŋ] 'daytime'
- (15) [ni'miŋ (tʰu'ɣuɣʌ)] 'snow (fell)', [e'ɲiŋɮ] 'this day' (=today)

Examples in (13a) are those appearing as [jɨ], (13b) as [ju]. (14a) and (14b) are examples of [jə] and [jɨ], respectively, because [ɲ] and [ɕ] are palatalized variants of /n/ and /s/. We look upon [jɨ], [ju], [jə], and [jɨ] in (13) and (14) as variants of /i/, because these diphthongs appear as [i] in the same words in (15).

#### 4. Concluding Remarks

In this paper, we investigated variations of vowels in Spoken Manchu, by using a formant chart to decide the number and the inventory of vowels, and classifying them into two types of facultative and combinatory ones. Most of the variations belonged to the former. As a result, we established 16 phonetic vowels which were reduced to 5 phonemic vowels.

A linguistically meaningful result of our work is that the so-called biuniqueness condition, that every allophone must be assigned to one and only one phoneme, cannot be applied to Manchu vowel phonology.

#### Notes

- 1) This work was supported by the Korea Research Foundation Grant funded by the Korean Government (MOEHRD) (KRF-2006-322-A00054).

2) With Enhebatu (1995), Qinggeltei (1982) is the only one which deals with Manchu in Sanjiazi village. On the works which deal with Manchu in other areas including this village, cf. Zhao (1989), Zhao and Chao (2001), and Wang (2005).

3) Of them, the number of central vowel is 4. But in the IPA vowel chart revised to 1993, corrected 1996, there are 8 central vowels.

4) Seong (1981: 93-95) considers this ū as a grapheme to write allophones of /u/ and /o/ in the 17th Manchu, not a phoneme.

5) In the light of vowel system, it is controversial that [e] and [ø] are regarded as variants of /a/ and /u/, respectively.

6) There is little difference F2's of vowels according to position and structure of syllable.

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# **Revival movement of the Warrongo language (Australia): Progress report (2008)**

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## **Abstract**

From 1971 to 1974, the first author recorded the Warrongo language (northeast Australia) from its last fluent speakers. Towards the end of the last century, a movement to revive the Warrongo language started. In 2002, Warrongo language lessons, conducted by the first author, commenced. So far the lessons have been conducted five times — four or five days each time. The revival movement is making a slow but steady progress. Its developments are seen, for example, (1) increased local involvement, (2) increased teaching staff, (3) spontaneous use of the language, and (4) naming in Warrongo. However, this movement is beset with many problems, and lack of funding is one of the most difficult obstacles.

**Keywords:** Warrongo, linguistic heritage, language revival, spontaneous use, naming.

## **1. Introduction\***

The present paper is mainly concerned with one of the issues listed in ‘Description of Workshop on Endangered Languages: “what we can do for the endangered languages”.’

At the 17th International Congress of Linguists (Prague, July 2003), the first author of the present paper delivered an invited plenary paper on the revival movement of the Warrongo language of northeast Australia. The paper was published as Tsunoda (2004). The present paper briefly summarises the movement up to 2003, and then provides an updated report on the movement. Details of the progress are given in Tsunoda and Tsunoda (2007).

The present paper incorporates portions of Tsunoda (2004, 2005, 2006a, 2006b, 2007, forthcoming, an essay located at <http://www.sgu.ac.jp/com/ksasaki/kaken/essay/essay-tsn.htm>), and Tsunoda and Tsunoda (2006, 2007).

## **2. Brief contact history of Aboriginal Australians**

At the time of the first British colony at Port Jackson (Sydney) in 1788, there are estimated to have been about 250 languages. However, over the subsequent centuries, most Aboriginal Australians were dispossessed of their land, and their population was reduced drastically, due to massacres, introduced diseases, forced relocation, and so on. Most of the earlier Aboriginal languages are extinct, and there are only 100 or so languages still spoken, mostly by old people. (See Blake 1994.)

## **3. Fieldwork in north Queensland from 1971 to 1974**

In 1971, when the first author was an M.A. student of Monash University, Melbourne, he started fieldwork in and around Townsville, north Queensland, and carried out research there three times, until 1974. His main focus was on the Warrongo language (also spelt Warungu, Warrungu, etc.), which used to be spoken in the upper Herbert River area, northwest of Townsville. Other languages he recorded include Biri (Bowen area), Gabilgaba (Townsville-Magnetic Island area), and Buluguyban (Palm Island). One of the outcomes of that fieldwork is his M.A. thesis (Tsunoda 1974). Currently he is writing a Warrongo grammar for publication.

## **4. Importance of documenting endangered languages**

Already in the early 1970s, the above-mentioned languages of north Queensland were facing extinction. They each had just one or two speakers left. Warrongo had only two fluent speakers left. The first author recorded data from the last speakers of these languages.

In the case of languages that seem to have no or little chance of survival, the last speakers often wish, and indeed make every effort, to have their language recorded. This heartfelt desire and commitment were best expressed by the late Mr. Alf Palmer (Warrongo name: Jinbilnggay), one of the last two fluent speakers of Warrongo, who used to say to the first author:- “I’m the last one to speak Warrongo. When I die, this language will die. I’ll teach you everything I know, so put it down properly”. Indeed, Alf Palmer made admirable efforts to teach the first author everything he knew.

In retrospect, it was Alf Palmer who taught the first author the importance of

documenting endangered languages. His was perhaps one of the earliest responses to the crisis of language endangerment. It was made twenty years before the publication of works such as Hale et al. (1992) and Robins and Uhlenbeck (1991), which are possibly the first works that urged linguists to pay serious attention to language endangerment. Alf Palmer was a man of wisdom and foresight.

The last speakers of these languages of north Queensland passed away, and the languages became extinct. Alf Palmer passed away in 1981, and there was no one left who could speak Warrongo — except the first author.

## **5. Language revival movement starts.**

More than a quarter century later, towards the end of the last century, a few groups of people there, including Warrongo people, started a movement to revive their ancestral languages, and they approached the first author, requesting him to assist their activities.

In March 2000, the first author visited Townsville (where many Warrongo people live nowadays), after 26 years since his last visit of 1974 to the area. The visit was followed by another visit in March 2001.

The central figure in the Warrongo language revival movement is Rachel Cummins, who is Alf Palmer's granddaughter.

Many of the people involved in the language revival activities turned out to be grandchildren of the last speakers whom the first author had interviewed in the early 1970s. They already knew about him, and about his work. Some of them had obtained copies of relevant field tapes from the Australian Institute of Aboriginal and Torres Strait Islander Studies, Canberra (with which he lodges all his field tapes), and they even knew his voice.

The late Stephen Walsh, a member of the Biri group, said to the first author, “We are grateful that you recorded our languages”. This obliterated all the hardship that the first author had experienced during that fieldwork.

## **6. Value of linguistic heritage**

In March 2000 and March 2001, the first author had preliminary discussions with a number of people. He described one aspect of the Warrongo language roughly as

follows.

Warrongo had a phenomenon that linguists call syntactic ergativity. This phenomenon is unique among the world's languages. It mainly occurs in Australia, in Queensland, and in fact, in north Queensland. It occurs in Warrongo, and also Warrgamay, Girramay, Jirrbal, Mamu, Ngajan, Yidiny, and Djabugay. Because this phenomenon is unique among the world's languages, it is a very important part of the cultural heritage — not only for the people of this area, but also for the entire humankind.

Needless to say, the knowledge of the existence of a truly unique phenomenon in their ancestral language has enhanced Warrongo people's sense of pride and self-esteem, and also interest in the language. It has also proved to be an invaluable cultural heritage to them. (For syntactic ergativity, see Dixon (1972) on Girramay, Jirrbal and Mamu, Tsunoda (1974, 1988, 2004, 2005) on Warrongo, Hale (1976) on Djabugay, Dixon (1977) on Yidiny, and Dixon (1981) on Warrgamay.)

## **7. Warrongo language lessons start.**

After two series of preliminary discussions (March 2000 and March 2001), the first author started Warrongo language lessons in March 2002, in Townsville. So far, the lessons have been conducted five times — about four or five days each time: March and August 2002, March 2004, and March and August 2006. What we have dealt with includes the following:

- a. orthography;
- b. pronunciation;
- c. basic vocabulary, including ancestors' names, e.g. Jinbilnggay (Alf Palmer);
- d. simple sentences, such as:
  - d-i. declarative sentences;
  - d-ii. general questions and special questions;
  - d-iii. imperative sentences;
- e. complex sentences: syntactic ergativity;
- f. mini-conversations, and;
- g. socio-cultural background, e.g. kin terms, patterns of kin-based

behaviour, sections, totems, marriage rules, mythology, and naming.

The people in the class found the topic of g. really interesting, and welcomed the inclusion of cultural aspects in the Warrongo language lessons. They stated that they realised they still retain the traditional patterns of kin-based behaviour, despite the fact that they no longer know the traditional kinship system or kin terms. (They know a couple of kin terms, e.g. *yangana* “mother”.) They also stated that they now know why they behave the way they do. The inclusion of the cultural aspects turned out to be a great success.

In 2003, the first author prepared *A provisional Warrungu dictionary* (Tsunoda 2003), and sent 50 copies to Rachel Cummins, who in turn distributed them to other Warrongo people. Fortunately, the dictionary is in demand, and additional 60 copies were sent in 2008. Vivian (Peter) Lenoy — Alf Palmer’s grandson and Rachel Cummins’ cousin — indicated to the first author that he is proud to have a book on his ancestral language in his home.

## **8. Recent developments: slow but steady progress**

The Warrongo revival movement is making a progress — a slow but steady progress. Specific instances of the progress include the following. Most of them took place in 2006 — four years after the Warrongo language lessons started in 2002. They are all encouraging developments.

### *8.1. Local involvement*

Warrongo people began to participate in the revival movement more actively. Examples follow.

[1] Tahlia and Mheelin Cummins, who are Rachel Cummins’ daughters, prepared picture cards — a card with a picture of, say, a butterfly and the Warrongo word for it (*gomborrgomborr*).

[2] The people who came to the Warrongo lessons decided to have language activities at the weekend — while the first author is away in Japan.

### *8.2. Learners*

Children began to attend the lessons. The number of the children who attended

the classes was about 10. Their age ranged from about three or four to twelve.

Needless to say, if a given language is spoken by adults only and if it is not acquired by children, then it will have no chance of survival. Similarly, in a language revival movement, if the language is learnt by children, it will have a better chance of revival. Therefore, it is significant that Warrongo children began to attend the language lessons.

### 8.3. Teaching staff

The second author joined the first author in teaching. She had been attending the Warrongo lessons since the first lessons of March 2002 and had been learning the language. She has an M.A. degree in Teaching of Japanese as a Foreign Language, and a Ph.D. degree in Japanese Linguistics. She has many years of experience of teaching Japanese to overseas students and researchers, and she applied this experience to the Warrongo lessons. Two examples follow.

Example 1. Warrongo has the following cases: ergative (for transitive subject), nominative (for intransitive subject), accusative (for transitive object), dative, locative, genitive, and ablative. That is, it has the ergative case system. The cases are in the main expressed by suffixes. The Warrongo cases may be difficult for the current learners (whose first language is English) for two reasons. First, the ergative system is absent in English. Second, the cases are in the main expressed by suffixes — in contrast with English, where cases are often manifested by prepositions. Furthermore, word order in Warrongo is not fixed, in contrast with that in English. This may present some difficulty to the learners. The first author prepared language materials that show the use of the cases, among others. On the basis of these materials, the second author prepared the following materials.

- a. Picture cards, e.g. a picture of a woman walking, one of a man running, one of a man carrying a fish, and one of a woman drinking water.
- b. Cards with a verb, e.g. *yani-n* (“walk-NONFUT”), *wadali-n* (“run-NONFUT”), *ganyji-n* (“carry-NONFUT”), and *bija-n* (“drink-NONFUT”).
- c. Cards with a case suffix.
- d. A card with an arrow, and also one with the interrogative *wanyo-lo* (“who-ERG”), one with *wanyo-na* (“who-ACC”), one with a name (e.g. Mheelin — Rachel Cummins’ daughter), one with a kangaroo, one with a dog, and so on.



#### 8.4.1. Spontaneous use of the language

[1] On the afternoon of the 17th March 2002 (Sunday), i.e. the very first day of the Warrongo lessons, we were practicing the writing system and pronunciation, using a fair number of basic words. The words included the following two words.

*bija* “Drink!” (offering someone a drink of water)

*gamo* “water”

(The word *bija-Ø* can be glossed “drink-IMPERA”.) When we were practicing the word *bija* “Drink!” Rachel Cummins uttered the following sentence spontaneously.

(3) *bija-Ø*                      *gamo-Ø*.  
drink-IMPERA      water-ACC

The first author’s translation: “Drink water!”

The first author said that this was a correct Warrongo sentence, and provided the translation “Drink water!”.

The first author had explained individual words and imperative forms of verbs, but he had not taught this particular sentence. Despite this, Rachel composed this sentence, on the basis of what she had learnt. It is a correct Warrongo sentence. It was the first Warrongo word or sentence that the first author had ever heard uttered by a Warrongo person in the 28 years since 1974! — the year that he worked with Alf Palmer — Rachel’s grandfather — for the last time.

Note that this sentence has a VO order. It is no doubt based on the English word order. A more natural Warrongo sentence would have an OV order.

Regarding language death, Tsunoda (2005: 104) notes as follows: “among inflected forms of verbs, imperative forms appear to be the most resistant to loss”. Also, Tsunoda (2005: 115) notes as follows: “If verbs survive at all, they are most likely to survive in the imperative forms ... The reverse situation seems to obtain in child language”. In view of this, it would be expected that, in a language revival situation, if verbs are used at all, they will be likely to be used in the imperative forms. Indeed, this is exactly what happened in Rachel Cummins’ speech.

[2] Rachel Cummins stated probably in 2004 that two of her daughters — Tahlia (her fourth daughter; 19 years old at that time) and Mheelin (her fifth daughter; 17 years old at that time) — started using Warrongo in the home, teasing each other with Warrongo words. That is, they began to use Warrongo spontaneously.

[3] On the morning of the 26 March 2006 (Sunday), someone passed wind, and the first author said the following sentence:

(4) *boji-Ø*                      *banda-n*.      [TT]  
fart-NOM                      emerge-NONFUT

Literal translation by the first author: “Fart came out.”

Upon hearing this, Meaghan Cummins (Rachel Cummins’ eldest daughter) said the following sentence.

- (5) *wanyo-Ø*      *boji-Ø*      *banda-n?*  
who-NOM      fart-NOM      emerge-NONFUT

Literally: “Who fart came out?”, i.e. “Who farted?”

Almost certainly (5) is a correct Warrongo sentence.

This incident happened in March 2006. Meaghan Cummins started attending the Warrongo lessons probably only in March 2006. But she has already started saying sentences spontaneously. This is a remarkable progress.

#### 8.4.2. Vocabulary

As mentioned in Section 7, the first author sent 50 copies of *A provisional Warrungu dictionary* (Tsunoda 2003) to Rachel Cummins, who in turn distributed them to other Warrongo people.

The following anecdote concerns Tracy Palmer, who is Rachel Cummins’s elder sister’s daughter. She will be referred to in 8.4.5-[3] in connection with the naming of her son, Ronald.

In March 2006, the first author found that Tracy Palmer had worked hard through the dictionary. During the lessons of March 2006, there were a few occasions when the first author was unable to recall a Warrongo word. But on each occasion Tracy showed him where in the dictionary the word was. One of these words is *gobo* “leaf, tea leaf”. (He knew that *gobo* means “leaf”, but he could not recall the word for tea leaf.) It was clear that Tracy Palmer had studied the dictionary thoroughly and that she had gained a good knowledge of Warrongo vocabulary.

#### 8.4.3. Pronunciation

This anecdote concerns Shaqium (pronounced [shaki:m], stress on [ki:]) Palmer, who is Rachel Cummins’ younger sister’s daughter’s son, and who was probably about five years old at that time.

On the afternoon of the 27th March 2006 (Friday), after a visit to Aitkenvale Library in Townsville, in the car on the way back home, the first author said to Shaqium as follows.

- (6) Thank you very much for waiting for us. You have been very patient.  
You have been very good. [inda dyarribara kalbin].

The above contains the following Warrongo sentence:

- (7) [inda            dyarribara        kalbin] [TT]  
*yinda            jarribara-Ø       galbin-Ø.*  
 2SG.NOM    good-NOM        child-NOM

“You are a good child.”

The first author said to Shaqium that that this means “You are a good child”. Furthermore, he said the word [dyarribara] repeatedly.

To the great surprise of the first author, Shaqium said the word [dyarribara] voluntarily. He pronounced [rr] (a flap) and [r] (an approximant), correctly. That is, he observed the difference between /rr/ (a flap) and /r/ (an approximant), and furthermore he pronounced them correctly. This is despite the fact that the first author had not explained anything to Shaqium. He (the first author) just said [dyarribara dyarribara].

On the morning of the 28th March 2006 (Tuesday), the first author recorded Shaqium’s pronunciation. Again, Shaqium said [dyarribara] /jarribara/. Again he clearly distinguished between /rr/ and /r/.

The above shows that children acquire pronunciation very quickly, unlike adults.

#### 8.4.4. Song

At the beginning of the first lesson of March 2004, a group of Warrongo children, led by Kali Kemp (who is Rachel Cummins’ granddaughter), welcomed the authors by singing a song in Japanese and also one in Warrongo. On the 29th March, Meaghan Cummins wrote the Warrongo song in the first author’s field notebook.

- (8) *gaja binda jarra jina jarra jina jarra jina*  
*gaja binda jarra jina ngali mara balga*  
*jili walo jawa gajo jawa gajo jawa gajo*  
*jili walo jawa gajo ngali mara balga*  
 we will all clap hands together.

Consulting *A provisional Warrungu dictionary* (Tsunoda 2003), Meaghan composed the Warrongo lyrics, on the basis of an English song. The words of the English song appear to be as follows.

- (9) Head, shoulders, knees and toes, knees and toes  
 Head, shoulders, knees and toes, knees and toes  
       and eyes and ears and mouth and nose,  
 Head, shoulders, knees and toes, knees and toes  
 (<http://www.songsforteaching.com/learningstation/headshoulders.htm>)

Glosses by the first author for the words in (8) are as follows: *gaja* “head”, *binda* “shoulder”, *jarra* “upper leg”, *jina* “foot”, *ngali-Ø* “1DU-ERG”, *mara* “hand”, *balga-Ø*

“hit-IMPERA”, *jili* “eye”, *walo* “ear”, *jawa* “mouth”. The word that was written as *gajo* may be *gaja* “head”.

The singing of this Warrongo song was accompanied by gesture. As they sang it, the children touched the relevant part of their body. For example, when they said *gaja* “head”, they touched their head.

The song in (8) contains two occurrences of the following sentence.

- (10) *ngali-Ø*      *mara-Ø*      *balga-Ø*.  
1DU-ERG      hand-ACC      hit-IMPERA

The first author’s translation: “Let’s clap hands.”

No doubt, (10) is a correct Warrongo sentence. Again, this shows that Meaghan is rapidly acquiring fluency in Warrongo.

Rachel Cummins (e-mail message of 6 October 2008) welcomed the inclusion of this account of the Warrongo song in the present paper, and she stated as follows: [This Warrongo song is an instance of] “contemporary application of an ancient tongue. Shows that our culture is not stable but valuable in any time.”

In passing, we note the following two points.

First, *ngali* in (8) is the dual form. There is also the plural form *ngana* “1PL”. If (8) is intended to mean “Let’s all”, rather than “Let’s two”, then the plural form *ngana* “1PL” should be used.

Second, the song in (8) contains no word for “together”. The first author suggested the deletion of “together” from the translation. As an alternative, for “all together”, he suggested the following word:

- (11) *garo-bi-n*      [TT]  
all-INTR-NONFUT’  
“do together”

#### 8.4.5. Naming

[1] Tahlia Cummins’ baby was born in 2005. She chose a Warrongo name for her baby. According to Rachel Cummins (Tahlia’s mother), the name is “Youngali Munjani Binggany Cummins”. Tahlia found the word *binggany* in Tsunoda (2003) (*A provisional Warrungu dictionary*).

In this connection, the following comment is in order. The first author’s field notes indicate that, although *binggany* may possibly be Rachel’s Warrongo name, this is not certain. (*Youngali* and *Munjani* are not Warrongo words. Their respective etymologies are discussed in Tsunoda and Tsunoda 2007.)

[2] On the morning of the 26 March 2006 (Sunday), Norris Palmer (who is

Rachel Cummins' younger sister's son, and who was about 12 years old) told the first author that he wanted a Warrongo name. Rachel Cummins said that Norris was a fast runner. In view of this, the first author suggested the following name.

(12) *jina ngarrban* [TT]

foot fast

Literally: "fast foot"

(In Warrongo compound nouns, an adjective follows, rather than precedes, a noun.) Rachel approved this name, and Norris adopted it.

Later on the same morning, Norris told the first author the following. For his name, he wanted just *ngarrban* "fast". He did not want *jina* "foot".

As mentioned in 8.4.2, Tracy Palmer had worked hard through Warrongo dictionary. On the 28th (?) March 2006, she told the first author that she had found the name Wilbanyo "Norris Palmer" in the dictionary. This Norris Palmer (already deceased) is Alf Palmer's son. He is the young Norris' mother's mother's brother, and he is Rachel's mother's brother.

On the 29th March 2006 (Sunday), the first author mentioned to the young Norris Palmer that the late Norris Palmer's name is Wilbanyo. He showed the name in the dictionary, and stated that the young Norris and the late Norris are namesakes. The young Norris preferred the name Wilbanyo to the name *Ngarrban* ("fast"). He did not want the name *Ngarrban*. His request was approved by Meaghan, Tracy, and others. The young Norris adopted the name Wilbanyo.

[3] On the morning of the 26th March 2006 (Sunday), Tracy Palmer told the first author that her son, Ronald, wanted a Warrongo name, that he played football, and that he was a defense. So, the first author suggested the following name.

(13) *jabi-no* [TT]

stop-*no*

tentative translation: "stopper"

(The suffix *-no* occurs in names such as *Wambi-no* and *Jabi-no*. It is added to verb roots — e.g. *wambi-* "to rest", and *jabi-* "to stop [someone]" — and forms nouns. Its meaning is possibly — though by no means certain — 'agent', like the English suffix *-er*, as in *teach-er*.) The name *Jabino* 'stopper' (a tentative translation) will be suitable for someone who plays the position of defense in football. Furthermore, *Jabino* is the name of Roderick Palmer, who is Ronald's mother's mother's cousin (and who is also Rachel Cummins' cousin). In view of these, Tracy and Ronald were very happy with this name, and adopted it.

[4] The second author observed the following incident. After the lesson on the

morning of the 26th March 2006 (Sunday), in which Norris Palmer (see [2] above) and Ronald Palmer (see [3] above) adopted their Warrongo names, another boy — probably either Joshua Wilson or Michael Wilson — indicated that he, too, wanted a Warrongo name. Other boys teased him, using one of the words they had learned in previous lessons:- “How about *bojimborrowam* for your name?” (The word *bojimborrowam* means “cockroach”.) All the boys roared with laughter. But this anecdote shows that they began to use Warrongo spontaneously. (Joshua and Michael Wilson are Alf Palmer’s daughter’s daughter’s son’s sons. They are Rachel Cummins’ cousin’s son’s sons.)

The above-mentioned anecdotes about naming show that the younger generation, too, has begun to be interested in their traditional culture.

It is added in passing that the authors were each given a Warrongo name. In the early 1970s, Alf Palmer gave the first author the following name:

- (14) *goni-ra*  
kill, fight-agent  
“killer, fighter”

The suffix *-ra* “agent” is added to a noun root and derives a noun, like the English suffix *-er*, as in *teach-er*. Gonira is Alf Palmer’s (maternal?) uncle’s name. In 2006, Rachel Cummins gave the second author the following name:

- (15) *yimirri-n*  
be.glad/happy.and.smiling-NONFUT  
‘[She] is glad/happy and smiling.’

Rachel had learned this word in previous lessons. She thought that this name suits the second author.

To sum up, the Warrongo revival movement is making a slow but steady progress. This shows that Alf Palmer’s dedicated efforts to have his language documented have proved to be truly worthwhile. What he sowed more than 30 years ago is now beginning to be harvested by his descendants and his people.

## 9. Suggestions for language teaching method

In 2006, the authors noticed two interesting phenomena.

a. Grammar. Some aspects of the grammar were difficult for children. But adults found them less difficult, and they were explaining these points to children.

b. Pronunciation. The reverse situation was observed. Adults sometimes had a difficulty in pronouncing those sounds which were absent in English, but children

acquire such sounds easily.

In view of this, the second author suggested that the following may be a useful strategy for these language lessons.

a'. Difficult aspects of grammar: teach them to adults first, and get them to explain these points to children.

b'. Difficult aspects of pronunciation: teach them to children first, and then get them to teach the pronunciation to adults.

## **10. Prospects**

There are a number of plans that Warrongo people are entertaining. For example, they hope to have camps in their traditional land, for language and other activities. They also hope to have the Warrongo language taught at James Cook University in Townsville. To have an Aboriginal language taught at a university has an important implication, that is, it will help to enhance the status of Aboriginal languages:- 'Our language is taught at a university. It is not a primitive language. It is an important language — just like French, German, and Japanese'. Unfortunately, however, this plan is only "a dream" (Rachel Cummins, p.c.) at this stage.

As is almost always the case with language revitalisation efforts, the Warrongo movement is beset with numerous problems. The most serious problem is lack of funding. For example, there are people who wish to come to Townsville to attend the Warrongo lessons, but there is no funding for their expenses. As another example, the first author's applications to the Japan Society for the Promotion of Science, the Australia-Japan Foundation, and the University of Tokyo, to fund the authors' participation in the Warrongo language revival movement, were all unsuccessful.

The Warrongo language revival movement is an important component of the cultural activities of the entire humankind. It is hoped that the Japanese and the Australian governments recognise its importance and pay due attention to it. To assist such activities is a duty of these two — and indeed every responsible — governments.

## **11. Concluding remarks**

The present paper has shown the following, among others. (1) It is an extremely important and no doubt very urgent task of linguists to document endangered languages.

(2) The documentation of a given language will prove to be extremely valuable for the community concerned. (3) To conduct language revitalization activities, the expertise and experience of language teaching are invaluable. Finally, it is hoped that the governments of Japan and Australia among many others will recognise the importance of language activities and pay due attention to them.

### \*Notes

The present paper is dedicated to the memory of the late Mr. Alf Palmer, who taught the first author the importance of documenting endangered languages more than 30 years ago. The authors are grateful to Rachel Cummins (Alf Palmer's granddaughter) for supporting the presentation of this paper and other papers that report the Warrongo language revival movement.

For phonetic symbols, the present paper uses only those symbols which are available on an ordinary computer keyboard, and it avoids the use of IPA phonetic symbols. In particular, it uses the following symbols.

[dy] for a voiced palatal stop.

[ty] for a voiceless palatal stop.

[ny] for a palatal nasal.

[ng] for a velar nasal.

[rr] for an alveolar flap or trill.

[r] for a retroflex approximant.

[y] for a palatal semi-vowel.

[sh] for a palatal-alveolar fricative.

The phoneme inventory of Warrongo, written in a practical orthography is as follows:

/b, d, j, g, m, n, ny, ng, l, rr, r, w, y, a, i, o/

Note that /j/ indicates a palatal stop ([dy] or [ty]), and not a semivowel. /rr/ presents an alveolar flap or trill, and /r/ a retroflex approximant.

The vowel phonemes in Warrongo are /a, i, o/. The first author used to use the letter *u*, and not *o*, for example, in Tsunoda (2003). However, the practical orthography adopted by Warrongo people in March 2004 employs the letter *o* in place of the letter *u*. The reasons for this decision are as follows.

In March 2004, the first author mentioned to Warrongo people that it might be a good idea to use the letter *o* in place of the letter *u*. There are two reasons for this.

First, the letter *u* in the English orthography is confusing. It is pronounced at least in five different ways: (i) *put, bull, cushion*, (ii) *but, cut*, (iii) *cute, music*, (iv) *minute, business*, and (v) *bury* (Tsunoda 2005: 195).

Second, the sound presented by the letter *u* in the writing system that had been used is phonetically almost always [o], and it is [u] only in a very small number of words.

In view of the above, the Warrongo people concerned decided to use the letter *o* in place of the letter *u*.

In the present paper, the letter *u* is used when writing the names of other Australian languages.

Abbreviations and symbols employed are the following.

ACC:	accusative
DU:	dual
ERG:	ergative
IMPERA:	imperative
INTR:	intransitive-stem-forming suffix
NOM:	nominative
NONFUT:	nonfuture
p.c.:	personal communication
PL:	plural
SG:	singular
TT:	sentence or word suggested by Tasaku Tsunoda
-Ø:	zero suffix (e.g. nominative, accusative, imperative)
1:	1st person
2:	2nd person

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# Preliminary Report on Fieldwork Studies on Mongolian Languages and Dialects<sup>1</sup>

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## Abstract

This paper informs that most of the Mongolian languages and dialects are in danger of disappearing under the pressure of Chinese, Russian, Kazakh, or Tibetan. Readers find some of these languages and dialects already have lost their actual speakers. The Ü üriin Uriankhai case is introduced as an extreme example of Khalkhazation. Some interesting phenomena are introduced: 1) children spoke mother tongue better than parents in some communities, 2) good memory of the elements of one's mother tongue does not always go with the actual use, 3) most of the mother tongue-losses were completed in past several decades.

**Keywords:** Mongolian languages and dialects, danger of disappearing, "Khalkhazation", gap between the memory and the use

## 1. General introduction

The Altaic Society of Korea and Seoul National University have been doing a joint project called the ASK REAL(The Altaic Society of Korea, Researches on Endangered Altaic Languages) funded by Korea Research Foundation since September 2003. I have been participating to this project from the beginning to visit and study over 20 endangered Mongolian languages and dialects. A Mongolian fieldwork team is usually composed of four people: one Mongolist (overall process, transcription) who happens to be myself, one questioner (a Korean expert or a native speaker of either Khalkha Mongolian, Chinese, or Russian), one for sound recording, the other one for video recording. We have questionnaires prepared either in Khalkha Mongolian, Chinese, or Russian. We ask questions in either one of these three languages, and consultants are requested to reply twice at each word or sentence in their own mother

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tongue.

We usually get 2500~2700 words, 340~350 conversational expressions, 380~385 sentences (and constructions) for grammatical analysis from each survey which lasts 2~3 days in average. We record the life story of the consultants, their favorite folk songs and folk tales, explanations on customs and proprieties of their community, etc. The entire process is recorded with a sound recorder and a video camera. We study with one consultant at a time. When our work is completed, then we move to the second consultant of the dialect or to the second dialect.

All recorded words, expressions, sentences from the fieldwork studies are being transcribed both phonetically and phonologically. Several papers on findings of the fieldwork studies have been published or read in conferences in Korean or in English by myself as Yu (2006), Yu (2007a), Yu (2007b), and Yu (2008).

The ASK REAL published four books this year. The first book includes a general report on our fieldwork studies on Mongolian, Turkic, and Tungusic languages and dialects conducted from September 2003 to July 2006 as Kim et al. (2008a). It was written in Korean.

A fieldwork report and linguistic description on the Tacheng dialect of the Dagur language is also published this year as Yu et al. (2008). From this second book on, the books are written in English. The strongest candidate Mongolian language for the next book is the Khamnigan Mongolian in Mongolia. The Turkic languages team and the Tungus languages team of the ASK REAL also did fieldwork studies on some 10~30 languages and dialects, and they have the similar plans for publication as one may see in Kim et al. (2008b) and Li et al.(2008).

During our fieldwork studies, I felt all Mongolian languages and dialects, except Khalkha, are facing various degrees and natures of danger of disappearing by the pressure of Khalkha Mongolian, Chinese, Russian, Kazakh, or even Tibetan. This paper tries to describe the degrees and the natures of the dangers which these language and dialect are facing. I would like to introduce some interesting phenomena, episodes, or facts witnessed and heard during the fieldwork studies.

## **2. Current Situation of the Mongolian languages and dialects**

### *2.1. Mongolian languages and dialects in Russia*

Studies were carried out on the following Mongolian languages and dialects spoken in Russia. Information is given as the order of “the name of the language (dialect); place of investigation; date of investigation.

- (1) Buryat (Aga Khori); Ulaan-Ude; 2004. 4. 22 - 4. 23.
- (2) Buryat (Khori); Seoul, Korea: 2004. 10. 8. - 10. 10.
- (3) Buryat (Ekhirit-Bulagat); Ust-Ordynsk City, Irkutsk Oblast; 2007. 1. 19 - 1. 22.
- (4) Buryat (Alar); Cheremkhovo City, Irkutsk Oblast; 2007. 1. 23 - 1. 25.
- (5) Buryat (Tunka); Arshaan, Tunkiinskii Raion, Buryat Republic; 2007. 1. 27. - 1. 28.
- (6) Buryat (Oka); Arshaan, Tunkiinskii Raion, - Buryat Republic; 2007. 1. 29.
- (7) Buryat (Tsongool), Tashir Village, Selengiinskii Raion, Buryat Republic; 2007. 8. 3. - 8. 5.
- (8) Buryat (Sartuul); Ulzar Village, Dزيدinskii Raion, Buryat Republic; 2007. 8. 6. -8.7.
- (9) Buryat (Bargazaan); Bayangol Village, Barguzin Raion, Buryat Republic; 2007. 8. 10.
- (10) Kalmyk (Dörvöd); Elista City, Kalmyk Republic; 2006. 4. 18 - 4. 21.

It would be convenient for the discussion if Mongolian languages and dialects in Russia are grouped into several groups as below according to the degree and the nature of the danger they are facing.

### *2.1.1. Buryat dialects*

#### *2.1.1.1. Buryat dialects in Buryat Republic*

*2.1.1.1.1. Sartuul and Bargazaan.* These dialects seem to be in between “Stable yet threatened” ~ “Unsafe” if we consider "Intergenerational Language Transmission", "Absolute Number of Speakers", "Proportions of Speakers within the Total Population", three of the major evaluative factors of language vitality proposed by UNESCO Ad Hoc Expert Group on Endangered Languages(2003:7-9).<sup>i</sup> Consultants said that even the old Russians knew Buryat in their villages. I had no opportunity to talk with the local Russians there. Preschool children and teenagers understood my Mongolian<sup>ii</sup> and responded to my questions in their dialects. However, the Buryats in these areas are also fluent in Russian, which is the language of their children's computer games, favorite TV shows, idol stars, comic books, classroom, and everything.

2.1.1.1.2. *Tsongol, Tunka, Oka*. These dialects seem to be “Definitively endangered”. In Tsongool, villagers, in their 30s and over, conversed with me in their Buryat dialect. However, they depended heavily on Russian for the communication among themselves. Their teenagers understood my Mongolian and replied in Buryat but with certain degree of pain. The Tsongools believed that the Sartuul youngsters spoke Buryat better than theirs because the Sartuul land was nearer to Mongolia.

In Tunka area, I had no opportunity to converse with the villagers other than our 59 year old consultant, a fluent speaker of her mother tongue, who answered in Buryat forms for 89% of the 2757 words we asked.<sup>iii</sup>

It may not be proper to say about the situation of the Oka Buryat which I studied in Tunka area, only one day, with a consultant who was living 30 years in Tunka area. She answered in Buryat forms for 87% of the 880 words we asked.

2.1.1.1.3. *Aga and Khori*. It may not be proper to say about the situation of the Aga Buryat dialect which I studied in Ulaan-Ude because my consultant was a Mongolist who was living in Ulaan-Ude, the capital of the Buryat Republic for 40 years since her graduation from high school in Aga area.

It may not be proper either to say about the situation of the Khori Buryat dialect which I studied in Seoul, with a young Buryat scholar in Korean Studies. She was fluent in Buryat but she said that her Buryat was being recovered after she had found and shocked at the loss of her mother tongue while she was visiting Ulaanbaatar as an exchange student, where everybody was speaking in Mongolian.

According to our consultant, she regained much part of her native language by talking in Buryat with her mother at home. She heard from her mother that a person who knew only the Buryat was treated as a person without enough education, a country folk, a pitiable person, etc. in Ulaan-Ude when her mother was at her age. According to her observation, however, from early 1990s, atmosphere has been changed to regard a young mother who is trying to teach Buryat to her child is being regarded as "a great mother with right consciousness" in Ulaan-Ude.

Both consultants worried about the increasing number of the young Buryats who cannot speak their mother tongue, especially in Ulaan-Ude. As a whole, the Buryat language seemed to be in between "Definitively endangered" ~ “Severely endangered” in Ulaan-Ude.

2.1.1.2. *Buryat dialects in Irkutsk Oblast*. Both the Ekhirit-Bulagat and the Alar Buryat dialects seemed to be “Severely endangered”. It seemed that Buryat people in their 30s

and 40s understood their mother tongue in various levels in these areas. But only few of them were ready to respond in their Buryat dialects.

Our consultant, a 64 year old grandfather, spoke to his 10 year old grandson in Russian. He and his friend conversed in Russian right after they exchanged greetings in Buryat. He replied in Buryat forms for the 71% of the 2757 words we asked. He believed that his mother tongue would disappear in his lifetime.

A 41 year old Alar consultant spoke Buryat fluently with many Russian words. She replied with the Buryat forms for 67% of the 2757 words we asked. One of her female cousins, about the same age with her, spoke as fluently as eloquent talkers in Mongolia. However, 76 year old father of our consultant, who had the normal hearing ability, spoke in Russian to his daughter, son-in-law, and nieces. He needed his daughter's Russian translation to converse with me. Another cousin of our consultant, a principal of a primary school, which had only the first year and the second year classes, told me in Russian that they were worried that their children did not know how to speak in Buryat, and they were teaching (the Khori) Buryat at school one or two hours a week through a visiting teacher who taught "the Standard Buryat language", which is the another name for the Khori Buryat dialect in Buryatia.

### *2.1.2. The Kalmyk language in Kamyk Republic*

The Kamyk language is "Severely endangered" as the Buryat dialects in Irkutsk Oblast, Russia. When I was in Elista, the capital of the Kalmyk Republic, they had a newspaper in Kalmyk, *Kal'mg Unn*. Some books were being published in Kalmyk. TV broadcasting lasted around 8 minutes in Kalmyk in the morning news time. Our 76 year old consultant was fluent in his mother tongue. He and his Kalmyk friends in their 60s and 70s, however, exchanged their everyday greetings in Russian.

Several graduate students in their 20s, who helped and observed our fieldwork studies, spoke in Mongolian with me, which showed no actual difference from the Khalkha dialect. They spoke Kalmyk and Russian among themselves. They told me that they learned both the Kalmyk and the Mongolian as their major subjects after they entered the college. According to them, Kalmyk language is being taught in schools these days, it is however, hard to expect high level proficiency in that it is not spoken outside of those classes. They added that their parents were not able to speak in Kalmyk because their grandparents had lost their language during the years of the deportation (1943-1957) .

Some of them said that I should have visited the Ketchener area where the Kalmyks including the children spoke in their mother tongue in everyday life. The other

students refuted that the Ketcheners were over proud about their speaking Kalmyk, which in reality was a mere combinations of the simple Kalmyk words by Russian syntax. Two graduate students, who were with us throughout the survey, occasionally raised questions about the word order of our consultant.

## *2.2. Mongolian languages and dialects in China*

Fieldwork studies were carried out on the following Mongolian languages and dialects spoken in China.

- (1) Dagur (Meilis); Meilis Dagur Nationality district, Qiqihaer, Heilongjiang; 2003. 9. 23. - 9. 26.
- (2) Dagur (Ashir); Tacheng , Xinjiang; 2004.10.18. - 10. 21.
- (3) Khuuchin Barga; Hailaer, Hunlunbeier, Inner Mongolia; 2005. 2. 16. - 2. 19.
- (4) Shira Yogur; Hongwansi, Sunan, Gansu; 2005. 10. 17. - 10. 21.
- (5) Bonan (Nianduhu, Tongren); Xining, Qinghai; 2006. 8. 19. - 8. 21.
- (6) Monguor (Minhe); Xining, Qinghai; 2006. 8. 23. - 8. 25.
- (7) Oirat (Hoboksair); Hebukesai, Xinjiang; 2008.1. 6. - 1. 8.
- (8) Oirat (Bortala); Jinghe, Xinjiang; 2008. 1. 10.; Urumqi city, Xinjiang; 2008. 1. 13. - 1. 14.
- (9) Oirat (Bayanggol); Urumqi, Xinjiang; 2008. 1. 11. - 1. 12.
- (10) Baarin (Right banner); Huhhot, Inner Mongolia; 2008. 8. 2. - 8. 4.
- (11) Ordos (Üüshin banner); Huhhot, Inner Mongolia; 2008. 8. 5. - 8. 7.
- (12) Khorchin (Middle banner); Huhhot, Inner Mongolia; 2008. 8. 12. - 8. 14.

It would be convenient for the discussion if Mongolian languages and dialects in China are grouped into several groups as below according to the degree and the nature of the danger they are facing.

### *2.2.1. Dagur in Heilongjiang and in Xinjiang*

The Dagur dialects in both Heilongjiang and Xinjiang regions seem to be "Severely endangered". Dagur people are a minority even in their own autonomous nationality administrative units, and they have to be fluent speakers of Chinese, or Chinese and Kazakh, or Chinese and Mongolian, in schools, at works, and in the markets. Dagur is not used in mass media. It has no generally accepted writing system, therefore no literature. It has never been a classroom language. As a result, the Dagur youths of the urban area have no opportunity to learn their mother tongue in a natural

environment, or in a systematic way.

During our fieldwork studies in Meilis, which lasted three days, it was hard to encounter a Dagur person, regardless of age, who communicates in Dagur with another Dagur person - little more than the exchange of greetings, in the street, in shops, in the park where many seniors gather for their morning exercise, in the open market, and at the bus station of the main district. People in their 50s and under show great discrepancy in mother tongue proficiency. The Meilis subdialect has almost no “real” native speakers under age 40.

In Tacheng, Dagur ethnics are fluent in Kazakh and Chinese, both in language and literature. They use Chinese and Kazakh in their everyday life. It seemed that some people over their 50s and very few in their 30s and 40s use the Dagur language even in non-official domains. It seems that many of the Dagur people over their 50s in this area speak Kazakh and Chinese better than their mother tongue.

As a conclusion, the Dagur language is "Severely endangered". However, there still remains hope for revival of this language in that there are fluent speakers such as our consultants in their 50s, and there are places where Dagur is still "the first communication language" among the Dagurs as Piao (2003:118) informed us.<sup>iv</sup>

### 2.2.2. *Khuuchin Barga in Inner Mongolia*

This dialect is in between “Unsafe” ~ “Definitively endangered”. It is not an easy task to declare the right position of the Khuuchin Barga dialect which has some Buryat Mongolian and some non-Buryat Mongolian elements at the same time in phonological, morphological, lexical, and syntactic levels.

It is quite interesting that considerable portion of those non-Buryat Mongolian elements, including 4 affricate consonant phonemes (voiceless unaspirated/aspirated dental-alveolar, voiceless unaspirated/aspirated alveolo-palatal), are close to those in Khalkha Mongolian as suggested in Yu(2006). Consultant answered in Russian forms for 24 words among 2700 words he gave us including [xəlje : p] 'bread', [do : kt<sup>h</sup>or] '(medical) doctor', [no : mir] 'number', [minu : t<sup>h</sup>] 'minute', [səxo : nt] 'second', [χalnde : r] 'calendar', etc.

Both our consultant and his wife, an Ewenki, were fluent in Khuuchin Barga. Their children in 20s and 30s seemed to know the dialects. Their grandchild, around 10 years old, did not know the Mongolian. When our consultant invited us to a restaurant in his town, there was a big birthday party for a 73 year old lady in the main hall of that restaurant. The party host was using both Mongolian and Chinese to the congratulators.

### 2.2.3. *Shira Yogur or Eastern Yugur in Gansu*

This language seemed to be "Definitively endangered". There is no writing system for this language. Teenagers understood what their parents were saying but they were not ready to respond in their mother tongue. Shira Yogur people over their 30s seemed to communicate in their mother tongue among themselves.

Our consultants seemed to regard those Western Yugur or Tibetan elements in their language as native words, and Chinese elements as foreign words.<sup>v</sup> It is said that the Chinese population began to move into this area, in actual sense, from 1958. It may be the case that the Chinese elements have not become fully Shira Yogurized to our consultants. One of our consultants, a farmer, was born in 1942. Thus he had no school education, but he too had a sound command in spoken Chinese.

### 2.2.4. *Monguor, Baoan in Qinghai and Oirat in Xinjiang*

These languages and dialects seemed to be "Stable yet threatened". In these areas, even preschool children speak in their mother tongue among themselves. However, they are good at Chinese or Chinese and Tibetan, which are their class room languages and the dominant languages of the society they belonged to. There is no writing system for Monguor and Baoan.

Monguor people of Minhe County, Gansu Province use Chinese numerals for counting even in one digit numbers. Everyone, however, spoke in Monguor including preschool children in this village. The good memory of the native words and the actual use or the proficiency of the mother tongue, therefore, might not be directly related in this dialect.

Our 22 year Baoan consultant told us that people of all age of her village in Tongren County, Gansu Province spoke in their mother tongue in everyday life, despite the classroom language has been the Tibetan in primary and secondary schools.

Oirat children seemed not to have real difficulty to converse with me in Mogolian. But they knew Chinese, too. Some of the Oirat children in Hoboksair area may soon become fluent in Kazakh as some of their adults.

### 2.2.5. *Baarin, Ordos, and Khorchin dialects in Inner Mongolia*

These dialects seem to be "Unsafe", although everybody speaks in Mongolian there. Even an eight year old boy spoke and wrote traditional Mongolian perfectly and beautifully in Ordos. He said that the Mongolian is the classroom language in his school. His grandparents, parents, cousins, neighbors spoke only in Mongolian. But the boy was fluent in Chinese too. His grandfather told me that children learn Chinese in school, and

certain classes are being taught in Chinese. However, in my impression, many of the Mongolian children master their Chinese even before they go to school through many ways such as TV animations, computer games, etc.

### *2.3. Mongolian languages and dialects in Mongolia*

Fieldwork studies were carried out on the following Mongolian languages and dialects spoken in Mongolia.

(1) Ö öld (Düükhee/Döchin Tolgoi); Ö lziit sum, Arkhangai aimag; 2004. 6. 26.

(2) Darkhad; Jankhain Tsagaan Ereg, Alag-Erdene sum, Khövsgöl aimag; 2005. 6. 23. - 6. 26.

(3) Darkhad; Seoul, Korea; 2007. 6. 18., 6. 28.

(4) Arig Uriankhai; Byarangiin gol, Chandman-Ö ndör sum, Khövsgöl aimag; 2006. 6. 27. - 6. 29.

(5) Khamnigan (Binder, Dadal); Chingisiin Toonot of Binder sum and Gurvan nuur of Dadal sum, Khentii aimag ; 2007. 7. 6. - 7. 11.

(6) Ü üriin Uriankhai; Tsegtseriing Ü züür, Tsagaan Ü ür sum, Khövsgöl aimag; 2006. 7. 1. - 7. 3.

#### *2.3. 1. Khalkhazation of the Mongolian dialects*

The "Khalkhazation" must be the most serious problem which these dialects are facing. We asked 2716 words each to two Darkhad consultants, 816 words to one consultant, and 812 words to the other consultant to find only 6 words all together from these four consultants, which were different from the Khalkha forms.

The Ö öld, the Arig Uriankhai, the Khamnigan (Dadal) had no actual differences from the Khalkha. The only remarkable difference of the Khamnigan (Binder) from Khalkha seemed to be the aspirated velar (and post-velar) plosive at word-initial position, which is realized as voiceless fricative in Khalkha.

#### *2.3. 2. Ü üriin Uriankhai case*

Ü üriin Uriankhai deserves special remarks in that it is still well remembered as a Tuvan Turkic among the people over their 70s but not in use. Including those seniors, all Ü üriin Uriankhai people use Khalkha in everyday life even for the communication among family members.

Our 52 year old consultant remembered some Ӧ üriin Uriankhai words including the numbers from 'one' to 'eight', personal pronouns, verbal endings, however, he was unable to make sentences in his mother tongue.

According to him, he had used to speak in (Ӧ üriin) Uriankhai at home before he went to primary school. At school, however, classmates made fun of him and teachers reprimanded him using mother tongue. In the military where only the Khalkha was used, he was doing his telephone operator job so fine that his officers and sergeants tried to persuade him to consider becoming a career soldier. When he had returned home, however, to take care of his parents and started his career as an agriculture cooperative clerk, his supervisor had used to reprimand him of using (Ӧ üriin) Uriankhai with his (Ӧ üriin) Uriankhai colleague and customers that he lost his courage to speak in his mother tongue, then forgot how to speak it gradually. It sounds like the Khalkhazation of the Ӧ üriin Uriankhai population had completed in past several decades.

### **3. Summary**

This paper tried to inform that Mongolian languages and dialects spoken in Russia and China are in different degrees of danger of disappearing under the pressure of Chinese, Russian, Kazakh, or even Tibetan. We saw some of them already have lost their actual speakers.

This paper made a brief note that Mongolian dialects in Mongolia are facing another nature of serious threat, that is heavy Khalkhazation. Ӧ üriin Uriankhai case was introduced as an example of extreme Khalkhazation.

Several examples of interesting phenomena and episodes found and heard during the fieldwork studies were introduced. They include: 1) children spoke mother tongue better than parents in some communities, 2) good memory of the elements of one's mother tongue does not always go with the actual use of it, 3) most of the mother tongue-loss had been completed in past several decades ago, etc.

### **Notes**

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<sup>i</sup> Levels are proposed as following orders in this document: Safe > (Stable yet threatened) > Unsafe > Definitively endangered > Severely endangered > Critically endangered > Extinct.

<sup>ii</sup> I would say that the nearest Mongolian dialect to "my Mongolian" is the Khalkha, which I began to study as a graduate student. There are certain degrees of differences between the Khalkha

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and the Buryat at lexical, phonological, morphological, and syntactic levels.

<sup>iii</sup> We asked 2757 words, 344 conversational expressions, and 380 sentences and constructions intended to grasp the grammatical structure of this dialect, in the fieldwork studies in Russia, January, 2007. See Yu (2007a) for further information.

<sup>iv</sup> Woniutu and Manggetu townships of Meilis Nationality District and Duermenqin Dagur Ethnic Township of Fulaerji District, both in Qiqihaer City.

<sup>v</sup> They answered Western Yugur forms or Tibetan words as their own word. However, when the Chinese word is being used in their language, they said "We do not have that word in our language. We are using a Chinese word for that."

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# A Web-Accessible Dictionary of Southeastern Pomo

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## **Abstract**

In recent years, building web-accessible dictionaries has become a new way of organizing and publishing data from linguistic fieldwork on indigenous languages. This paper provides an overview of one such online dictionary. The language we worked on was Southeastern Pomo, an endangered native American language which was historically spoken in the area of Clear Lake, California. The structure of the dictionary and the files that are needed to construct it are introduced in detail. We also demonstrate three types of searches that are made available on the dictionary website.

**Keywords:** online dictionary, language documentation, native American languages.

## **1. Background**

In the past decade, as resources for linguistic analysis have entered cyberspace, so have the products of linguistic documentation. Online dictionaries have been created for a number of languages native to the Americas, including Yurok, Hupa, Washo, and Northern Paiute (cf. Babel et al. 2006, Dick and Haynes 2006). These online dictionaries make the information gathered through fieldwork accessible to researchers, tribe members, and in particular, young learners. In this paper, we present our work on an online dictionary for another native American language, Southeastern Pomo, with the goal of providing an overview for the linguistic fieldwork community of the technical details involved in building an online dictionary website.

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### 1.1. The Southeastern Pomo dictionary project

Southeastern Pomo (Northern Hokan, Pomoan) is an acutely endangered language historically spoken in the area around Clear Lake, California (Moshinsky 1974, Gordon 2005, cf. Figure 1).



**Figure 1.** Locations of the Southeastern Pomo speech communities (from Haynie 2007)

Speakers and learners are mostly affiliated with the Elem Pomo Tribe. Today only two fluent speakers remain. However, revitalization efforts are underway, led by Loretta Kelsey, one of the two remaining speakers, and Robert Geary (cf. Shavelson 2006, Fagan 2007). Through collaboration with linguists, they have developed a community orthography, teaching materials, and a print dictionary with pictures of local flora and fauna. Language camps have also been organized for people to learn the language.

The present online dictionary is another component of this revitalization work. We started working with Kelsey and Geary in the fall of 2006, and have so far elicited hundreds of hours of data comprising word lists, sentences, and texts. In order to

organize and publish the data in the most efficient and user-friendly way, we constructed a web-accessible dictionary. The dictionary has three main functions: searching for words, searching for audio files, and searching for sentences/texts.

### 1.2. Transcribing the sounds of Southeastern Pomo

Southeastern Pomo (henceforth, SEP) has a rich inventory of consonants covering a wide range of places of articulation, including labial, dental, alveolar, velar, post-velar, and glottal. In addition to a voiced/voiceless laryngeal distinction, the language also has a series of ejectives (both in stops and affricates). Table 1 below shows the inventory of consonant phones, as well as our practical ASCII orthography (which differs in some respects from the community orthography) in parentheses underneath the IPA forms.

	LABIAL	DENTAL	ALVEOLAR	PALATAL	VELAR	POST-VELAR	GLOTTAL
STOP	p p' b (p p' b)	t t' (th th')	t t' d (t t' d)		k k' (k k')	q q' (q q')	ʔ (ʔ)
AFFRICATE			ts ts' (ts ts')	tʃ tʃ' (ch ch')			
FRICATIVE	f (f)		s (s)	ʃ (sh)	x (x)	χ (X)	h (h)
NASAL	m (m)		n (n)		ŋ (ng)		
FLAP			r (r)				
APPROXIMANT	w (w)		l (l)	j (y)			

**Table 1.** Consonant inventory of Southeastern Pomo

The vowel inventory of SEP is much simpler. The language basically has a five-vowel system, with an additional schwa that appears predictably in epenthetic positions (and therefore is not spelled out in our orthography). Table 2 shows the vowel system together with the orthography in parentheses beside the IPA forms.

	FRONT	CENTRAL	BACK
HIGH	i (i)		u (u)
MID	ɛ (e)	ə	o (o)
LOW		a (a)	

**Table 2.** Vowel inventory of Southeastern Pomo

## 2. Dictionary Structure

The online dictionary is composed of three subparts: a lexicon, an audio dictionary, and a text archive.

### 2.1. *Lexicon*

The lexicon contains entries for individual words, affixes, and fixed expressions. Each entry displays the following information about an item: (1) its SEP transcription, (2) its part of speech, (3) an English gloss, and (4) links to sound clips in the audio dictionary (if available). Different lexicon entries correspond to different forms, but not necessarily different lexemes (e.g. different morphological forms of a verb get separate, though linked, entries).

### 2.2. *Audio dictionary*

In addition to the lexicon, there is a separate audio dictionary. Each entry in the audio dictionary corresponds to an audio file clipped out of master field recordings to correspond to a lexicon entry. An entry in the audio dictionary displays the following information about an item: (1) its SEP transcription, (2) an English gloss, (3) the name of the speaker who produced the item, (4) a link to the corresponding lexicon entry, and (5) a reference to its source, i.e. the filename of the master field recording together with the time point within it at which the relevant audio begins (for developers).

The audio dictionary is independent of the lexicon, but corresponding lexical entries and sound clippings are linked to each other from both sides. The two dictionaries are kept apart for the purposes of facilitating two different types of searches – word searches and audio searches (see §4).

### 2.3. *Text archive*

The text archive contains entries for elicited sentences, narratives, and other discourse above the sentence level. Each entry displays the following information about an item: (1) the name of the speaker who produced the text, (2) the genre of the text, (3) transcriptions of individual sentences, (4) free translations, and (5) interlinear glosses.

### 3. Building the Website

In this section, we briefly review the construction of the website, in terms of data preparation and storage, query processing, and results display.

In the preparation stage, fieldwork recordings are manually processed and clippings of individual words, sentences, and texts are saved individually. Meanwhile, information about these data is entered into three separate databases corresponding to the subparts of the dictionary. Lexicon entries are first entered into a mySQL database and then converted into a grand XML (eXtensible Markup Language) file, while information about audio clippings and texts is entered into separate XML files directly.

The mySQL database of lexicon entries has the following fields:

- SEP transcription
- transcriptions of variants (if any)
- community orthography (if available)
- part of speech
- free gloss & interlinear gloss
- semantic domain
- source file & start time
- links to other morphologically related entries
- notes

The mySQL database has a number of desirable features. For one, it automatically generates an unique ID number for each new entry, and is fully sortable and searchable. It also allows several researchers to make and edit entries at the same time without overwriting each other's work. In addition, the database can be easily converted into XML format, which is essentially a text file with all the above information in a fixed format. Figure 2 below shows a sample entry in the lexicon XML file. As shown below, the SEP word *kachuchu* (ID = 101) is transcribed as *kuchechoo* in the community orthography. It is a noun; means 'cap' in English; belongs to the semantic domain of clothes; and is a headword. Furthermore, it was first elicited in the recording named 21sep06\_LK1b, at time 18:39.

The information in the audio dictionary and the text archive is stored in XML files directly, in a similar format as the lexicon XML file. Thus, all the information contained in the dictionary is stored in three separate XML files: one for the lexicon, one for the audio files, and one for the texts. Such a text-based file format allows the data to be easily manipulated into other formats as the technology of documentation changes over time.

```
<lemma>
  <id>101</id>
  <lx>kachuchu</lx>
  <community_orthography>kucechoo</community_orthography>
  <ps>n</ps>
  <ge>cap</ge>
  <short-gloss>cap</short-gloss>
  <ref>21sep06_LK1b</ref>
  <time>18:39</time>
  <sd>clothes</sd>
  <is-headword>yes</is-headword>
</lemma>
```

Figure 2. Sample XML for a lexicon entry

Separate XSL (eXtensible Stylesheet Language) files are written to process search queries and control the display of the results. The function of the XSL files is essentially to decide what information from the XML files needs to be retrieved in response to a certain query and how the retrieved information should be formatted on screen. It should be noted that by having separate XML and XSL files, we are able to separate data processing from data storage, which prevents accidental data overwriting and also allows more flexibility in data processing and display.

To sum up, all relevant information in the dictionary is saved in XML files, and the processing is taken care of by XSL stylesheets. Figure 3 illustrates the data flow in the processing of an incoming query.

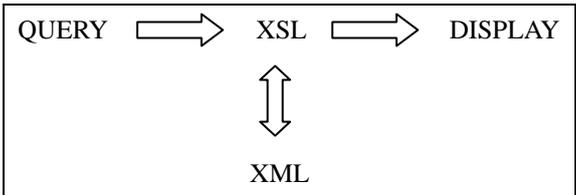


Figure 3. Illustration of query processing

4. Dictionary Searches

In this section, we demonstrate three types of searches handled on the dictionary website: word search, audio search, and text search. As mentioned above, the three sub-dictionaries are stored separately, but cross-linking between any two is possible.

#### 4.1. Word search

Lexicon entries can be searched using up to three search criteria: SEP transcription, English gloss, and semantic domain. Users can also choose whether affixes are to be included in the search. Figure 4 demonstrates a search for lexicon entries for which the English glosses contain the word *black*.

Figure 4. Web interface for a sample lexicon search

Figure 5. Results of a search for words with English glosses containing *black* (entry *k7afal* selected)

Five lexicon entries are returned by the query, and their SEP transcriptions and English glosses are shown in the left pane of the results page (cf. Figure 5 above). Upon

clicking on an individual entry in this list, say *k7afal* ‘blackbird’, the full entry for the word and a link to the corresponding audio file will appear in the main pane on the right.

#### 4.2. Audio search

Audio clippings can be searched by SEP transcription, English gloss, speaker, or any combination of the three.



Figure 6. Web interface for a sample audio search



Figure 7. Results of a search for words with the segment sequence *-ka-* spoken by speaker John Kelsey

As a demonstration, if the user searches for all sound clippings of words with *-ka-* in their transcription that are spoken by John Kelsey (cf. Figure 6), six search results will be found and displayed (cf. Figure 7). Each search result can be clicked to play the audio, and a link is provided below the audio entry to the corresponding lexicon entry.

#### 4.3. Text search

Finally, users can also search for texts using multiple search criteria.

**Figure 8.** Web interface for a sample text search

**Figure 9.** Results of a search for elicited sentences containing *hekath7e* from speaker Loretta Kelsey

On the text search page, users can search by the SEP/English words contained in the text, text genre (dialogue, elicited sentences, procedural text, remarks, and stories), or speaker. We demonstrate a sample search for elicited sentences that contain the SEP word *hekath7e* ‘how’ and are spoken by Loretta Kelsey (cf. Figure 8 above).

Three instances are found and displayed on the results page (cf. Figure 9 above). Each sentence is listed with the English translation and references to the original elicitation file and sound clipping. A ‘full context’ link can be clicked to view the whole text with detailed interlinear glosses. Figure 10 below shows the full text page for the third search result *theak kwik hekath7e?* ‘How are your children?’, with detailed glosses (the original search result sentence appears in red).

The screenshot shows the website interface for the Southeastern Pomo Language Project. At the top, there is a header with the project name and a navigation menu on the left. The main content area displays search results for the text 'SE Pomo [hekath7e]'. The results are listed in a numbered format, with the third result, '[3] theak kwik hekath7e?', highlighted in red. This result includes the English translation 'How are your children?', the audio file reference '14sep06\_LK6a\_1786', and a detailed interlinear gloss: 'theak kwik hekath7e / your children why/how'. Other results include '7a xa klakdith' (I'm fishing) and '7omet hekath q'owliith' (How is she doing?).

**Figure 10.** Full text page for the selected sentence *theak kwik hekath7e* ‘How are your children?’ with detailed glosses. The selected sentence is in red.

## 5. Concluding Remarks

In this paper, we presented our work on an online dictionary for Southeastern Pomo. Specifically, we introduced the structure of the dictionary and demonstrated how the data are stored and processed on the website. We also showed the search interface of the website and demonstrated sample queries. However, this only represents the first step of the dictionary project. In the near future, we plan to develop and improve the dictionary website in the following ways. First, the data structure of the lexicon data file needs to be more elaborated (e.g. with nested structure) in order to accommodate polysemy more neatly. Second, the data of the print dictionary will be merged with that of the online dictionary, and all entries will be updated with their spelling in the Elem orthography. Third, different types of multimedia (e.g. photos of local flora and fauna, videos of the actions described by verbs of motion and placement) will be added to make the dictionary more informative and easier to use. Our ultimate goal, however, is to make the dictionary website widely accessible to teachers and learners so that they can make regular use of it as a CALL (Computer-Aided Language Learning) tool.

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# Endangered Turkic Languages

## — Preliminary Report on Fieldwork Studies —\*

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### Abstract

Turkic Languages and dialects are spoken widely in Eurasia. Many of them are in danger of disappearing by the influence of Chinese, Khalkha Mongolian, Russian, etc. The ASK REAL (The Altaic Society of Korea, Researches on Endangered Altaic Languages) has been doing fieldwork studies on Endangered Altaic Languages since September 2003. I have been participating to this project from the beginning for the studies of Endangered Turkic languages in China, Mongolia, Russia, Kyrgyzstan, Ukraine, and Lithuania. I have collected word material of some 20 Turkic languages.

**Keywords:** Chinese, danger of disappearing, Khalkha Mongolian, Russian, Turkic languages and dialects

### 1. Preface

Turkic Languages and dialects are spoken widely in Eurasia. Many of them are in danger of disappearing by the influence of Chinese, Khalkha Mongolian, Russian, etc. The ASK REAL (The Altaic Society of Korea, Researches on Endangered Altaic Languages) has been doing fieldwork studies on Endangered Altaic Languages since September 2003. I have been participating to this project from the beginning for the studies of Endangered Turkic languages as below:

- (1) Fuyu Kirghiz in the villages of Wujiazi and Qijiazi, Fuyu County, Qiqihar, Heilongjiang Province, China: September 23-24, 2003
- (2) Fuyu Kirghiz in the village of Qijiazi, Fuyu County, Qiqihar, Heilongjiang Province, China: January 15-16, 2004
- (3) Shor (Mrass-Upper Tom dialect) in Myski, Kemerovo Province, Russia: April 20-23,

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2004

- (4) Chuvash in Cheboksary, Chuvash Republic, Russia: April 19-22, 2005
- (5) Tuvan (Kök Monchak dialect) in Qanas and Aqqaba, Altay Prefecture, Xinjiang Uygur Autonomous Region, China: April 28- May 4, 2005.
- (6) Tuvan (Tsaatan dialect) in Khatgal, Khövsgöl Aymag, Mongolia: June 23-26, 2005
- (7) Western Yugur in Hongwansi, Sunan Yugur Autonomous County, Gansu Province, China: October 17 -21, 2005
- (8) Gagauz in Kiev, Ukraine: February 5 and 17, 2006
- (9) Urum (Oghuz dialect) in Mariupol', Donetsk Province, Ukraine: February 7-11, 2006
- (10) Urum (Kypchak dialect) in Mariupol', Donetsk Province, Ukraine: February 8-9, 2006
- (11) Krymchak in Simferopol', Autonomous Republic of Crimea, Ukraine: February 12-14, 2006
- (12) Karaim (Crimean dialect) in Jevpatorija and Simferopol', Autonomous Republic of Crimea, Ukraine: February 15-16, 2006
- (13) Chulym Tatar (Middle Chulym dialect) in Tomsk, Tomsk Province, Russia: May 15-18, 2006
- (14) Baraba Tatar in Tomsk, Tomsk Province, Russia: May 18 and 20, 2006
- (15) Chulym Tatar (Lower Chulym dialect) in Tomsk, Tomsk Province, Russia: May 19 -21, 2006
- (16) Tuvan (Uriankhai dialect) in Tsagaan-Üür, Khövsgöl Aymag, Mongolia: July 1-3, 2006
- (17) Salar in Xining, Qinghai Province, China: August 19-26, 2006
- (18) Kirghiz (Talas subdialect of Northern dialect) in Bishkek, Kyrgyzstan: December 22-25, 2006
- (19) Kirghiz (Ichkilik subdialect of Southern dialect) in Bishkek, Kyrgyzstan: December 28-30, 2006 and January 2, 2007
- (20) Kirghiz (Narın subdialect of Northern dialect) in Bishkek, Kyrgyzstan: January 2-3, 2007
- (21) Kirghiz (Chuy subdialect of Northern dialect) in Bishkek, Kyrgyzstan: January 3-5, 2007
- (22) Kirghiz (İşik-Köl subdialect of Northern dialect) in Bishkek, Kyrgyzstan: January 6-8, 2007
- (23) Dolgan in Yakutsk, Sakha Republic, Russia: January 30 -February 5, 2007
- (24) Yakut in Yakutsk, Sakha Republic, Russia: February 3-5, 2007

- (25) Karaim (Trakai dialect) in Trakai, Lithuania: July 17-28, 2007
- (26) Bashkir (Ėyĕk-Haqmar subdialect of Southern dialect) in Ufa, Republic of Bashkortostan, Russia: August 8-10 and 21, 2007
- (27) Bashkir (Urta subdialect of Southern dialect) in Krasnousol'sk, Republic of Bashkortostan, Russia: August 11-13, 2007
- (28) Bashkir (Zelin subsubdialect of Urta subdialect of Southern dialect) in Krasnousol'sk, Republic of Bashkortostan, Russia: August 14, 2007
- (29) Bashkir (Dim subdialect of Southern dialect) in Rajevka, Republic of Bashkortostan, Russia: August 14-16, 2007
- (30) Bashkir (Qïðil subdialect of Eastern dialect) in Asqar, Republic of Bashkortostan, Russia: August 19-20, 2007
- (31) Chuvash in Ufa, Republic of Bashkortostan, Russia: August 22, 2007
- (32) Tatar in Ufa, Republic of Bashkortostan, Russia: August 22, 2007
- (33) Khakas (Sagay dialect) in Abakan, Republic of Khakassia, Russia: August 2-4, 2008
- (34) Khakas (Shor dialect) in Chernogorsk / Abakan, Republic of Khakassia, Russia: August 5-7 / 15, 2008
- (35) Khakas (Koibal subdialect of Kacha dialect) in Abakan / Bejskij rajon selo Kojbaly / Abakan, Republic of Khakassia, Russia: August 7 / 12 / 13, 15-16, 2008
- (36) Khakas (Kïžil dialect) in Abakan, Republic of Khakassia, Russia: August 8-11, 13, 16, 18, 2008
- (37) Khakas (Beltir subdialect of Sagay dialect) in Askizskij rajon selo Apchinajev / Abakan, Republic of Khakassia, Russia: August 12 / 13, 18, 2008
- (38) Khakas (Kacha dialect) in Abakan, Republic of Khakassia, Russia: August 13-16, 2008

This paper introduces current situation of above languages and dialects, discusses the degree and aspect of danger of disappearing of each of them according to the criteria 'Intergenerational Language Transmission' and 'Proportion of Speakers within the Total Population' of UNESCO Ad hoc expert group on endangered languages (2003).

## **2. Turkic languages and dialects studied by the author**

### *2.1. Fuyu Kirghiz*

#### *2.1.1. population*

875 with 10 speakers (1982, Ethnologue)

61 farmhouses and 276 inhabitants out of 148 farmhouses and 551 inhabitants in Wujiazi (五家子) (Wu 2003: 180, 186)

151 out of 397 (59 Mongolians, 6 Dagurs, 3 Koreans, 5 Orochons, 4 Xibes, 4 Manchus, etc) in Qijiazi (七家子) (Wu 2003: 217).

#### 2.1.2. *informants*

1<sup>st</sup> fieldwork: 2 females (born in 1934, 1936), 1 male (born in 1952) in Wujiazi  
2 females (born in 1935, 1928), 2 males (born in 1934) in Qijiazi<sup>1</sup>

2<sup>nd</sup> fieldwork: 2 females (born in 1935, 1924), 1 male (born in 1934) in Qijiazi

#### 2.1.3. *result*

1<sup>st</sup> fieldwork: 216 words, 22 conversational expressions in Wujiazi  
305 words, 32 conversational expressions in Qijiazi

2<sup>nd</sup> fieldwork: 363 words, 43 conversational expressions in Qijiazi

#### 2.1.4. *daily language*

Mongolian and Chinese in older generation

Chinese in younger generation

Our informants were not able to construct any long sentence. There is no fluent speaker in “Fuyu Kirghiz”. There is no hope for its revitalization. Therefore, this language lies between ‘critically endangered’ and ‘extinct’.

#### 2.2. *Shor*

Shor has two dialects: Mrass-Upper Tom and Kondoma-Lower Tom. The Mrass-Upper Tom dialect belongs to *azaq*-group like Khakas, Western Yugur and Middle

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<sup>1</sup> One female informant (born in 1928) and one male informant have almost forgotten their mother tongue.

Chulym whereas Kondoma-Lower Tom belongs to *ayaq*-group like Lower Chulym, Turkish, Tatar, Uzbek, etc.

#### 2.2.1. *population*

The population of the Shors was 13,975 with 6,210 persons knowing Shor in 2002 (Russia). There were 16,000 Shors with 9,760 native speakers in 1979 (Soviet Union).

#### 2.2.2. *informant*

1 male (born in 1932; speaker of Mrass-Upper Tom dialect)

#### 2.2.3. *result*

most of 2,728 words, 276 conversational expressions, 280 grammatical constructions

#### 2.2.4. *daily language of the informant*

Russian

Shor became a written language, but it was not used as a written language since 1937 approximately 50 years. There are signs of Shor lingual revival: this language is now being taught at the Novokuznetsk branch of the Kemerovo State University.

In Myski (= Tomazaq), only a few persons were recommended as informants for us. There are very few fluent speakers. The Shors speak only Russian or they are bilingual in Russian and Shor. They are a minority in their homeland and mixed severely with other nationalities. Therefore, this language seems to lie between 'definitely endangered' and 'severely endangered'.

### 2.3. *Chuvash*

Chuvash has two dialects: Viryal (= Upper) and Anatri (= Lower). The written Chuvash is based on the Anatri dialect.

#### 2.3.1. *population*

The population of the Chuvash was 1,637,094 with 1,325,382 persons knowing Chuvash in 2002 (Russia). There were 10,593 Chuvash with 2,268 native speakers in 2001 (Ukraine).

### 2.3.2. *informants*

2 males (born in 1956, 1950) in 2005

1 male (born in 1962) in 2007

### 2.3.3. *result*

2,721 words, 344 conversational expressions and 380 grammatical constructions from the 1<sup>st</sup> informant in 2005

812 words from the 2<sup>nd</sup> informant in 2005

806 words and free talking in 2007

### 2.3.4. *daily language of the informants*

Russian and Chuvash

Chuvash seems to lie between ‘safe’ and ‘unsafe’. The children of the 1<sup>st</sup> informant in 2005 understand Chuvash but they cannot speak their mother tongue fluently.

## 2.4. *Tuvan*

Tuvan and its related languages/dialects (= Sayan Turkic): a) steppe area: Tuvan in Tyva Republic, Tuvan in Tsengel sum of Mongolia, and Kök Monchak in Mongolia and China; b) Taiga area: Tofa and Soyot in Russia, Tsaatan (= Dukha) and Üürin Uriankhai in Mongolia.<sup>2</sup>

### 2.4.1. *population*

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<sup>2</sup> Rassadin, V. I. 2005. The Tofa Language. *Endangered Languages of Indigenous Peoples of Siberia* In <http://lingsib.iea.ras.ru/en/languages/tofa.shtml>.

The population of the Tuvans was 243,442 with 242,754 persons knowing Tuvan in 2002<sup>3</sup> (Russia). The population of the Tuvans is 27,000 in Mongolia and 2,600 in China.

#### 2.4.2. *informants*

Kök Monchak<sup>4</sup>: 1 female (born in 1949) and 1 male (born in 1962)

Tsaatan: 1 male (born in 1954) and 1 female (born in 1972)

Üürin Uriankhai: 2 males (born in 1955, 1941)

#### 2.4.3. *result*

Kök Monchak: 2,243 words, 344 conversational expressions and 374 grammatical constructions from the female informant

2,715 words, 344 conversational expressions and 374 grammatical constructions from the male informant

Tsaatan: 2,768 words, 345 conversational expressions, 385 grammatical constructions and free talking from the male informant

385 grammatical constructions and free talking from the female informant

Üürin Uriankhai: 2,749 words (some of them are not answered), 345 conversational expressions and 384 grammatical constructions from the 1<sup>st</sup> informant

2,749 words (2,466 words were answered), 345 conversational expressions, 384 grammatical constructions and free talking from the 2<sup>nd</sup> informant

#### 2.4.4. *daily language of the informants*

Kök Monchak: Mongolian, Tuvan, Kazakh, and Chinese for the female informant

Tuvan, Chinese, Kazakh, and Uyghur for the male informant

Tsaatan: Khalkha Monolian

Üürin Uriankhai: Khalkha Monolian

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<sup>3</sup> There are also 4,442 Todzhas and 2,769 Soyots according to the same census.

<sup>4</sup> Another fieldwork was carried out by the ASK REAL team during 21 – 22 October in 2004. I did not participate to this fieldwork. The informant was a man born in 1963. His daily languages were Tuvan and Kazakh.

The instruction language is Mongolian for the K k Monchak children. The K k Monchaks live together with the Kazakhs. At present this dialect seems to lie between ‘safe’ and ‘unsafe’ but the new influx of the Chinese can threaten the future of this dialect.

The children of the Tsaatan and   rin Uriankhais seem to speak only Khalkh Mongolia. Therefore, these dialects seem to lie between ‘severely endangered’ and ‘critically endangered’.

## 2.5. *Western Yugur (Yellow Uyghur, 西部裕固)*

### 2.5.1. *population*

The population of Yugurs was 13,719 in 2000. The Yugurs comprise 4,600 Turkic speakers (= Western Yugur, Yellow Uyghur, 西部裕固), approximately the same number of Chinese speakers, a little fewer of Mongolian speakers (= Eastern Yugur, 东部裕固), and some Tibetan speakers.

### 2.5.2. *informants*

2 females (born in 1966, 1957) and 1 male (born in 1939)

### 2.5.3. *result*

some 60 words and 110 conversational expressions from the 1<sup>st</sup> female informant

1,995 words, 344 conversational expressions and 380 grammatical constructions from the 2<sup>nd</sup> female informant

some 800 words from the male informant

### 2.5.4. *daily language of the informants*

#### Western Yugur and Chinese

The 1<sup>st</sup> female informant thinks first in Chinese and then speaks in her mother tongue. Her children cannot speak fluently their mother tongue. The 2<sup>nd</sup> female informant speaks her mother tongue in most cases, but her children cannot speak fluently their mother tongue. The male informant forgot much of his mother tongue. His

children cannot speak fluently their mother tongue. Therefore, this language seems to lie between 'definitely endangered' and 'severely endangered'.

## 2.6. *Karaim*

Historically Karaim had 3 dialects: Crimean (spoken until the early 1900s), Trakai (= Troki) and Lutsk-Halicz (which seems to be extinct).

### 2.6.1. *population*

The population of the Karaims was 1,196 (mainly in Crimea) in 2001 (Ukraine), 366 in 2002 (Russia), 258 in 2001 (Lithuania), 45 in 2002 (Poland), 50 in Turkey (Istanbul), etc. Due to the assimilation and emigration, the number of the Karaims decreased constantly in the former Soviet Union as follows: 5,900 (1959), 3,341 (1979, with 535 speakers of mother tongue), 2,602 (1989). There only remain about 200 Karaim in Lithuania, only one quarter of them are competent speakers of the Karaim language.

### 2.6.2. *informants*

Crimean dialect: 1 male (born in 1928)

Trakai dialect: 2 females (born in 1922, 1964) and 3 males (born in 1927, 1934, 1938)

### 2.6.3. *result*

Crimean dialect: 151 words, some conversational expressions, 117 grammatical constructions (very vague remembrance in many words; sentences according to the Russian order; complete confusion of case suffixes and personal endings)

Trakai dialect

668 words and free talking from the 1<sup>st</sup> female informant

general information on Karaims in Russian from the 2<sup>nd</sup> female informant

2,435 words, 344 conversational expressions, 380 grammatical constructions (self formation of some words with literal translation from Russian; translation and arrangement according to Russian in many sentences) and free talking from the 1<sup>st</sup> male informant

606 words and some 180 conversational expressions from the 2<sup>nd</sup> male informant

2,144 words, 344 conversational expressions, 380 grammatical constructions (endeavor to turkicize the already slaviced Karaim syntax) and free talking from the 3<sup>rd</sup> male informant

#### 2.6.4. *daily language of the informants*

Crimean dialect: Russian (and Karaim)

Trakai dialect:

Polish, Russian (according to Polish word order), Lithuanian, (and Karaim) for the 1<sup>st</sup> female informant

Polish for the 2<sup>nd</sup> female informant (she understands Karaim very well but cannot speak it)

Polish, Russian, Lithuanian, and Karaim for the male informants

The Crimean dialect seems to lie between ‘critically endangered’ and ‘extinct’. The Karaim Summer School is held yearly in Trakai. The Trakai dialect has seemingly good chance for its survival. This dialect nevertheless seems to lie between ‘definitely endangered’ and ‘severely endangered’.

### 2.7. *Gagauz*

#### 2.7.1. *population*

The population of the Gagauz was some 250,000: 147,500 in 2004 (Moldova), 31,923 with 22,822 native speakers in 2001 (Ukraine), 14,000 (Turkey), 12,000 in 1990 (Bulgaria), 12,210 in 2002 (Russia).

#### 2.7.2. *informant*

1 female (born in 1970)

#### 2.7.3. *result*

970 words

#### 2.7.4. *daily language of the informant*

Gagauz, Ukrainian, Russian, and Turkish

Gagauz seems to lie between 'safe' and 'unsafe'.

## 2.8. *Krymchak subdialect of Crimean Tatar*

Krymchak is one of the subdialects of the central dialect of Crimean Tatar. It is also called Judeo-Crimean Tatar or Judeo-Crimean Turkish.

### 2.8.1. *population*

The number of the Krymchaks was supposedly 2,500 in 2000, but the censuses gave their number as 406 in 2001 (Ukraine) and as 157 in 2002 (Russia). There were 1,448 Krymchaks in the former Soviet Union according to the 1989 census. Due to the genocide by the Nazis during World War II, 80 % of the 6,000 Krymchaks were killed.

### 2.8.2. *informant*

Our informant was a male born in 1922. He is seemingly the last full-fluent speaker of Krymchak.

### 2.8.3. *result*

548 words and 380 grammatical constructions

### 2.8.4. *daily language of the informant*

Russian (and Krymchak)

Krymchak seems to lie between 'critically endangered' and 'extinct'.

## 2.9. *Urum*

Urum is the Crimean Tatar language spoken by the people of Greek origin. It has two dialects: Kypchak and Oghuz. The Kypchak dialect has two subdialects: Kypchak-

Polovets and Kypchak-Oghuz. The Oghuz dialect also has two subdialects: Oghuz-Kypchak and Oghuz.<sup>5</sup>

#### 2.9.1. *population*

45,000 in 1989

#### 2.9.2. *informants*

Oghuz dialect: 1 male (born in 1951)

Kypchak dialect: 1 male (born in 1942) and 1 female (born in 1928)

#### 2.9.3. *result*

Oghuz dialect: 2,154 words, 344 conversational expressions, 380 grammatical constructions and free talking

Kypchak dialect:

118 words and 104 grammatical constructions from the male informant

275 words from the female informant

#### 2.9.4. *daily language of the informants*

Oghuz dialect: Russian, Urum

Kypchak dialect:

Russian, Ukrainian and Urum for the male informant

Russian and Urum for the female informant

The informant for the Oghuz dialect had a good command on his native tongue. The male informant for the Kypchak dialect did not remember many words. The female informant did not have a good command on her native tongue. We could not find any other informant with a good command on his/her native tongue. Therefore, the Urum language seems to lie between ‘severely endangered’ and ‘critically endangered’.

#### 2.10. *Chulym Tatar*

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<sup>5</sup> Cf. Garkavec 2000, p. 6.

Chulym Tatar has two dialects: Middle Chulym and Lower Chulym. The Middle Chulym dialect belongs to *azaq*-group like Khakas, Western Yugur and the Mrass-Upper Tom dialect of Shor whereas Lower Chulym belongs to *ayaq*-group like Kondoma-Lower Tom dialect of Shor, Turkish, Tatar, Uzbek, etc.

#### 2.10.1. *population*

The population of the Chulym Tatars was 656 with 270 persons knowing Chulym in 2002. There are some 100 fluent speakers and these persons are certainly the Middle Chulyms. It seems that there is no Lower Chulym speaker at present.

#### 2.10.2. *informants*

Middle Chulym: 1 male (born in 1952)

Lower Chulym: 1 male (born in 1921)

#### 2.10.3. *result*

Middle Chulym: some 500 words, 344 conversational expressions, 239 grammatical constructions (almost always according to the Russian word order) and free talking

Lower Chulym: some 400 words

#### 2.10.4. *daily language of the informants*

Middle Chulym: Russian and Middle Chulym

Lower Chulym: Russian, (and Lower Chulym before World War II)

The Lower Chulym dialect seems to be ‘extinct’. The Middle Chulym dialect seems to lie between ‘severely endangered’ and ‘critically endangered’.

#### 2.11. *Tatar*

Tatar has 3 dialects broadly: Middle Tatar (= Kazan), Western Tatar (= Misher) and Eastern Tatar (= Siberian Tatar). Eastern Tatar has following subdialects: Tobol-

Irtys, Baraba, Tom.

#### 2.11.1. *population*

The population of the Tatars was 5,554,601 with 5,347,706 persons knowing Tatar in 2002 (Russia), 248,952 in 1999 (Kazakhstan), 45,438 in 1999 (Kyrgyzstan), 30,000 in 1999 (Azerbaijan) and 19,000 in 2000 (Tajikistan). There are also some 370,000 Tatar native speakers among the Bashkirs.

#### 2.11.2. *informants*

Baraba Tatar: 1 female (born in 1948)<sup>6</sup>

Tatar in Ufa: 1 female (born in 1953)<sup>7</sup>

#### 2.11.3. *result*

Baraba Tatar: 744 words and free talking

Tatar in Ufa: 732 words and free talking

#### 2.11.4. *daily language of the informants*

Baraba Tatar: Russian and Tatar

Tatar in Ufa: Russian, Bashkir and Tatar

The Tatar language is certainly ‘safe’, but its many dialects seem to lie between ‘definitely endangered’ and ‘critically endangered’. Our Tatar informant in Ufa seems to have a better command on Russian than Tatar.

### 12. *Salar*

#### 2.12.1. *population*

The population of the Salars was 104,503 in 2000. There are some 35,000 native

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<sup>6</sup> Her father is a local Tatar and her mother a Kazan Tatar.

<sup>7</sup> She is of mixed origin from non-Kazan Tatars and other peoples. Her husband is a Bashkir.

speakers.

#### 2.12.2. *informants*

2 males (born in 1936, 1978) and 1 female (born in 1986)

#### 2.12.3. *result*

1,891 words, 344 conversational expressions, 379 grammatical constructions and free talking from the 1<sup>st</sup> male informant

916 words, 344 conversational expressions, 379 grammatical constructions and free talking from the 2<sup>nd</sup> male informant

734 words and free talking from the female informant

#### 2.12.4. *daily language of the informants*

Chinese for the 1<sup>st</sup> male informant

Salar and Chinese for the 2<sup>nd</sup> male informant and for the female informant

Salar is not a written language. Moreover, some two third of the Salar people are not native speakers of it. Therefore, Salar seems to lie between ‘unsafe’ and ‘definitely endangered’.

#### 2.13. *Kirghiz*

Kirghiz has 2 dialects broadly: Northern Kirghiz and Southern Kirghiz. Northern Kirghiz has 4 subdialects: Īsik-köl, Chuy, Talas and Narĭn. Southern Kirghiz has 2 subdialects: Osh and Ichkilik. The Kirghiz written language is based on Northern Kirghiz. Southern Kirghiz was influenced by Uzbek.

#### 2.13.1. *population*

The population of the Kirghiz was 3,128,147 in 1999 (Kyrgyzstan), 160,823 in 2000 (China), 31,808 in 2002 (Russia) and 10,896 in 1999 (Kazakhstan).

#### 2.13.2. *informants*

İsik-köl subdialect: 1 female (born in 1973)  
Chuy subdialect: 1 female (born in 1939)  
Talas subdialect: 1 female (born in 1947)  
Narın subdialect: 1 male (born in 1936)  
Ichkilik subdialect: 2 females (born in 1946, 1947)<sup>8</sup>

### 2.13.3. *result*

İsik-köl subdialect: 2,720 words, 344 conversational expressions, 380 grammatical constructions, free talking and minimal pairs  
Chuy subdialect: 2,663 words, 344 conversational expressions, 380 grammatical constructions and free talking  
Talas subdialect: 1,515 words, 344 conversational expressions and 380 grammatical constructions  
Narın subdialect: some 2,000 words, 344 conversational expressions and 380 grammatical constructions  
Ichkilik subdialect:  
47 words, 99 conversational expressions and free talking from the 1<sup>st</sup> informant  
2,654 words, 344 conversational expressions, 380 grammatical constructions and free talking from the 2<sup>nd</sup> informant

### 2.13.4. *daily language of the informants*

#### Kirghiz and Russian

The Kirghiz language is certainly ‘safe’. However, our informants were influenced by the written language. Probably this is also the case for the other speakers of any dialect.

### 2.14. *Dolgan*

Dolgan was originally a dialect of Yakut. Some scholars regard still Dolgan as a dialect of Yakut.

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<sup>8</sup> They are sisters.

#### 2.14.1. *population*

The population of the Dolgans was 7,261 with 4,865 persons knowing Dolgan in 2002. The majority of the Dolgans lives on Taimyr peninsular.

#### 2.14.2. *informants*

2 females (born in 1946, 1944)

#### 2.14.3. *result*

2,506 words, 344 conversational expressions, 380 grammatical constructions and free talking from the 1<sup>st</sup> informant

1,115 words, 344 conversational expressions, and 380 grammatical constructions from the 2<sup>nd</sup> in-formant

#### 2.14.4. *daily language of the informants*

Russian, Dolgan for the 1<sup>st</sup> informant

Russian, Yakut and Dolgan for the 2<sup>nd</sup> informant (her tongue is a mixed language of Dolgan and Yakut)

Dolgan became a written language recently. Some one third of the Dolgans do not know their mother tongue. Therefore, Dolgan seems to lie between ‘unsafe’ and ‘definitely endangered’.

### 2.15. *Yakut*<sup>9</sup>

#### 2.15.1. *population*

The population of the Yakuts was 443,852, but the number of persons knowing Yakut was 456,288 in 2002.

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<sup>9</sup> Another fieldwork was carried out by the ASK REAL team during 16 – 19 February in 2005. I did not participate to this fieldwork. The informant was a man born in 1963. His daily languages were Russian and Yakut.

### 2.15.2. *informant*

1 female (born in 1964)

### 2.15.3. *result*

55 words, 340 conversational expressions, 237 grammatical constructions and free talking

### 2.15.4. *daily language of the informants*

Yakut (and Russian)

The Yakut language is certainly ‘safe’.

## 2.16. *Bashkir*

### 2.16.1. *population*

The population of the Bashkirs was 1,673,389 with 1,379,727 persons knowing Bashkir in 2002 (Russia) and 23,224 in 1999 (Kazakhstan)

### 2.16.2. *informants*

Ėyĕk-Haqmar subdialect: 2 females (born in 1940, 1949)

Urta subdialect: 2 females (born in 1960)

Zelin subsubdialect of Urta subdialect: 1 female (born in 1982)

Dim subdialect: 1 female (born in 1945)

Qıđıl subdialect: 2 males (born in 1936, 1960)

### 2.16.3. *result*

Ėyĕk-Haqmar subdialect:

2,532 words, 344 conversational expressions and 380 grammatical constructions from the 1<sup>st</sup> informant

2,678 words, 344 conversational expressions, 380 grammatical constructions and free talking from the 2<sup>nd</sup> informant

Urta subdialect:

2,596 words, 344 conversational expressions, 380 grammatical constructions and free talking from the 1<sup>st</sup> informant

2,637 words, 344 conversational expressions, 380 grammatical constructions and free talking from the 2<sup>nd</sup> informant

Zelin subsubdialect of Urta subdialect: 101 grammatical constructions and free talking

Dim subdialect: 2,216 words, 344 conversational expressions, 380 grammatical constructions and free talking

Qïdïl subdialect:

898 words, 344 conversational expressions, 380 grammatical constructions and free talking from the 1<sup>st</sup> informant

1,138 words, 344 conversational expressions, 380 grammatical constructions and free talking from the 2<sup>nd</sup> informant

#### 2.16.4. *daily language of the informants*

Bashkir and Russian except for the 2<sup>nd</sup> informant of Qïdïl subdialect. His daily language is Bashkir.

The Bashkir language is certainly ‘safe’, but its many dialects seem to lie between ‘definitely endangered’ and ‘critically endangered’. Our informants were influenced by the written language.

#### 2.17. *Khakas*

Khakas has 4 dialects: Sagay, Kacha, Shor and Kïzïl. In addition to these dialects, formerly there were 2 dialects: Beltir and Koibal. Now Beltir is regarded as a subdialect of Sagay whereas Koibal is regarded as a subdialect of Kacha. The Khakas written language is based on Sagay and Kacha.

##### 2.17.1. *population*

The population of the Khakasses was 75,622 with 52,217 persons knowing Khakas in 2002.

### 2.17.2. *informants*

Sagay dialect: 1 male (born in 1954) and 1 female (born in 1925)

Kacha dialect: 1 male (born in 1945)

Shor dialect: 1 male (born in 1954)

Kizil dialect: 4 females (born in 1952, 1929, 1928, 1951) and 2 males (born in 1955, 1972)<sup>10</sup>

Beltir subdialect: 2 females (born in 1962, 1951)

Koibal subdialect: 5 females (born in 1952, 1966, 1926, 1940, 1951) and 1 male (born in 1957)

### 2.17.3. *result*

Sagay dialect:

2,731 words, 344 conversational expressions, 380 grammatical constructions and free talking from the male informant

free talking and songs from the female informant

Kacha dialect: 2,611 words, 344 conversational expressions, 380 grammatical constructions and free talking

Shor dialect: 2,709 words, 344 conversational expressions, 380 grammatical constructions and free talking

Kizil dialect:

688 words, 203 conversational expressions and free talking from the 1<sup>st</sup> female informant

1,535 words, 344 conversational expressions, 160 grammatical constructions and free talking from the 2<sup>nd</sup> female informant

free talking from the 3<sup>rd</sup> female informant

free talking and songs from the 4<sup>th</sup> female informant and from the 2<sup>nd</sup> male informant

178 words and free talking from the 1<sup>st</sup> male informant

Beltir subdialect:

381 words from the 1<sup>st</sup> informant

free talking from the 2<sup>nd</sup> informant

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<sup>10</sup> The 4<sup>th</sup> female informant is the mother of the 2<sup>nd</sup> male informant.

Koibal subdialect:

657 words from the 1<sup>st</sup> female informant

1,082 words and 183 grammatical from the 2<sup>nd</sup> female informant

free talking from the 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> female informants

246 words and free talking from the male informant

#### 2.17.4. *daily language of the informants*

Khakas and Russian

The Khakasses made up only 12 % of the population of Khakassia in 2002. Although Khakas and Russian are the official languages of Khakassia, the instruction language is mainly Russian. The road signs etc. are in Russian in the capital city of Abakan. Many Khakasses living in cities cannot speak their mother tongue. We stayed a day in a Kacha village named Malyj Kobezhikov (Xizil aal “Red village” in Khakas). Almost all of the residents were Khakas (Kacha). But the children spoke only Russian whereas the adults spoke both Khakas (Kacha dialect) and Russian. Therefore, Khakas seems to lie between ‘severely endangered’ and ‘critically endangered’.

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# Does Quantity Figure in APs?\*

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## Abstract

The paper adopts split degree analysis drawing a distinction between Deg(P) and Q (P) in TSM. There are two subtypes of Q(P), viz., Q(P)-X and Q(P)-Y. It explores the issue of compatibility of two kinds of derived scalar APs, viz., DVAPs and DNAPs with Deg head, be it Deg (P) or Q (P). The basic claim is that only Deg can accommodate derived scalar APs. It is established that Q(P)s which originates in DPs are compatible with scalar APs only when they change into Deg.

**Keywords:** Quantity Deg AP scalar TSM

## 1. Introduction

The paper sets out by posing a question as to whether quantity figures in APs in Taiwanese Southern Min (henceforth TSM), a southern Sinitic language prevalent in Southern Fujian, Taiwan and many parts of the world. Towards the goal of answering this question attention is focused on establishing two types of degree elements (Deg (P) and Q (P)) in the light of the split degree approach. It also examines two types of derived scalar APs (DVAPs and DNAPs). It is argued that each scalar AP has an open g-position which has to be bound and saturated by a Deg head. It is found that whereas compatibility of Deg (P) with derived scalar adjectives is expected, Q (P) can not

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accommodate scalar APs unless the Q (P) has taken on the feature of degree. Thus the answer to the question is quite obvious and will be given toward the end of the paper.

## 2. Split Degree system

Rather than a single degree system a split degree system hypothesis was proposed in Bresnan (1973) and the proposal was elaborated on in Corver (1997ab). This proposal involves two types of functional degree words in adjectival projection, (1) Deg (P) (degree phrase), and (2) Q (P) (quantity phrase).<sup>1</sup> It is claimed in Corver (1997a), in particular, that a distinction should be made between determiner-like elements (Deg<sup>0</sup>s) such as *too*, *as*, *so*, *how* and *that*, and quantifier-like elements (Q<sup>0</sup>s) such as *more*, *less*, *much*, *little* and *enough* and both Deg<sup>0</sup>s and Q<sup>0</sup>s occur as pre-adjectival elements. Such claims are valid as they are based on solid empirical evidence. The determiner-like elements (Deg<sup>0</sup>s) select quantity phrases (QPs), and the quantifier-like elements (Q<sup>0</sup>s) select adjectival phrases (APs).

A distinction between two types of degree elements (Deg P and Q (P)) can also be made in TSM. But the picture is somewhat more complicated, since, as shown below, a further distinction between Q(P)-X and Q(2)-Y has been made in Q(P).

### Deg (P)

siunn<sup>1</sup> 傷 (too), hiah<sup>4</sup> 遐 (so), chiah<sup>4</sup> 遮 (so), joa<sup>7</sup> 若 (how),  
khah<sup>4</sup> 較 (more), kau<sup>3</sup> 夠 (enough)

### Q(P)

**Q(P)-X** chio<sup>2</sup> 少 (few/little), choe<sup>7</sup> 濟 (many/much)

**Q(P)-Y** chit<sup>8</sup>-tiam<sup>2</sup>-a<sup>2</sup> 一點仔 (a bit), chit<sup>8</sup>-koa<sup>2</sup>-a<sup>2</sup> 一寡(仔) (some)

Whereas Deg (P) can collocate with APs in TSM and English, Q(P)-Y rather than Q(P)-X can be co-occur with APs in TSM. The paper will try to explain why APs can take one type of Q(P)s. But before we provide the answer let's first examine the internal structure of a DP.

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<sup>1</sup> Here are abbreviations used in this paper: AP (adjectival phrase), CL (classifier), Deg (degree), Deg P (degree phrase), DN (denominal), DP (determiner phrase), DS (diminutive suffix), DV (deverbal), G (grade), PRF (prefix), and Q (quantifier).

### 3. Three variable positions in DPs

According to Borer (2005a) a determiner (DP) features three basic elements, viz., (1) determiner (<e>det), (2) quantity (<e>#), and (3) divisiveness (<e>div), in addition to L-D (lexical domain) (Borer 2005ab). Take a prototypical DP like ‘the three dogs’. Its counterpart in TSM would be *chit<sup>4</sup> sann<sup>1</sup> chiah<sup>4</sup> kau<sup>2</sup>* this three CL dog ‘the three dogs’. Its internal makeup is shown in the following table.<sup>2</sup>

DETERMINER	QUANTITY	DIVISIVENESS	L-D
chit4	sann1	chiah4	kau2
此	三	隻	狗
this	three	CLASSIFIER	dog

What is shown here is a canonical type of DP, but not all positions must be filled in syntactic realization.

One of the most conspicuous constraints is that classifiers in TSM as well as Mandarin have to be present when an NP in a (DP) is individuated or rather accompanied by a numeral, whereas the classifier in English is not mandatory when a numeral occurs with a noun phrase denoting individuated objects in English. Of course, the noun has to be suffixed with a plural ending if it denotes individuated objects, as there is number agreement between numeral and the noun phrase. As shown in the following table *three books* in English, for example, corresponds to *sann1 pun2 chul* in TSM.<sup>3</sup>

quantity	*(classifier)	noun phrase
Sann1	*(pun)	chul
三	*(本)	書
three	classifier	book
three		books

<sup>2</sup> All the spelling of Southern Min in this paper is indiscriminately rendered in Taiwanese Southern Min pronunciation based on Church Romanization codified in Douglas (1873). I have made some modifications, however. For example, the diacritic tone marks have been abandoned in favor of numerical superscripts. No distinction is made between *ch* and *ts* or *chh* and *tsh* as they do not stand for phonemic contrast. The open *o* and the closed *o* are rendered as *oo* and *o*, as in *khoo<sup>2</sup>* ‘bitter’ and *kho<sup>2</sup>* ‘thick’. Nasalization is indicated by a double *n*.

<sup>3</sup> \*(*)* indicates that the expression will be ill-formed if nothing occurs in the parentheses. (\*) means that the presence of something in the parentheses will render the expression ungrammatical, and (*)* means that the element in the parentheses is optional.

Individuation of an NP operates in tandem with its categorization. A well-formed DP construction can be captured in terms of two axes: (1) syntagmatic relationship and (2) paradigmatic relationship. (Saussure 1916, Helmslev 1970) Each position of the internal structure of a DP reflects combined effects of the two axes. DIVISENESS and QUANTITY are marked on classifiers and quantifiers rather than head nouns. Classifier is not obligatory for a DP which does not involve divisiveness. Thus, QUANTITY can occur with an NP without being mediated by CLASSIFIER if what is involved is an approximative quantity, as in *\*(chin<sup>1</sup>) choe<sup>7</sup> chu<sup>1</sup>* \*(真)濟書 real many book ‘many books’.<sup>4</sup>

A DP shedding DETERMINER, viz., QUANTITY + DIVISIVENESS + LD, is a very common pattern where no restriction is imposed on the realization of QUANTITY, as in *chit<sup>8</sup> tiam<sup>2</sup> loo<sup>7</sup>-chui<sup>2</sup>* 一點露水 one drop dew ‘a drop of dew’, where the numeral *chit<sup>8</sup>* ‘one’ can be replaced by other numbers such as *goo<sup>5</sup>* 五 ‘five’, as in *goo<sup>5</sup>tiam<sup>2</sup> loo<sup>7</sup>-chui<sup>2</sup>* 五點露水 five drop dew ‘five drops of dew’. However, when a DS like *a<sup>2</sup>* 仔 is added to QUANTITY + DIVISIVENESS, the resulting form, viz., QUANTITY + DIVISIVENESS + DS, exemplified by *chit<sup>8</sup> tiam<sup>2</sup> a<sup>2</sup> siann<sup>1</sup>-im<sup>1</sup>* 一點仔聲音 a dot DS sound ‘a little sound’, QUANTITY should be inevitably realized as *chit<sup>8</sup>* 一 ‘one’. In this case the numeral has to remain unchanged. Any other numeral in place of it will yield ill-formed expressions, as in *\* sann<sup>1</sup> tiam<sup>2</sup> a<sup>2</sup> siann<sup>1</sup>-iam<sup>1</sup>* \*三點仔聲音. In such a case, approximative diminution has been coerced at the expense of the property of DIVISIVENESS.

#### 4. Two kinds of APs in TSM

Having articulated the internal make-up of DP let’s turn to the main focus of the paper, viz., the step-wise formation of APs with an added but no less important Deg element. There are at least two kinds of APs in TSM; (1) deverbal adjectival phrases (DVAPs), and (2) denominal adjectival phrases (DNAPs). In the formation of DVAPs, as I will argue, deverbal adjectives are derived by combining each of stative predicates such as *ho<sup>2</sup>*- 好- ‘good, easy’, *phai<sup>2</sup>*- 歹 ‘bad’, *oh<sup>4</sup>*- 惡 ‘difficult’, *u<sup>7</sup>*- 有- ‘have’, and *bo<sup>5</sup>* 無- ‘not have’ with each of activity transitive verbs such as *chiah<sup>8</sup>* 食 ‘eat’, *khoann<sup>3</sup>* 看 ‘look’, *ka<sup>3</sup>* 教 ‘teach’, and *chhing<sup>7</sup>* 穿 ‘wear’.. The stative predicate functions as a converter coercing an activity predicate into a stative and gradable

<sup>4</sup> Like other scalar adjectives, the quantitative adjective *che<sup>7</sup>* 濟 ‘many’ features an open G position which has to be bound and saturated by a Deg such as *chin<sup>1</sup>* 真 ‘very’.

adjective. The morphological structure of DVAPs can be captured in the following formulas, as in (1):

(1) [Y [X]<sub>vt</sub>]<sub>adj</sub>

X stands for transitive verbs denoting activity, and Y represents a set of stative predicates listed above. The effect of attaching Y to X serves to convert the verb to a quality-denoting adjective. Some examples are given in table (2).

(2)

ho <sup>2</sup> -chiah <sup>8</sup> 好食	good eat	delicious
phai <sup>2</sup> -khoann <sup>3</sup> 歹看	bad look	ugly
oh <sup>4</sup> -ka <sup>3</sup> 惡教	tough teach	tough to teach
u <sup>7</sup> -chhing <sup>7</sup> 有穿	have wear	durable

Below are two examples where the DVAPs are used in sentences (3a,b).

(3) a. Chit<sup>4</sup> liap<sup>8</sup> si<sup>1</sup>-koe<sup>1</sup> chiann<sup>5</sup> ho<sup>2</sup>-chiah<sup>8</sup>

此粒西瓜成好食

This CL water melon very good-eat

‘The water melon is very delicious.’

b. Chit<sup>4</sup> khoan<sup>2</sup> oe<sup>5</sup> chin<sup>1</sup> u<sup>7</sup> chhing<sup>7</sup>

此款鞋真有穿

This type shoe really have wear

‘The shoes of this type are really durable.’

DVAPs as discussed in the above can be regarded as a type of middle construction on the following grounds. First, it involves transitive verbs, or rather two-argument predicate. Second, attachment of head elements like *ho<sup>2</sup>* 好 ‘good’, *phai<sup>2</sup>* 歹 ‘bad’, *u<sup>7</sup>* 有 ‘have’ and *bo<sup>5</sup>* 無 ‘not have’ leads to externalization of internal argument and suppression of external argument. Such a measure results in a reduction of arguments. Thirdly, it carries a generic rather than episodic meaning

Likewise, DNAPs are derived from combining each of stative predicates such as *u<sup>7</sup>*- 有 ‘have’ and *bo<sup>5</sup>*- ‘not have’ with a nominal NP, as in (4):

(4)

u <sup>7</sup> -chinn <sup>5</sup> 有錢	have money	rich
bo <sup>5</sup> -chinn <sup>5</sup> 無錢	not-have money	poor
u <sup>7</sup> -mia <sup>5</sup> 有名	have name	famous
u <sup>7</sup> -lat <sup>8</sup> 有力	have strength	strong

The morphological structure of the DNAPs can be specified by a formulas like (5):

(5) [Y [X]<sub>n</sub> ]<sub>adj</sub>

X stands for nouns, and Y represents stative predicates such as *u*<sup>7</sup> ‘have’ and *bo*<sup>5</sup> ‘not-have’. The effect of attaching Y to X amounts to converting the verb to a quality-denoting adjective.

Both DVAPs and DNAPS are the one-place predicates which originate as two-place predicates. DVAPs involve the suppression of external argument and externalization of internal argument.<sup>5</sup> For example, the external argument of the two-place predicate *khoann*<sup>3</sup> 看 ‘watch’, an agent, in

(6) has been suppressed, and the internal argument, *Chit*<sup>4</sup> *liann*<sup>2</sup> *sann*<sup>1</sup> 此領衫 ‘the clothes’, is externalized as the subject of the sentence.

(6) *Chit*<sup>4</sup> *liann*<sup>2</sup> *sann*<sup>1</sup> *chin*<sup>1</sup> *ho*<sup>2</sup>-*khoann*<sup>2</sup>

此領衫真好看

This CL clothes really good-look

‘The clothes are pretty.’

The change of two-place predicates to one-place predicates leads to a reduction of the number of arguments. DNAPs also involve the formation of one-place predicate out of two-place predicates. But the operation takes place in a different light. *U*<sup>7</sup> is a two-place predicate. *U*<sup>7</sup> *le*<sup>2</sup>-*mau*<sup>7</sup> 有禮貌 have courtesy is a V+NP where the NP is an internal argument. However, when it turns into an AP, as in (7), the NP *le*<sup>2</sup>-*mau*<sup>7</sup> 禮貌 has lost its status of argument. Put differently, it has been incorporated into the AP.

(7) *Chit*<sup>4</sup> *e*<sup>5</sup> *chinn*<sup>1</sup>-*hun*<sup>7</sup> *lang*<sup>5</sup> *chiann*<sup>5</sup> *u*<sup>7</sup> *le*<sup>2</sup>-*mau*<sup>7</sup>

此個生份人誠有禮貌

This CL strange person really have courtesy

‘The stranger is polite.’

## 5. Constraints of Scalar APs

There are two dimensions to constraints of scalar APs: (1) as shown in 5.1., a scalar AP features an open g-position, which has to be saturated by a degree head, and

<sup>5</sup> See Grimshaw (1991) for the notion of suppression of external argument.

(2), as discussed in 5.2., Deg(P) is compatible with scalar APs, whereas only when Q(P) sheds the feature of divisiveness can it be compatible with scalar APs.

### 5.1. Degree heads

Since both DVAPs and DNAPs involve scalar domain, they feature an open g-position in each expression, viz., g referring to degree, which has to be saturated by its degree binder. The saturation is accomplished through theta identification. (Higginbotham 1985, Doetjes 1997) There is a range of determiner-like Degs, as in

(8), forming the head of DegP that can execute the task

(8)

chin <sup>1</sup> 真	real	really
chiok <sup>4</sup> 足	sufficient	very
chiann <sup>5</sup> 誠	honest	truly
hiah <sup>4</sup> -nih <sup>4</sup> 赫爾	that so	so
chiah <sup>4</sup> -nih <sup>4</sup> 遮爾	this so	so
joa <sup>7</sup> -nih <sup>4</sup> 若爾	how so	how
u <sup>7</sup> -kau <sup>3</sup> 有夠	have enough	so

While degree head can be an implicit element in English, it is indispensable in TSM as well as Mandarin, as in

(9)

(9) Chit<sup>4</sup> pak<sup>4</sup> too<sup>5</sup> \*(chiann<sup>5</sup>) ho<sup>2</sup> khoann<sup>3</sup>

此幅圖\*(成)好看

This CL picture very good look

‘The painting is beautiful.’

It is a well-known fact that Chinese, TSM included, is a tenseless language, whereas like many other Indo-European languages English is a tensed language. The optionality of degree head in English might have to do the obligatory presence of T in a clause. Just as T is a head and an obligatory element in a clause in languages like English, the scalar or gradable domain in a clause is headed by Degs (formerly adverbs of degree), as in (8), in TSM forming a DegP. A scalar AP, be it a DVAP or a DNAP, has an open G position indicating an underspecified scale that has to be saturated or settle for a certain

definitive value. The task of saturation is accomplished by a binding relationship between binder (Deg) and bindee (the open g-position). So Deg categorial-selects an AP as its complement, and they form a DegP. A clause featuring a scalar AP will be left in air if the AP is not bound by its head Deg. In short, Deg is indispensable.

## 5.2. Quantity to Degree

As shown in Section 2, there are two types of degree elements: Deg (P), and Q (P). All Deg (P)s are compatible with scalar APs, since the examples as the head of scalar APs are all Deg (P). The status of Q (P)s regarding compatibility with scalar APs has yet to be tested. Q (P)s have been divided into subtypes in Section 2: Q(P)-X and Q(P)-Y. Let's now examine the two subtypes.

Scalar APs, be they DVAPs or DNAPs, can not accommodate the presence of a Q(P)-X, as in (10ab).

- (10) a. \*Keng<sup>1</sup>-chio<sup>1</sup> choe<sup>7</sup> ho<sup>2</sup>-chiah<sup>8</sup>  
 \*弓蕉濟好食  
 Bananas many good eat  
 \* 'Bananas are many delicious.'
- b. \*I<sup>1</sup> chio<sup>2</sup> u<sup>7</sup>-le<sup>2</sup>-mau<sup>7</sup>  
 \*伊少有禮貌  
 He few have-etiquette  
 \* 'He is few polite'

However, Q(P)-Y seems to be more complicated. Although

(11) is still bad, some cases of *chit<sup>8</sup>-koa<sup>2</sup>* 'some' such as (12) seems to be well-formed.

- (11) \* keng<sup>1</sup>-chio<sup>1</sup> chit<sup>8</sup> koa<sup>2</sup> ho<sup>2</sup>-chiah<sup>8</sup>  
 \*香蕉一寡好食  
 Bananas some good eat  
 \* 'Bananas are some delicious.'
- (12) Ke<sup>3</sup>-siau<sup>3</sup> khah<sup>4</sup> kui<sup>3</sup> chit<sup>8</sup>-kua<sup>2</sup>  
 價數較貴一寡  
 Price more expensive some  
 'It is a little bit more expensive.'

Another example of Q (P)-Y that shows a deeper extension of quantifier to degree is *chit<sup>8</sup>-tiam<sup>2</sup>-a<sup>2</sup>* 一點仔 ‘a little bit’. It has shed its divisiveness in the sense of Borer (2005a) and acquires the property of degree, as in (13).

- (13) I<sup>1</sup> u<sup>7</sup> chit<sup>8</sup>-tiam<sup>2</sup>-a<sup>2</sup> chui<sup>3</sup>  
伊有一點仔醉  
He have a little bit drunk  
‘He is a bit drunk.’

However it has to be licensed by the operator *u<sup>7</sup>* 有.

Thus, the answer to the question as to whether Quantity Figure in APs raised in the title is, therefore, that the two kinds of Degs in construction with As in APs that Corver (1997ab) postulates are also attested in TSM and that Q<sup>0</sup>s can be accommodated only if it sheds the property of divisiveness.

## 6. Conclusion

In this paper I adopt the split degree hypothesis and establish two types of degree words, viz., Deg (P) and Q (P) in TSM. Q(P) falls into two subtypes: Q (P)-X and Q (P)-Y. Among a wide range of APs I focus on two kinds of derived scalar APs (DVAPs and DNAPs).<sup>6</sup> Unlike the optionality of Deg as head of scalar APs in English Deg is the indispensable and explicit head for scalar APs in TSM. While it is expected that Deg (P) are compatible with scalar APs, Q (P) seems to be a problem of compatibility as it originates as an internal element in DPs. The exploration in the paper points to a ultimate solution. The answer to the question as to whether quantify figures in APs is yes, if QPs sheds the feature of divisiveness and take on the feature of degree. It is shown in the above discussion that argument realization based on predicate-complement pairing can be extended to QPs where Deg head is construed as an obligatory element. This is a theoretical stand which departs from the earlier view that Deg in the APs is an optional element.

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<sup>6</sup> Any one who takes a theoretical stand that there is no distinction between adjectives and verbs in TSM can convert APs into stative predicates without seriously undermining the conclusion that I have reached in the paper.

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# Argument Unification in the Quasi-Existential Construction

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## Abstract

This paper investigates what I call the Quasi-Existential Construction (QEC), where a transitive verb combines with a verb *iru* which has been considered just as an auxiliary, and a theme argument looks to receive an apparently non-canonical case marking. This construction possesses a number of puzzling properties in the light of well-understood phenomena of Japanese. I depart from the existing assumption that *iru* is only an auxiliary, instead showing the evidence that it is also an existential verb, which thus can form a complex predicate with a preceding verb. After an overview of the general properties of complex predicates in Japanese and the previous approaches are presented, I provide a new unified analysis of the phenomenon as well as the QEC.

**Keywords:** Complex Predicates, Argument Suppression, Existential Verbs, Auxiliary

## 1. Introduction

This paper deals with some unusual facts regarding the aspectual form *te-iru* in Japanese. The *te-iru* form consists of a gerund *te-* and an auxiliary *iru* whose original meaning was ‘exist’. In Japanese, a subject NP is normally case-marked by the nominative case, whereas an object NP is case-marked by the accusative. With the aspectual form *te-iru*, the case marking pattern is still nominative-accusative, as shown in (1b).<sup>1</sup>

- (1) a. Ken-ga ringo-o {kir/ur}-u.  
Ken-NOM apple-ACC cut/sell-PRES  
‘Ken {cuts/sells} apples.’

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<sup>1</sup>In this paper, I employ a phonological underlying form rather than a surface form in representing examples. For example, while the surface form of the verb *uru* ‘sell’ with the auxiliary *iru* is *ut-te-i-ru*, the underlying form ‘*ur-teiru*’ is used in (1b).

- b. Ken-ga ringo-o {kir/ur}-te-i-ru.  
 Ken-NOM apple-ACC cut/sell-GER-AUX-PRES  
 ‘Ken is {cutting/selling} apples.’

I am concerned with a construction with a *te-iru* form in which some argument is marked by a non-canonical case given its thematic role and grammatical function, as illustrated in (2).

- (2) Ringo-ga ur-te-i-ru.  
 apple-NOM sell-GER-exist-PRES  
 ‘Apples are for sale.’

This construction, to the best of my knowledge, has almost never been discussed in the literature on the Japanese syntax. In this paper, I refer an instance of (2) as the *Quasi-Existential Construction* (QEC), where a transitive verb combines with a verb *iru* and a theme argument is marked by nominative. As shown in (3), the nominative on the theme argument is not acceptable without *te-iru* form. It is thus this aspectual form *te-iru* that plays a crucial role in licensing such case alternations.

- (3) \*Ringo-ga ur-u.  
 apple-NOM sell-PRES

Of course, there are also case alternation phenomena in Japanese. Such instances include: transitive-intransitive alternation, potential alternation, and passive formation. However, it is well-known that case alternations in Japanese always involve a morphological change in the verb (see Jacobsen 1992 for Japanese derivational affixation patterns). For example, the transitive-intransitive pair in (4) is morphologically differentiated: a transitive verb (*war* ‘break<sub>tr</sub>’) has no suffix, while the intransitive counterpart (*war-e* ‘break<sub>in</sub>’) bears a suffix *-e*.

- (4) a. Ken-ga kabin-o war-ta.  
 Ken-NOM vase-ACC break<sub>tr</sub>-PAST.  
 ‘Ken broke the vase.’  
 b. Kabin-ga war-e-ta.  
 vase-NOM break-INTR-PAST.  
 ‘The vase broke.’

In the QEC example (2), the verb form is still morphologically transitive *ur-*. This phenomena looks mysterious in that case alternation is observed without no particular morpheme (e.g. *e*, *ar*, etc.) attaching to the verb.

One may consider the possibility that (2) is an instance of Japanese middle construction. In English, middles do not show morphological mark to distinguish it from the canonical transitive form, as show in (5).

- (5) a. I read this book.  
b. This book reads well.

In Japanese, it is not crystal clear whether middles exist as a distinct construction. Given the semantic interpretation of English middles (5b), (6) might be considered to be a Japanese middle sentence because it has a generic reading.

- (6) Kono kusuri-ga yoku ur-e-ru.  
this medicine-NOM well sell-INTR-PRES  
'This medicine sells well.'

In the absence of an explicit definition of middles, I will not consider what is the Japanese middle construction in this paper. But what is important here is the fact that case alternation in (6) involve a suffixed verb form, *ur-e*.

The goal of this paper is to provide a unified account for a number of peculiar properties of the QEC, and to capture the argument realization pattern in a general way. In section 2, I describe that a verb *iru* in the QEC differs from an auxiliary *iru*, suggesting that it involves existential properties in nature. In section 3, I present a complex predicate analysis of the QEC, which captures both the puzzling argument realization, and at the same time, the unusual locative markings.

## 2. Facts

It has been claimed that the verb *iru* attaching to another verb is an aspectual auxiliary. However, as I showed, when it occurs in the QEC, the non-canonical case markings can be obtained. This section further examines other main two intriguing but apparently mysterious properties in the QEC in terms of argument realization, and the form of unusual locative adjuncts.

### 2.1. Argument Blocking

An auxiliary lacks argument structure. If we assume that the verb *iru* is just an

auxiliary, then there arises one puzzle with regard to argument realization in the QEC; “argument blocking” occurs for agent and recipient arguments of the main verb.

I begin with agent blocking. Although a transitive verb is employed, the agent argument ‘seller’ cannot surface in the QEC, as illustrated in (7a). This is in a sharp contrast with standard aspectual auxiliary constructions in (7b).

- (7) a. \*Ken-ga ringo-ga ur-te-i-ru.  
Ken-NOM apple-NOM sell-GER-exist-PRES  
‘Apples are for sale by Ken.’  
b. Ken-ga ringo-o ur-te-i-ru.  
Ken-NOM apple-ACC sell-GER-AUX-PRES  
‘Ken is selling apples.’

One may perhaps assume that Japanese grammar does not allow double nominatives in a single clause, but it is in fact possible in Japanese, as shown in (8). It is thus the overt agent itself that causes ungrammaticality in (7a), but not case-markings.

- (8) Ken-ga Naomi-ga sukida.  
Ken-NOM Naomi-NOM like  
‘Ken likes Naomi’

Further evidence that the agent argument is totally missing in the QEC comes from the incompatibility with an agent-oriented adverb, as illustrated in (9).

- (9) \*Wazato ringo-ga ur-te-i-ru.  
deliberately apple-NOM sell-GER-exist-PRES  
‘Apples are for sale deliberately.’

Secondly, another argument, recipient, cannot occur in the QEC, neither. The verb *uru* ‘sell’ is associated with three arguments (agent, theme and recipient). Yet, the QEC is ill-formed if the recipient argument *gakusei-ni* ‘to students’ is expressed, as in (10a). Again the auxiliary construction (10b) is not subject to such a constraint.

- (10) a. \*Kuruma-ga gakusei-ni ur-te-i-ru.  
car-NOM student-DAT sell-GER-exist-PRES  
‘Cars are for sale to students.’  
b. Kuruma-o gakusei-ni ur-te-i-ru.  
car-ACC student-DAT sell-GER-AUX-PRES  
‘(They) are selling cars to students.’

Another difference between subcategorized and non-subcategorized arguments is worth mentioning. Unlike (10a), the QEC is compatible with non-subcategorized benefactive phrases with a recipient interpretation.

- (11) *Zitensya-ga sinnyuusei no-tameni/mukeni ur-te-i-ru.*  
 bicycle-NOM new.student GEN-for/for sell-GER-exist-PRES  
 ‘Bicycles are for sale to new students.’

These facts above show that this construction requires two theta roles (agent and recipient) of the main verb to be suppressed, and indicate that the verb *iru* is not a purely auxiliary which is always irrelevant to argument realization.

## 2.2. “Thing”-Related Locatives

In Japanese, spatial locations can be marked by either *de* or *ni*. The common assumption is that while *de* can occur in any sentences, *ni* can appear only in stative sentences. More specifically, *ni* is used only when referring to a location of some existence or “Thing” in Jackendoff (1983)’s term (see Nakau 1998; Ueno 2001 for more distributional facts about *de* and *ni*). In the typical existential sentences (i.e. “Thing”-denoting sentences) only a *ni*-locative is acceptable, as illustrated in (12).<sup>2</sup>

- (12) a. *Gakkou-{ni/\*de} Ken-ga i-ru.*  
 school-LOC Ken-NOM exist<sub>anim</sub>-PRES  
 ‘Ken is at school’  
 b. *Heya-{ni/\*de} hon-ga ar-u.*  
 room-LOC book-NOM exist<sub>inan</sub>-PRES  
 ‘There are books in the room.’

On the other hand, in the “Event/State”-denoting sentences, only a *de*-locative can be employed, as shown in (13). Note that the location must be marked by *de* when a NP in an existential sentence indicates activity as in (13c).

- (13) a. *Kafe-{\*ni/de} Naomi-ga hon-o yom-u.*  
 cafe-LOC Naomi-NOM book-ACC read-PRES  
 ‘Naomi reads a book in the cafe’

---

<sup>2</sup>Most of the verbs in Japanese do not have agreement morphology with respect to person, number and gender. However, existential verbs *iru* and *aru* exhibit animacy agreement on its subject: *iru* requires an animate subject, while *aru* requires an inanimate subject.

- b. Ano mise-{\*ni/de}-wa sono kamera-no nedan-ga takai.  
 that shop-LOC-TOP the camera-GEN price-NOM high  
 ‘The price of the camera is high at that shop.’ (Ueno 2001: 110)
- c. Kono heya-{\*ni/de} kaigi-ga ar-ta.  
 this room-LOC meeting-NOM exist<sub>inan</sub>-PAST  
 ‘There was a meeting held in this room.’

I now examine which locative marker, *de* or *ni*, would be used in the QEC. While the aspectual auxiliary construction in (14b) takes only *de*-locatives, the QEC in (14a) interestingly can take either *de* or *ni* to mark the location.

- (14) a. Friimaaketto-{\*ni/de} sinzyu-no-nekkuresu-ga ur-te-i-ta.  
 flea.market-LOC pearl-GEN-necklace-NOM sell-GER-exist-PAST  
 ‘At the flea market, a pearl necklace was for sale.’
- b. Friimaaketto-{\*ni/de} sinzyu-no-nekkuresu-o ur-te-i-ta.  
 flea.market-LOC pearl-GEN-necklace-ACC sell-GER-AUX-PAST  
 ‘At the flea market, (they) were selling a pearl necklace.’

Given that the interpretation of location is crucially related to the selection of locative markers, then we expect that two different readings can be obtained in (14a): *ni*-marked PP refers to the place of the existence of a thing, whereas a *de*-marked PP refers to the place of a selling state/event. This is further evident from (15). In (15a), beds cannot physically exist at the advertisement paper. Thus, this location cannot be marked by *ni*. On the other hand, the selling event cannot be going in a small space like ‘inside the display showcase’, which is only marked by *ni* as (15b) shows.

- (15) a. Kinou-no orikomi-koukoku-{#ni/de} beddo-ga ur-te-i-ta.  
 yesterday-GEN inserted-ads-LOC bed-NOM sell-GER-exist-PAST  
 ‘At yesterday’s newspaper inserts (I found) beds were for sale.’
- b. Syookeesu-no-naka-{\*ni/\*de} tyiara-ga ur-te-i-ta.  
 display.showcase-GEN-inside-LOC tiara-NOM sell-GER-exist-PAST  
 ‘Inside the display showcase, tiaras were for sale.’

### 3. Complex Predicates

I have argued that a verb *iru* in the QEC does not pattern with an auxiliary *iru* with regard to argument realization, and locative markings. The next question is what the verb

*iru* is. I will show that all the properties of the QEC follow primarily from the status of *iru* as an existential verb.

### 3.1. Existential Properties

Let me start by its existential properties of the QEC. As I showed in (14a), the QEC is parallel to the true existential construction in locative selection. There are another striking parallel with a lexical existential verb *iru*. In Japanese, yes/no questions are generally answered with the usage of the same verb as that of the question. When the question is made with an existential verb, the typical answer would be A1, where the same existential verb is used. It is thus not surprising that A2 is not an appropriate answer for this question, because the aspectual auxiliary construction does not involve the existential verb at all. However, the question can be answered in the form of the QEC (A3). The alternation between the existential sentence (A1) and the QEC (A3) strongly indicates that *iru* in the QEC maintains its status as an existential verb.

- (16) Q: Ano mise-ni-wa nani-ga ar-u-no?  
that store-LOC-TOP what-NOM exist-PRES-Q  
'What are there at that store?'
- A1: Ooganikku yasai-ga ar-u-yo.  
organic vegetable-NOM exist-PRES-VOC  
'There are organic vegetable (there).'
- A2: #Ooganikku yasai-o ur-te-i-ru-yo.  
organic vegetable-ACC sell-GER-AUX-PRES-VOC  
'(They) are selling organic vegetables (there).'
- A3: Ooganikku yasai-ga ur-te-i-ru-yo.  
organic vegetable-NOM sell-GER-exist-PRES-VOC  
'Organic vegetables are for sale (there).'

The existential status of Japanese auxiliary *irularu* has been also found in other constructions. Miyagawa (1989) discusses the construction with another existential verb *aru* and suggests that some stative (resultative) meaning in (17a) may result from the existential meaning of the verb *aru*. Nakajima (2000) argues about the structure with locative *ni* and *iru* such as (17b). He refers to the verb *iru* as a existential affix, which designates basically the same existential meaning as that of the main verb *iru*.

- (17) a. Mado-ga war-te-ar-u.  
 window-NOM break<sub>tr</sub>-GER-exist-PRES  
 ‘The window is broken.’
- b. Kyousitu-ni-wa sin-nyuusei-ga mar-te-i-ru.  
 classroom-LOC-TOP new-pupils-NOM wait-GER-exist-PRES  
 ‘In the classroom are waiting new pupils.’

(17b) looks quite similar to the QEC in that they both involve *te-iru* form and allow a *ni* locative. However, they differ in the acceptability of the occurrence of transitive verbs. Assuming that (17b) is an instance of locative inversion, Nakajima argues that transitive verbs are not allowed in this construction, as shown in (18).

- (18) \*Douro-ni-wa kodomotati-ga bouru-o ker-te-i-ru.  
 street-LOC-TOP kids-NOM ball-ACC kick-GER-exist-PRES.  
 (Lit.) ‘On the street are kicking a ball kids.’

The verb *iru* in (18) is a canonical auxiliary because the case marking pattern is nominative-accusative (cf. (14b)). However, as I showed, the QEC is the construction with a morphologically transitive verb combining with a verb *iru*. It thus shares some essential properties of the verb *iru*, but I assume that it is a different construction from (17b). Although there is a restricted set of verbs that can participate in the QEC, as listed in (19), they all are morphologically transitive. Those examples are shown in (20) respectively.<sup>3</sup>

- (19) a. Caused possessive verbs  
*uru* ‘sell’, *hanbai-suru* ‘sell’, *yasu-uri-suru* ‘undersell’, *mae-uri-suru* ‘sell in advance’, *kasu* ‘lend/rent’, *kasi-dasu* ‘lease/check out’, *rentaru-suru* ‘rent’, *uri-dasu* ‘offer’, *uri-hazimeru* ‘begin to sell’, *zyouei-suru* ‘show’, *zyouen-suru* ‘present’, *yaru* ‘give’
- b. Caused motion verbs  
*hosu* ‘hang out’, *oku* ‘put’, *kazaru* ‘decorate’, *simau* ‘keep’, *haru* ‘post’, *keizi-suru* ‘post’, *sasu* ‘pin’, *kaku* ‘write’
- (20) a. Furansu-no-eiga-ga zyoueisi-te-i-ta.  
 France-GEN-movie-NOM show-GER-exist-PAST  
 ‘The French movie was showing.’

---

<sup>3</sup>The verbs in (19b) require a more restricted environment – they can appear in the QEC only when sentential negation is also present. Although it is an interesting and significant issue why negation makes it possible for these verb to appear in the QEC, I will leave this for future research.

- b. Saikin kousou-mansyon-ni-(wa) sentakumono-ga  
 recently high.rise-apartment-LOC-TOP laundry-NOM  
 hosi-te-i-nai.  
 hang.out-GER-exist-NEG  
 ‘Recently at the high-rise apartments, laundry is not hung out (to dry).’

### 3.2. Transitive-Unaccusative Complex Predicates

I have shown that a verb *iru* in the QEC behaves as an existential verb. Since the QEC carries a progressive meaning due to the presence of the verb *iru*, I thus assume that the verb *iru* is taken to be not only an auxiliary but also a full verb. The full verb *iru* can then form a complex predicate structure with a preceding verb. Adopting the claim that existential verbs are unaccusative (cf. Burzio 1986; Levin and Rappaport Hovav 1995), I assume that the existential verb *iru* is unaccusative, too. In the QEC, the initial verb ( $V_1$ ) and *iru* ( $V_2$ ) would thus fall under transitive-unaccusative complex predicates.

There is good reason to believe that the QEC is in the form of transitive-unaccusative complex predicates: they exhibit “argument blocking”. In Japanese, complex predicates with a transitive and an intransitive are abundant.<sup>4</sup> For example, the transitive  $V_1$ , *utu* ‘hit’, and the unaccusative  $V_2$ , *agaru* ‘rise’ form a complex predicate. In (21), the theme argument of  $V_1$  is also understood as the theme of  $V_2$ , and is marked by nominative.

- (21) a. Booru-ga uti-agar-ta.  
 ball-NOM hit<sub>tr</sub>-rise-PAST  
 ‘The ball popped up.’  
 b. Tegami-ga kaki-agar-ta.  
 letter-NOM write<sub>tr</sub>-rise-PAST  
 ‘The letter was written up.’

In these transitive-unaccusative predicates, agent and recipient arguments cannot appear. (22) indicates that neither the overt agent nor the agent-oriented adverb is compatible with this construction. The recipient argument must also be absent, as shown in (23).

- (22) a. \*John-ga booru-ga uti-agar-ta.  
 John-NOM ball-NOM hit<sub>tr</sub>-rise-PAST  
 ‘John popped the ball up.’

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<sup>4</sup>The  $V_2$  of some of these predicates has been claimed to express aspectual meanings (see Shibatani 1973; 1978; Kuno 1987; Kageyama 1993; Matsumoto 1996; Tsujimura 2006 for aspectual verbs).

b. \*Booru-ga wazato uti-agar-ta.  
 ball-NOM intentionally hit<sub>tr</sub>-rise-PAST  
 ‘The ball popped up intentionally.’

(23) \*Tegami-ga Naomi-ni kaki-agar-ta.  
 letter-NOM Naomi-DAT write<sub>tr</sub>-rise-PAST  
 ‘The letter was written up to Naomi.’

If the QEC is an instance of transitive-unaccusative predicates, then the issue of why the agent and the goal arguments are missing in the QEC can be explained by the general condition on argument realization in Japanese complex predicates.

### 3.3. Previous Accounts for Argument Blocking

There are two approaches to explaining the fact about the suppression of agent arguments: intransitivization and structural blocking. The former assumes that such transitive-unaccusative predicates derive from the transitive-transitive counterpart. The latter argues that a particular argument (i.e. agent) cannot be licensed by the structure.

Let me begin with intransitivization accounts. Kageyama (1993) proposes the *transitivity harmony principle* that requires both  $V_1$  and  $V_2$  to involve an external argument. This means that the compounding of transitive and unaccusative is impossible due to a violation of this principle. He thus postulates the operation *back formation* which generates transitive-unaccusative predicates from corresponding transitive-transitive predicates. The similar intransitivization analysis is proposed by Matsumoto (1996;1996) and Fukushima (2005).

Although they all just argue that agent is suppressed through intransitivization, it is unclear how such arguments really can be suppressed. Furthermore, if transitive-unaccusative predicates are formed via intransitivization, the suppression of recipient would also be observed in a typical intransitivization process. Consider a verb pair, *tuta-e* ‘tell<sub>tr</sub>’ and *tuta-war* ‘tell<sub>in</sub>’, which has been claimed as an example of intransitivization (cf. Okutsu 1967). Unlike (23), the recipient argument survives through intransitivization, as illustrated in (24b). Thus, intransitivization accounts need to stipulate additional constraints in order to rule out (23).

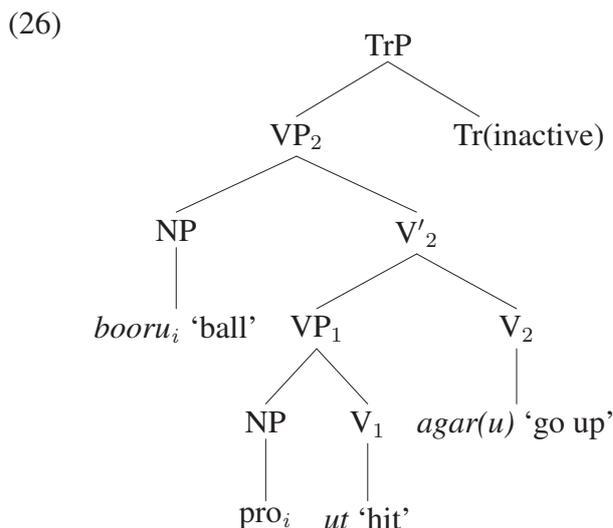
(24) a. Haha-ga kodomo-ni sinzitu-o tuta-e-ta.  
 mother-NOM children-DAT truth-ACC tell-TR-PAST  
 ‘The mother told her children the truth.’

- b. Sinzitu-ga kodomo-ni tuta-war-ta.  
 truth-NOM children-DAT tell-INTR-PAST  
 ‘The truth was told to the children.’

Next, these accounts wrongly predict that there are no transitive-unaccusative compounds which do not have corresponding transitive-transitive counterparts. This prediction is not born out however, as shown in (25). Although there exists no transitive-transitive counterpart, the complex predicate *syaberi-tukare* is fully grammatical.

- (25) Naomi-ga syaberi-tukare-ta.  
 Naomi-NOM speak-get.tired-PAST  
 ‘Naomi got tired from speaking (too much).’

A different structural explanation is proposed by Nishiyama (1998), and Naumann and Gamerchlag (2003). Adopting Kratzer’s (1996) theory of Voice Phrase, Nishiyama assumes that an external argument is not included in the immediate projection of VP, and proposes that an active Tr(ansitivity) head (i.e. the Voice head in Kratzer’s term) introduces an external argument of the verbal compound in its Spec position, whereas an inactive Tr does not. For instance, in the complex predicates *uti-agaru* as in (21a), the argument structure of the transitive verb *ut* ‘hit’ is <Theme> (or  $\lambda x\lambda e$  [hitting (e) & Theme (x)(e)] in Kratzer’s representation). An inactive Tr then selects an unaccusative VP-shell, as illustrated in (26). Thus, the external argument (agent) will not be introduced in this structure.



In line with the lexicalist approaches (Kageyama 1993; Matsumoto 1996), Naumann

& Gamerschlag (2003) argue that the argument structures of  $V_1$  and  $V_2$  are merged, sharing at least one argument. For transitive-unaccusative predicates, the formed argument structure still involves an agent argument. Then, they postulate a rule that blocks agent realization based on their assumption that an external argument is structurally higher than internal arguments. The rule says that an argument of  $V_1$  is *structurally* blocked which (i) is not identified with an argument of  $V_2$ , and (ii) is structurally higher than the argument of  $V_1$  identified with an argument of  $V_2$ .

These structural accounts either by Nishiyama or by Naumann & Gamerschlag seem plausible on the absence of the agent. Yet, the fact that the recipient is missing as shown in (23) is a problem for their accounts. First, Nishiyama's claim that external arguments come into the clause through the functional head (active Tr) does not prevent a recipient argument of  $V_1$ . Even if we assume that the transitive-unaccusative compounds is selected by inactive Tr, (in)active Tr has nothing to do with internal arguments of verbs, and the prediction would be that the internal argument, i.e. recipient, is acceptable in its syntactic structure. Next, Naumann & Gamerschlag's structural blocking analysis could block the recipient arguments if they assumed that recipient is structurally higher than theme. As many linguists (cf. Larson 1988; Grimshaw 1990, among many others) assume that arguments of a verb are associated with positions in the syntax, interacting with their thematic roles, they need to show the empirical evidence that recipient outranks theme in a thematic hierarchy as well as in the syntactic structure. However, there is little consensus on the ranking of arguments in a thematic hierarchy (except agent). With regard to the ranking of recipient and theme, some argue that theme is ranked above recipient (Larson 1988; Baker 1989 *inter alia*), and some argue that theme is ranked below recipient (Jackendoff 1972; Grimshaw 1990 *inter alia*).

#### 3.4. A New Account: Argument Unification

I have argued that neither the intransitivization nor the structural blocking analysis is without major problems. Alternatively I propose a more generalized process *argument unification* for the suppression of arguments. With this account, I make sense of not only missing arguments but also locative-markings in the QEC. Following the claim by Matsumoto (1996) and Kageyama (1993) that at least one argument should be shared by  $V_1$  and  $V_2$  in complex predicates, I propose the argument unification in (27).

##### (27) Argument Unification

When the two verbs of a complex predicate  $V_1$ - $V_2$ , where  $V_2$  is the head, share some arguments, the shared arguments are unified; furthermore, it is only the

shared arguments of  $V_1$  that are mapped to the syntactic structure.

(27) provides a simple unified account for the suppression of agents and recipients. Take the complex predicate *kaki-agaru* as in (21b) as an example, where each argument structure is  $V_1$ : < Agent, Recipient, Theme>, and  $V_2$ : < Theme>. What is shared is *theme*, so that only this theme can be mapped to syntax. The absence of agents and recipients as in (22) and (23) can be simply attributed to the fact that they both are not shared arguments.

One may of course claim that, given that  $V_2$  is the head, transitive-nergative compounds would violate argument unification in (27). The complex predicate with a transitive  $V_1$  and an unergative  $V_2$  does allow a non-shared argument (i.e. theme) of the non-head  $V_1$  to be realized, as illustrated in (28).

- (28) Ken-ga kagi-o sagasi-mawar-ta.  
Ken-NOM key-ACC search-go.around-PAST  
'Ken searched about the key.'

One solution would be that the head in these complex predicate is a  $V_1$ , not a  $V_2$ , as claimed in Matsumoto (1996) and Naumann & Gamerschlag (2003). This left-headedness in the transitive-nergative predicates does not seem ad hoc in term of the semantic structure. Unlike other complex predicates (i.e. transitive-transitive, unergative-transitive, unergative-nergative, unaccusative-unaccusative, and transitive-unaccusative predicates), the transitive-nergative compounds like *sagasi-mawaru* in (28) do not involve causal relation. Rather the most prominent reading is that event denoted by  $V_1$  and the one by  $V_2$  should take place at the same time. Given that the head verb is  $V_1$  in transitive-nergative compounds, one can reformalize (27) by saying that only the shared arguments of non-head verb are mapped to the syntactic structure. In this paper, however, I limit myself to suggesting that it may be more reasonable to capture this apparent exceptional complex predicate by resorting to a different mechanism.

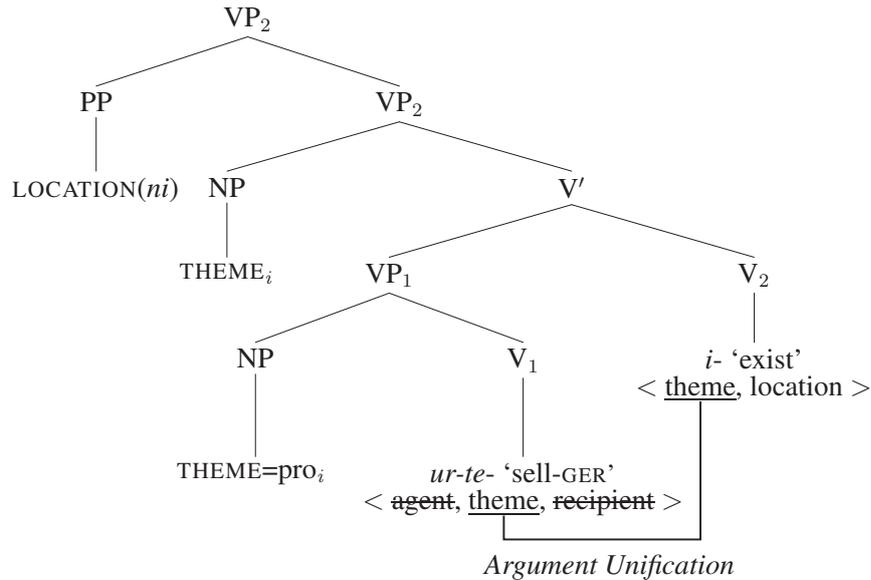
With this argument unification in mind, I now turn to the QEC. I have argued that *iru* is a verb that serves double duty: existential and auxiliary, and it forms a complex predicate with the  $V_1$ . Significantly, the QEC, where  $V_1$  (e.g. *ur-te* 'sell-GER') is transitive and  $V_2$  (i.e. *iru* 'exist') is unaccusative, falls under transitive-unaccusative predicates. In the QEC, the verb *iru* is the head  $V_2$ , and takes theme and location arguments. The agent and the recipient of  $V_1$ , which are not shared by the head  $V_2$ , must be suppressed because of argument unification in (27), and hence are not mapped to the syntactic structure, as illustrated in (29b).<sup>5</sup>

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<sup>5</sup>I assume that the locative PP is an argument of the existential verb *iru*, but syntactically that it is mapped to a VP adjoined position (Kishimoto 2000).

- (29) a. Honya-ni zassi-ga ur-te-i-ru.  
 bookstore-LOC magazine-NOM sell-GER-exist-PRES  
 ‘Magazines are for sale in the bookstore.’

b.



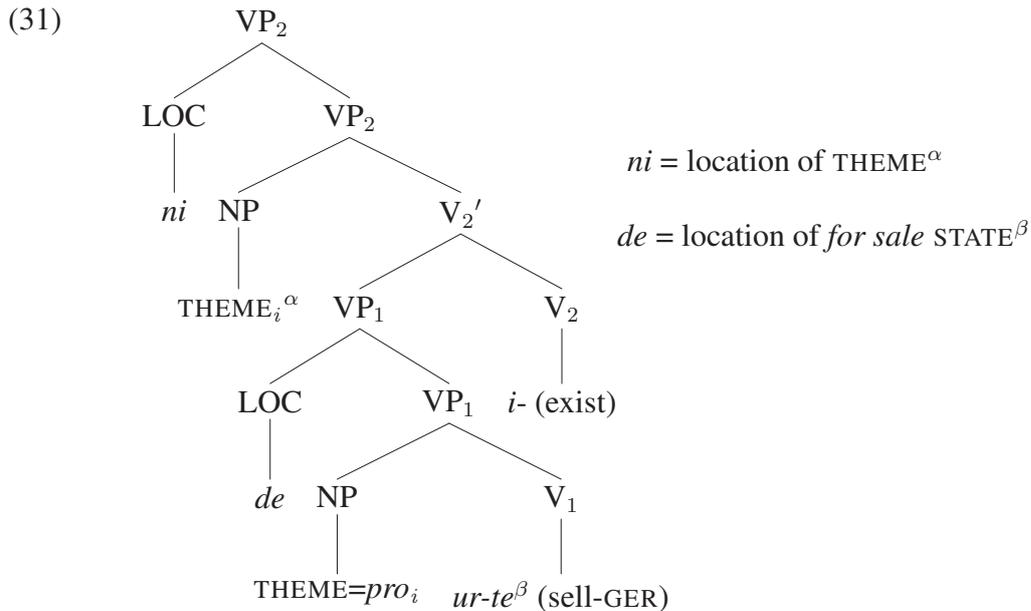
Following Nishiyama (1998), I assume that the structure in (29b) is a VP-shell structure: the existential verb ( $V_2$ ) takes a transitive verb ( $V_1$ ) as the complement. The two attested locative positions are evident from (30), where the *ni* locative and the *de* locative can co-occur in the QEC.<sup>6</sup>

- (30) a. Tawareko-de rezi-mae-ni ame-ga ur-te-i-ta.  
 Tower.Record-LOC cashier-front-LOC candy-NOM sell-GER-exist-PAST  
 ‘At Tower Records, candies were for sale in front of the cashier.’  
 b. Rezi-mae-ni Tawareko-de ame-ga ur-te-i-ta.  
 cashier-front-LOC Tower.Record-LOC candy-NOM sell-GER-exist-PAST

In Section 2.2, I claimed that in the QEC, the *ni* locative should be associated with the place where a sold object is located, whereas the *de* locative should be associated with the place where the *for sale* state takes place. In (30), it is at the *ni*-marked location (i.e. *in front of the cashier*) that the candies are really located, whereas it is *at Tower Records*

<sup>6</sup>Japanese is a relatively free word-order language, and the order of the two locatives in (30) does not matter here.

where the whole selling event happens. My complex analysis has two VP, one headed by the  $V_1$ , and the other headed by the existential  $V_2$ . The locative PPs (i.e. the *ni*-PP and the *de*-PP) can be attached to  $VP_1$  and  $VP_2$ , respectively, as illustrated in (31).



This structural difference also reflects the distinct interpretations regarding the locative *ni* and *de*; the *ni*-marked PP (i.e. the place of the entity) is adjoined to the  $VP_2$ , while the *de*-marked PP (i.e. the place of the event/state) is adjoined to the lower  $VP_1$ .

#### 4. Conclusion

I argued that the apparently puzzling case marking on the theme argument result from the existential status of the verb *iru* and independently motivated general principle on argument realization in Japanese. In this paper, I departed from the assumption that a transitive verb combines with an aspectual auxiliary which is grammaticalized; rather I argued that it combines with an existential verb in the QEC. Assuming that the two verbs form a complex predicate, I showed that the missing two arguments (i.e. agent and

recipient) can be simply explained by the process of argument unification.

### Acknowledgement

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# The grammar of *hitting* and *breaking* (and *cutting*) in Kimaragang Dusun

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## Abstract

The *hit*, *break* and *cut* classes of verbs are grammatically relevant in both English and Kimaragang. The relevance of such classes for determining how arguments are expressed suggests that the meaning of a verb is composed of (a) systematic components of meaning (EVENT STRUCTURE); and (b) idiosyncratic properties of the individual root. In addition, the distribution of the instrumental alternation in Kimaragang is claimed to provide support for the hypothesis that “affected” arguments must be event structure participants.

**Keywords:** *lexical semantics, argument realization, affectedness, verb classes, Austronesian morphology.*

## 1. Verbs of *hitting* and *breaking* in English<sup>1</sup>

This paper discusses the relationship between verbal semantics and clause structure in Kimaragang Dusun, an endangered Austronesian language of northern Borneo. It builds on a classic paper by Charles Fillmore (1970), in which he distinguishes two classes of transitive verbs in English: “surface contact” verbs (e.g., *hit*, *slap*, *strike*, *bump*, *stroke*) vs. “change of state” verbs (e.g., *break*, *bend*, *fold*, *shatter*, *crack*). Fillmore showed that the members of each class share certain syntactic and semantic properties which distinguish them from members of the other class. He further argued that the correlation between these syntactic and semantic properties supports a view of lexical semantics under which the meaning of a verb is made up of two kinds of elements: (a) systematic components of meaning that are shared by an entire class; and (b) idiosyncratic components that are specific to the individual root. Only the former are assumed to be “grammatically relevant.” This basic insight has been foundational for a large body of subsequent work in the area of lexical semantics.

One syntactic test that distinguishes *hit* verbs from *break* verbs in English is the “causative alternation”, which is systematically possible with *break* verbs (*John broke the window* vs. *The window broke*) but systematically impossible with *hit* verbs (*John hit the window* vs. *\*The window hit*). A second test involves a kind of “possessor ascension” or paraphrase in which the possessor of a body-part noun can be expressed as direct object. This paraphrase is grammatical with *hit* verbs (*I hit his leg* vs. *I hit him on the leg*) but not with *break* verbs (*I broke his leg* vs. *\*I broke him on the leg*). A third diagnostic relates to the potential ambiguity of the passive participle. Participles of both classes take a verbal-eventive reading; but participles of *break* verbs also allow an ad-

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jectival-stative reading (*the window is still broken*) which is unavailable for participles of *hit* verbs (*\*the window is still hit*).

Semantically, the crucial difference between the two classes is that *break* verbs entail a result, specifically a “separation in [the] material integrity” of the patient (Hale and Keyser 1987). This entailment cannot be cancelled (e.g., *I broke the window with a hammer; #it didn't faze the window, but the hammer shattered*). The *hit* verbs, in contrast, do not have this entailment (*I hit the window with a hammer; it didn't faze the window, but the hammer shattered*). A second difference is that *break* verbs may impose selectional restrictions based on physical properties of the object (*I {folded/?bent/\*broke/\*shattered} the blanket*) whereas *hit* verbs do not (*I {hit/slapped/struck/beat} the blanket*). Selectional restrictions of *hit* verbs are more likely to be based on physical properties of the instrument.

In the years since 1970, these two classes of verbs have continued to be studied and discussed in numerous publications. Additional diagnostics have been identified, including the *with/against* alternation (Fillmore 1977; see examples 1–2 below); the CONATIVE alternation (*Mary hit/broke the piñata* vs. *Mary hit/\*broke at the piñata*; Guerssel et al. 1985); and the Middle alternation (*This glass breaks/\*hits easily*; Fillmore 1977, Hale and Keyser 1987). These tests and others are summarized in Levin (1993).

## 2. Some hypotheses about the structure of verb meanings

My assumptions about verbal semantics are largely based on the work of Levin and Rappaport Hovav (1995, 1998, 2005; henceforth L&RH). First, as mentioned above, I assume that verb meanings are composed of two kinds of information. Some components are systematic, forming a kind of “template” for the verb’s lexical semantic structure, while others are idiosyncratic, specific to that particular root. Following L&RH, I will refer to the systematic part of the meaning as the verb’s EVENT STRUCTURE.

Second, I assume that only the systematic aspects of meaning are grammatically relevant (i.e., relevant to argument realization). Grammatically determined verb classes, such as *hit* verbs or *break* verbs, are sets of verbs that share the same event structure. Thus the systematic aspects of meaning distinguish one class from another, while roots belonging to the same class are distinguished by features of their idiosyncratic meaning. I will refer to arguments that are specified by the event structure as “event structure participants” (cf. RH&L 1998).

Levin (1993) states: “[T]here is a sense in which the notion of verb class is an artificial construct. Verb classes arise because a set of verbs with one or more shared meaning components show similar behavior... The important theoretical construct is the meaning component, not the verb class...” Identifying semantically determined sets of verbs is thus a first step in understanding what elements of meaning are relevant for determining how arguments will be expressed. The comparison of verb classes across languages is also important in order to distinguish those principles of argument realization which are truly universal from those that are language-specific.

In the remainder of this paper I demonstrate that the *hit* and *break* verb classes are grammatically relevant in Kimaragang, just as they are in English. In fact, some of the same properties discussed in sec. 1 to distinguish these two classes in English can also be used in Kimaragang for the same purpose. I go on to discuss certain patterns of ar-

gument realization in Kimaragang that seem to involve an alternation in the identity of the “affected argument”.

Fillmore (1977) uses the *with/against* alternation in English, illustrated in (1), as an example of how a speaker may adopt two different PERSPECTIVES on the same event:

(1) (Fillmore 1977:75)

a. *I hit the fence with the stick.*

b. *I hit the stick against the fence.*

Sentence (1a) seems to answer the question, ‘What did you do to the fence?’, while sentence (1b) answers the question, ‘What did you do to the stick?’ The speaker may choose to adopt one perspective or the other depending on a variety of semantic and pragmatic factors. If the patient is human, for example, the *with* form (2a) would normally be strongly preferred over the *against* form (2b).

(2) (Fillmore 1977:75)

a. *I hit Harry with the stick.*

b. *??I hit the stick against Harry.* (somewhat unnatural)

I will use the term AFFECTED ARGUMENT to refer to the argument that the speaker views as being primarily affected or acted upon. Thus in (1a) the affected argument is the fence, while in (1b) the affected argument is the stick. In discussing the Kimaragang evidence presented below, I will suggest that affected arguments must be event structure participants; but whether this is a universal principle or a language-specific requirement, it is too early to say.

### 3. Verbs of *hitting* and *breaking* in Kimaragang

#### 3.1 *Causative-inchoative alternation*

Kimaragang is structurally very similar to the languages of the central Philippines. In particular, Kimaragang exhibits the rich Philippine-type voice system in which the semantic role of the subject (i.e., the NP marked for nominative case) is indicated by the voice affixation of the verb.<sup>2</sup> In the Active Voice, an additional “transitivity” prefix occurs on transitive verbs; this prefix is lacking on intransitive verbs.<sup>3</sup>

Many verbal roots occur in both transitive and intransitive forms, as illustrated in (3) with the root *patay* ‘die; kill’. In the most productive pattern, and the one of interest to us here, the intransitive form has an inchoative (change of state) meaning while the transitive form has a causative meaning. However, it is important to note that there is no causative morpheme present in these forms (morphological causatives are marked by a different prefix, *po-*).

(3) a. Minamatay(<in>m-poN-patay) oku do tasu.<sup>4</sup>  
 <PST>AV-TR-die 1sg.NOM ACC dog  
 ‘I killed a dog.’

<sup>2</sup> See Kroeger (2005) for a more detailed summary with examples.

<sup>3</sup> For details see Kroeger (1996); Kroeger & Johansson (2005).

<sup>4</sup> The following abbreviations are used in this paper: ACC ‘accusative case’; AV ‘active voice’; CAUS ‘causative’; COMP ‘complementizer’; COMPL ‘completive’; DAT ‘dative case’; DUP ‘reduplication’; DV ‘dative voice’; FRUST ‘frustrative’; GEN ‘genitive case’; HABIT ‘habitual’; IMPER ‘imperative’; ITER ‘iterative’; IV

- b. Minatay(<in>m-patay) it tasu.  
 <PST>AV-die NOM dog  
 ‘The dog died.’

Virtually all *break*-type roots allow both the causative and inchoative forms, as illustrated in (6–7); but *hit*-type roots generally occur only in the transitive form. Thus just as in English, the causative alternation is highly productive with *break* verbs but impossible with *hit* verbs. Note also that, as suggested by the glosses in (4–5), selectional restrictions for *break* verbs are based on properties of the patient, whereas selectional restrictions for *hit* verbs are more likely to be based on properties of the instrument. Again, this is highly reminiscent of the situation in English.

(4) *break* verbs:

ROOT	GLOSS	INTRANSITIVE	TRANSITIVE
<i>babak</i>	‘shatter’	<i>mabak</i>	<i>mamabak</i>
<i>gapas</i>	‘tear’ (e.g. ear, nose)	<i>gumapas</i>	<i>mangagapas</i>
<i>kinis</i>	‘tear’ (e.g. cloth)	<i>kuminis</i>	<i>monginis</i>
<i>lapak</i>	‘split’	<i>lumapak</i>	<i>mangalapak</i>
<i>lupi</i>	‘fold (e.g. cloth)’	<i>lumupi</i>	<i>mongolupi</i>
<i>pika</i>	‘fold (e.g. leaf, perpendicular to stem)’	<i>mika</i>	<i>momika</i>
<i>putut</i>	‘break (rope etc.)’	<i>mutut</i>	<i>momutut</i>
<i>susak</i>	‘ruffle, roughen’	<i>sumusak</i>	<i>monusak</i>
<i>tangi</i>	‘dissolve’	<i>tumangi</i>	<i>manangi</i>
<i>tipu</i>	‘break (stick etc.)’	<i>tumipu</i>	<i>monipu</i>
<i>uyas</i>	‘pull apart’	<i>muyas</i>	<i>monguyas</i>
<i>wi’is</i>	‘split, strip’ (cane, bamboo, etc.)	<i>mi’is</i>	<i>momis</i>
<i>winsar</i>	‘splinter’	<i>minsar</i>	<i>mominsar</i>

(5) *hit* verbs:

ROOT	GLOSS	INTRANSITIVE	TRANSITIVE
<i>bobog</i>	‘beat (with stick)’	* <i>mobog</i>	<i>momobog</i>
<i>duntuk</i>	‘bump, knock’	* <i>dumuntuk</i>	<i>mongoduntuk</i>
<i>duntung</i>	‘punch (with fist)’	* <i>dumuntung</i>	<i>mongoduntung</i>
<i>lapis</i>	‘slap’	* <i>lumapis</i>	<i>mangalapis</i>
<i>lapos</i>	‘cane, whip’	<i>lumapos</i> <sup>5</sup>	<i>mangalapos</i>
<i>pasut</i>	‘cane’	* <i>masut</i>	<i>mamasut</i>
<i>puyay</i>	‘stroke, caress’	* <i>muyay</i>	<i>momuyay</i>
<i>sudsur</i>	‘poke’	* <i>sumudsur</i>	<i>monudsur</i>
<i>suntuk</i>	‘punch (with fist)’	* <i>sumuntuk</i>	<i>monuntuk</i>
<i>tutu</i>	‘pound in mortar and pestle’	* <i>tumutu</i>	<i>Monutu</i>
<i>puyay</i>	‘stroke, caress’	* <i>muyay</i>	<i>momuyay</i>

‘instrumental voice’; NEG ‘negative’; NOM ‘nominative case’; NVOL ‘non-volitive’; OV ‘objective voice’; PRCL ‘particle’; PST ‘past tense’; pl ‘plural’; sg ‘singular’; TR ‘transitive’; <x> = infix.

<sup>5</sup> *lumapos* is not an inchoative form; it has an idiosyncratic reflexive meaning ‘hurl oneself down; fall down flat (e.g. in pain or fatigue)’.

- (6) a. Minomutut(<in>m-poN-putut) nopo yalo' dilo' tangaw tu'  
 <PST>AV-TR-break PRTCL 3sg.NOM that(ACC) vine for  
 ponuluw dilo' kasut yo.  
 IV:TR:string that(ACC) shoe 3sg.GEN  
 'He *broke off* (trans.) the vine in order to tie his shoe with it.'
- b. Ami=i' dati' mutut(m-putut) ino wakaw  
 not=PRITCL PRITCL AV-break that(ACC) ratan  
 ong pi-to-tombibid-on.  
 if ITER-DUP-coil-OV  
 'The ratan will probably not *break* (intrans.) if you coil it around and around.'
- (7) a. Monginis(m-poN-kinis) yalo dilo' baju yo tu'  
 AV-TR-tear 3sg.NOM that(ACC) shirt 3sg.GEN for  
 pongongkos dilo' pilat.  
 IV:TR:wrap that(ACC) wound  
 'He is *tearing* (trans.) his shirt to bind up his wound with.'
- b. K<um>inis noono mari a kadut dilo' ong s<um>unut no.  
 <AV>tear PRITCL PRITCL NOM gunny that if <AV>fray COMPL  
 'That gunnysack is about to *tear* (intrans.) if it is fraying already.'

### 3.2 Denying a result

We noted in sec. 1 that *break* verbs entail a result, whereas *hit* verbs do not. Kimaragang grammar provides a very interesting means of demonstrating this fact. Like many other Philippine-type languages, Kimaragang verbs may be optionally marked for NON-VOLITIVE modality (used to encode ability, involuntary actions, etc.). As Dell (1983) points out for Tagalog, the non-volitive form is under-specified with respect to intentionality, but entails that the described event has actually taken place, i.e. that the intended result has actually been achieved.<sup>6</sup> The (morphologically unmarked) volitive form, in contrast, asserts that the action was intentional but is neutral with respect to the outcome of the action. In most contexts the volitive form creates a pragmatic implicature that the intended result has been achieved, but this implicature can be denied as in (8a). However, with the corresponding non-volitive form this negation would lead to self-contradiction, as in (8b).

- (8) a. Minamatay oku do wulanut nga' amu' minatay  
 PST:AV:TR:die 1sg.NOM ACC snake but NEG PST:AV:die  
 'I killed a snake, but it didn't die.'
- b. \*Naka-patay oku do wulanut nga' amu' minatay.  
 AV.PST.NVOL-die 1sg.NOM ACC snake but NEG PST:AV:die  
 \*'I happened to/managed to kill a snake, but it didn't die.'

The pattern seen in (8a), where the same verb root is used to both assert the action and deny the result, is possible with most, if not all, *break* verbs, as illustrated in (9). It is systematically impossible with the *hit* verbs (10), because these verbs do not lexically

<sup>6</sup> See also see Kroeger (1990).

encode a result. In order to deny that the intended result was achieved, a different root must be used (11).

- (9) a. Minonginis oku do kadut nga', amu n-o-kinis.  
 PST:AV:TR:tear 1sg.NOM ACC gunny but not PST-NVOL-tear  
 'I (tried to) tear a gunnysack, but it didn't tear.'
- b. Minamabak oku do mantus nga', amu n-a-babak.  
 PST:AV:TR:shatter 1sg.NOM ACC fruit.sp but not PST-NVOL-shatter  
 'I (tried to) shatter a *mantus* (fruit with hard shell), but it didn't shatter.'
- c. Minomutut oku do wakaw nga', amu n-o-putut.  
 PST:AV:TR:break 1sg.NOM ACC ratan but not PST-NVOL-break  
 'I (tried to) break some ratan, but it didn't break.'
- (10) a. \*B<in>obog-∅ ku it tasu nga', amu n-o-bobog-∅.  
 <PST>beat-OV 1sg.GEN NOM dog but not PST-NVOL-beat-OV  
 (intended: 'I (tried to) beat the dog, but it didn't beat/get beaten.')
- b. \*Minonutu oku do paray nga', amu n-o-tutu-∅.  
 PST:AV:TR:pound 1sg.NOM ACC rice but not PST-NVOL-pound-OV  
 (intended: 'I (tried to) pound rice, but it didn't pound/get pounded.')
- c. \*Minamasut oku do karabaw nga', amu n-a-pasut-∅.  
 PST:AV:TR:whip 1sg.NOM ACC buffalo but not PST-NVOL-whip-OV  
 (intended: 'I (tried to) whip a buffalo, but it didn't whip/get whipped.')
- (11) B<in>obog-∅ ku it tasu nga', amu n-o-onong-∅.  
 <PST>beat-OV 1sg.GEN NOM dog but not PST-NVOL-hit<sup>7</sup>-OV  
 'I (tried to) beat the dog, but I didn't hit it.' (i.e., failed to make contact)

### 3.3 Adversative construction

The Dative Voice suffix can be used with some unaccusative roots to add a “maleficiary” argument, someone who suffers as a result of the described event, as illustrated in (12a). The truth of the adversative clause implies that the corresponding unaccusative (12b) is also true.

- (12) a. N-a-patay-an yalo do tanak.  
 PST-NVOL-die-DV 3sg.NOM GEN child  
 'He suffered the death of a child.'
- b. Minatay(<in>m-patay) it tanak yo.  
 <PST>AV-die NOM child 3sg.GEN  
 'His child died.'

The adversative construction is possible with a number of the *break* verbs (13a-b), but systematically impossible with the *hit* verbs (13c). This is probably related to the fact that *hit* verbs do not allow an unaccusative form.

<sup>7</sup> *onong* means 'hit' in the sense of 'hitting the target; making contact'

- (13) a. N-o-tipu-an            oku            do    takod.  
 PST-NVOL-break-DV 1sg.NOM    GEN leg  
 ‘I suffered the breaking of a leg. (i.e., I broke my leg.)’
- b. Naka-labus                i            karabaw tu’  
 AV.PST.NVOL-escape    NOM buffalo    because
- n-a-gapas-an            do    todung.  
 PST-NVOL-tear-DV    GEN nose  
 ‘The buffalo got loose because his nose tore through.’  
 (lit: ‘suffered the tearing of a nose’; so came free from nose ring or rope)
- c. \*N-a-babag-an            oku            do    tanak.  
 PST-NVOL-beat-DV 1sg.NOM    GEN child  
 (intended: ‘I suffered the beating of a/my child.’)

#### 4. Verbs of *cutting* in Kimaragang

The use of the Instrumental Voice provides another useful diagnostic for distinguishing verb classes in Kimaragang. Before describing that construction, however, it will be helpful to mention a third class of verbs that has been extensively studied, both in English and in other languages, namely verbs of *cutting*. These verbs involve the use of a sharp instrument to bring about a “separation in material integrity” of the patient. Some examples of this class are provided in (14).

(14) *cut* verbs:

ROOT	GLOSS	INTRANSITIVE	TRANSITIVE
<i>ansap</i>	‘scrape’	* <i>mansap</i>	<i>mangansap</i>
<i>gamas</i>	‘cut (grass, weeds etc.)’	* <i>gumamas</i>	<i>mangagamas</i>
<i>lapak</i>	‘split’	<i>lumapak</i>	<i>mangalapak</i>
<i>pudung</i>	‘chop (e.g. branches, firewood)’	* <i>mudung</i>	<i>momudung</i>
<i>purok</i>	‘chop up (meat, fish, etc.)’	* <i>murok</i>	<i>momurok</i>
<i>tobok</i>	‘stab’	* <i>tumobok</i>	<i>monobok</i>
<i>tobuk</i>	‘slit open (e.g. stomach)’	* <i>tumobuk</i>	<i>monobuk</i>
<i>totok</i>	‘cut (wood, rope, vines, etc.)’	* <i>tumotok</i>	<i>monotok</i>
<i>wi’is</i>	‘split, strip’	<i>mi’is</i>	<i>momi’is</i>

The *cut* verbs are similar to *hit* verbs in that they do not participate in the adversative construction or, as indicated in (14), the causative-inchoative alternation. The roots *lapak* ‘split’ and *wi’is* ‘strip (e.g., ratan)’ seem to be exceptions to the latter generalization, since they (unlike the other *cut* verbs) have intransitive (inchoative) senses in addition to the normal transitive form. However, there is an important difference in meaning between the transitive and intransitive uses of these roots: the transitive forms imply the use of a sharp bladed instrument, but this is not part of the meaning of the (intransitive) inchoative forms.

For example, the orangutan is said to be powerful enough to split open a *durian* (a large spiky fruit with a very tough husk) with its bare hands; but this interpretation is not available for the transitive form used in (15a). That sentence can only be interpreted to mean that the orangutan used a bush-knife, axe, or other sharp instrument. In contrast, the intransitive form used in (15b) is normally interpreted as a spontaneous event involving neither instrument nor agent. Thus it appears that the transitive senses of *lapak* and *wi'is* belong to the *cut* class, while their intransitive senses belong to the *break* class.

- (15) a. Minangalapak(<in>m-poN-lapak) it kogiw do ratu.  
 <PST>AV-TR-split NOM orangutan GEN durian  
 'The orangutan split (open) a *durian*.'
- b. L<in><um>apak ilot niyuw.  
 <PST><AV>split that(NOM) coconut  
 'The coconut split.'

Most *cut* verbs do not lexically specify a result. Evidence for this comes from the fact that these roots cannot be used to deny that an intended result was achieved (16a-b). In order to deny the result, a different root must be used (16c). However, there are a few roots of this type that can be used in this way, as illustrated in (17), suggesting that these roots do lexically specify a result state. Levin (1993) distinguishes two classes, *cut* verbs which do not lexically specify a result and *carve* verbs which do. The semantic properties of the individual roots in this class are not yet understood well enough to know whether this distinction is valid for Kimaragang as well.

- (16) a. \*T<in>obok-∅ ku yalo nga', amu n-o-tobok-∅.  
 <PST>-stab-OV 1sg.GEN 3sg.NOM but not PST-NVOL-stab-OV  
 (intended: 'I (tried to) stab him, but he didn't stab/get stabbed.')
- b. \*P<in>urok-∅ ku ilo' tonsi nga', amu n-o-purok-∅.  
 <PST>-chop-OV 1sg.GEN that(NOM) meat but not PST-NVOL-chop-OV  
 (intended: 'I (tried to) chop up that meat, but it didn't get chopped up.')
- c. T<in>obok-∅ ku yalo nga', amu n-o-togu-∅  
 <PST>-stab-OV 1sg.GEN 3sg.NOM but not PST-NVOL-pierce-OV  
 tu', ki-kobol yalo.  
 because have-invulnerability 3sg.NOM  
 'I (tried to) stab him, but I didn't/wasn't able to pierce him because he has *kebal* protection (i.e., has been made invulnerable by performing certain rituals).'
- (17) T<in>otok-∅ ku ilo' tangaw nga',  
 <PST>-chop-OV 1sg.GEN that(NOM) vine but  
 amu n-o-totok-∅.  
 not PST-NVOL-chop-OV  
 'I (tried to) cut that vine, but it didn't cut.' (it was too tough)

## 5. The instrumental alternation

An alternation in the form of the Instrumental Voice provides another means for distinguishing the three verb classes under consideration here. Verbs marked for Instrumental Voice (IV) normally require the transitivity prefix *poN-*, which triggers a null allomorph of the IV prefix (18a). This construction is highly productive, and can be formed with a large number of transitive verb roots. A smaller number of transitive verbs can take the IV prefix without any transitivity prefix, as seen in (18b).

- (18) a. *Pinomoli*( $\langle in \rangle \emptyset$  -*poN-boli*) ku do tasin it siin nu.  
 <PAST>IV-TR-buy 1sg.GEN ACC salt NOM money 2sg.GEN  
 ‘I bought some salt with your money.’
- b. *N-i-boli* ku do tasin it siin nu.  
 PAST-IV-buy 1sg.GEN ACC salt NOM money 2sg.GEN  
 ‘I spent your money on salt.’

As these examples illustrate, both IV forms are grammatical with the root *boli* ‘buy’ and both can be used to describe the same basic type of event: the same participants appear in both clauses in the same semantic roles and with the same case marking. This does not mean that the two forms are semantically equivalent: the “bare” IV form in (18b) implies that all of the money was spent, whereas (18a) does not carry this implication.

This alternation between the two IV forms, with both forms describing the same type of event, is the pattern that I refer to as the INSTRUMENTAL ALTERNATION. We turn now to the question of which roots participate in this alternation.

The instrumental alternation is highly productive with *cut* verbs, as illustrated in (19–21). With these roots the two Instrumental Voice forms provide different descriptions for the same type of event, taking the same arguments with the same case marking. There is, however, a subtle semantic difference. The “bare” IV form in (21a), for example, addresses the question, ‘What will you do to my bush knife?’; whereas the normal IV form in (21b) answers the question, ‘What will you do to that leech?’

- (19) a. *Nokuro.tu*’ *n-i-ansap* nu do poring  
 why PST-IV-scrape 2sg.GEN ACC bamboo  
 ino dangol ku?  
 that(NOM) bush.knife 1sg.GEN  
 ‘Why did you use my bush knife to scrape bamboo?’
- b. *Dangol* tagayo ot awasi dot *pangansap*( $\emptyset$  -*poN-ansap*)  
 bushknife big NOM good COMP IV-TR-scrape  
 do poring.  
 ACC bamboo  
 ‘A big bushknife is what is good to scrape bamboo with.’
- (20) a. *Okon.ko*’ *i-tibas* dot okodou ino dangol ku,  
 do.not IV-slash ACC hard that(NOM) bush.knife 1sg.GEN

opodi dati’.

NVOL-chip PRCL

‘Don’t slash/chop something hard with my bush knife or you may chip the blade.’

- b. Noonus(n-o-unus- $\emptyset$ ) yo no i gampa  
PST-NVOL-unsheath-OV 3sg.GEN COMPL NOM bush.knife

ponibas( $\emptyset$ -poN-tibas) di wulanut dara.

IV-TR-slash ACC snake FRUST

‘He had already drawn out his bush knife to slash the snake with (but didn’t slash it).’

- (21) a. Okon-ko *i-totok* do tulang ino dangol ku ki.  
do.not IV-chop ACC bone that(NOM) bush.knife 1sg.GEN PRCL  
‘Don’t chop bones with my bush knife, okay?’

- b. Titio peno(po.ino) gampa, ponotok( $\emptyset$ -poN-totok) ku  
give.here PRCL.that(NOM) bush.knife IV-TR-chop 1sg.GEN

diti limbata.

this leech

‘Give that bush knife here, I will chop up this leech with it.’

With *cut* verbs (and with certain other verbs) the bare IV form (*i-ROOT*) indicates that the speaker is adopting a perspective in which the instrument (rather than the patient) is viewed as the affected entity, or the entity being acted upon. I refer to this use of the bare IV form as the AFFECTED INSTRUMENT construction. This is of course a relatively marked perspective; the Affected Instrument form occurs with much lower frequency than the normal IV form ( $\emptyset$ -poN-*ROOT*), even for roots which allow the Affected Instrument usage.

The instrumental alternation is much less productive with most other verb classes. It is systematically impossible with the *break* verbs (22a). Even though most if not all of these roots can occur in the normal Instrumental Voice form illustrated in (22b–c), they do not occur in the Affected Instrument construction. The “bare” IV form is idiosyncratically allowed with a few roots of this class, but gives rise to unpredictable secondary or metaphorical senses like that in (23). These are not Affected Instrument forms.

- (22) a. \**i-babak* (IV-shatter); \**i-putut* (IV-break); \**i-lupi* (IV-fold); \**i-uyas* (IV-pull apart); etc.

- b. Dunsul ot pinangababak(<in> $\emptyset$ -poN-babak) dilot pampang.  
hammer NOM IV-TR-chop that rock

‘It was a hammer that that rock was broken up/shattered with.’

- c. It dunsul ot awasi ponguyas( $\emptyset$ -poN-uyas) di jijing.  
NOM hammer NOM good IV-TR-dismantle ACC zinc  
‘The hammer is what is good for tearing out zinc sheets (off the roof).’

- (23) *I-kinis* ku dikaw it sonsibor dot tanaman nu  
IV-tear 1sg.GEN 2sg NOM one.square COMP plant.DV 2sg.GEN

do paray.

ACC rice

‘I will give you (lit: ‘tear off for you’) a small portion (of the paddy field) for you to plant rice on.’

The instrumental alternation seems (superficially) to be possible with some of the *hit* verbs, as seen in (24), (25) and (26). Notice, however, that the two IV verb forms in these pairs of sentences do not really describe the same type of event. The “instruments” in the (a) examples are not instruments in the normal sense. Note also the difference in the case marking patterns: the patients in (25a) and (26a) are marked for DAT case, rather than the expected ACC seen in (25b) and (26b). The patient in (24a) is totally unspecified, which is not normally possible with that root. Thus strictly speaking, the instrumental alternation is not productive with *hit* verbs either.

- (24) a. Okon.ko’ *i-bobog* ino payung ku tu’,  
do.not IV-beat that(NOM) umbrella 1sg.GEN because  
ara’ag dati’.  
ruined likely  
‘Don’t beat (anything) with my umbrella, it might get broken.’  
(or: ‘Don’t beat my umbrella against anything...’)
- b. Tongo ot *pinomobog*(<in>∅ -poN-bobog) nu dilo’ tasu oy?  
what NOM <PAST>IV-TR-beat 2sg.GEN that dog Q  
‘What did you beat that dog with?’
- (25) a. *N-i-duntung* dialo sid tobon a tonggom yo.  
PST-IV-punch 3sg DAT wall NOM fist 3sg.GEN  
‘He punched his fist against the wall.’
- b. Gibang nopo ot *pongoduntung*(∅ -poN-duntung) ku dialo,  
left only REL IV-TR-punch 1sg.GEN 3sg.ACC  
aba no.  
faint PRCL  
‘Even if I only hit him with my left (hand), he will pass out.’
- (26) a. Matay beno(bo.ino) wulanut kukuyutan nu  
die PRCL.that(NOM) snake holding 2sg.GEN  
ong *i-lapos* sid pampang.  
if IV-whip DAT rock  
‘That snake you are holding will die if you whip it against a rock.’
- b. Iri tikuw ot babanar no ko’ abasag  
this(NOM) tail NOM truly PRCL PRCL strong  
dot *pangalapos*(∅ -poN-lapos) di sada.  
COMP IV-TR-whip ACC fish  
‘It was the tail that was really powerful to strike the fish with.’  
(from a folk-tale about a giant python)

I suggest that these pairs involve a kind of polysemy: certain roots in the *hit* class have secondary senses which describe a particular manner of moving a theme in order to bring it into contact with a surface. These secondary senses pattern very much like the source-theme-goal verbs to which we now turn.

There is one other type of verb for which the alternation between the two IV forms is productive, namely source-theme-goal verbs such as ‘give’, ‘pour’, ‘put’, etc. Further work is needed to clarify how many distinct classes of these verbs are grammatically relevant in Kimaragang, but some examples are provided in (27–29).

- (27) a. Subay.ko *i-suwang* ino paray sid kadut.  
 should IV-enter that(NOM) rice DAT gunnysack  
 ‘You should/must put that rice into a gunnysack.’
- b. Amu kosukup ilo’ weeg dot *ponuwang*( $\emptyset$ -poN-suwang)  
 NEG enough that(NOM) water COMP IV-TR-enter  
 do botung.  
 ACC paddy.field  
 ‘There is not enough water to flood the paddy field with.’
- (28) a. *I-ta’ak* ku iti siin sid tanak ku.  
 IV-give 1sg.GEN this(NOM) money DAT child 1sg.GEN  
 ‘I will give this money to my child.’
- b. Nunu ot *pana’ak*( $\emptyset$ -poN-ta’ak) nu ong orugi ko?  
 what NOM IV-TR-give 2sg.GEN if fined 2sg.NOM  
 ‘What will you give if you have to pay a fine?’
- (29) a. *N-i-tunguw* ku it weeg di sada sid  
 PST-IV-pour 1sg.GEN NOM water GEN fish DAT  
 poonumadan(<DUP>poN-sumad-an) do tasu.  
 HABIT-TR-feed-DV GEN dog  
 ‘I poured the water from (cleaning) the fish into the dog’s feeding dish.’
- b. I weeg sid gilán dñino ot *ponunguw* dino tinorimo.  
 NOM water DAT container that.one NOM IV:TR:pour that cooked.rice  
 ‘The water in that container there is what you should pour on/into the rice you are cooking.’

With verbs of this type, the bare IV form (*i-ROOT*) does not get the Affected Instrument reading. It is used rather to mark a perspective in which the displaced theme (the thing which is transferred or caused to move) is viewed as the affected entity or entity being acted upon. (In Austronesian studies this usage is sometimes referred to as “Conveyance Voice” or “Conveyance Focus”.) The  $\emptyset$ -*poN-ROOT* form used in the (b) examples marks the goal as the affected entity (Kroeger 1996; Kroeger & Johansson 2005). Note that with these source-theme-goal verbs, in contrast to the *cut* verbs, the bare IV form is much more frequent than the  $\emptyset$ -*poN-ROOT* form.

## 6. Accounting for the instrumental alternation

In the previous section it was demonstrated that the instrumental alternation is productive with *cut* verbs but not with *hit* or *break* verbs. Intuitively, it seems likely that this difference is related to the fact that the class of *cut* verbs is in part defined by the use of a sharp instrument. In other words, the use of an instrument is part of the core meaning that all members of this class share in common.

Let us assume that the instrument is part of the systematic meaning (i.e., the event structure) of the *cut* verbs, but not of the other two classes under discussion.<sup>8</sup> This means that both the instrument and the patient (in addition to the agent) are event structure participants, in the sense of RH&L (1998). For the source-theme-goal verbs, it seems natural to assume that both the theme and the goal are event structure participants.

The generalization that emerges, then, is that the instrumental alternation is productive only for verb classes with (at least?) two non-agentive event structure participants. This generalization would be predicted under the following assumptions: (a) the instrumental alternation involves a change in the identity of the affected argument, but no change in the event structure; and (b) affected arguments in general must be event structure participants.

The distribution of the instrumental alternation is strikingly different from that of other morphological operations, such as the morphological causative (*po-*) or benefactive applicative (*-an*). These operations are not sensitive to the kinds of verb class distinctions discussed above. The morphological causative is highly productive, and can be formed from virtually any verbal root. The benefactive construction can be formed from transitive roots of any verb class, as long as the specified action is conventionally understood as a means of obtaining or providing the substance named by the patient phrase.

I suggest that operations of this type are not sensitive to verb class distinctions precisely because they do change the event structure, by adding a participant of the appropriate type (causer or beneficiary). The instrumental alternation, in contrast, does not change the event structure. Speakers have a choice of perspective, that is, the option of expressing either of two arguments as the affected argument, only if the verb's event structure already contains two non-agentive participants. This is possible with *cut* verbs and source-theme-goal verbs, as discussed above. It is not possible with *hit* or *break* verbs, even though such verbs may take instrument arguments, because these instruments are not event structure participants.

## 7. Conclusion

The grammatical criteria used to distinguish the *hit*, *break* and *cut* classes in Kimaragang are summarized in (30). It is striking that the same classes are grammatically relevant in two languages as different from each other as English and Kimaragang. This similarity offers additional support for the existence of strong cross-linguistic principles which govern the relationship between verbal semantics and argument expression.

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<sup>8</sup> Of course instruments can optionally be expressed with both *hit* and *break* verbs. They are not part of the systematic meaning of these verbs, but they may be part of the idiosyncratic meaning of some roots of the *hit* class; for example, selectional restrictions imposed by specific *hit* verbs may be based on the choice of instrument.

(30) Summary of three verb classes in Kimaragang:

	<i>hit</i> verbs	<i>break</i> verbs	<i>cut</i> verbs
selectional restrictions	instrument	patient	??
causative alternation	no	yes	no
used to deny result	no	yes	few
adversative construction	no	some	no
instrumental alternation	no	no	yes

I have suggested that the instrumental alternation in Kimaragang provides evidence supporting the claim that affected arguments must be event structure participants. As noted above, however, I feel that it is too early to say whether this is a universal principle or a language-specific requirement.

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# Identifying non-realized arguments in Vietnamese: a lexical orientation approach to argument structure

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For Vietnamese verbs that participate in a transitive / intransitive alternation, I propose a classification according to orientation towards agent and/or patient in their intransitive use. This raises the question whether or not intransitively used verbs in Vietnamese should be regarded as real intransitives where no second argument is present at any level of representation relevant to transitivity. Alternative analyses which assume here transitive uses with zero anaphors in object position are discussed. Following Goldberg (2000, 2005) I argue that in Vietnamese real intransitive use of these verbs obtains with backgrounding of participants when the verbal action is emphasized at the same time.

**Keywords:** verb classes, orientation, transitivity, zero anaphora, backgrounding of participants

## 1 Orientation of verbs in Vietnamese

In Vietnamese, many verbs can be used in a transitive construction with two arguments, a subject and an object, and in an intransitive construction with only one argument, their subject. Depending on lexical information of the verbs which take part in this alternation, the intransitive subjects can be interpreted only as an agent (1) or as a patient (2) or as either an agent or a patient (3).

- (1) a. Con chuột hất trứng trong chảo.  
CL mouse toss egg in pan  
'The mouse is tossing the egg in the pan.'
- b. Hai con hất qua hất lại nhau như kiểu chơi bóng  
two CL toss cross toss come back each other like style play ball  
chơi cầu lông í.  
play badminton PRT  
'The two of them are tossing [a ball] back and forth to each other as if [they were] playing badminton.'

- c. \*Quả trứng hất.  
 CL egg toss  
 intended: the egg is being tossed.
- (2) a. Anh ấy treo bức tranh.  
 he hang CL picture  
 'He hung up the picture.'
- b. Bức tranh treo trên tường.  
 CL picture hang on wall  
 'The picture hangs on the wall.'
- c. \*Anh ấy treo.  
 he hang  
 intended: he hung up [something].
- (3) a. Chị ấy vẽ một bức tranh.  
 she paint one CL picture  
 'She is painting a picture.'
- b. Chàng trai vẽ rất đẹp.  
 boy paint very beautiful  
 'The boy is painting very beautifully.'
- c. Bức tranh vẽ rất đẹp.  
 CL picture paint very beautiful  
 'The picture has been painted very beautifully.'

Transitive-/intransitive-alternating verbs can be classified according to whether their intransitive subjects bear the same thematic role as the subject, the object or both in the transitive use of the respective verbs. The three verb classes differ in whether the verbs describe the state of affairs from the perspective of the agent and/or the patient. A verb's potential to perspectivize the agent, the patient or both has also been called orientation in the literature. In this sense, verbs that are oriented towards an agent are a-oriented, those which are oriented towards a patient are o-oriented. Verbs that are oriented towards either an agent or a patient are labile in orientation, having an a-reading and an o-reading respectively (cf. Drossard 1998, Serzisko 1991).

Relating the argument realization of intransitive verbs to the argument realization patterns of transitive verbs is widely known as alignment. However, as opposed to orientation, alignment patterns are mostly stated in terms of morphosyntactic alignment (cf. Dixon 1979, Comrie 1978). Although mere semantic alignment, the intransitive subject's thematic role in relation to the role of the transitive subject and/or object, is

briefly discussed in Dixon 1979, he is mainly concerned with morphosyntactic alignment to cover the differences between accusative, ergative and active languages.

In the literature, a-oriented verbs, with an intransitive agent-subject, are often referred to as unergative verbs as opposed to unaccusative verbs, which correspond to o-oriented verbs in my terminology, with an intransitive patient-subject. The unergative/unaccusative distinction has been claimed to manifest itself independently in the different behavior of the two classes. Therefore it has been suggested that the patient-subjects of unaccusatives are underlying objects (for an overview cf. Burzio 1986, Levin/Rappaport 1989, Perlmutter 1978). In Vietnamese, as will be shown, their morphosyntactic behavior does not reflect their difference in subject's thematic role selection in any consistent way.

For Mandarin it has been claimed that unaccusatives can be distinguished from unergatives, because only unaccusative verbs permit their sole argument to appear preverbally as well as postverbally (cf. Polley 2008). Whereas a subclass of o-oriented verbs shows the same word order variation with the intransitive subject in Vietnamese as well, this is not the case for all o-oriented verbs. Only o-oriented verbs which do not directly<sup>1</sup> take part in the transitive-/intransitive alternation allow their sole argument to occur in preverbal as well as in postverbal position (cf. (4)). For those o-oriented verbs, however, which can be used transitively and intransitively, the intransitive subject has to be in preverbal position. With them, an argument occurring in the postverbal position qualifies as the object of the verb in its transitive use (cf. (5)).

- (4) a. Đê vỡ.  
dike break  
'The dike broke.' (Emeneau 1951:52)
- b. \*Nước vỡ đê.  
water break dike  
intended: The water broke the dike.
- c. Vỡ đê.  
break dike  
'The dike broke' (Emeneau 1951:52)

- (5) a. Anh ấy treo bức tranh.  
he hang CL picture  
'He hung up the picture.'

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1 These verbs cannot be used transitively. However, they are included in the class of o-oriented verbs because they can be related to a causative, that is transitive counterpart which can be a different inherently causative verb or a causative construction with *làm* 'make'.

- b. Bức tranh treo trên tường.  
 CL picture hang on wall  
 'The picture hung on the wall.'
- c. treo bức tranh trên tường.  
 hang CL picture on wall  
 '[he] hung the picture on the wall.'  
 '\*the picture hung on the wall.'

A-oriented and o-oriented verbs (except for the above mentioned subclass) exhibit only lability in transitivity, whereas orientation labile verbs show two kinds of lability: they also take part in transitive-/intransitive alternation and are, thus, labile in transitivity. Unlike with a-orientation and o-orientation, when used intransitively, subjects of labile verbs are not determined either for agent or patient interpretation, but can show both interpretations and therefore are labile in this respect, too.

## 2 Orientation and the transitive / intransitive distinction

With the orientation approach on Vietnamese verbs that I propose, the classification of verbs depends on the possibility to distinguish transitive and intransitive uses of verbs. In Vietnamese discourse, however, non-realized arguments are prevalent. Often these arguments can be reconstructed from context and can be termed as 'understood' in this sense. This raises the problem whether the intransitive uses of verbs that also can appear in a transitive constructions are real intransitive uses or, in fact, transitive uses with empty arguments. In the following I will confine the discussion to the question whether or not there should be assumed non-realized second arguments to be present with the a-readings of orientation labile verbs. Therefore, with these verbs two structures are under consideration, a transitive argument structure (the present but non-realized second argument is indicated by  $\emptyset$ ) in (6) and a real intransitive structure where no second argument is assumed on any level of representation relevant for argument structure in (7).

- |     |  |     |  |
|-----|--|-----|--|
| (6) | Chàng trai vẽ $\emptyset$ rất đẹp.         | (7) | Chàng trai vẽ rất đẹp.                     |
|     | boy            paint        very beautiful |     | boy            paint        very beautiful |

In Vietnamese, non-realized subjects as well as non-realized objects occur, as the following part from a retold narrative of a cartoon film illustrates:

(8) [The mouse is making an omelette and is trying to turn it by tossing it up in the pan...]

Cũng vẫn Ø<sub>i</sub> tung Ø<sub>j</sub> lên nhưng mà vẫn Ø<sub>i</sub> tung Ø<sub>j</sub> ra ngoài đất  
also still toss go up but still toss go out earth  
mặt buồn rười rượi rồi.  
face sad very then

'[The mouse] is still tossing [the egg] up but [it] throws [the egg] out and onto the ground and looks sad.

In example (8), none of the relevant discourse entities, the mouse and the egg, is expressed overtly but since they are well established discourse referents, they are understood in the respective argument slots of the verbs. In contrast to English equi-NP deletion, in Vietnamese the antecedents need not to appear in the immediately preceding clause. Therefore it has been claimed that what is critical for a discourse entity to be non-realized is its status as a discourse topic (cf. Duffield 1998, Butt&King 1996, for Chinese see Huang 1984).

Even though often arguments are not overtly expressed in languages like Vietnamese and Chinese, they are commonly assumed to be present at some level of representation, since they are understood from context and interpreted as salient discourse referents. In the literature they have been described as zero anaphors, the term I use in the following, as well as zero or empty pronouns, zero topics or anaphoric zero (cf. Li & Thompson 1979, Rosén 1998, Huang 1984, Givón 2001). The respective verbs are commonly considered to be used transitively.

However, it is a moot point if zero anaphors should be assumed in any case where a verb shows up with less arguments than it could or actually does in other instances of occurrence. In principle this concerns non-realized subjects and objects in Vietnamese likewise, however, the actual question raised in this paper is whether the a-readings of orientation labile verbs are indeed intransitive uses or in fact transitive uses with a non-realized but present object. Therefore, I am going to confine my discussion on non-realized or non-present objects only.

Contrasting the two structures proposed in (6) and (7) leads to two hypotheses concerning the argument structure of those syntactically intransitive uses of verbs which also can be used with a transitive argument frame:

- I. All-transitive-hypothesis: Intransitive uses of verbs which also can appear with two (or more) overt arguments are in fact transitive uses with non-realized arguments in the respective argument slots. Syntactic non-realization of their arguments has no impact on other levels of linguistic representation relevant for transitivity.
- II. Some-intransitive-hypothesis: Some of the intransitive uses of verbs which also can appear transitively are real intransitives, where no argument is assumed at any other level of linguistic representation regarded as relevant for transitivity.

Systematic optionality of arguments always poses a problem on the establishment of the transitive / intransitive distinction, because it rules out the obligatoriness criterium of transitivity. This is well known from the ongoing debate on facultative objects (also called inherent, unspecified, unexpressed or implicit objects) in English and similar languages. Fakultativity of objects in English is often presented as applying only to certain verbs as opposed to others, or even most of the transitive verbs where obligatoriness of their objects has been claimed. True or not for English, the problem of determining transitive or intransitive uses is intensified considerably in languages like Vietnamese, since they allow objects to be left out for reference tracking purposes with most verbs. This poses the question on which basis transitive vs intransitive use can be distinguished in languages that employ zero anaphora systematically.

### 3 Transitive or intransitive in Vietnamese

In the literature the notion of "understood" or "expected" arguments is adduced when it comes to the question on which basis a zero anaphor can be assumed (cf. Li&Thompson 1979, Rosén 1996, Mosel 1991). Although the concept remains rather vague, two positions can be singled out:

- I. Zero anaphors are regarded as empty argument positions, irrespectively of their interpretation as definite or indefinite. They are understood, because they are lexically or semantically entailed.
- II. Only zero anaphors are taken into consideration which get a definite interpretation since they corefer to some antecedent's referent. They are regarded as arguments. Indefinite interpretations of non-realized arguments as well as the question whether or not these are present in the verbs' argument structures at all are factored out. Definite zero anaphors are understood, because of their coreference relationship to some salient antecedent or discourse topic.

Both positions on zero anaphora combine well with the all-transitive-hypothesis, but they imply certain requirements that are hardly met by Vietnamese. While position I requires that argument slots of verbs can be specified independently of definite or indefinite interpretations of the argument referents, position II depends on the possibility to determine whether real coreference to an antecedent is existent which, in turn, qualifies for an argument position.

I have already pointed out that the obligatoriness criterion cannot be resorted to in Vietnamese and similar languages. However, in order to identify a verb's number of arguments, a relation between the transitive use of a verb where its arguments are expressed overtly and the use where some or all of these arguments do not show up has been postulated. The number of arguments is claimed to be the same in both uses of the verb. In generative works this is ensured by the Projection Principle. Even though coming from a functional perspective, Li/Thompson's (1979:32) heuristic procedure for

identifying zero anaphors in Mandarin is also based on an assumed relationship between verb uses with and without overt arguments.

The term ZERO-PRONOUN [zero anaphor, TH] will be used to refer to the "hole" where an NP is understood and would have to be present in the fully specified version of the sentence.

Li/Thompson suppose arguments to be semantically required and lexically governed by the verb (that is, understood) as well as syntactically obligatory in an elaborated version of the sentences. It is questionable, however, whether a 'fully specified version of the sentence' can be determined in Vietnamese. But even if so, arguments are not obligatory in Vietnamese, therefore, they neither are obligatory in any elaborated version. Yet, the procedure fails to single out necessary arguments when overtly expressed, because it fails to distinguish arguments from adjuncts. This is illustrated by the examples in (9).

- (9) a. Bạn em tặng em quà này sinh nhật này.  
friend I give I present this birthday this  
'My friend gave me this present for this (year's) birthday.'
- b. Cậu cho em năm xu một con.  
you give I five sous one CL  
'Give me five sous for one (crab).' (Emeneau 1951:48)
- c. Em khóc anh nước mắt giàn giụa.  
I cry you tear overflow profusely  
'I am crying for you with tears overflowing profusely.'

I argue that the number of lexical arguments cannot be determined by analogy to the number of NPs with which the verb occurs in another kind of construction. Purpose NPs might be regarded as bad candidates for lexically governed arguments of the verb due to their thematic role. However, with respect to obligatoriness in the elaborated version of the sentence, they do not differ from the other NPs. They are not less obligatory, but none of the NPs is obligatory. Relating fully specified versions and, say, truncated versions does not help to save the obligatoriness criterion, since there is no such a thing as 'would have to be present' in Vietnamese. Whether or not a purpose for these verbs might be 'understood' in cases where it is not overtly expressed, remains open as well. This procedure does not equip us with means to distinguish 'understood' due to argument structure, especially lexical argument structure, as opposed to inference.

While zero anaphors would require to identify argument slots independently, it is exactly prevalent use of zero anaphors which renders the identification of argument structures highly problematic. Yet, it lends itself to examine whether the characteristics of so called definite zero anaphors to establish a coreference link to an antecedent provides a way out of this dilemma. If it is accepted that a coreference relation between a definite zero anaphor and its antecedent suffices to justify the assumption of an argument slot, this could possibly be exploited for determining argument structures. In this case, 'understood' is a heuristics for zero anaphor in itself that applies on the

pragmatic level and therefore, at first, is outside the realm of argument structure proper. However, most approaches would assume a lexical argument slot here.

In the following I am going to argue, however, that coreference of definite zero anaphors cannot be used for distinguishing transitive and intransitive argument structures for the verbs in question either. Combining position II with the all-transitive-hypothesis, it could be hypothesized that there is no transitive / intransitive lability of the type AVO/AV at all in Vietnamese. Hereafter, all these syntactically intransitive uses are in fact transitive structures with AVØ, where Ø is a definite zero anaphor referring to a linguistic antecedent or, as proposed in most approaches, a topical discourse referent. This seems to be evidenced by the fact that in isolated sentences, where no antecedent is provided, the syntactically intransitive use is blocked (cf. (10b)).

- (10) a. Cô ấy vẽ một bức tranh.  
she paint one CL picture  
'She is painting a picture.'
- b. \* cô ấy vẽ.  
she paint  
'She is painting.'

Furthermore, the object is overtly expressed as a bare noun without classifier and determiner, when no anaphoric relation is intended as it is the case with indefinite interpretations of the objects in (11).

- (11) a. ăn cơm 'to eat (rice)'  
eat rice
- b. đọc sách 'to read (a book)'  
read book
- c. vẽ tranh 'to paint (pictures)'  
paint picture

Contrasting these argument realization patterns with their English translation equivalents suggests that Vietnamese exhibits a mirror-reverted system of the English patterns. In Vietnamese, indefinite objects show up syntactically because they do not bear anaphoric relations to topical discourse referents, whereas anaphors that refer to topical discourse referents can be left out. English realization patterns work the other way round. Here non-topical objects can be suppressed under the right conditions (cf. Goldberg 2005, and §4 below) and topical ones appear overtly.

The examples in (12), however, reveal that syntactic non-realization and discourse topic status do not correlate as strongly as suggested by example (10) and

(11). Verbs can be used syntactically intransitively, even though, there is no previously established discourse topic that could be understood in the second argument slot.

- (12) a. Cô ấy luôn luôn vẽ.  
she always paint.  
'She always paints.'
- b. Cô ấy thích vẽ.  
she like paint  
'She likes to paint.'
- c. Cô ấy vẽ rất đẹp.  
she paint very beautiful  
'She is painting very beautifully.'
- d. Cô ấy lăn đi lăn lại  
she roll go roll come back  
'She is rolling [something] back and forth.'

The examples in (12) comprise three different linguistic contexts, in (12a) the verb is in a habitual context marked as such through the adverbial *luôn luôn* 'always' and in (12b) the verb occurs in a modifying serial verb construction expressing an attitude of the subject. This reading can be regarded as a subtype of habitual contexts. In (12c) the verbal action is adverbially modified, whereas in (12d) the serial verb construction indicates the repetitive manner of the action. In these contexts intransitive uses of verbs are frequent without a specific interpretation for second participant in the state of affairs.

Additionally, bare nouns in object position do not always get an unspecific interpretation, but they can corefer to an established discourse referent (13a). Depending on context, they can be used as non-discourse referents or as discourse referents which is demonstrated by the anaphor-test in (13b) and (13c), respectively.

- (13) a. Tôi muốn cho em mượn một quyển sách<sub>i</sub> vì vậy em có thể đọc sách<sub>i</sub>.  
I want give you borrow one CL book so that you can read book  
'I want to lend you a book so that you can read it.'
- b. Luôn luôn khi tôi đi làm về, nghỉ một chút. Tôi đọc sách<sub>i</sub>.  
always when I go make come back rest one little I read book  
\*Nó<sub>i</sub> rất hay.  
(s)he/ it very good  
'Always when I come home from work, I rest a little bit. I read (a book). It is very good.'

- c. Cô ấy đọc sách<sub>i</sub>. Nó<sub>i</sub> rất hay.  
 she read book he/she/it very good  
 'She is reading a book. It is very good.'

Any attempt to identify a verb's argument slots by the anaphoric relationship which they might bear, even though, they are not overtly filled, requires that the existence of an anaphoric relationship can be unambiguously determined. On the one hand, zero anaphors exhibit, however, a high degree of freedom in their antecedent selection. The difficulties to limit down the domain of coreference for zero anaphors are reflected by the range of domains in which the antecedents of zero anaphors are found as discussed in the literature (Huang 1984, Rosén 1996, 1998, Givón 2001, Ariel 1990, Butt & King 1996)

On the other hand, zero anaphors are also allowed for associative reference<sup>2</sup> in Vietnamese. This especially casts doubts whether any kind of coreference is a sufficient condition for assuming an argument slot.

The various approaches on zero anaphora resolution in Vietnamese and languages alike agree on the fact that the distribution of zero anaphors is far less restricted in these languages than in languages like English. Zero anaphors occur regularly in subject and object position (cf. also (8)) and the domain of their coreference is not at all limited to the immediately preceding clauses. Furthermore, their reference may be ambiguous including even associative reference, as (14) illustrates.

- (14) a. Có một con voi và một đĩa nhạc cổ ngày xưa ấy,  
 There is one CL elephant and one disk music antique long ago  
 một cái máy nghe nhạc.  
 one CL player  
 'There is an elephant and an old record [and] a record player.'
- b. Nó đặt cái đĩa vào đấy thế nhưng mà cái đĩa không phát ra tiếng nhạc.  
 it put CL disk enter there but CL disk not emit sound music  
 'It is putting the disk on there, but the disk is not making any music.'
- c. Ø Phát ra tiếng động rất là lạ và nó đi quanh xem xét xem xét.  
 emit sound noise very be strange and it go around look examine look examine  
 '[It] is making a very strange noise and it is going around examining (why).'

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2 Associative reference is here understood as an extension of Hawkins's concept of associative anaphor, which originally has only been used for anaphoric NPs which indirectly refer to their antecedent by an associative link (cf. Hawkins 1978, Schwarz 1997, and for application of the term to pronominal anaphors Behrens/Sasse (2003:54ff)).

d. Nó lại cho Ø xuống nhưng nó vẫn không chạy.  
 it again put go down but it still not run

'It (the elephant) is again putting [it] down, but it (the player) is still not working.'

Example (14), again a retold cartoon film, shows with (14d) that zero anaphors do not necessarily refer to antecedents in the immediately preceding clause. Yet, more important here, there are actually two possible referents for the zero anaphor in (14d), the record and the tone arm of the record player. The record is a well established discourse referent, and it is the record which most of my informants understood when listening to the narration. However, from the film it becomes clear, that the speaker must have had in mind the tone arm. This referent is only indirectly introduced by associative part-whole relationship with the 'record player' in (14a). The record player, though, can be assumed to be a discourse topic.

If the hypothesis is correct that any intransitive use of a verb which also can be used transitively involves a definite zero anaphor in object position, one expects that an intransitive use of these verbs is only felicitous if an antecedent is available. Consequently, it would also be expected that if there is a potential antecedent a zero anaphor must corefer with it. Of special interest here is how intransitive uses are distributed in contexts where a switch from episodic to habitual reading is intended. Episodic readings have an affinity with a specific interpretation of their objects, whereas habitual readings often (but not necessarily) imply an unspecific interpretation of their objects. In most cases, thus, a switch from episodic to habitual reading also implies a switch from a specific reading to an unspecific reading of the objects. The assumption that the respective intransitive uses involve definite zero anaphora which must corefer with an antecedent predicts that zero anaphors do not occur where episodic reading switches to habitual reading. A comparison of examples (15) and (16) conduces to explore further the relationship between episodic vs habitual reading, intransitive use and coreference.

(15) a. và con chuột cầm một quả bóng bóng chuyền đến và rủ con voi  
 and CL mouse hold one CL ball volleyball arrive and invite CL elephant  
 chơi bóng chuyền.  
 play volleyball

b. Đầu tiên thì đá qua đá lại, không phải là đá mà  
 first then kick cross kick come back not be kick but  
 nó con voi dùng vòi chuột thì nó đẩy được qua đúng  
 it CL elephant use trunk mouse TOP it push be successful cross correct  
 không nó tung được.  
 not it throw can

'and the mouse, holding a ball, a volleyball, came and invited the elephant to play volleyball. First, [they] kicked [it] back and forth, [they] didn't kick [it] but

the elephant used its trunk [and] the mouse, in fact, pushed [it] across not being able to throw [it].'

(16) a. và con chuột cầm một quả bóng bóng chuyền đến và rủ con voi  
and CL mouse hold one CL ball volleyball arrive and invite CL elephant  
chơi bóng chuyền  
play volleyball

b. và chúng thường chơi bóng chuyền như thế này đá qua đá lại,  
and they usual play volleyball like this kick cross kick come back

không phải là đá mà nó con voi dùng vòi chuột thì nó đẩy  
not be kick but it CL elephant use trunk mouse TOP it push

được qua đúng không nó tung được.  
be successful cross correct not it throw can

'and the mouse, holding a ball, a volleyball, came and invited the elephant to play volleyball and they usually play volleyball like this: [they] kick back and forth, not [actually] kicking but the elephant uses its trunk and the mouse, in fact, pushes [something] across not being able to throw.'

In both examples, the a-sentence is the same and has an episodic reading. In (15b) the zero anaphors must indeed be interpreted strictly coreferential and the reading for (15b) is only episodic. A habitual reading, where the manner of the actions is characteristic of the mouse and the elephant, is not available here. In (16b), the habitual reading is made explicit by *chúng thường chơi bóng chuyền như thế này* 'they usually play volleyball like this'. The respective verbs are used intransitively as well, but are interpreted here as habitual or even characteristic of the mouse and the elephant. From the perspective of the state of affairs, the participant being kicked etc. is likely to change over the single instances of the habitual actions, in that it remains unspecific and even unspecified. The afore mentioned '(volley-) ball' may possibly be included in the class of these participants, but in (16b), it does not function as a linguistic antecedent.

Example (16) disproves the hypothesis for Vietnamese that AVO/AV-lability excludes a real intransitive use, so that AV, in fact, is AVØ with a definite zero anaphor occupying the second argument slot. Assuming that in these cases there is always a definite zero anaphor overgeneralizes, since these intransitively used verbs do not always imply coreference (cf. (16b), see also (13) and its interpretations, as well as the associative anaphoric relation in (14)).

#### 4 Intransitive use as backgrounding of participants

Goldberg (2000, 2005) proposes an intransitive construction for certain cases of the syntactically intransitive uses of verbs that traditionally are regarded as lexically transitive verbs in English. The following examples (cf. Goldberg 2005:29) illustrate the phenomenon:

- (17) a. The chef-in-training chopped and diced all afternoon.  
b. Tigers only kill at night.  
c. Pat gave and gave, but Chris just took and took.  
d. These revolutionary new brooms sweep cleaner than ever.

According to Goldberg, this kind of intransitive construction requires (or has the meaning, in her approach) that the verbal action is emphasized whereas at the same time the second participant in the state of affairs is discourse pragmatically backgrounded. The construction applies only when the backgrounded participant is non-topical and non-focal, that is when it is a non-discourse referent. Goldberg's evidence conveys mainly types of examples that have been discussed vividly in the literature for the relationship between transitivity and referential status of arguments as habituals, verbs with unspecified objects and generic sentences. Beside others, adverbs and intensifying of the action by reduplication of the verb often fulfill the function of emphasizing.

Omission of the patient argument is possible when the patient argument is construed to be deemphasized in the discourse vis à vis the action. That is, omission is possible when the patient argument is not *topical* (or *focal*) in the discourse, and the action is particularly *emphasized* (via repetition, strong affective stance, contrastive focus, etc.). (Goldberg 2000, emphasis original)

In Vietnamese, participants can also be left unspecific and unexpressed exactly in constructions where the verbal action is emphasized, which is exemplified in (12) and (16). This is what I regard as real intransitive uses where no second argument slot should be assumed.

The means employed in order to emphasize the action have in common that they explicitly express or contrast the manner or attitude in which the verbal action is conducted, as the following list illustrates:

- i. Repetitive Serial Verb Construction:  $V_1$  đi / qua  $V_1$  lại (cf. (12d), (16b))
- ii. Attitude Serial Verb Construction: thích V (cf. (12b)).
- iii. Adverbial modification (manner):  $V_1$  rất  $V_2$  (cf. (12c))
- iv. Explicit habitual adverbials: luôn luôn / thường V (cf. (12a), (16b))
- v. Contrast: không phải là  $V_1$  mà (là)  $V_2$  (cf. (16b))

Vietnamese is quite similar to English in allowing participants to be backgrounded if the verbal action is emphasized, yet, it differs from English in an important aspect. Contrary to English, the syntactically intransitive construction with emphasis on the verbal action does not unambiguously entail backgrounding of the second participant. In Vietnamese, a reading as definite zero anaphor, where an empty second argument can be assumed, is still possible in many cases. However, it is exactly in these constructions where the indefinite interpretations of second participants and, hence, real intransitive uses of verbs are found.

These kinds of intransitive constructions work differently in English and Vietnamese. In English, there is an interaction between syntactic non-realization of the object and the reading of the predicate which actually favors backgrounding of participants. This is widely known with some inherent object verbs that receive a professional reading when used habitually (e.g. *Mary writes*. 'Mary is an author.'). In Vietnamese, due to definite zero anaphora as a reference tracking mechanism, syntactically intransitive use per se does not influence the reading of the predicate with respect to episodic or habitual interpretation. If not indicated explicitly, the sentence retains its episodic reading (compare the respective contrastive topics *không phải là đá Ø<sub>volleyball</sub> mà...* in (15b) with *không phải là đá mà...* in (16b), where a habitual reading was made explicit in the preceding context). It is habitual adverbials as well as other means of emphasizing the verbal action that enable backgrounding of participants.

Furthermore, the different means to indicate emphasis of the verbal action seem to favor backgrounding of participants to various extent. Repetitive serial verb construction (cf. (18a) vs (18b)) and adverbial modification (cf. (18c) vs (18d)) render unacceptable intransitive uses in isolated sentences acceptable, but are ambiguous between a definite zero anaphor or backgrounded participant reading.

- (18) a. \*Cô ấy lăn.  
           she   roll  
           'She is rolling.'
- b. Cô ấy lăn đi lăn lại.  
           she   roll go roll come back  
           'She is rolling (it/something) back and forth.'
- c. \*Cô ấy viết.  
           she   write  
           'She is writing.'
- d. Cô ấy viết nhanh.  
           she   write fast  
           'She is writing (it/something) fast.'

Habituals and serial verb constructions with *thích* 'like' obviously privilege a backgrounded reading of the respective participants. In that, Vietnamese is consistent

with cross-linguistic tendencies concerning the connection between backgrounding and predicate type. Cross-linguistically, certain predicate types are more likely to allow backgrounding of participants. Behrens (2007) provides the following hierarchy of likelihood of predicate types for acceptance of an impersonal reading with reciprocal constructions, that is also a construction where the second participant is backgrounded.

Predicate Type Hierarchy (Behrens 2007:398)

Particular Telic Events > Particular Atelic Events > Habitual Events > Generic Characterizations

Backgrounding may be regarded as a pragmatic strategy with or without any impact on the transitivity of the verbs. Which position is taken in that matter depends on the question which notion of "argument" one assumes to be relevant for transitivity. Argumenthood manifests itself on different levels of representation, as lexical arguments, semantic arguments, referential and syntactically manipulable arguments and syntactic arguments.

Whether argumenthood on the different levels is independent or being an argument on one level also entails being an argument on the other levels has been vividly debated in the literature and the various approaches come to quite different ends. For Vietnamese, I propose that it is argumenthood in the sense of referential and syntactically manipulable arguments which is crucial for transitivity. Definite zero anaphors are arguments, because they are referential and syntactically manipulable, backgrounded participants, however, are not assigned argument status.

## 5 Conclusion

In this article I have proposed a classification of verbs according to orientation in Vietnamese, as a-oriented, o-oriented and orientation labile. The three verb classes differ whether the state of affairs is described from the perspective of the agent and/or patient in their intransitive uses. In that, the classified verbs are assumed to exhibit also a transitive / intransitive lability. Given prevalent use of zero anaphora in Vietnamese, the question is raised whether real intransitive uses in the a-reading of orientation labile verbs can be justified or whether they should, in fact, be regarded as transitive uses with zero anaphors in object position. I advocate an analysis of the intransitive uses as real intransitives. It has been shown that determining the number of arguments a verb provides fails if it resorts either to the obligatoriness criterion or to definite coreference. I have argued for a real intransitive use when the second participant is backgrounded with the verbal action simultaneously being emphasized (cf. Goldberg 2000, 2005). It is assumed that backgrounded participants, as opposed to zero anaphors, are not referential and syntactically manipulable and therefore, do not receive argument status in any sense that is relevant for transitivity in Vietnamese.

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# **Comment représenter le sens grammatical des verbes supports dans un dictionnaire actif : le cas des verbes supports en coréen**

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## **Résumé**

La présente étude se fixe comme objectif de proposer une méthode de description des verbes supports dans un dictionnaire actif qui permettrait de mettre en évidence leur sens grammatical et par conséquent de rendre explicite le sens des phrases qu'ils composent avec un nom prédicatif. Pour cela, nous mettons tout d'abord en évidence les problèmes qui se posent lors de la description du sens grammatical des verbes supports. Nous révélons ainsi que différentes fonctions sémantiques sont assumées par les verbes supports et qu'elles peuvent d'ailleurs être assumées par un seul verbe support morphologiquement identique ; ce qui entraîne la difficulté d'identifier la fonction sémantique des verbes supports et aussi celle de décrire leurs sens grammaticaux de façon exacte et adéquate. En tenant compte de ces problèmes, nous proposons enfin une méthode de description qui consiste à décrire le sens grammatical des verbes supports en fonction du sens de la phrase qu'ils composent avec un nom prédicatif et de discriminer préalablement les sens du nom prédicatif, eux aussi en fonction du sens de la phrase tout entière. Et cela en montrant son intérêt avec un exemple de description dans un dictionnaire actif.

**Mots-clés :** verbe support, sens grammatical, nom prédicatif, structure argumentale, description des verbes supports, dictionnaire actif.

## **1. Introduction**

La présente étude se fixe comme objectif de proposer une méthode de description des verbes supports dans un dictionnaire actif qui permettrait de mettre en évidence leur sens grammatical et par conséquent de rendre explicite le sens des phrases qu'ils composent avec un nom prédicatif. Nous entendons par sens grammatical les

informations que les verbes supports véhiculent selon leurs fonctions sémantiques : celles concernant le temps, l'aspect, la voix, le factitif, le registre, etc.

Suite aux travaux menés dans le cadre du lexique-grammaire ainsi que des classes d'objets, il a bien été montré que de nombreux verbes fonctionnent comme des verbes supports et que leur fonction sémantique varie selon les noms prédicatifs avec lesquels ils se combinent pour les « actualiser » ou « conjuguer ». Ainsi, nous distinguons actuellement divers types de verbes supports à une différence terminologique près : verbes supports standard (ou de base), verbes supports stylistiques (ou variantes lexicales), verbes supports aspectuels, verbes supports intensifs, verbes supports de conversion, verbes supports causatifs, verbes supports conjonctifs, verbes supports événementiels, verbes supports honorifiques, etc.<sup>1</sup>

**Table 1.** Exemples de divers types de verbes supports

- Verbes supports standard (ou de base)
  - Npr-*eul hada* (=: faire Npr)  
Npr : *yeohaeng*(voyage) ⇨ [=: faire un voyage]
  - Npr-*eul juda* (=: donner Npr)  
Npr : *doum*(aide) ⇨ [=: donner une aide à]
  - Npr-*eul naerida* (=: baisser Npr)  
Npr : *gyeolron*(conclusion) ⇨ [=: tirer une conclusion]
- Verbes supports aspectuels
  - Npr-*eul peobusda* (=: verser sur)  
Npr : *yok*(injurer) ⇨ [=: lancer des injures/accabler d'injures]
  - Npr-*eul ilsamda* (=: s'adonner)  
Npr : *dodukjil*(vol) ⇨ [=: s'adonner au vol]
- Verbes supports de conversion
  - Npr-*eul batda* (=: recevoir)  
Npr : *gyeong*(avertissement) ⇨ [=: recevoir un avertissement]

<sup>1</sup> Voir entre autres Vivès, R. (1993) ; Gross, G. (1996) ; Gross, M. (1998) ; Lee, S.-H. (2001).

- Npr-*eul danghada* (=: subir)  
Npr : *moyok*(humiliation) ⇨ [=: subir une humiliation]
- Npr-*eul sada* (=: encourir, s'attirer, attirer)  
Npr : *ohae*(soupçon) ⇨ [=: attirer les soupçons]
- Verbes supports honorifiques
  - Npr-*eul deurida* (=: donner *honorifique*)  
Npr : *gamsa*(remerciement) ⇨ [=: témoigner de la reconnaissance]
  - Npr-*eul olida* (=: adresser *honorifique*)  
Npr : *malsseum*(parole) ⇨ [=: adresser la parole]
- Verbes supports causatifs
  - Npr-*eul sikida* (=: faire *causatif*)  
Npr : *haego*(renvoi) ⇨ [=: donner son congé]
  - Npr-*eul juda* (=: donner *causatif*)  
Npr : *yonggi*(courage) ⇨ [=: donner du courage]

Cette diversité des verbes supports entraîne des difficultés dans la description lexicographique, notamment les deux difficultés suivantes : difficulté à identifier le sens grammatical des verbes supports et difficulté à le décrire de façon systématique et adéquate dans un dictionnaire. Dans ce qui suit, nous allons mettre en évidence ces difficultés et proposer une méthode de description lexicographique qui permettrait de résoudre ces problèmes.

## 2. Les différents sens grammaticaux des verbes supports

### 2.1. Verbe support à plusieurs fonctions sémantiques

La difficulté à identifier le sens grammatical des verbes supports est étroitement liée aux caractéristiques des combinaisons des verbes supports avec les noms prédicatifs. En fait, un verbe support morphologiquement identique peut avoir différentes fonctions

sémantiques selon les noms prédicatifs avec lesquels il se combine.<sup>2</sup> A titre d'exemple, les verbes supports *juda*(donner) et *sikida*(faire) peuvent assumer différentes fonctions sémantiques. Ils fonctionnent tantôt comme verbes supports standard, tantôt comme verbes supports causatifs :

- (1) a. *Insu-ga Minu-ege doum-eul ju-eot-da.*  
 Insu-Nom Minu-Dat aide-Acc donner-Pas-Déc  
 [= : *Insu a apporté son aide à Minu.*]
- b. *Geu sosik-I Mina-ege yonggi-reul ju-eot-da.*  
 CE nouvelle-Nom Mina-Dat courage-Acc donner-Pas-Déc  
 [= : *Cette nouvelle a donné du courage à Mina.*]

- (2) a. *Sajang-i Minu-reul haego-reul siki-eot-da.*  
 patron-Nom Minu-Acc licenciement-Acc faire-Pas-Déc  
 [= : *Le patron a licencié Minu.*]
- b. *Minu-ga Insu-reul gongbu-reul siki-eot-da.*  
 Minu-Nom Insu-Acc études-Acc donner-Pas-Déc  
 [= : *Minu a fait faire des études à Insu.*]

Comme on le voit dans les exemples en (1), le seul verbe *juda*(donner) fonctionne avec le nom *doum*(aide) comme verbe support standard et aussi comme support causatif en se combinant avec le nom *yonggi*(courage). Il en est même pour le verbe *sikida*(faire) en (2) qui peut fonctionner respectivement comme support standard et comme support causatif selon qu'il se combine avec les noms *haego*(licenciement) et *gongbu*(études).

Le cas est identique pour le verbe *boda*(= : *voir* au sens littéral) qui s'analyse comme ayant deux fonctions : celle de support standard et celle de support de conversion. En voici un exemple :

- (3) a. *Insu-ga eoje buleo siheom-eul bo-at-da.*

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<sup>2</sup> Nous nous limitons ici à parler des verbes supports ayant diverses fonctions sémantiques et nous notons simplement qu'un verbe morphologiquement identique comme par exemple *donner* peut fonctionner tantôt comme verbe prédicatif (*Max a donné une rose à Léa*), tantôt comme verbe support (*Max a donné une aide à Léa. / Max a apporté son aide à Léa.*).

Insu-Nom hier examen de français-Acc voir-Pas-Déc

[= : *Insu a passé un examen de français hier.*]

b. *Mina-ga ibeon taepung-e pihae-reul bo-at-da.*

Mina-Nom CE typhon-Obl dégâts-Acc voir-Pas-Déc

[= : *Mina a subi des dégâts à cause du typhon.*]

Nous voyons dans les exemples en (3) que le verbe *boda*(voir) « se comporte » dans sa fonction de support standard lorsqu’il se combine avec le nom prédicatif *buleo siheom*(examen de français), alors qu’il se montre avec le nom *pihae*(dégâts) dans sa fonction de support de conversion qui véhicule un sens passif.

Ainsi, les verbes supports peuvent avoir différentes fonctions sémantiques selon les noms prédicatifs avec lesquels ils se combinent. C’est de là que découle la difficulté d’identifier la fonction sémantique des verbes supports.

## 2.2. Difficulté à identifier la fonction sémantique

Nous venons de voir qu’un verbe support morphologiquement identique peut avoir différentes fonctions sémantiques selon les noms prédicatifs avec lesquels il se combine. Cela dit, il faut aussi noter qu’il n’est pas toujours évident d’identifier la fonction sémantique des verbes supports. Cette difficulté se constate sur deux plans : elle réside d’une part dans l’identification même de la fonction sémantique en question ; d’autre part, elle réside aussi dans l’identification de la fonction sémantique *standard* devant une paire de supports qui représentent l’un et l’autre un sens actif et un sens passif. Mais nous nous concentrerons ici seulement sur la première difficulté.

Pour ce qui est de cette première difficulté, elle revient à dire si les verbes supports *sikida*(faire) et *juda*(donner) en (4) sont utilisés dans leur fonction de supports *standard* ou de supports *causatifs* :

(4) a. *Minu-ga Ina-reul gamdong-eul siki-eot-da.*

Minu-Nom Ina-Acc émotion-Acc faire-Pas-Déc

[= : *Minu a ému Ina.*]

b. *Minu-ga Ina-ege gamdong-eul ju-eot-da.*

Minu-Nom Ina-Dat émotion-Acc donner-Pas-Déc  
 [= : *Minu a ému Ina.*]

Certes, on peut parler de causatif si l'on analyse le verbe *hada*(faire) en (5) comme étant un verbe support standard, mais on peut aussi le dire standard si on l'analyse comme un verbe support de conversion :

(5) *Ina-ga Minu-ege gamdong-eul hae-t-da.*  
 Ina-Nom Minu-Obl émotion-Acc faire-Pas-Déc  
 [= : *Ina a été émue par Minu.*]

Notons que la phrase (5) est en relation de paraphrase avec la (6) :

(6) a. *Ina-ga Minu-ege gamdong-eul bat-at-da.*  
 Ina-Nom Minu-Obl émotion-Acc recevoir-Pas-Déc  
 [= : *Ina a été émue par Minu.*]  
 b. *Ina-ga Minu-ege gamdong-i doe-eot-da.*  
 Ina-Nom Minu-Obl émotion-Nom devenir-Pas-Déc  
 [= : *Ina a été émue par Minu.*]

Le problème revient ici à savoir quelle est la structure argumentale du nom prédicatif *gamdong*(émotion) : s'agit-il d'un prédicat à un argument ou à deux arguments ? S'il relève du premier cas, *sikida*(faire) et *juda*(donner) en (4) s'analysent comme des verbes supports causatifs tandis que *hada*(faire) en (5) s'analyse comme un verbe support standard. En revanche, s'il relève du second cas, *sikida*(faire) et *juda*(donner) en (4) s'analysent alors comme des supports standard alors que *hada*(faire) en (5) s'analyse, ainsi que les verbes *batda*(recevoir) et *doeda*(devenir), comme un verbe support de conversion.

Pour que l'on soit en mesure d'analyser la structure argumentale du nom *gamdong*(émotion), il nous faut examiner de façon exhaustive toutes les constructions possibles dans lesquelles il apparaît avec ses différents verbes supports.

- (7) a. *Minu-eui yeonseol-i chingu-deul-eul gamdong-eul siki-eot-da.*  
 Minu-Gén discours-Nom ami-Pl-Acc émotion-Acc faire-Pas-Déc  
 [= : *Le discours de Minu a ému ses amis.*]
- b. *Minu-eui yeonseol-i chingu-deul-ege gamdong-eul ju-eot-da.*  
 Minu-Gén discours-Nom ami-Pl-Dat émotion-Acc donner-Pas-Déc  
 [= : *Le discours de Minu a ému ses amis.*]
- (8) a. *Chingu-deul-i Minu-eui yeonseol-e gamdong-eul bat-at-da.*  
 Ami-Pl-Nom Minu-Gén discours-Obl émotion-Acc recevoir-Pas-Déc  
 [= : *Les amis de Minu ont été émus par son discours.*]
- b. *Chingu-deul-i Minu-eui yeonseol-e gamdong-eul hae-t-da.*  
 Ami-Pl-Nom Minu-Gén discours-Obl émotion-Acc faire-Pas-Déc  
 [= : *Les amis de Minu ont été émus par son discours.*]
- c. *Chingu-deul-i Minu-eui yeonseol-e gamdong-i doe-eot-da.*  
 Ami-Pl-Nom Minu-Gén discours-Obl émotion-Nom devenir-Pas-Déc  
 [= : *Les amis de Minu ont été émus par son discours.*]

Les constructions (7) et (8) laisseraient croire que le nom *gamdong*(émotion) est un prédicat à deux arguments : *gamdong*(*x*, *y*) où *x* est une cause alors que *y* est un patient ou un expérimentateur. Dans ce cas, les verbes supports *juda*(donner) et *sikida*(faire) ne s’analysent pas, ni l’un ni l’autre, comme étant causatifs mais ils s’analysent comme étant des supports standard qui sont alors en relation de voix avec les verbes supports *batda*(recevoir), *hada*(faire) et *doeda*(devenir). Autrement dit, ce n’est pas le sens grammatical (ou la fonction sémantique) du verbe support *juda*(donner) et *sikida*(faire) qui apporte le sens causatif à la construction, mais c’est le sens lexical même du nom *gamdong*(émotion) qui contient le sens causatif.

Cela dit, ce n’est pas si facile que cela. En fait, examiné de près, le nom *gamdong*(émotion) peut également apparaître dans les constructions suivantes :

- (9) a. *Minu-ga yeonseol-ro chingu-deul-eul gamdong-eul siki-eot-da.*  
 Minu-Nom discours-Obl ami-Pl-Acc émotion-Acc faire-Pas-Déc  
 [= : *Minu a ému ses amis par son discours.*]

- b. *Minu-ga yeonseol-ro chingu-deul-ege gamdong-eul ju-eot-da.*  
 Minu-Nom discours-Obl ami-Pl-Dat émotion-Acc donner-Pas-Déc  
 [= : *Minu a ému ses amis par son discours.*]

Compte tenu de ces constructions, nous sommes en mesure d'analyser le nom *gamdong*(émotion) comme étant un prédicat à trois arguments. Pourtant, ce n'est pas si évident. A côté des exemples ci-dessus, nous avons des phrases comme en (10) :

- (10) a. ??*Chingu-deul-i Minu-ege yeonseol-lo gamdong-eul bat-at-da.*  
 Ami-Pl-Nom Minu-Obl discours-Obl émotion-Acc recevoir-Pas-Déc  
 [= : *Les amis de Minu ont été émus par son discours.*]
- b. \**Chingu-deul-i Minu-ege yeonseol-lo gamdong-eul hae-t-da.*  
 Ami-Pl-Nom Minu-Obl discours-Obl émotion-Acc faire-Pas-Déc  
 [= : *Les amis de Minu ont été émus par son discours.*]
- c. ??*Chingu-deul-i Minu-ege yeonseol-lo gamdong-i doe-eot-da.*  
 Ami-Pl-Nom Minu-Obl discours-Obl émotion-Nom devenir-Pas-Déc  
 [= : *Les amis de Minu ont été émus par son discours.*]

Les phrases en (10) sont toutes trois composées avec les supports de conversion qui véhiculent un sens passif et qui entretiennent ainsi une corrélation de voix avec les supports *juda*(donner) et *sikida*(faire) en (9). Mais, les phrases en (10) sont peu naturelles. En revanche, leur acceptabilité s'améliore si on modifie la postposition de l'argument introduisant la cause :

- (11) a. ? *Chingu-deul-i Minu-ege yeonseol-lo inhae gamdong-eul bat-at-da.*  
 Ami-Pl-Nom Minu-Obl discours-à cause de émotion-Acc recevoir-Pas-Déc  
 [= : *Les amis de Minu ont été émus à cause de son discours.*]
- b. ?*Chingu-deul-i Minu-ege yeonseol-lo inhae gamdong-eul hae-t-da.*  
 Ami-Pl-Nom Minu-Obl discours-à cause de émotion-Acc faire-Pas-Déc  
 [= : *Les amis de Minu ont été émus à cause de son discours.*]
- c. *Chingu-deul-i Minu-ege yeonseol-lo inhae gamdong-i doe-eot-da.*  
 Ami-Pl-Nom Minu-Obl discours-à cause de émotion-Nom devenir-Pas-Déc

[= : *Les amis de Minu ont été émus à cause de son discours.*]

Cela nous conduit à nous demander si la structure argumentale du nom *gamdong* (émotion) ne varierait pas selon les supports avec lesquels il se combine. Ce qui demande une étude plus approfondie. Mais nous n'entrerons pas plus dans le détail. Nous nous contenterons tout simplement de faire remarquer que l'identification de la fonction sémantique n'est pas toujours évidente et qu'elle dépend en grande partie de la structure argumentale du nom prédicatif, autrement dit du sens lexical de ce dernier, étant donné qu'un nom prédicatif morphologiquement identique peut avoir différentes structures argumentales selon ses sens.

Ce qui nous intéresse ici, c'est que les phrases en (7) et en (8) se différencient les unes des autres par leurs sens respectifs et de savoir comment représenter ces sens distincts, en particulier du point de vue lexicographique, plus précisément dans un dictionnaire actif.

### **3. Représentation lexicographique du sens grammatical des verbes supports**

#### *3.1. Problèmes soulevés dans la description du sens grammaticale*

La difficulté à identifier le sens grammatical des verbes supports est étroitement liée à celle de le décrire de façon systématique et adéquate dans un dictionnaire. Reprenons comme exemple le cas des phrases en (7) et en (8).

Nous avons vu précédemment que ces phrases ne se différencient les unes des autres que par les différentes fonctions sémantiques des supports : supports standard pour les phrases en (7) et supports de conversion pour les phrases en (8). Autrement dit, sans que le sens lexical du nom prédicatif soit modifié. Cela dit, ces phrases ne représentent pourtant pas le même sens.

En effet, les phrases en (7) renvoient à « une action provoquant la réaction psychologique » tandis que les phrases en (8) dénotent une action couramment dite « psychologique » qui parle en fait « d'une action passive qui connaît un état psychologique ». Cela étant, on est amené à dire que cette différence de sens provient

du sens grammatical apporté par le verbe support, mais non pas du sens lexical même du prédicat, étant donné que celui-ci reste le même.

C'est à partir de cela que le problème se pose de savoir comment représenter cette différence de sens. Deux questions se posent alors : où décrire le sens, autrement dit dans le dictionnaire des noms où les entrées sont des noms ou bien dans le dictionnaire des verbes où les entrées sont des verbes ? ; et que décrire dans chaque cas ?

### 3.2. Où décrire le sens grammatical des supports

A ces questions nous sommes en mesure de répondre sans hésitation que le sens grammatical des verbes supports doit être décrit sous les entrées des noms prédicatifs. Car, comme nous l'avons mentionné précédemment, un verbe support morphologiquement identique peut avoir différentes fonctions sémantiques (ou différents sens grammaticaux) ; celles-ci ne peuvent être appréhendées de façon exacte que dans le cadre de la phrase, autrement dit dans la combinaison des verbes supports avec les noms prédicatifs.

Certes, ces différents sens grammaticaux que les verbes supports véhiculent pourraient être décrits sous les entrées verbales, mais dans ce cas, la description se limiterait à énumérer simplement quelques fonctions sémantiques typées. A titre d'exemple, pour décrire les différents sens grammaticaux du verbe support *boda*(voir), il faudrait se contenter d'énumérer sous son entrée toutes ses possibles fonctions sémantiques : verbe support standard, verbe support de conversion. Mais cela ne suffirait pas, car cela ne permettrait pas de préciser dans quelles conditions, autrement dit avec quels noms prédicatifs, le verbe *boda*(voir) peut avoir de telles fonctions.

De plus, le cas serait pire si l'on voulait décrire de façon exacte le sens de la phrase que ce verbe support compose avec son nom prédicatif. Comment pourrait-on représenter ainsi la différence de sens des trois phrases suivantes ? :

- (12) a. *Insu-ga Ina gyeolhonsik sahwoe-reul bo-at-da.*  
Insu-Nom Ina noce animateur-Acc voir-Pas-Déc  
[= : *Insu a animé la noce d'Ina.*]  
b. *Insu-ga eoje buleo siheom-eul bo-at-da.*

Insu-Nom hier examen de français-Acc voir-Pas-Déc

[= : *Insu a passé un examen de français hier.*]

c. *Insu-ga ibeon il-ro keun pihae-reul bo-at-da.*

Insu-Nom CE affaire-Obl gros dégâts-Acc voir-Pas-Déc

[= : *Insu a subi de gros dégâts suite à cette affaire.*]

Il va de soi qu'en n'évoquant que le sens grammatical des verbes supports, on ne peut préciser les sens de ces phrases étant donné que le sens de la phrase (12a) relève d'une « action verbale » ; la phrase en (12b) dénote une action passive, plus précisément une « mise à l'épreuve » ; (12c) renvoie, elle aussi, à une action passive, ou plus exactement à « l'épreuve des événements fâcheux ». Il est évident que ces sens ne peuvent être détectés et précisés que dans leur combinaison avec les noms prédicatifs ayant le sens lexical.

C'est ainsi que le sens grammatical des verbes supports doit être décrit dans le dictionnaire des noms, sous l'entrée du nom prédicatif avec lequel ils se combinent. Cela dit, il reste encore un problème à résoudre : que décrire dans ce cas-là ?

### 3.3. *Que décrire ?*

Cette question est étroitement liée au problème de la polysémie des noms prédicatifs. Devrait-on discriminer le sens du nom prédicatif *pihae*(dégâts) dans les deux cas présentés en (13a) et en (13b) ?

(13) a. *Ibeon taepung-i Minane-ege keun pihae-reul ju-eot-da.*

CE typhon- Nom Chez Mina-Dat gros dégâts-Acc provoquer-Pas-Déc

[= : *Ce typhon a provoqué de gros dégâts chez Mina.*]

b. *Minane-ga ibeon taepung-e keun pihae-reul bo-at-da.*

famille de Mina-Nom CE typhon-Obl gros dégâts-Acc voir-Pas-Déc

[= : *La famille de Mina a subi de gros dégâts à cause du typhon.*]

Le nom prédicatif *pihae*(dégâts), prédicat ayant deux arguments - *cause* et *lieu affecté* -, compose deux phrases à voix différentes en se combinant avec des supports

qui ont des sens grammaticaux différents : verbe support standard et verbe support de conversion. (13a) dénote une « action de causer des événements fâcheux » alors que (13b) dénote, comme nous venons de le voir, une action passive relevant de « l'épreuve des événements fâcheux ». Et cela sans que le sens lexical du nom prédicatif *pihae*(dégâts) soit modifié. De là découle le problème de traiter la polysémie des noms prédicatifs : peut-on analyser ce nom *pihae*(dégâts) comme étant polysémique ?

Notre réponse est positive. A cela, plusieurs raisons. Mais notons simplement ici celle qui est la plus connue : le sens d'un mot doit être décrit dans le cadre de la phrase, en fonction de sa relation avec ses co-occurents. Cela étant, il est également bien connu qu'un nom prédicatif morphologiquement identique sélectionne, selon le sens qu'il réalise, un verbe support qui l'aide à « se conjuguer » en plus de ses arguments. Rappelons G. Gross (1999) qui a proposé d'introduire la notion d'*emploi* dans la description des mots basée sur les propriétés sémantiques et syntaxiques pour éviter la gêne terminologique. Ce qui conduit à analyser le nom *pihae*(dégâts) en (13) comme étant polysémique.

La nécessité d'adopter cette solution est très marquée avec le coréen. En coréen, il est de nombreux cas où le combinatoire « nom prédicatif + support » forme des composés. Ce type de cas n'a cessé d'augmenter. En effet, toutes les combinaisons du type « nom prédicatif+verbe support *hada*(faire) » disposent des verbes composés correspondant :

- (14) a. *gongbu-reul hada* vs *gongbuhada*  
           études-Acc faire           étudier  
       b. *seontaek-eul hada* vs *seontaekhada*  
           choix-Acc faire           choisir

Par ailleurs, les combinaisons contenant d'autres verbes supports comme *juda* (donner) et *boda*(voir) montrent, eux aussi, de plus en plus cette tendance.

- (15) a. *pihae-reul juda* vs *pihaejuda*  
           dégâts-Acc donner   provoquer des dégâts  
       b. *sonhae-reul boda* vs *sonhaeboda*

pertes-Acc voir subir des pertes

Pour permettre de mettre en évidence ce type de corrélation, il faut absolument discriminer les emplois (ou bien sens) des noms prédicatifs qui diffèrent selon leurs combinaisons avec des verbes supports ayant des fonctions grammaticales distinctes.

### 3.4. Exemple de description dans un dictionnaire actif

Partant de tous ces constats, nous proposons ainsi de décrire le sens grammatical des verbes supports en fonction du sens de la phrase qu'ils composent avec un nom prédicatif et de discriminer préalablement les sens du nom prédicatif, eux aussi en fonction du sens de la phrase tout entière. Ce qui permettra de décrire de façon systématique et adéquate les différents sens grammaticaux véhiculés par les verbes supports.

Voyons maintenant l'intérêt que notre méthode de description apporte, cela par exemple avec des verbes supports susceptibles de se combiner avec le nom prédicatif *yonggi*(courage).

- (16) a. *Insu-ga yonggi-ga iss-da.*  
Insu-Nom courage-Nom il y a-Pré-Déc  
[=: Insu a du courage.]
- b. *Insu-ga yonggi-ga na-t-da.*  
Insu-Nom courage-Nom se produire-Pas-Déc  
[=: Il s'est produit du courage en Insu.]
- c. *Insu-ga yonggi-reul nae-t-da.*  
Insu-Nom courage-Acc prendre-Pas-Déc  
[=: Insu a pris courage.]
- d. *Insu-ga geu sosik-e yonggi-reul eot-eoss-da.*  
Insu-Nom CE nouvelle-Obl courage-Acc obtenir-Pas-Déc  
[=: Insu a été encouragé par cette nouvelle.]
- e. *Geu sosik-i Insu-ege yonggi-reul ju-eoss-da.*  
CE nouvelle-Nom Insu-Dat courage-Acc donner-Pas-Déc

[=: Cette nouvelle a donné du courage à Insu.]

On voit bien en (16) qu'il est difficile de saisir le sens grammatical des verbes supports sans tenir compte du sens des phrases tout entières, étant donné que le sens lexical du nom prédicatif *yonggi*(courage), noyau du sens des phrases, reste identique dans toutes les phrases en (16a)-(16e). Mais, en adoptant notre méthode, nous sommes en mesure de fournir une analyse selon laquelle toutes ces phrases représentent au moins quatre sens différents : une qualité humaine en (16a), un phénomène psychologique en (16b) et (16d), une action psychologique en (16c) et une action d'encouragement en (16e).

Cela étant, tous les verbes supports en (16) s'analysent comme fonctionnant tels des supports standard. Ce qui va permettre de décrire à juste titre leur sens grammatical et de mettre en évidence une corrélation des combinaisons « nom prédicatif+verbe support » avec les verbes ou les adjectifs équivalents. Voici l'extrait de la description des verbes supports dans un dictionnaire actif :

**Table 2.** Exemples de description dans un dictionnaire actif

```
❑ <orth>yonggi</orth>
  <sem=1>qualité humaine<sem>
    <n_v type="npred_vsup">
      <form vcompound="yes">~ga itda</form>
      <form vcompound="yes">~ga eopda</form>
    <sem=2>action psychologique <sem>
      <n_v type="npred_vsup">
        <form vcompound="yes">~reul naeda</form>
    <sem=3>phénomène psychologique <sem>
      <n_v type="npred_vsup">
        <form vcompound="no">~reul eotda</form>
        <form vcompound="yes">~ga nada</form>
    <sem=4>action d'encouragement <sem>
      <n_v type="npred_vsup">
        <form vcompound="no">~reul juda</form>
```

Les rubriques d'informations dans la table 2 sont empruntées au dictionnaire électronique *Sejong* et elles représentent respectivement les informations suivantes<sup>3</sup> :

- <orth> : forme de l'entrée
- <sem> : classe sémantique de l'entrée dont le sens est discriminé au niveau de la polysémie
- <n\_v type="npred\_vsup"> : type de combinaison de l'entrée avec des verbes où *npred\_vsup* renvoie à la combinaison du type « nom prédicatif + verbe support »
- <form vcompound="yes"> : existence de verbes composés correspondant à la suite « Npréd+Vsup » qui est marquée par *yes* ou *no*.

#### 4. Conclusion

Nous avons ainsi mis en évidence les problèmes qui se posent lors de la description du sens grammatical des verbes supports et proposé une méthode de description permettant de résoudre ces problèmes.

Nous avons vu en effet que différentes fonctions sémantiques sont assumées par les verbes supports et qu'elles peuvent d'ailleurs être assumées par un seul verbe support morphologiquement identique. Nous avons également constaté que ces caractéristiques entraînent entre autres la difficulté d'identifier la fonction sémantique des verbes supports et aussi celle de décrire leurs sens grammaticaux de façon exacte et adéquate.

A partir de ces constats, nous avons proposé de décrire le sens grammatical des verbes supports en fonction du sens de la phrase qu'ils composent avec un nom prédicatif et de discriminer préalablement les sens du nom prédicatif, eux aussi en fonction du sens de la phrase tout entière.

Comme nous l'avons vu avec un exemple de description, la méthode de description proposée permet de traiter de façon systématique et adéquate les différents

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<sup>3</sup> Voir pour plus de détails Lee, S.-H. & Hong, C.-S. (2008) ; Hong, C.-S. & Lee, S.-H (2003) ; Hong, C.-S. (1998-2006).

sens grammaticaux véhiculés par les verbes supports, et aussi de mettre en évidence la corrélation des combinaisons « nom prédicatif+verbe support » avec les verbes ou les adjectifs équivalents. Ce qui revient à laisser deviner son intérêt dans la construction d'un dictionnaire actif qui demande des informations décrites et organisées de telle sorte qu'elles soient utiles à produire des phrases et non pas à comprendre des phrases.

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# **Représentation d'informations lexico-syntaxiques du lexique-grammaire : à propos de certains verbes "à montée"**

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## **Abstract**

In this paper, after a brief presentation of two distinct classical approaches, derivational and non derivational, of representing "rising verbs" and "control verbs", we examine the state of affairs of the lexicon-grammar concerning these classes. Existing properties in lexicon-grammar tables are not sufficient to determine if a verb is of one of the two types, we propose to add some additional properties in the lexicon-grammar tables, so that the verification of a class of properties may indicate the rising or control nature of a verb.

**Keywords:** raising, control, lexicon-grammar.

## **1. Introduction**

Nous examinons la validité de la représentation d'informations lexicales et syntaxiques du lexique-grammaire commencé il y a 40 ans par Maurice Gross et son équipe en prenant comme exemple un groupe de verbes connus sous le nom de "verbes à montée". La catégorie de verbes dits « à montée », telle qu'elle est définie dans un cadre dérivationnel, est une entité dépendante de l'interaction entre le lexique, la syntaxe et la sémantique. Nous présentons rapidement la description de ces verbes dans une théorie dérivationnelle comme celle du gouvernement et du liage (Chomsky 1981) et dans la théorie non dérivationnelle de grammaire d'arbres adjoints (Abeillé 1992, 1998, 2002).

Ensuite, nous examinons une classe de verbes du lexique-grammaire qui comprend à la fois les verbes à montée et ceux à contrôle, et montrons que la lecture des propriétés existantes seule ne permet pas suffisamment de distinguer ces deux classes de verbes, bien que la distinction soit déjà faite indépendamment.

Nous espérons améliorer le lexique-grammaire qui va servir de lexique électronique pour divers formalismes syntaxiques orientés vers le TAL.

## 2. Analyses et représentations dans plusieurs cadres

### 2.1. Analyse transformationnelle

Dans le cadre générativiste, où l'on cherche à décrire et expliquer le mécanisme qui lie la réalisation syntaxique de surface (S-structure) et la base syntaxique et sémantique reflétant une relation prédicat-arguments (D-structure), deux grands types sont à distinguer parmi les verbes qui se construisent avec un infinitif post-verbal : verbes à montée et verbes à contrôle. Ruwet (1983) présente ces deux types de verbes en français avec les exemples suivants :

- (1) a. Noam semble être parti sans laisser de traces
- b. Noam prétend être parti sans laisser de traces

Les verbes *sembler* et *prétendre* sont des verbes "à montée" et "à contrôle", respectivement. Les phrases de surface (1a) et (1b) pourraient avoir pour structures profondes les représentations suivantes :

- (2) a. [NP *e*] semble [S' COMP [S Noam INFL être parti . . .]]
- b. Noam prétend [S' COMP [S PRO INFL être parti . . .]]

Les verbes à montée sont caractérisés par les faits suivants : ils sont sous-catégorisés pour un complément phrastique et ils possèdent au moins une position syntaxique de surface à laquelle aucun rôle thématique n'est assigné. Les verbes à contrôle, par contre, possèdent, en plus d'un complément phrastique, au moins une position syntaxique à laquelle un rôle thématique est assigné : le sujet de la subordonnée PRO est coréférent à l'élément nominal qui occupe cette position. Sans entrer dans le détail du développement des mécanismes dérivationnels selon l'évolution de la grammaire générative transformationnelle, le consensus partagé depuis Chomsky (1981) est de considérer que le sujet de la subordonnée du type (2a) est déplacé transformationnellement dans la position non thématique du verbe principal, suite à l'interaction de diverses contraintes modulaires, notamment celles sur les cas et celles sur les rôles thématiques. Ce mouvement laisse derrière lui une trace coïncidée avec l'élément déplacé. L'exemple (3a) montre la transformation de "montée" :

- (3) a. Noam<sub>i</sub> semble [s t<sub>i</sub> INFL être parti . . .]
- b. Noam<sub>i</sub> prétend [S' COMP [S' PRO<sub>i</sub> INFL être parti . . .]]

Il faut remarquer que les catégories dominant la séquence post-verbale sont différenciées : dans le cas du verbe à montée, la catégorie est S' (CP) qui permet au verbe principal de "gouverner" la trace *e* du sujet *Noam*, déplacé en position sujet de la phrase principale ; par ailleurs, le verbe à contrôle est suivi d'une véritable proposition, empêchant que le sujet vide anaphorique PRO soit gouverné. Les verbes à contrôle

sélectionnent un argument phrastique et un autre argument, préférentiellement agentif. Le sujet de la subordonnée PRO, phonétiquement nul donc imperceptible dans la forme de surface, est interprété comme coréférent à l'argument agentif du verbe à contrôle, d'où la coïndexation de (3b).

## 2.2. Analyse non transformationnelle

Des alternatives à l'analyse transformationnelle ont été proposées dans les grammaires non transformationnelles souvent appelées "grammaire d'unification" (cf. Abeillé 1992) : voir Bresnan (1982) pour le traitement de ces verbes en LFG, Sag & Pollard (1991) pour HPSG, Abeillé (1998, 2002) pour le traitement de ces verbes en français dans le cadre de la grammaire d'arbres adjoints (TAG).

Abandonnant les transformations, ces cadres théoriques différencient ces deux types de verbes au niveau des traits syntaxiques (LFG, HPSG) et/ou des représentations en constituants (TAG). Ils partagent cependant l'idée que ces phénomènes sont, au fond, sémantique : l'idée fondamentale est de distinguer deux types différents de mise en relation sémantique de l'infinitive et de son sujet interprétatif (cf. Baschung (1998)).

### 2.2.1. Les verbes à montée dans la représentation TAG

Selon la représentation des faits syntaxiques en TAG, Abeillé (1998) propose de distinguer les deux types de verbes par les types d'arbres qu'ils ancrent. Par exemple, les verbes à montée sont représentés par un arbre auxiliaire, ce qui, d'après elle, permet de saisir une des caractéristiques syntaxiques communes aux verbes à montée et aux auxiliaires du temps *être* et *avoir* en français : la séquence post-verbale autour d'un verbe non fini, l'infinitive dans le cas du verbe à montée, le participe passé dans le cas des auxiliaires du temps, ne forme pas un constituant syntaxique. Pour étayer cette caractéristique, Abeillé cite le fait qu'elle ne subit pas de déplacement par clivage ou que sa pronominalisation par *cela* est impossible. Ainsi, un verbe comme *sembler* peut s'exprimer par un arbre auxiliaire représenté dans la Figure 1 :

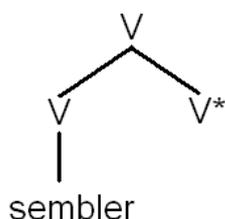


Figure 1

Ce type d'arbre auxiliaire s'adjoit à un arbre élémentaire dont la tête est un verbe à l'infinitif. Par exemple, un arbre élémentaire de la Figure 2 :

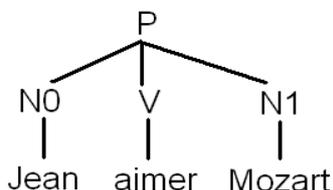


Figure 2

Les deux arbres précédents peuvent se combiner pour donner la représentation syntaxique d'une phrase dont le verbe principal est un verbe à montée :

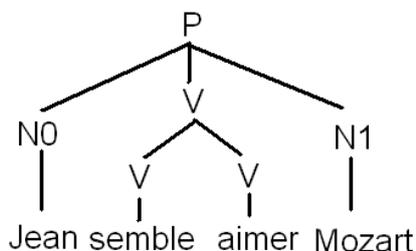


Figure 3

Cet arbre montre qu'un verbe à montée, ici le verbe *sembler*, s'adjoit à un verbe à l'infinitif, qui est sémantiquement le prédicat principal, avec ses deux arguments. Le sujet de la phrase est sémantiquement interprétable comme le sujet du verbe à l'infinitif. Le verbe à montée n'apporte pas ses propres restrictions de sélection : les arguments du prédicat sont ceux du verbe à l'infinitif *aimer*.

Cette structure d'attachement empêche la formation d'un syntagme verbal infinitif, ce qui correspond à la réalité syntaxique que la séquence *aimer Mozart* ne se comporte pas comme un constituant syntaxique : les phrases (4b,c) montrent l'impossibilité du clivage et de la pronominalisation de la séquence post-verbale du verbe *sembler* :

- (4) a. Jean semble aimer Mozart  
 b.\*Ce que Jean semble, c'est (d') aimer Mozart  
 c.\*Aimer Mozart, Jean (le semble + semble cela)

D'après l'analyse d'Abeillé, cette configuration des arbres est similaire à celle qu'on observe dans une phrase à temps composé : les auxiliaires de temps *avoir* et *être* ancrent un arbre auxiliaire, qui s'unifie avec un arbre élémentaire dont la tête est un verbe au participe passé. Voici l'arbre auxiliaire dont la tête est un auxiliaire du temps composé :

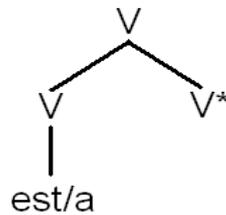


Figure 4

Ce type d'arbre peut s'unifier avec un arbre élémentaire dont la tête est un verbe au participe passé :

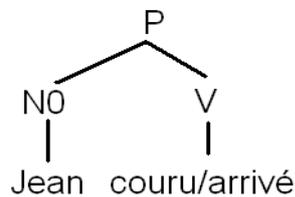


Figure 5

Pour donner les arbres représentant deux phrases *Jean a couru* et *Jean est arrivé* :

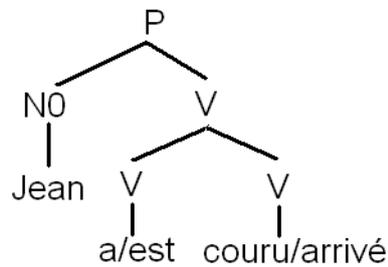


Figure 6

La représentation dans le cadre TAG d'une phrase avec un verbe à montée est similaire à celle d'une phrase à temps composé quelconque. La généralisation formelle est atteinte dans la mesure où ni auxiliaire, ni verbe à monté ne permette la formation d'un syntagme dont la tête est un verbe non fini.

### 2.2.2. Remarques

Dans le cadre des grammaires d'unification, la distinction entre D-structure et S-structure n'existe pas. L'idée du mouvement d'un sujet d'une subordonnée de base n'a donc pas de sens. Ainsi, Abeillé (1998) constate clairement que dans le cadre du

formalisme TAG, « la relation entre les phrases *il V que P* et *NO V Inf* (peu régulière) [est] une relation sémantique et non syntaxique ». En effet, la métaphore explicitement « spatiale » qu'on peut percevoir dans l'appellation de « verbes à montée » n'a plus de sens, puisqu'il n'y a aucun mouvement de « montée ».

L'intérêt initial de la notion de « montée » comme transformation syntaxique qui met un lien entre une proposition subordonnée de base et une structure discontinue de syntagme nominal et groupe infinitif, qu'on trouve chez Ruwet (1972, 1982a, 1982b) ou Postal (1974), a clairement reculé pour privilégier la différenciation de structures et de comportements de séquence infinitive introduite par deux types différents de verbes principaux, c'est-à-dire les verbes à montée et les verbes à contrôle.

En effet, comme Baschung (1998) le montre, parmi les verbes suivis d'un infinitif, la distinction entre les verbes à contrôle et les verbes à montée « est de nature fondamentalement sémantique plutôt que syntaxique ». Elle a appliqué un groupe de tests formels pour découvrir « un continuum de propriétés » entre ces deux classes : en effet, aucun des traits évoqué n'est suffisant pour définir l'une ou l'autre des deux classes. Il y a toujours des exceptions. Voici les traits qu'elle a vérifiés : + et – indique la tendance générale :

	V à C	V à M
Commutation de l'infinitive avec un SN ou un SP	+	-
Extraction de l'infinitive	+	-
Omission de l'infinitive complément	+	-
Correspondance compléments-arguments	+	-
SP contrôleur	+	-
Paraphrase entre infinitive active et passive	+	-

Tableau 1

Mais les résultats de son examen montre qu'il n'y a pas un seul critère qui soit suffisant pour discriminer les deux classes de verbes, bien que la tendance générale se dégage. Elle est marquée par + et – dans le tableau. D'où sa conclusion que la distinction entre verbe à contrôle et verbe à montée est fondamentalement sémantique.

### 3. Analyse du lexique-grammaire

Le lexique-grammaire peut être vu comme un dictionnaire syntaxique dont une entrée est constituée d'un élément prédicatif défini dans une structure de phrase simple particulière (voir M. Gross (1968, 1975)). Dans une même entrée, on peut regrouper

toutes les constructions syntaxiques, formellement différentes mais sémantiquement équivalentes, (par exemple, la structure passive, la structure avec extraposition, etc.), ainsi que diverses propriétés syntaxiques et sémantiques associées à ces constructions (la pronominalisation des constituants, les traits référentiels des arguments, etc.). La relation d'équivalence entre deux types de phrases est appelée "transformation", selon le cadre théorique de Harris (1970).

### 3.1. *Les verbes à montée et à contrôle*

Les verbes dits « à montée » et « à contrôle » dans la littérature ont fait l'objet de descriptions distributionnelles, lexicales et transformationnelles du lexique-grammaire dans M. Gross (1968, 1975).

Dans ces études, M. Gross a dressé une liste de 19 constructions syntaxiques de base mettant en jeu, au moins, une complétive ou une infinitive et a recensé les verbes français qui sont susceptibles d'y figurer. M. Gross a constaté que, sur la totalité du lexique verbal en français, il y a très peu de verbes qui manifestent le parallélisme entre construction impersonnelle à complétive et construction infinitive du type (6), exemple phare de la transformation de montée du sujet au sujet, tandis que le parallélisme entre deux phrases de (5), qui montre typiquement la configuration de « contrôle », est abondant :

- (5) a.  $N_0 V \text{ Que } P =$  : Luc pense qu'il ira voir Léa chez elle  
b.  $N_0 V V^0_{\text{inf}} =$  : Luc pense aller voir Léa chez elle
- (6) a.  $Il V \text{ Que } P =$  : Il semble qu'il pleut  
b.  $N_0 V V^0_{\text{inf}} =$  : Il semble pleuvoir

Les phrases de (5) sont reliées par une relation appelée réduction de la complétive à l'infinitive, semblable à la transformation de « Equi-NP deletion » de Rosenbaum (1967) : dans la structure profonde, si un argument du verbe principal est coréférent au sujet de la proposition subordonnée, cette dernière se réduit à la proposition infinitive.

Pour relier les deux phrases de (6) par l'opération formelle de réduction, il faut une certaine acrobatie par rapport à la même opération appliquée à la phrase (5a), parce que la phrase à complétive (6a) n'a pas d'argument nominal référentiel qui puisse être le contrôleur. M. Gross (1968) a mentionné la possibilité d'analyser la phrase du type (6b) par l'application successive des transformations de [Que T z.], qui enlève, dans la phrase (6a), le temps fini du verbe de la subordonnée, ainsi que la conjonction de subordination, et de [impersonnel -1] qui substitue le sujet de la subordonnée au sujet impersonnel, c'est-à-dire la transformation de [it replacement] de Rosenbaum (1967). Or, l'idée n'a pas été approfondie dans M. Gross (1975).

Les verbes qui se comportent d'une façon similaire au verbe *penser* dans les phrases (5) se trouvent dans la classe 6, définie par le fait qu'ils sous-catégorisent une complétive directe et un substantif sujet, éventuellement caractérisée par le parallélisme avec une phrase « réduite » en infinitive du type (5b). Les verbes du type *sembler*, peu nombreux, sont catalogués dans la classe 17. Ils sont définis par la construction de base qui est une phrase impersonnelle. Il va sans dire que ces deux classes n'épuisent pas tous types de constructions où apparaissent les verbes à contrôle et les verbes à montée.

Voici une rapide représentation du lexique-grammaire, basée sur la description des verbes à contrôle et des verbes à montée. Dans ce qui suit, nous prenons une classe de verbes appelée traditionnellement « verbes semi-auxiliaires », représentés pour la plupart dans la classe 1 du lexique-grammaire et examinons si la représentation actuelle du lexique-grammaire est suffisamment opératoire pour distinguer les deux classes de verbes.

### 3.1. Verbes à montée et leur représentation dans la Table 1

Les verbes étudiés dans les *Méthodes en syntaxe* de Maurice Gross sont par principe définis par la présence d'au moins une complétive ou d'une infinitive. Dans la plupart des cas, une construction à infinitive est considérée comme le résultat de la réduction d'une complétive du type (5), réalisant typiquement la configuration d'un verbe à contrôle.

L'exception à cette alternance entre complétive et infinitive est la classe 1, où l'infinitive post-verbale n'alterne pas avec une complétive, à moins de changer totalement le sens. Cette classe est donc définie, à la fois, par la présence de l'infinitive et l'absence de la complétive dans la première position post-verbale :

$N_0 V (\text{Prép}) V^0_{\text{inf}} W$

Et  $*N_0 V (\text{Prép ce}) Q u P$

Voici quelques exemples de constructions que forment les verbes de cette classe :

- (7) Luc a (commencé à + fini de + continué de +...) lire Proust
- (8) Luc s'est (décidé à + grouillé de) partir en Corée

Voici un extrait de la table 1 actuel :



l'aspect perfectif l'infinitif. Nous allons examiner les propriétés qui différencient les deux emplois et proposons d'y en ajouter d'autres.

### 3.2.1. Traits du sujet

Seul l'emploi épistémique peut avoir un sujet « non restreint ». Cela signifie dans le cadre du lexique-grammaire que cette position syntaxique n'assigne aucune contrainte sur les propriétés formelles du terme qui l'occupe : il peut être un syntagme nominal, une complétive ou une infinitive. Cela ne signifie pas que la position en question ne reçoive pas de rôle thématique. Ce trait s'observe également dans la position sujet d'un groupe de verbes appelé « verbes psychologiques » :

(Cette femme + son départ + qu'elle doit faire ça +...) énerve Léa

Le verbe *énervé* peut prendre n'importe quel type de sujet, sans contraintes sur la nature référentielle. Ce verbe a donc  $N_0 = Nnr$  dans la table 4 du LG. Le sujet porte incontestablement le rôle de "thème". L'interprétation d'une phrase construite sur ce verbe avec un sujet humain est, de surcroît, ambiguë : le sujet peut être agentif (donc il n'est plus un "thème") ou non agentif, comme c'est le cas de l'exemple ci-dessus :

Max a volontairement énervé Léa

Dans ce cas là, la double vérification des traits  $N_0 = Nhum$  et  $N_0 = Nnr$  peut noter l'existence de cette ambiguïté, ce que n'a pas la double vérification de ces traits dans la table 1 avec le verbe *pouvoir* épistémique. La distribution du  $N_0 = Nhum$  peut être couvert par  $N_0 = Nnr$ , dans ce cas là.

Ainsi, la vérification du seul trait distributionnel  $N_0 = Nnr$  ne montre pas que le sujet ne porte aucun rôle thématique. La description distributionnelle qui pourrait manifester cet aspect est la possibilité du sujet impersonnel : en effet, un verbe psychologique ne peut pas accepter un sujet impersonnel de l'infinitif ;

\*Il énerve Luc de pleuvoir (cf. Léa énerve Luc de vouloir partir)

Il peut pleuvoir

Ainsi, nous proposons d'ajouter la propriété distributionnelle  $N_0 = il\ impersonnel$  qui distingue deux emplois du verbe *pouvoir* :

$N_0 = Nhum$	$N_0 = Nnr$	$N_0 = il\ imp$	
-	+	+	pouvoir
+	-	-	pouvoir

Tableau 2

### 3.2.2. Contraintes sur l'infinitive

Un deuxième trait qui figure déjà dans la table du lexique-grammaire servant à distinguer les deux emplois du verbe *pouvoir* concerne les possibilités de modalisation et de mise au parfait de l'infinitive :

\*Max peut volontairement avoir lu Proust (= \* Max est capable d'avoir lu Proust)

Max peut avoir lu Proust (= Il est possible que Max ait lu Proust)

Les exemples ci-dessus montrent que quand le contexte ne permet que l'interprétation déontique du verbe *pouvoir*, l'infinitive qui le suit ne peut pas être mise au parfait.

L'infinitive de l'emploi épistémique peut être suivie d'un autre semi-auxiliaire, tandis que l'emploi déontique ne le permet pas :

\*Max peut volontairement (pouvoir + devoir +...) lire Proust

Max peut (devoir + pouvoir + ...) lire Proust (= Il est possible que Max (doive + puisse +...) lire Proust)

### 3.2.3. Constituance

#### 3.2.3.1. ppv le, reprise par cela

Comme Abeillé (1998) l'a montré, la séquence post-verbale d'un verbe à montée ne forme pas de constituant, d'où son rejet du noeud SV. Dans la table existante, la possibilité de remplacer cette séquence par un pronom clitique neutre *le* vérifie ce trait. En effet, dans la phrase suivante :

Luc ne peut pas nager, mais Léa le peut

où l'infinitive peut être pronominalisée par *le*, le verbe *pouvoir* a le sens déontique, donc c'est un verbe à contrôle. Par contre, dans l'exemple suivant :

\*Léa peut être déjà arrivée et Luc le peut aussi

l'infinitive ne peut pas être pronominalisée. Le verbe a donc l'emploi de V à M. La reprise par *cela*, par contre, ne marche dans aucun des deux cas :

\*Luc ne peut pas nager mais Léa peut cela

\*Léa peut être déjà arrivée et Luc peut cela aussi

#### 3.2.3.2. Omission

Si le contexte est approprié, l'infinitive peut être omise d'une façon anaphorique. Cette caractéristique est considérée comme un indice pour l'existence d'un noeud SV. Généralement, un V à C accepte cette propriété :

- Léa a pu nager, et Luc ?

- Luc a pu, lui aussi

mais un V à M difficilement :

?\*Max peut être déjà arrivé à Séoul, mais Léa ne peut pas

### 3.2.3.3. *Extraction de l'infinitif*

L'extraction de l'infinitive dans une phrase clivée ou dans une phrase pseudo-clivée est également utilisée pour démontrer l'existence d'un SV. Avec l'emploi déontique du verbe *pouvoir*, seul la pseudo-clivée fonctionne, tandis que la phrase clivée ne marche pas :

?\*C'est (de) nager que Luc peut

? Ce que Luc peut, c'est (de) nager

Il n'est pas possible de construire ce type de phrases avec l'interprétation épistémique du verbe :

\*C'est (de) être parti que Luc peut

\*Ce que Luc peut, c'est (de) être parti

### 3.2.4. *Alternance avec SN/Qu P*

Il est souvent considéré qu'une infinitive d'un verbe à montée ne doit pas alterner avec un *SN*. Indépendamment de la validité de cette idée, le verbe *pouvoir* n'a pas de *SN* qui remplace *Vinf*.

Luc peut (nager + \* la natation)

Luc peut (venir à tout moment + \* la venue)

Il va sans dire qu'une complétive ne puisse remplacer l'infinitive :

\*Luc peut qu'il nage

Le verbe *pouvoir*, que ce soit d'un emploi épistémique ou d'un emploi déontique, n'accepte ni *SN*, ni *Qu P*.

### 3.3. *Conclusions et perspectives*

Ces propriétés se résument dans le tableau suivant :

	Sujet			Vinf							Vinf = SV					Alt.	
	N0 = Nhum	N0 = Nnr	N0 = il impersonnel	Tp=tc	Tc=passé	Tc=présent	Tc=futur	Vc=devoir	Vc=pouvoir	Vc=savoir	N0 le V	N0 V cela	N0 V	C'est (Prép) Vinf que N0 V	Ce que N0 V, c'est (Prép) Vinf W	N0 V N1	N0 V Qu P
pouvoir	-	+	+	+	+	+	+	+	+	+	-	-	-	-	-	-	-
pouvoir	+	-	-	+	-	-	-	-	-	-	+	-	+	-	?	-	-

Tableau 3

Prenant un seul exemple de verbe dont deux emplois constituent une paire minimale de verbe à montée et verbe à contrôle, nous avons examiné comment les informations syntaxiques et sémantiques sont représentées dans la description du lexique-grammaire et si elles sont suffisantes pour la distinction de ces deux classes. Nous avons proposé d'ajouter quelques propriétés portant sur la nature du sujet et sur les comportements de la séquence infinitive. Nous devons généraliser l'ajout de ces propriétés à d'autres tables pour que cette distinction puisse être calculée à partir de l'ensemble des tables du lexique-grammaire.

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# When Lexical Meanings Meet Constructions: “V-*ge*-N” Versus “V-CL-N” Constructions in Mandarin Chinese

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## Abstract

In Mandarin Chinese, “*ge*” is the most common and unique classifier (CL) of all, which differs from other specific classifiers, having little semantic restrictions to modify its following nouns. The present study aims to investigate the distributional differences between “V-*ge*-N” and “V-CL-N” constructions in Chinese. The “V-*ge*-N” constructions involve the insertion of the general classifier “*ge*” into VN compounds. Similar insertion is also permitted in some more specific classifiers such as nominal classifiers “*wei4*” as well as verbal classifier “*ci4*”, which are termed as “V-CL-N” construction. The result of this study shows various degrees of acceptability for inserting three types of classifiers into various types of VN compounds. According to Construction Grammar, constructions are defined as form-meaning pairs. In this case, different kinds of classifiers, when they are inserted into distinct types of VN compounds, have dissimilar constructional meanings and pragmatic functions, causing different forms and meanings in “V-*ge*-N” and “V-CL-N” patterns.

## 1. Introduction

As Mandarin Chinese is considered to be a classifier language, there are various types of classifiers. Among all classifiers, “*ge*” is the most general and unmarked in that it can be substitute for any other classifiers without semantic restriction of its following nouns, as in (1). Moreover, “*ge*” is regarded to emphasize the quantity of events rather than its following nouns in VN compounds (Liu 1994). On the contrary, some specific classifiers<sup>1</sup> such as nominal classifiers “*wei4*” and “*zhi1*” in (2), are used to modify their following nouns and foreground the saliency of semantic features

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<sup>1</sup> There are other types of classifiers in Mandarin Chinese. Only nominal classifiers and verbal classifiers are discussed in this paper due to the classifiers in V-CL-N constructions.

of nouns in discourse (Li et al. 1981, Myers 2000) while verbal classifiers “*ci4*” and “*chang3*” in (3), are used to express the frequency of an action or an event (趙 1980, 呂 1980, 方 2003).

(1) *yi1 ge ren2* / *yi1 ge jia1*  
 one GE person / one GE home  
 ‘one person’ / ‘one home’

(2) *yi1 wei4 lao3shi1* / *yi1 zhi1 bi3*  
 one CL teacher / one CL pen  
 ‘one teacher’ / ‘one pen’

(3) *yi1 ci4 you2 xi4* / *yi1 chang3 dian4ying3*  
 one CL game / one CL movie  
 ‘one game’ / ‘one movie’

In this paper, the insertion of different types of classifiers into a variety of VN compounds is discussed and analyzed. The insertion of the general classifier “*ge*” into VN compounds is termed as “V-*ge*-N” construction while the insertion of other specific classifiers is called “V-CL-N” constructions. “V-*ge*-N” construction has been investigated in previous studies (Liu 1994, Biq 2002, 2004). Biq (2004) has claimed that “V-*ge*-N” construction is one variant of “V-*yi*-*ge*-N” constructions. Since “*yi*” in Mandarin Chinese reveals the minimal quantity and appears the most frequently in colloquialism, “V-*ge*-N” construction still retains the semantic feature of “*yi*”, indicating the quality of trivialness and casualness in action events (Biq 2004, Chen 2003, Liu 1994,). In addition, “*ge*” can be further inserted into lexicalized idioms or phrases such as *kai1-ge-daol* ‘open-GE-knife = operate’. However, Biq (2004) did not mention the restriction of ‘*ge*’-insertion; besides, she mentioned the similarity between “V-*ge*-N” and “V-CL-N” constructions without providing further explanations for the functional or distributional differences between the two formally similar constructions. In Biq (2004), both “V-*ge*-N” and “V-CL-N” constructions are considered to be a device for trivializing action events; “V-CL-N” can be replaced with “V-*ge*-N” while the reverse is not allowed.

Based on the framework of Construction Grammar (Fillmore et al. 1988, Goldberg 1995, 2003), in which constructions are defined as form-meaning pairs and viewed as three-dimensional interaction among syntax, semantics, and pragmatics,

this paper argues that “V-ge-N” and “V-CL-N” should be considered dissimilar patterns and further attempts to account for the semantic differences and somewhat distinct pragmatic functions in contexts of the two as a result of the different essence of various types of classifiers.

This paper is organized as follows: section 2 focuses on data analysis and identifies three types of classifiers as well as five types of VN compounds; section 3 then investigates inner dissimilarities in “V-ge-N” and “V-CL-N” constructions and different degrees of insertion for classifiers VN compounds. The contexts of “V-ge-N” and “V-CL-N” constructions and their distributional differences are discussed in section 4. The conclusion is given in section 5.

## **2. Data analysis**

The data containing “V-ge-N” and “V-CL-N” constructions were collected from NTU spoken corpus of Mandarin Chinese, online blogs by the Google Search Engine, and BBS. Since “V-ge-N” and “V-CL-N” constructions are extremely colloquial and prevailing only in recent days, few tokens can be found in spoken corpus; therefore, online searching engine was selected to collect more data. In on-line searching, only blogs and websites in Taiwan were adopted, avoiding different usage between Taiwan and Mainland China. Although blogs and personal diaries are originally written forms, their language usage and style are exceedingly closed to spontaneous speech. As for VN compounds, examples were partially selected from Li and Thompson (1981), Chen and Bates (1998), Her (1996) as well as Tang (1981).

### *2.1 Three types of classifiers*

Despite of various classifiers in Mandarin Chinese (Biq 2004, Li et al. 1981, Li 2000, Myers 2000, 趙 1980, 呂 1980, 方 2003), only three types of classifiers are identified and discussed in this study, which are nominal classifiers, verbal classifiers, and general classifiers as shown in Table 1.

**Table 1: Types of classifiers**

	Types of classifiers	Example
<b>Type 1</b>	Nominal classifiers	<i>wan3</i> ‘bowl’, <i>bei1</i> ‘cup’, <i>wan3</i> ‘bowl’, <i>ke1</i> ‘grain’, <i>tiao2</i> ‘long narrow strip’,
<b>Type 2</b>	Verbal classifiers	<i>ci4</i> ‘once’, <i>hui2</i> ‘once’, <i>bian4</i> ‘once’, <i>chang3</i> ‘stanza’, <i>dun4</i> ‘classifier for a meal’
<b>Type 3</b>	General classifiers	<i>ge</i>

As mentioned before, these three types of classifiers have distinct semantic and pragmatic functions. Nominal classifiers are used to modify nouns and foreground the semantic features of their following nouns. For example, the nominal classifier *tiao2* in *yi4 tiao2 sheng2zi* ‘a string’ shows that characteristics of the string, which is narrow and long. On the other hand, verbal classifiers reveal the frequency of events and actions. For instance, *ci4* in *wan2 yi1 ci4 you2xi4* ‘play the game once’ expresses how many times of the action, ‘playing games’. Unlike specific classifiers, general classifier, *ge*, has no semantic restrictions and can modify both nouns and action events.

## 2.2 Five types of VN compounds

There are various types of compounds in Mandarin Chinese, including VV compounds, NN compounds, and so forth. In this paper, only verbal VN compounds<sup>2</sup> were collected and investigated. According to Her (1996, 1997), four types of VO sequences have been categorized on the basis of syntactic rules. In this study, one more VO type is further identified. These five VN compounds are classified by syntactic and semantic features in this study.

The VN compounds in Type A are identified as regular phrases, in which O<sub>1</sub> can be viewed as the direct object and the prototypical patient of V whereas O<sub>2</sub> in Type B are still the direct object, but not the most typical patient of V; rather, they might be the interface between a patient and a theme. For instance, “*fan4*” in *chi1 fan4* ‘have a meal’ originally refers to “rice”; however, after high frequently used, it represents for the concept of “a meal”<sup>3</sup>, which is not a specific object, might not be the most typical

<sup>2</sup> In Chinese, VN compounds include nominal VN compounds, such as *shui4 yi1* ‘seep-clothes = pajamas’, and verbal VN compounds such as *tiao4 wu3* ‘jump-dance = dance’.

<sup>3</sup> If someone says *wo3 yao4qu4 chi1fan4* ‘I’m going to eat a meal’, he may eat noodles instead of rice.

patient of V. The other case is “*wu3*” in *tiao4wu3* ‘dance’, the verb “*tiao4*” ‘jump’ is originally an intransitive verb; therefore “*wu3*” could not be a typical patient and more like a theme. In general, the only difference between Type A and Type B is the semantic features of O.

However, O from Type C to Type E are all non-prototypical patients of V, which have metaphorical or metonymic meanings. VO<sub>3</sub> in Type C are used as idiomatic phrases, which are lexically encoded and have fixed expression. Although compounds in this type are more lexicalized, phrasal meanings still can be slightly revealed from their individual literal meanings of V and O. Moreover, since VO<sub>3</sub> are idiomatic phrases, syntactic rules can be assigned for them; therefore, additional elements, such as aspect markers or modifiers can be inserted into V and O<sub>3</sub> as in (4).

- (4) *ta1men yi3jing1 kai1 guo4 hui4 le*  
 they already open ASP<sup>4</sup> meeting particle  
 ‘They have already had a meeting.’

Similarly, VO<sub>5</sub> in Type E acquire metaphorical or metonymic readings as VO<sub>4</sub> in Type D, but the meaning is not revealed from separate lexicons such as V or O<sub>5</sub>; rather, it should be read from the entire VO<sub>5</sub> compounds. Furthermore, VO<sub>5</sub> in Type E are considered to be words rather than phrases, indicating that no syntactic rule is applied for them and no assertion is allowed between V and O<sub>5</sub> as in (5).

- (5) *ni3 bu2young4 dui4 ta1 \*guan1 zhe xin1*  
 you no need to he close ASP heart  
 ‘You don’t need to be concerned about him.’

Back to Type D, VO<sub>4</sub> have dual status, implying that compounds in this type function both as words and idiomatic phrases depending on contexts. Therefore, VO<sub>4</sub> combine both features in Type C as phrases and Type E as words, which is shown examples in (6) and (7).

- (6) *ta1 mei2 hui2lai2, wo3 bu4neng2 \*fang4 le xin1*  
 he not return I cannot put ASP hear  
 ‘I don’t feel relieved if he doesn’t return yet.’

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<sup>4</sup> ASP means aspect markers.

(7) *ta1 hui4 hui2lai2 de, ni2 ke3yi3 fang4 yi1bai3 ke1 xin1*  
 he can return particle, you can put one hundred CL heart  
 ‘You can feel relieved that he must return.’

These five types of VN compounds are identified by several criteria mentioned above, including semantic features and syntactic rules. Except objects in Type A, those in Type B to Type E are not the prototypical patients of verbs in VN compounds. Some VN compounds can be viewed as regular and idiomatic phrases while others are considered to be words, and still others have dual status of phrases and words, which may not be comprehended only by their literal meanings. The summary of these five types of VN compounds is presented in Table 2.

**Table 2: Types of VN compounds**

	<b>Form and Feature</b>	<b>Example</b>
<b>Type A</b>	VO <sub>1</sub> (typical patient) as regular phrases	<i>da3 zhang1lang2</i> ‘hit (kill) a cockroach’ <i>sha3 ji1</i> ‘kill a chicken’
<b>Type B</b>	VO <sub>2</sub> (patient / theme) as regular phrases	<i>chi1fan4</i> ‘have a meal’ <i>chang4ge1</i> ‘sing songs’
<b>Type C</b>	VO <sub>3</sub> (non-patient) as idiomatic phrases	<i>da3qiu2</i> ‘hit ball = play balls’ <i>kai1dao1</i> ‘open knife = operate’
<b>Type D</b>	VO <sub>4</sub> (non-patient) have dual status	<i>fang4xin1</i> ‘put heart = feel relieved’ <i>kai1xin1</i> ‘open heart = be happy’
<b>Type E</b>	VO <sub>5</sub> as words	<i>guan1xin1</i> ‘close heart = be concerned with’ <i>liu2yi4</i> ‘keep mind= pay attention to’

### 3. V-ge-N construction vs. V-CL-N construction

Since the essential quality in three types of classifiers is different from one another, the collecting data presents that there is indeed various degrees of acceptability and pragmatic functions for insertion of classifiers into five types of VN compounds. In this case, again, V-ge-N and V-CL-N should be viewed as different constructions. The different degrees of acceptability for inserting nominal classifiers, verbal classifiers and the general classifier “ge” into various types of VN compounds are discussed in the following sections.

### 3.1 V-CL (nominal)-N constructions

In the investigation of insertion for nominal classifiers into five types of VN compounds, the result shows that nominal classifiers only can be inserted into Type A and B as regular phrases, which is the least acceptable kinds of classifiers into VN compounds (See Table 3).

**Table 3: Acceptability of insertion in V-CL (nominal)-N**

	Form and Feature	Example
<b>Type A</b>	VO <sub>1</sub> as regular phrases	<i>da3-zhi1-zhang1lang2</i> ‘hit (kill) a cockroach’ <i>sha3-zhi1-ji1</i> ‘kill a chicken’
<b>Type B</b>	VO <sub>2</sub> as regular phrases	<i>chi1-wan3-fan4</i> ‘have a bowl of meal’ <i>chang4-shou3-ge1</i> ‘sing a song’
<b>Type C</b>	VO <sub>3</sub> as idiomatic phrases	* <i>da3-ke1-qiu2</i> ‘hit-a grain of-ball = play ball’ * <i>kai1-ba3-dao1</i> ‘open knife = operate’,
<b>Type D</b>	VO <sub>4</sub> have dual status	* <i>fang4-ke1-xin1</i> ‘put-a grain of-heart = feel relieved’ * <i>kai1-ke1-xin1</i> ‘open-a grain of-heart = be happy’
<b>Type E</b>	VO <sub>5</sub> as words	* <i>guan1-ke1-xin1</i> ‘close-a grain of-heart = be concerned with’

Since the original function of nominal classifiers is used to foreground the saliency of their following nouns, the pragmatic function of “V-CL (nominal)-N” is also to focus on the following nouns rather than action events. Since the objects in Type C, VO<sub>3</sub> compounds, are not much interpreted in its literal sense, which have the metonymic reading of the nouns, nominal classifiers are not always acceptable for insertion. As for Type E<sup>5</sup>, which is viewed as a word, can be regarded as metaphors. If nominal classifiers cannot be inserted into Type C and Type E, then there is certainly no acceptable insertion in Type D, which has dual functions as Type C and Type E. In sum, because the nouns in Type C, D, and E have lost their original literal meanings, the insertion of noun classifiers is not permitted.

### 3.2 V-CL (verbal)-N constructions

Dissimilar to nominal classifiers, verbal classifiers are used for counting the times or frequency of the event or action in question so that “V-CL (verbal)-N”

<sup>5</sup> In Type E, there is originally no nominal classifier to modify “*yi4*” in *liu2yi4* ‘keep mind= pay attention to’, so there is no discussion in this example here.

constructions have the pragmatic function of trivializing the frequency of the events. Thus, verbal classifiers are allowed to be inserted in Type A, Type B, Type C, and partially Type D, only not in Type E, which should be more acceptable into VN compounds (See Table 4).

It is worth mentioning that verbal classifiers can only be partially inserted into Type D. Since VO<sub>4</sub> compounds in Type D have dual status, the insertion is more acceptable into compounds, which might incline towards phrases. By comparison, compounds that might tend to be words are more difficult to have the insertion of verbal classifiers. The other reason might be related to the semantic meanings of VO<sub>4</sub> compounds. While the semantic meaning is related to seriousness, responsibility or worry, which delivers negative personal feelings, the insertion is hard to be acceptable<sup>6</sup> because it is hard and unwilling to trivialize the frequency of negative emotions or events.

**Table 4: Acceptability of insertion in V-CL (verbal)-N**

	Form and Feature	Example
<b>Type A</b>	VO <sub>1</sub> as regular phrases	<i>da3-ci4-zhang1lang2</i> ‘hit (kill)-once-a cockroach’ <i>sha3-ci4-ji1</i> ‘kill-once-a chicken’
<b>Type B</b>	VO <sub>2</sub> as regular phrases	<i>chi1-dun4-fan4</i> ‘have-a bowl of-meal’ <i>chang4-ci4-ge1</i> ‘sing-once-a song’
<b>Type C</b>	VO <sub>3</sub> as idiomatic phrases	<i>da3-chang3-qiu2</i> ‘hit-once-ball = play balls’ <i>kai1-ci4-dao1</i> ‘open-once-knife = operate’,
<b>Type D</b>	VO <sub>4</sub> have dual status	<i>kai1-ci4-xin1</i> ‘open-once-heart = be happy’ <i>*fang4-ci4-xin1</i> ‘put-once-heart = feel relieved’
<b>Type E</b>	VO <sub>5</sub> as words	<i>*guan1-ci4-xin1</i> ‘close-once-heart = be concerned with’ <i>*liu2-ci4-yi4</i> ‘keep-once-mind= pay attention to’

### 3.4 V-ge-N constructions

Although the general classifier “ge” has the similar function of nominal and verbal classifiers, it is the most acceptable, which can be inserted from Type A to Type D, but partially in Type E since VO<sub>5</sub> compounds are as (?) words and essentially hard to be inserted into any additional elements. In “V-ge-N” constructions, the original meaning of general classifier “ge” has been entrenched and thus could modify any kinds of nouns. “ge” is also used exclusively for modifying the whole event expressed

<sup>6</sup> For example, *dan1xin1* ‘carry-heart = worry’ and *fu4ze2* ‘bear-duty = be responsible’ of VO<sub>4</sub> compounds in Type D.

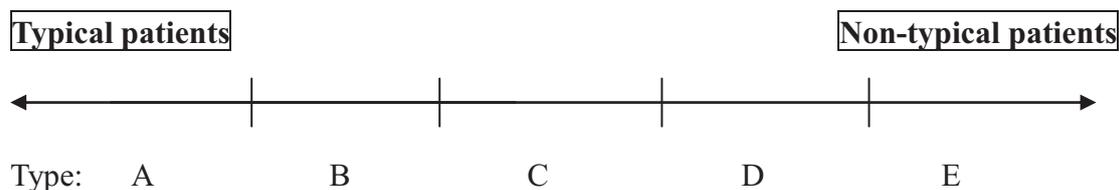
in VN compounds. When “*ge*” is inserted into more stative VN compounds in Type D and E, V-*ge*-N could be coerced to denote an event-like state, such as *kai-ge-xin* “doing something to have happy feelings”. Besides, the more frequently use of compounds in Type E is, the more likely the insertion of “*ge*” into it is allowed. In this case, the pragmatic function of “*ge*” insertion is to trivialize the whole event, representing the speakers’ casual attitudes toward these events and even decrease the extent of the speaker’s feelings, attitudes or emotions. The summary of the insertion of “*ge*” is shown in Table 5.

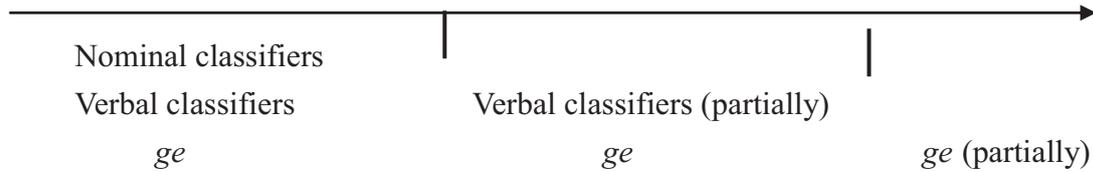
**Table 5: Acceptability of insertion in V-*ge*-N**

	Form and Feature	Example
<b>Type A</b>	VO <sub>1</sub> as regular phrases	<i>da3-ge-zhang1lang2</i> ‘hit (kill)-GE-a cockroach’ <i>sha3-ge-ji1</i> ‘kill-GE-a chicken’
<b>Type B</b>	VO <sub>2</sub> as regular phrases	<i>chi1-ge-fan4</i> ‘have-GE-meal’ <i>chang4-ge-ge1</i> ‘sing-GE-song’
<b>Type C</b>	VO <sub>3</sub> as idiomatic phrases	<i>da3-ge-qiu2</i> ‘hit-GE-ball = play balls’ <i>kai1-ge-dao1</i> ‘open-GE-knife = operate’,
<b>Type D</b>	VO <sub>4</sub> have dual status	<i>kai1-ge-xin1</i> ‘open-GE-heart = be happy’ <i>fang4-ge-xin1</i> ‘put-GE-heart = feel relieved’
<b>Type E</b>	VO <sub>5</sub> as words	<i>guan1-ge-xin1</i> ‘close-GE-heart = be concerned with’ <i>liu2-ge-yi4</i> ‘keep-GE-mind= pay attention to’ <i>shi1-ge-wang4</i> ‘lose-GE-hope = be disappointed’ <i>de2-ge-yi4</i> ‘gain-GE-will = be proud’

### 3.5 Summary

There is a continuum for three types of classifiers to insert into VN compounds as the following diagram and table. Nominal classifiers are more acceptable towards VN compounds, in which nouns tend to be typical patients while the general classifier *ge* has the most acceptability in the insertion. The acceptability of verbal classifiers is intermediary between nominal classifiers and the general classifier.





Type	Feature	Acceptability
Type A	Regular phrase	“ge” and both CL are acceptable in insertion.
Type B	Regular phrase	“ge” and both CL are acceptable in insertion.
Type C	Idiomatic phrase	“ge” and verbal CL are acceptable in insertion.
Type D	Dual status	Verbal CL is partially acceptable in insertion. “ge” and verbal CL is acceptable in insertion.
Type E	Words	Only “ge” is partially acceptable in insertion

The various degrees of acceptability of inserting distinct types of classifiers into different kinds of VN compounds could be accounted for by the semantic compatibility between the two constructions. If the noun components in the compounds have more literal interpretations, the integration of nominal classifiers tends to be allowed. On the contrary, once the nouns acquire metaphorical or metonymic readings, verbal classifiers and “ge” are more compatible with such VN compounds and thus their insertions are more acceptable. One observation worth noting is that the original meanings of CL are preserved when they are embedded into VN structures. In contrast, the general classifier “ge” originally serves to modify mostly nouns, similar to noun classifiers yet with less restriction. Moreover, “ge” gradually extends its functions, which is also used to modify the whole event and even the state of human’s feelings and emotions designated in given VN structures.

#### 4. Contexts of V-ge-N and V-CL-N

As the pragmatic function of V-ge-N and V-CL-N constructions is dissimilar, the contexts for these two constructions are different from each other. In V-ge-N construction, the topic of the contexts does not focus on the VN events or nouns only, which has a variety of topic which may not be the same as previous one as in (8).

(8) *xiang3 zhe guo4qu4 yi4 nian2 hen3 xing4yun4 de zai4*  
 want ASP past one year very lucky particle on

*bu4luo4ge2 shang ren4shi4 le yi4xie1 peng2you3, ke2neng2*  
blog on know particle some friend if possible

*dehua4, xi1wang4 zao3wan3 neng2 you3 ji1hui4 yi4qi3*  
hope early or late can have chance together

*chi1-ge-fan4*

have a meal

‘(I) think that I am lucky to know some friends on blogs in past one year. If possible, I hope we can have a meal sooner or later.’

On the contrary, in V-CL-N constructions, the topic of contexts is clearer and specific, which is always fixed on the nouns in the VN compounds as in (9).

(9) *zhe4shi4 er2zi zui4 xi3huan1 chi1 de fan4, ping2shi2*  
this is son most like eat modifier rice usually

*qing4 ta1 chi1-wan-fan4 du1 dei3 san1cui1si4qing3 de,*  
please he eat a-bowl-of rice all need wait particle

*dan4 mei3ci4 zhi3you4 shu3 she4ge fan4 ta1 dou1 ke3yi3*  
but every time only cook this rice he all can

*chi1 liang2wan3*  
eat two bowl

‘This is my son's favorite meal. Every time I need to wait for him to eat a bowl of meal, but as long as I cook this meal, he can eat two bowls of rice.’

The different contexts of V-ge-N and V-CL (nominal)-N constructions explain that their distinct pragmatic functions. V-ge-N construction is used to trivialize the nouns, events, status, or personal emotions while V-CL (nominal) -N constructions still maintain the original function of nominal classifier, which are used to modify the following nouns. In the contexts, the topic in V-CL (nominal) -N constructions puts emphasis on the noun rather than event whereas that in V-ge-N construction diversity to all kinds of topic.

## 5. Conclusion

In conclusion, according to Construction Grammar, constructions are defined as form-meaning pairs. In this case, different kinds of classifiers, when they are inserted into distinct types of VN compounds, have dissimilar constructional meanings and pragmatic functions of trivializing and focusing, causing different forms and meanings in “V-*ge*-N” and “V-CL-N” patterns. Moreover, the topic of the contexts is distinct in “V-*ge*-N” and “V-CL-N” constructions. Therefore, “V-*ge*-N” and “V-CL-N” constructions should be viewed as different constructions in Mandarin Chinese.

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# Korean Vowel Harmony and Grammatical Change

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## Abstract

The purpose of this paper is to investigate the phonological factors affecting the acceptability of disharmonic forms in Korean verbal conjugation. Intervening consonant, trigger vowel, and target position turned out to be significant factors by means of an experiment where subjects rated the well-formedness of harmonic and disharmonic forms. The results show that vowel harmony is more likely to be retained in places where it assists with lexical retrieval. This supports Kaun (1995)'s argument that VH should be viewed as a means of enhancing the perceptibility of the triggering element.

**Keywords:** Vowel harmony, Historical change, Perceptibility, Lexical access, Korean.

## 1. Introduction

What motivates vowel harmony (VH)? There have been two answers in literature. From the viewpoint of articulation, the occurrence of shared features and/or gestures increases articulatory economy (Lindblom 1983). Based on this assumption, Cole et al. (2002) show that front/back VH facilitates fast speech production, reducing the incidence of errors. On the other hand, Kaun (1995) argues that VH should be viewed as a means of enhancing the perceptibility of the triggering element. Focusing on round harmony, she shows harmony serves to extend the duration of phonetic information.

Sometimes diachronic changes of language reveal what synchronic grammar is like, in a more dynamic way. VH in Korean verbal conjugation is such a case. In Korean, some verbal suffixes have two allomorphs, *a*-initial for [-ATR] stems and *ʌ*-initial for [+ATR] stems. Modern Korean is losing the *a*-initial forms, which means the leveling of suffix forms is in progress. However, it is not the case that all [-ATR] stems are selecting the disharmonic forms at the same rate. In this paper, with the results of an experiment which was conducted to measure the acceptability of harmonic and disharmonic forms, I will show what factors affect the acceptability of the disharmonic

forms. I will then, argue that they are accounted for by perception, rather than by articulation in that VH is more likely to be retained in places where it assists with lexical retrieval. In addition, I will show that frequency, which is a well-known factor in historical change, does not show a significant correlation with the acceptability. In the following section, I will show what the historical change in Korean VH is and what factors can be relevant to the change. In section 3, the experiment will be described focusing on the design and the results. In section 4, I will discuss each significant factor before I suggest that VH enhances the perceptibility of the stems and facilitates lexical access.

## 2. Korean VH and the tendencies in historical change

### 2.1. Korean vowel inventory

The vowel inventory of Korean has changed over time. Older speakers, over 60, have up to 10 monophthongs, as in (1a), while younger speakers have seven, as in (1b). The two front round vowels in (1a) has been diphthongized in the younger generation's pronunciations (/y/ → /wi/ and /ø/ → /wɛ/), and front mid and low vowels have merged (/e/ and /æ/ → /ɛ/, Silva and Jin 2008). This change in the vowel system has resulted in a disproportion with regard to the [ATR] feature, with only 2 [-ATR] vowels.

#### (1) Korean vowel inventory

##### a. Older generation

	[+ATR]		[-ATR]	
[+hi], [-lo]	i / y	ɯ / u		
[-hi], [-lo]	e	ʌ	ø	o
[-hi], [+lo]			æ	a
	[-bk]	[+bk]	[-bk]	[+bk]

##### b. Younger generation

	[+ATR]		[-ATR]	
[+hi], [-lo]	i	ɯ / u		
[-hi], [-lo]	ɛ	ʌ		o
[-hi], [+lo]				a
	[-bk]	[+bk]	[-bk]	[+bk]

## 2.2. VH in verbal conjugation

There is no consensus with regard to the harmonic feature in Korean. Some researchers regard Korean VH as horizontal harmony (i.e., [+high] vs. [-high], Moon 1974, Huh 1985, among others). Others take it to be vertical or palatal harmony (i.e., [-back] vs. [+back], Lee 1968, Lee 1984, among others). Here I assume that [ATR] is the harmonic feature, following Cho (1994), Ahn (1998), Kim (2003), etc.

Some verbal suffixes<sup>1</sup> have a pair of allomorphs containing /a/ or /ʌ/, one of which is selected in accordance with the [ATR] feature of stems. As the examples in (2) show, [+ATR] stems always take the [+ATR] suffix form.

(2) Examples of VH in verbal conjugation : [+ATR] stems  
phonetic forms Gloss

- a. tɕu-ʌ/\*a to give-imperative
- b. mʌk-ʌ/\*a to eat-imperative
- c. pɛ-ʌ/\*a to cut-imperative
- d. tɕ'ik-ʌ/\*a to vote-imperative
- e. kuʌs-ʌ/\*a to draw-imperative

When a stem contains more than one vowel, the last vowel is the trigger vowel, as in (3).

(3) Trigger vowels in heterosyllabic stems : [+ATR] stems

- a. pot<sup>h</sup>ɛ-ʌ/\*a to add-connective
- b. tat<sup>h</sup>u-ʌ/\*a to fight-connective
- c. s'otatɕi-ʌ/\*a to pour-connective
- d. ans'urʌp-ʌ/\*a to be pitiful-connective

However, while most [-ATR] stems take only [-ATR] suffixes, some may also take [+ATR] suffix forms as in (4b):

(4) Examples of VH in verbal conjugation : [-ATR] stems

- a. top-a/\*ʌ to help-imperative
- b. tɕap-a/ʌ to catch-imperative

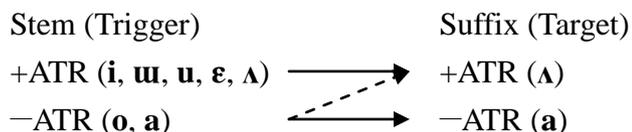
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<sup>1</sup> Suffixes which begin with /a/ or /ʌ/ belong to this type (e.g., -a/ʌ□ 'imperative, declarative, or connective', -a/ʌss 'past', -a/ʌto 'though', etc.).

Consonant- or other vowel- initial suffixes (e.g., -ko 'and', -umjan 'if') don't harmonize with stems.

Thus, while Korean verbal stems generally undergo [ATR] harmony, the [+ATR] suffix has begun to be used with both [+ATR] and [-ATR] stems. Suffixes are in the process of leveling to the [+ATR] form:

(5) The direction of diachronic change



However, this leveling is not across the board, as not all stems are equally likely to take the generalized [+ATR] suffix. The question, then, is what factors determine the likelihood that a given stem will take the generalized suffix. In the remainder of this paper, I will focus on the [-ATR] stems (/o/-stems and /a/-stems), which show variation with regard to VH. The horizontal combination of [-ATR] stems with [-ATR] suffixes in (5) will be called ‘harmonic form’ and the diagonal combination with [+ATR] suffix will be called ‘disharmonic form’, in the rest of this paper.

### 2.3. Factors to be investigated

In this research, I will investigate how 7 factors affect the speakers’ choice of suffix:

(6) Factors in the variation of VH and expectations

- |   |  |
|---|--|
| a. Intervening Consonant  | No intervening consonant, no variation                   |
| b. Trigger Vowel  | More variation in /a/-stems than in /o/-stems            |
| c. Stem Length  | More variation in long stems                             |
| d. Target Position  | More variation in sentence-final position                |
| e. Morphological Structure Similarity among morphologically-related stems |  |
| f. <i>P</i> -irregularity   | More variation in <i>p</i> -irregular stems <sup>2</sup> |
| g. Frequency  | More variation in low-frequency stems                    |

#### 2.3.1. Intervening consonant

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<sup>2</sup> These are irregular in that /p/ becomes [w] between vowels. E.g., /komap-a/Λ/ → [komaw-a/Λ]

The first factor is the absence of an intervening consonant, which has been reported to bring about categorical results (Kim 2000, Kang 2002). VH applies in vowel-final stems:

- (7) No intervening consonant<sup>3</sup>
- a. t<sup>h</sup>εΛna-a/\*Λ to be born-declarative
  - b. torapo-a/\*Λ to take care of-declarative

In contrast, the consonant-final stems in (8) with the same vowel can take both harmonic and disharmonic forms.

- (8) Intervening consonant
- a. pujaΛtɕap-a/Λ to take hold of-declarative
  - b. nalk<sup>h</sup>arop-a/Λ to be sharp-declarative

In most cases of VH, consonants are known not to play any role. As van der Hulst & van de Weijer (1995) point out, VH is rarely blocked by consonants with no secondary articulation, although Kim (2000) argues that consonants block VH.

### 2.3.2. Trigger vowel

The second factor is the quality of the trigger vowel. The two [-ATR] vowels in modern Korean, /a/ and /o/, behave differently when they appear in monosyllabic stems. As (9a) and (9b) show, the trigger vowel /a/ can take either suffix, while /o/ takes only the harmonic suffix (9a' and 9b')<sup>4</sup>.

- (9) Trigger vowels : /a/ vs. /o/
- a. tɕap-a/Λ to catch-declarative
  - a'. tɕop-a/\*Λ to be narrow-declarative
  - b. mal-a/Λ to roll-imperative
  - b'. mol-a/\*Λ to drive-imperative

The difference between /a/ and /o/ does not seem to be restricted to monosyllabic

<sup>3</sup> Hiatus is avoided through deletion or gliding.

<sup>4</sup> Kang (2002: 8) presents some exceptions to this generalization, where monosyllabic /o/-stems are combined with [+ATR] suffix forms. e.g., tor-a 'to return-connective'

stems. Hong (2008) reports the overall percentages of disharmonic forms as 10.27% for /a/-stems and 0% for /o/-stems (excluding *p*-irregular stems).

### 2.3.3. Stem length

The third factor affecting harmony is the length of the stem. Kim (2000) notes that there is a categorical difference between monosyllabic /o/-stems and the other /o/-stems: monosyllabic /o/-stems do not allow disharmonic suffixes:

(10) Monosyllabic /o/-stem (Kim 2000: 344)

- a. tot-a/\* $\Lambda$  to sprout-declarative
- b. top-a/\* $\Lambda$  to help-declarative

However, polysyllabic /o/-stems do allow disharmonic suffixes:

(11) Polysyllabic /o/-stem (Kim 2000: 346)

- a. s $\epsilon$ rop-a/ $\Lambda$  to be new-declarative
- b. w $\epsilon$ rop-a/ $\Lambda$  to be lonely-declarative

Hong (2008)'s data show that this categorical difference exists only in *p*-irregular stems. In my intuition, there seems to be another effect of stem-length, which is that longer stems are more likely to accept disharmonic suffix forms, while shorter stems are likely to refuse them.

(12) Stem-length ('A  $\gg$  B' means 'A is better than B')

- |    |                |       |                              |       |  |                   |
|----|----------------|-------|------------------------------|-------|--|-------------------|
| a. | mak- <b>a</b>  | $\gg$ | k' $\epsilon$ tat- <b>a</b>  | $\gg$ | kamt $\zeta$ 'okkat <sup>h</sup> - <b>a</b>  | harmonic forms    |
| b. | mak- $\Lambda$ | $\ll$ | k' $\epsilon$ tat- $\Lambda$ | $\ll$ | kamt $\zeta$ 'okkat <sup>h</sup> - $\Lambda$ | disharmonic forms |
|    | to block       |       | to realize                   |       | to be as good as                             |                   |

### 2.3.4. Target position

The fourth and last phonological factor is the sentential position of the target vowel. When the target vowel (*a* or  $\Lambda$ ) belongs to the final syllable of sentence, in my intuition, it is more likely to be disharmonic (generalized to / $\Lambda$ /). This is complicated to describe, because two sub-conditions must be met to satisfy this condition: 1) The suffix has only one syllable; 2) The suffix is sentence-final (does not have any following (auxiliary) verbs or other suffixes). These two conditions result in the target vowel

being the final syllable of sentence, as in (13)<sup>5</sup>. In this case, the disharmonic form sounds more natural than the other cases.

- (13) Sentence-final position  
 ... tɕap-a/ʌ ]<sub>S</sub>                    to catch-imperative

In (14a), though the suffix is a sentence-ending, the target vowel is not in the final syllable because the suffix has two syllables. In (14b) and (14c), the suffix is followed by other verbs. In these cases, the disharmonic forms sound much worse than in (13).

- (14) Non-sentence-final positions
- a. ... tɕap-a.ra/?ʌ.ra ]<sub>S</sub>                    to catch-imperative
  - b. ... tɕap-a/?ʌ kanta ]<sub>S</sub>                    to catch-connective progressive
  - c. ... tɕap-asʌ/?ʌsʌ kat'a ]<sub>S</sub>            to catch-connective and go

### 2.3.5. Frequency

The last factor is frequency, which is a well-known factor in historical change (Bybee 2001, Corbett et al. 2001, Phillips 2006, among others). Bybee (2001) argues that, by and large, morphosyntactic change tends to spread to low-frequency words first, while phonetically based change occurs first in high frequency words. If the leveling of suffix forms is due to speakers' intention to decrease the size of the lexicon by eliminating the alternation, as Kang (2002) argues, then we could expect that low-frequency words will be the first to accept the linguistic innovation or the generalized suffix forms, as in English irregular verbs (Bybee 2002: 34).

- (15) Summary of the phonological factors
- a. Factor I – Intervening C :            Without intervening consonants,  
the non-harmonic form is not allowed.
  - b. Factor II – Trigger vowel :            Monosyllabic stems with /o/ trigger vowel  
do not allow the non-harmonic form.  
/o/ triggers VH more often than /a/.
  - c. Factor III – Stem-length :            Longer stems are more likely to be  
non-harmonic than shorter stems.
  - d. Factor IV – Target-position :        When the target vowel is in the sentence-

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<sup>5</sup> There are only three suffixes which satisfy the two conditions. They share the same phonological form, -a/ʌ, but have different functions, declarative, imperative, and interrogative.

- e. Factor V – Frequency :                      final syllable, it is more likely to be non-harmonic.  
 Low frequency stems are more likely to be non-harmonic than high frequency ones.

## 2.4 Hypotheses

Based on the previous literature and my intuition, I hypothesized as follows:

### (16) Summary of hypotheses

- a. Hypothesis I :            /o/-stems are less likely to take non-harmonic suffixes than /a/-stems.
- b. Hypothesis II :        Longer stems are less likely to take non-harmonic suffixes than shorter stems.  
       Hypothesis II-1 :    Monosyllabic /o/-stems do not take non-harmonic suffixes.
- c. Hypothesis III :       Non-harmonic target vowel is more likely to be selected at sentence-final position than in other positions.
- d. Hypothesis IV :       Low frequency words are more likely to take non-harmonic suffixes than high frequency ones.

An experiment was conducted to test the hypotheses. The details of the experiment will be described in the following section.

## 3. Experiment

### 3.1. Design

For the stimuli, ‘real’ Korean words were selected for two reasons. First, nonce words have no frequency. Second, [-ATR] stems in Korean seem to constitute a ‘closed’ category, because only [+ATR]-triggering verbal suffixes (e.g., *-ha*<sup>6</sup> and *-twe-*) are used in the formation of new verbal stems. 44 stems were selected and 60 tokens were

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<sup>6</sup> Though the trigger vowel is /a/, it takes /-jA/-initial suffixes. This will be discussed later.

made. Only stems with stem-final consonant were selected because stems without stem-final consonants do not show the variation. 44 stems, half with /o/ and half with /a/, were used to produce 30 tokens of each stem vowel type. For each of /o/ and /a/ stems, 9 monosyllabic stems, 9 bisyllabic stems, and 4 trisyllabic stems were selected. Monosyllabic and bisyllabic stems, respectively, consisted of the same number (3) of low, mid, and high frequency stems and trisyllabic stems consisted of the same number (2) of low and mid frequency stems<sup>7</sup>. Lastly, *p*-irregular stems are more likely to be disharmonic, as mentioned in the previous section. Three bisyllabic and four trisyllabic *p*-irregular stems were included where there were no other regular stems which fit for other conditions like trigger vowel, stem length, and frequency. To test the target position effect, 16 stems out of 44 stems were selected since they can be used naturally irrespective of the position in a sentence. The 16 stimuli contained 2 tokens of each stem. In one of the two tokens, the target vowel is in the final syllable and in the other, it is not. The 16 stems are balanced in terms of other conditions like trigger vowel, stem-length, and frequency. Based on the frequency data presented by The National Institute of the Korean Language (NIKL, www.korean.go.kr), The 44 stems are classified as 16 low frequency stems (0 to 9 occurrences), 16 mid frequency stems (10 to 99 occurrences), and 12 high frequency stems (more than 100 occurrences). Each group is balanced in terms of other conditions, except that there is no high frequency trisyllabic stem. I call this ‘written frequency’, because the frequency data were made based on written corpus. Besides the question of whether frequency is relevant, we’ve got another question about frequency. That is, which frequency, if any, is relevant. In Bybee’s exemplar model, the memory unit is a word (real form), not analyzed stem or suffix (Bybee 2001: 187). From this, it is inferred that the frequency should be based on real forms (suffixed forms) rather than pure stems. Therefore, other frequencies were obtained as follows: based on the ‘spoken’ part of the Sejong Balanced Corpora<sup>8</sup>, ‘spoken-stem frequency’ was measured and there all the occurrences of the stems are included (21 lows, 14 mids, and 9 highs). Lastly, ‘spoken-word frequency’, where only *a/ʌ*-initial suffixed forms are considered (26 lows, 16 mids, and 2 highs), was obtained.

(17) The questionnaire – an example

- 감기가 이렇게 \_\_\_\_\_ . - Context
- kamki-ka irʌŋk<sup>h</sup>ε \_\_\_\_\_.
- Flu-Nom like\_this \_\_\_\_\_.

<sup>7</sup> Here, the frequency is based on the frequency data presented by The National Institute of Korean Language (written language corpus).

<sup>8</sup> They are compiled by the 21st Sejong Project and distributed by the National Institute of Korean Language in 2002.

읍어	읍아	- Target forms
olm-Λ	olm-a	
spread-declarative	spread-declarative	
(Non-harmonic)	(harmonic)	
○ ○ ○ ○ ○ ○ ○		- Choices
① ② ③ ④ ⑤ ⑥ ⑦		
		Preference Value
① Only the form on the left ( <b>non-harmonic</b> ) is possible.		(-3)
② Both are possible, but the lefthand form is highly preferred.		(-2)
③ Both are possible, but the lefthand form is slightly preferred.		(-1)
④ Both forms are equally good.		(0)
⑤ Both are possible, but the righthand form is slightly preferred.		(1)
⑥ Both are possible, but the righthand form is highly preferred.		(2)
⑦ Only the form on the right ( <b>harmonic</b> ) is possible.		(3)

After the 44 stems were selected, I googled each stem in order to find a natural sentence or context. With the sentences, a questionnaire was created. An example is presented in (17). Subjects were requested to read the context and then the target forms (harmonic and disharmonic). Based on the criteria in (17), they selected one of given seven choices. The choices were converted to numerical value equivalents (PV, preference value) given in the latter part in (17).

### 3.2. Participants

28 native speakers of Korean (11 males and 17 females), in their 20's and 30's took part in this experiment. Most of them were undergraduate or graduate students at Stony Brook University, who had been in the US for less than 5 years. 20 speakers were from Seoul or Gyeonggi Province, where standard Korean is spoken.

### 3.3. Procedure

Every subject was requested to fill out a form about demographic information like age, place of birth, duration of living in the US, and so on. They were trained with 5 questions, which were not used in the main questionnaire. They were then asked if they understood how to select one out of the seven choices. If the answer was yes, the main questionnaire was given. Their choices were converted to PV's, which were the

corresponding numbers ranging from -3 to 3 (see (17)). 1680 PV's (60 questions \* 28 subjects) were obtained. Then a series of two-tailed *t*-tests were performed for all the factors.

### 3.4. Results

#### 3.4.1. Trigger vowel

PV's were significantly higher in /o/-stems than in /a/-stems, which means that /a/-stems are more likely to take the generalized [+ATR] suffix forms. This confirms the hypothesis 1 in (16). The average values for the two trigger vowels were 2.18 and 1.78 ( $t(839) = 4.496, p < 0.001$ ).

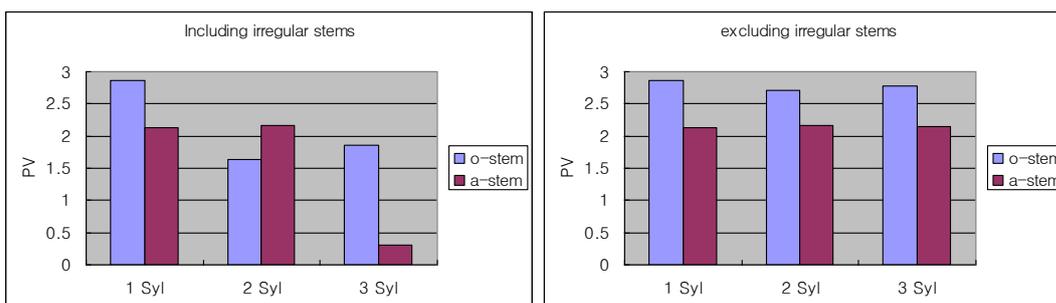
(18) Results : Significant difference ( $t(839) = 4.496, p < 0.001$ )

	Mean	N	Std. Deviation	Std. Error Mean
/o/	2.18	840	1.717	.059
/a/	1.78	840	1.763	.061

#### 3.4.2. Stem length

Unlike the prediction of hypothesis 2, there were no 'gradient' differences depending on the length of the stem. The PV's were in inverse proportion to the percentages of *p*-irregular stems. For example, monosyllabic and bisyllabic /a/-stems do not include any *p*-irregular stems, while trisyllabic /a/-stems have 50% of *p*-irregular stems. So I excluded *p*-irregular stems and got the averages, which are shown in the second chart. There were no significant differences among monosyllabic, bisyllabic, and trisyllabic stems (e.g., the averages for monosyllabic and bisyllabic stems were 2.43 and 2.40 ( $t(503) = 0.441, p = 0.660$ ). Therefore, hypothesis 2 in (16) is rejected.

(19) Results : No significant differences



Kim (2000) and Hong (2008) report that monosyllabic /o/-stems take [-ATR] suffix forms, while Kang (2002) finds some exceptions. The results of this experiments are consistent with Kang (2002)'s finding. The average is not 3, which means that at least some subjects think that some monosyllabic /o/-stems can also take [+ATR] suffix forms. Actually, 9 subjects gave a point lower than 3 to at least one of 9 one-syllable /o/-stems. To the subjects, one-syllable /o/-stems are no longer the last 'resistance' to the historical change of VH. However, before rejecting the hypothesis that there is no effect of stem length we should consider the fact that most long stems have two or more morphemes. Without eliminating this morphological effect, we cannot measure the stem length effect.

### 3.4.3. Target position

The target position, like the trigger vowel, produced significant differences. The results below indicate that the generalized [+ATR] vowel (-ɹ) is selected more often in sentence-final position than in the other positions. This confirms hypothesis 3 in (16).

(20) Result : Significant difference ( $t(447) = -7.599, p < 0.001$ )

	Mean	N	Std. Deviation	Std. Error Mean
Sentence-F	1.90	448	1.660	.078
Non-Sentence-F	2.35	448	1.379	.065

### 3.4.4. Frequency

The results indicate that frequency is not relevant, as shown in (21). The first table is the result of written frequency, the second is of spoken-stem frequency, and the third is of spoken-word frequency.

(21) Results : No significant differences

$t(447) = -1.160, p = 0.247$  (Low and Mid) &  $t(447) = 1.125, p = 0.261$  (Mid and High)

Group A	Mean	N	Std. Deviation	Std. Error Mean
Low F	2.16	448	1.528	.072
Mid F	2.27	448	1.440	.068
High F	2.17	448	1.508	.071

$t(279) = -1.012, p = 0.313$  (Low and Mid) &  $t(279) = 0.618, p = 0.537$  (Mid and High)

Group B	Mean	N	Std. Deviation	Std. Error Mean
Low F	1.95	280	1.731	.103
Mid F	2.03	280	1.702	.102
High F	1.94	280	1.666	.100

$t(391) = 1.737, p = 0.083$

Group C	Mean	N	Std. Deviation	Std. Error Mean
Low F	1.73	392	1.892	.096
Mid F	1.50	392	2.085	.105

Relatively low significance ( $p = 0.083$ ) in the results of spoken-word frequency implies that if frequency is relevant, the frequency would be based on the suffixed forms, not on the analyzed stem forms. In spite of this marginal relevance, the direction is the opposite to the prediction. To say, the mean for mid frequency words (1.50) is lower than that for low frequency words (1.73). So the hypothesis 4 in (16) is rejected.

The summary of the results is given in (22).

(22) Summary

A. Phonological factors

- i) Hypothesis I - Trigger Vowel √
- ii) Hypothesis II - Stem Length X
- Hypothesis II-1 - Monosyllabic /o/-stems X
- (But, valid for some participants.)
- iii) Hypothesis III - Target Position √

B. Non-phonological factors

- i) Hypothesis IV - Frequency X

In the following section, I will discuss how the results can be accounted for.

## 4. Discussion

### 4.1. Intervening consonant

Though the first phonological factor, intervening consonant, was not tested in the experiment, it is necessary to account for why this factor brings about a categorical difference. To repeat, with intervening consonant, both the harmonic and the disharmonic forms are possible (e.g., *tʰana-a/\*ʌ* ‘to leave’ vs. *metal-a/ʌ* ‘to hang’). At first glance, it seems that consonants block VH. But there are some reasons to doubt it. First, types or features of consonant do not seem relevant (Kang 2002: 16)<sup>9</sup>. Second, intervening consonants cannot block VH in case of (at least, some) monosyllabic /o/-stems. Therefore, we should ask not why consonants can block VH but why VH should always apply when there is no intervening consonant.

In many languages with VH, it is found that the influx of loanwords results in the weakening of VH (e.g., Mongolian, Svantesson 2005) and Korean is not an exception (Han 1996). This means that pure Korean words including verbal stems and suffixes exhibit a relatively strong tendency to maintain VH. Another difference between pure Korean and Sino-Korean words is that the former avoids VV sequences while the latter does not have any restriction on them. As a result, it is almost impossible to find disharmonic VV sequences (e.g., [aʌ] and [oʌ]) in pure Korean words. So I argue that there is no blocking effect of consonant in Korean VH, even though there seems to be. Instead other phonological constraints require VH on VV sequences.

#### 4.2. Trigger vowel

The results showed that /o/ triggers VH more often than /a/. In other words, /a/-stems are more likely to take the generalized [+ATR] suffix forms. According to the results, it seems that the leveling begins with /a/-stems first and then expands to /o/-stems.

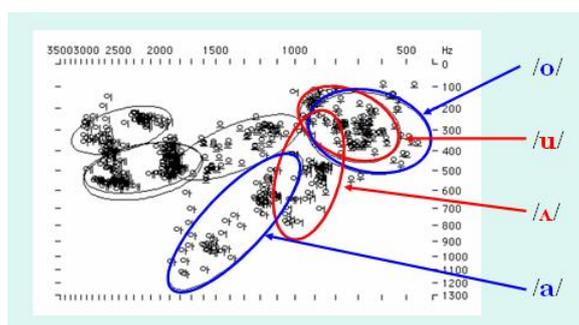
There might be two approaches to this problem. First, an articulation-based approach (Lindblom 1983) would argue that the harmony feature in mid vowels is realized in a more robust manner and, as a result, spreads more often than the harmony feature in other vowels. Alternatively, a perception-based approach (Kaun 1995) would argue that the harmonic feature in mid vowels is realized in a less robust manner and VH is required in order to enhance the perceptibility of the feature. I argue that the perception-based approach provides a better account for Korean VH. (23) shows the

<sup>9</sup> The proportions of disharmonic forms for each consonant type (Kang 2002: 16)

Type of C	lk	lm	th	kʰ	lh	n	p	m	nh	t	l	k	tʰ
Proportion	100	100	100	91.7	75	71	68.5	58.5	56.7	56.4	52.3	50	47

distributions of Korean monophthongs, based on F1 and F2 values. We can see that /o/ and /u/ share much of the formant space, which means that they could easily be confused. In contrast, /a/ and /ʌ/ seem sufficiently different from each other. This is why /o/-stems are more dependent on VH for their identification. This supports Kaun (1994: 86)'s argument that 'where a particular contrast is perceptually difficult, that difficulty has as its direct grammatical correlate a constraint of the "Bad vowel spreads" family.'

(23) The distributions of F1 and F2 of Korean monophthongs (Lee 1998)



#### 4.3. Stem length

The results confirmed that there is no 'gradient' effect of stem length. However, it is still true for many Korean speakers that monosyllabic /o/-stems do not allow the disharmonic forms, while polysyllabic stems do. So we need to account for why this is so (in other words, why the leveling of suffix forms spreads from long stems to short stems).

What makes monosyllabic stems exceptional? I argue that it is accounted for in the viewpoint of lexical access. Short stems have a comparatively small amount of phonological information and higher neighborhood density than long stems. This means that, sometimes, they cannot be identified easily by themselves. Here, harmonic suffixes could facilitate the lexical access of the stem. The examples in (24) show how they work.

(24) Minimal pairs

- |    |       |             |       |                |
|----|-------|-------------|-------|----------------|
| a. | tɕap- | 'to catch'  | tɕapa | 'Catch!'       |
| b. | tɕʌp- | 'to fold'   | tɕʌpa | 'Fold!'        |
| c. | koru- | 'to select' | kolla | 'Select!'      |
| d. | kuru- | 'to roll'   | kulla | 'Roll!'        |
| e. | po-   | 'to look'   | pwa   | 'Take a look!' |
| f. | pu?   | 'to pour'   | pwa   | 'Pour (it)!'   |

Without any suffix, the only difference in each pair is the stem vowel (/a/ and /ʌ/ in a and b, /o/ and /u/ in c and d). In suffixed forms, the distinction depends not only on the stem vowel, but also on suffix vowels, which makes them more different from each other. (24e) and (24f) exemplify an extreme case. In the suffixed form, it is not the stem vowel but the suffix vowel that signals the distinction between the two stems, because the stem vowels become glides before other vowels. More concrete evidence comes from neighborhood density. I sorted out stems with /a/ and /o/ as trigger vowels from the list of verbs and adjectives by NIKL and calculated the average numbers of neighbors whose difference is only the trigger vowels. For instance, the neighbors of *ka-* ‘to go’ are *ki-* ‘to crawl’, *ko-* ‘to boil’, *kɛ-* ‘to fold up’, and *kwɛ-* ‘to prop’. These numbers in (25) indicate that polysyllabic stems have, if any, few neighbors.

(25) Neighborhood density

a. Verbs

- i. One-syllable (89 stems) : 1.416
- ii. Two-syllable (165 stems) : 0.103
- iii. Three-syllable (490 stems) : 0

b. Adjectives

- i. One-syllable (26 stems) : 0.5
- ii. Two-syllable (73 stems) : 0
- iii. Three-syllable (132 stems) : 0

Trigger vowels in monosyllabic stems are word-initially positioned, while those in polysyllabic stems are not. If the word-initial position is ‘strong’ or ‘privileged’, the trigger vowel would be stronger in the first syllable than in the second or third syllable (Kim 2000). This may be an alternative to the ‘monosyllabic stem’ problem. However, this does not account for why monosyllabic /a/-stems are not different from polysyllabic /a/-stems.

#### 4.4. Target position

The results showed that the phonological feature of the suffix is also related to the acceptability of the disharmonic forms. The disharmonic target vowel, [ʌ], is more likely to appear when it is in the sentence-final position. Here, it is the perceptibility of the suffix, not of the stem, that should be enhanced, because the (sentence-final) position bears a significant information load in Korean, as shown in (26), where suffixes

signal the intent of the speaker, without changing other parts of the sentence<sup>10</sup>.

(26) The intentions expressed by the final syllable

tɕ <sup>h</sup> ʌlsu-ka	ʌtɕɛ	p <sup>h</sup> itɕa-rʉl	mʌk-ʌs'	-ta	declarative (neutral)
C.S.-Nom	yesterday	pizza-Acc	eat-Past	-ʌ	declarative (informal)
				-tɕi	declarative (confirmative)
				-ni	interrogative (informal)
				-nja	interrogative (insolent)

We have to relate the fact that the sentence-final position is informative to the tendency for the generalized suffix form to be selected more often at this position. I argue that it is required by positional faithfulness. In other words, an informative position requires that the element should be more faithful to the input form. So the input form /ʌ/, rather than harmonic form /a/, is preferred.

Now, another question rises: why should the input form be /ʌ/? The evidence comes from some cases when we have two or more harmony suffixes with one stem. In such cases, only the first suffix harmonizes with the trigger vowel of stem. The second suffix always has the [+ATR] form even if the trigger vowel of the stem and the harmonized target vowel of the first suffix are [-ATR] vowels. For instance, *po-as'*-ʌ/\*a 'to look-Past-Declarative' does not allow the second suffix -a, though the stem vowel and the first suffix vowel are all [-ATR] vowels. If we assume that a vowel other than /ʌ/ is the input form, we would not be able to explain this phenomenon.

We can think of another approach to this phenomenon. In Korean, the final syllable of the Accentual Phrase is lengthened (Jun 1993) and this lengthening is sometimes accompanied by raising of the vowel. But this happens only when the final vowel is [o]. Some examples are given in (27).

(27) Accentual Phrase final raising

- a. na-to → natu: 'me-too'
- b. iri-ro → illu: 'here-to'
- c. kʉriko → kʉriku: 'and'
- d. samtɕ<sup>h</sup>on → samtɕ<sup>h</sup>u:n 'uncle'

If final raising expands to the sentence-final suffix -a, it would be raised to -ʌ (*tɕapa* → *tɕapaʌ* 'Catch (it)!') However, this analysis has some problems. First, the

<sup>10</sup> Usually, they co-occur with different intonations.

domains are different. The domain of final raising is the accentual phrase, but the change from /a/ to /ʌ/ has as its domain a sentence. Second, the change from /a/ to /ʌ/ is applied only to the sentence-final suffix *-a/ʌ*. This change does not occur in other cases where a sentence ends with /a/ (*kata* → \**kataʌ* ‘to go’). In this respect, this is an allomorphic alternation, rather than a phonological process. However, the final raising is not restrictive to a specific morpheme, as in (27).

#### 4.5. Frequency

The experiment results showed that frequency does not predict the likelihood of VH violation. This is confirmed by the verb *ha-* ‘to do’. If high frequency forms are less susceptible to morpho-syntactic change (Bybee 2001: 34), the most frequent verb *ha-* is expected to be the most conservative with regard to VH, which means it should combine with harmonic suffix forms. But *ha-* behaves in opposition to the prediction: the verb is the first [-ATR] verb to lose VH. The harmonic form (e.g., *haya*) is found in literature published in the early 20th century, but in modern Korean, it is always used with the [+ATR] suffix forms (e.g. *hayʌ*) even though it has the [-ATR] trigger vowel [a].

To understand the behavior of this verb, we can appeal once again to perceptibility. As Hong (1997) notes, *ha-* does not seem to have any contribution to semantics, because the meaning of the verb comes from the noun which is an object of the main verb *ha-* (28b) or a noun to which the verbal suffix *-ha* attaches (28a). The meaning of (28b) is not different from that of (28a), though its syntactic structure is a little bit different. This means that the main verb *ha-* does not have any specific lexical meaning. It just fulfills a syntactic requirement. As a result, there is no need to enhance the perceptibility of the verb or verbal suffix *-ha*<sup>11</sup>.

(28) Two usages of *-ha*

a. Verbal suffix

Yengse-nun Cinhyey-lul	sarangha-yss-ta	‘Yengse loved Cinhyey.’
Yengse-Top Cinhyey-Acc	love(v)-Past-Dec	

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<sup>11</sup> There is another approach to this phenomenon. San Duanmu (p.c.) pointed out that it is likely that the verb *-ha* is articulatorily weakened because it is not meaningful and it is used very frequently. Phonetically driven changes like vowel reduction take place more in high frequency words (Bybee 2001: 34). As a matter of fact, this verb is sometimes realized as [h□ □] a fully weakened form. A weakened vowel is less likely to spread its feature to adjacent vowels, but this approach leaves the problem of how to reconcile the fact that other high frequency verbal stems still require VH. In addition, we have to account for how this gradient weakening gives rise to a categorical change (non-harmonizing).

b. Main verb

Yengse-nun Cinhyey-lul	sarang-ul	<b>ha</b> -yss-ta
Yengse-Top Cinhyey-Acc	love(n)-Acc	do-Past-Dec

## 5. Summary and implications

We have seen that phonological factors like intervening consonant, trigger vowel, and target position play an important role in determining the spreading of the generalized form. Without an intervening consonant, the disharmonic forms are impossible (e.g., \**tɕa-a* ‘to sleep’ vs. *tɕap-a* ‘to catch’). I propose that this is due to a phonotactic constraint which prohibits disharmonic vowel sequences from occurring in pure Korean words, rather than to ‘consonant blocking’. The results of the experiment showed that /o/, one of the two [-ATR] vowels in Modern Korean, triggers the VH of suffixes more often than /a/, the other [-ATR] vowel. This is accounted for by the weak ‘perceptibility’ of /o/. Because /o/ has a weak contrastiveness with /u/, its [+ATR] pair, it needs the harmonic suffix form to enhance the perceptibility. Finally, the generalized suffix form is selected more often when the target vowel is at the sentence-final position than when it is not. I argue that sentence-final position, since it is an informative position in Korean discourse, requires more faithful output to its input. Opposed to the predictions of the exemplar model (Bybee 2001), frequency does not appear to play a role. This is consistent with Kiparsky (1995: 659)’s conclusion, “..., the language’s internal structure can channel its own evolution, giving rise to long-term tendencies of sound change”.

The results and analyses shed light on the motivation for VH. The trigger vowel factor shows that VH facilitates lexical access of the stems in Korean verbal conjugation. It is even more obvious when the two factors (trigger vowel and stem length) are combined: monosyllabic /o/-stems, which are the last stems to accept the disharmonic forms, because they are the most difficult to identify by themselves. In this respect, the Korean data support Kaun (1995)’s argument that VH should be viewed as a means of enhancing the perceptibility of the triggering element.

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# Korean Palatalization as Coarticulation: Stroboscopic cine-MRI and acoustic data on gradual tongue movements

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## Abstract

The present study addresses the question of whether Korean palatalization is a categorical process or a coarticulatory effect. For this purpose, we conducted a stroboscopic cine-magnetic resonance imaging (MRI) experiment from two native speakers of the Seoul dialect and examined whether tongue raising and fronting is the same as in the vowel /i/ in two types of Korean palatalization: a) when consonants occur before /i/ within a morpheme and b) when the consonants /t, t<sup>h</sup>/ occur before /i/ across a morpheme boundary. The MRI results that the tongue gradually rises and advances throughout the target consonants are further confirmed by our acoustic data taken from ten Seoulites. Based on this, we propose that Korean palatalization is a phonetic coarticulatory effect.

**Keywords:** Korean palatalization, coarticulation, stroboscopic cine-MRI data, acoustic data, gradual tongue movements.

## 1. Introduction

Korean palatalization has been assumed to be phonological with two processes in the framework of lexical phonology (e.g., Ahn 1985; Sohn 1987; Y.-M. Cho 2005). In one process called postlexical palatalization, any consonants are assumed to automatically change into postalveolar before the vowel /i/ within a morpheme, as shown in (1a). The other process is the lexically derived palatalization whereby the alveolar plosive consonants /t, t<sup>h</sup>/ change into their postalvolar affricate counterparts across a morpheme boundary, that is, before derivational or inflectional suffixes beginning with the vowel /i/, as in (1b).

### (1) Korean palatalization

#### a. postlexical palatalization

/mati/ → [ma.d<sup>i</sup>] ‘knot’

/si/	→	[sʲi]	‘poem’
/katʃi/	→	[ka.dʒi]	‘egg plant’
/kʻini/	→	[kʻi.nʲi]	‘meal’
/pʻalli/	→	[pʻal.lʲi]	‘fast’

b. lexical palatalization

/mat+i/	→	[ma.dʒi]	‘first child’ (‘child’+Nominalizer)
/kat <sup>h</sup> +i/	→	[ka.tʃ <sup>h</sup> i]	‘together’(‘to be like’+Adverbializer)
/put <sup>h</sup> +i+ta/	→	[pu.tʃ <sup>h</sup> i.da]	‘to be attached’(‘to attach’+Causative)
/tat+hi+ta/	→	[ta.tʃ <sup>h</sup> i.da]	‘to be closed’(‘to close’+Passive)

In the account of the two types of palatalization, the tongue has been proposed to move front and rise high toward the hard palate as much as in the vowel /i/ and the change of the tongue position has been given a formal account as a feature-changing (Kiparsky 1993), a feature-filling (Iverson 1993), or a featural assimilation (Y.-M. Cho 2005) process, depending on whether a target consonant is specified for [+anterior, -high] or not when the process applies. For example, according to Kiparsky (1993), Korean postlexical palatalization “applies in feature-changing fashion” with the features [+anterior] and/or [-high] changing into [-anterior] and/or [+high]. In the postlexical palatalization of the fricative /s/, the features [+anterior, -high] of the original fricative change into [-anterior, +high], and in the case of the lenis affricate /tʃ/ which is assumed to be underlyingly specified for [-anterior, -high], only the feature [-high] changes into [+high] by virtue of postlexical palatalization. The phonological account of Korean palatalization accords with the phonetic view of palatalization in Ladefoged and Maddieson (1996:363) among others, according to whom palatalization is “the superimposition of a raising of the front of the tongue toward a position similar to that for /i/.” From this, we would expect palatalization to involve both tongue raising and fronting, as in the vowel /i/, in the phonetics.

In the present study, we raise the question of whether Korean palatalization is a phonological process such that the tongue rising and fronting of palatalized consonants is as much as those of the vowel /i/ within a morpheme and across a morpheme boundary. This question is motivated by recent studies showing that Korean affricates are not postalveolar, but alveolar just like the coronal plosives /t, t<sup>h</sup>, tʻ/ in support of Skaličková (1960) (Kim 2001b, 2004) and that the change of /t, t<sup>h</sup>/ into alveolar affricates before the vowel /i/ across a morpheme boundary in (1b) is the phonological process of assibilation (Kim 2001a). The

present study is also motivated by the fact that there have been no empirical studies on tongue movements in the two types of palatalization in the literature.

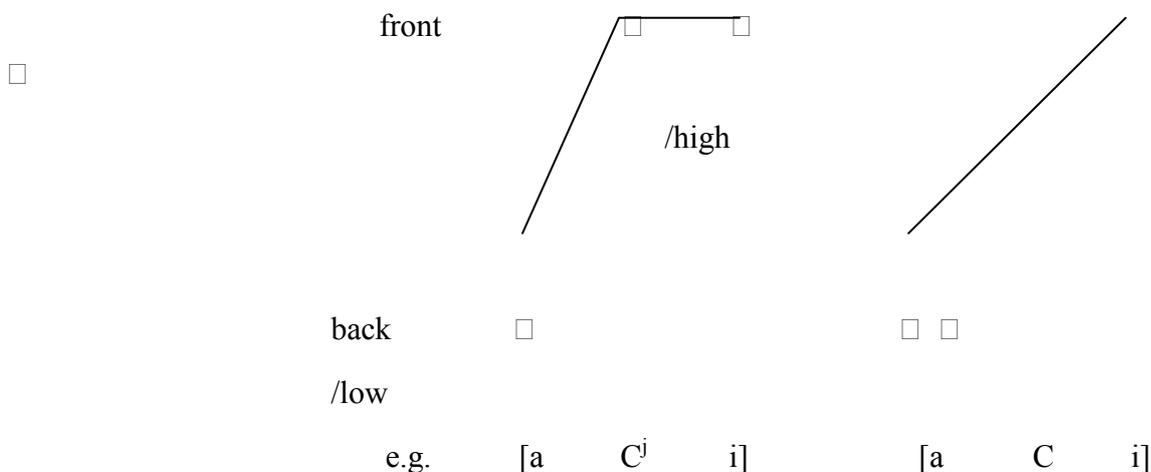
If a consonant in the context /a\_\_i/ is categorically palatalized across or within a morpheme in the phonology, it is specified for the feature [-back] for tongue fronting and for the feature [+high] for tongue raising in a standard feature theory (Chomsky and Halle 1968). Then in the target-interpolation model (e.g., Keating 1988a) as a model for the phonology-phonetics interface, a phonologically palatalized consonant is specified for the secondary vocalic features, as in the second segment in (2a i), when leaving the phonology, and phonetic targets are assigned as in (2a ii), along some scale for [-back] and for [+high]. These targets are then hooked up through interpolation, showing a fairly rapid transition between the neighboring back/low and front/high targets, that is, between the vowel /a/ and the following palatalized consonant. And the targets between the palatalized consonant and the following vowel /i/ form a plateau for the vocalic features [-back]/[+high], as in (2a iii).

On the other hand, if a consonant is not phonologically palatalized, it is unspecified for [-back] and also for [+high], as in (2b i), and only the first and last segments, which are already specified for the features [back] and [high] in phonology, receive phonetic targets, as shown in (2b ii). Hence, the intervocalic segment receives a transitional amount of the scale for the features from the phonetic context, showing gradual interpolation between the targets, as in (2b iii). As a result, the phonologically underspecified segment in (2b) has a continuously changing, transitional, quality from beginning to end that depends on context on either side. And the unspecified consonant is expected to be transparent to vowel-to-vowel transition in the sense of Öhman (1966).

(2)

	a.		b.				
i. Phonological Output:	+B	-B	-B	+B	ØB	-B	
	/-H	/+H	/+H	/-H	/ØH	/+H	
ii. Phonetic Targets:	front	□	□			□	
			/high				
	back	□		□			
			/low				

iii. Phonetic Interpolation:



(B: [back], H:

[high])

In order to investigate whether the two types of Korean palatalization is phonological or phonetic in the sense of Öhman (1966) and Keating (1988a, b), we conducted a stroboscopic cine-MRI and an acoustic experiment, and examined tongue movements. The issue of whether a consonant preceding the vowel /i/ is phonologically palatalized or not would be empirically answered by the examination of neighboring vowels' F<sub>1</sub> and F<sub>2</sub> values in our acoustic data as well as of tongue raising and fronting from a target consonant to the following vowel /i/ in our stroboscopic-cine MRI data.

This paper is structured as follows. In the next two sections 2 and 3, stroboscopic cine-MRI and acoustic data on tongue movements in Korean palatalization are presented, respectively. In section 4, drawing on the experimental data, we discuss the nature of Korean palatalization as coarticulation. Section 5 is a brief conclusion.

## 2. Stroboscopic cine-MRI data

The MRI experiment was performed on a Shimadzu Marconi Eclipse Power Drive 250 (=1.5[T]) at Advanced Telecommunications Research Institute, Kyoto, Japan. Two middle-aged native speakers (one male and one female) speaking the Seoul dialect participated in the experiment. Each MRI image for midsagittal data of the two subjects' head and neck has a 256 mm x 256 mm field of view with a 10 mm slice thickness, mapped on to 256(x) x 256(y) pixels. Each trigger pulse signals the MRI controller to begin the field echo scans (TR=16.5 ms, TE=3 ms, NEX=1) repeated 52 times every 16.7 ms (60 frames/sec) for one of the 128 gradient magnetic field conditions which is maintained for each 1000 ms period and changed at each trigger pulse. During data acquisition, the subjects repeated 128 times

the seven test words in (3) and thus 128 MR scans for each of 52 sequential midsagittal frames were collected. The repetitions needed to be perfectly synchronized with MRI scanning in order to retain high quality motion imaging. To facilitate the synchronization, trigger generator software on a PC was used to output two types of signals: trigger pulses to initiate MRI scans and tone bursts for the subjects (see Masaki, et al., 1999). The obtained images were displayed on a computer screen with 8-bit gray-scale resolution for analysis.

- (3) a. /mat+i/ ‘first child’  
 b. /mati/ ‘knot’ /matsi/ (nonsense word)  
 /mat<sup>h</sup>i/ (nonsense word) /mats<sup>h</sup>i/ (nonsense word)  
 /mat<sup>ʔ</sup>i/ (nonsense word) /mats<sup>ʔ</sup>i/ (nonsense word)

As shown in Figure 1, we measured the distance between the highest part of the hard palate and the tongue body for tongue raising (a), and the distance between the tongue root and the pharyngeal wall for tongue fronting (b), as a function of time.

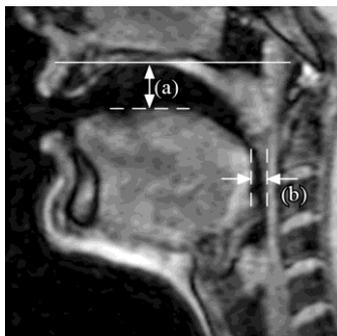
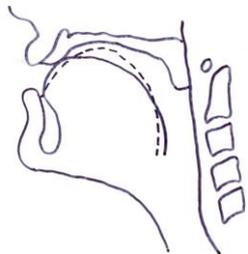


Figure 1. Measurements for tongue raising (a) and for tongue fronting (b).

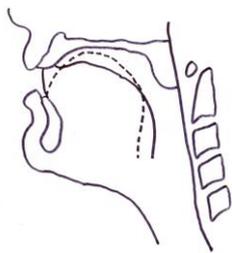
Figure 2 presents overlays of traced tongue contours of the lexically-derived affricate in /mat+i/ and the consonants /t, t<sup>h</sup>, t<sup>ʔ</sup>, ts, ts<sup>h</sup>, ts<sup>ʔ</sup>/ in /ma\_i/ at closure onset (marked with a solid line) and at the vowel /i/ (marked with a dotted line) from the female (i) and male (ii) subjects. In the examined contexts, we can note that, at the beginning of a target consonant, the tongue does not rise as high as in the following vowel /i/ and it does not move as front as in the vowel, either. For example, at the closure onset of the lexically-derived affricate in /mat+i/ (Figure 2a), the tongue has no configurations appropriate to the following vowel /i/, as in /mati/ and /matsi/ (Figure 2b, c), in the two subjects. This is also true of the other test words. Thus, regardless of a morpheme boundary, the tongue position at the

closure onset of the target consonants is not the same as in the following vowel /i/.

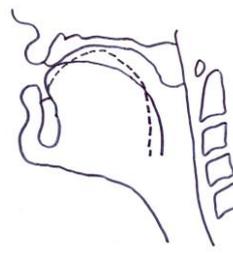
i. a. /mat+i/



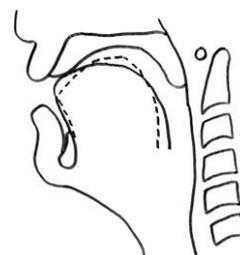
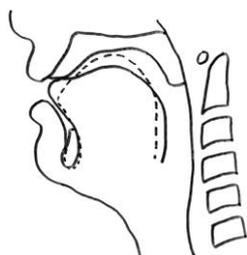
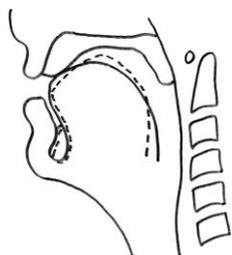
b. /mati/



c. /matsi/

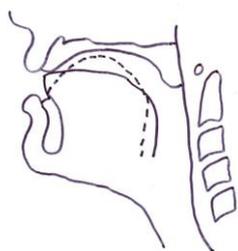


ii.

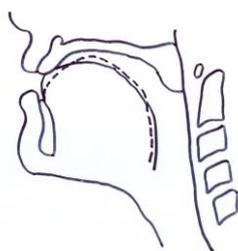


d. /mat<sup>h</sup>i/  
/mats<sup>ʔ</sup>i/

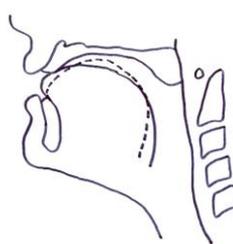
i.



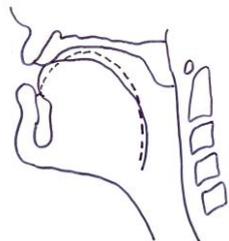
e. /mats<sup>h</sup>i/



f. /mat<sup>ʔ</sup>i/ g.



ii.



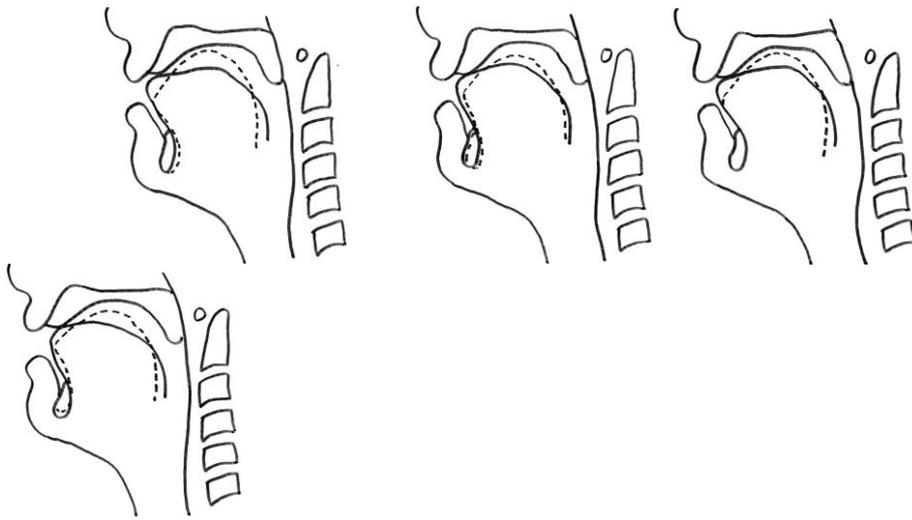
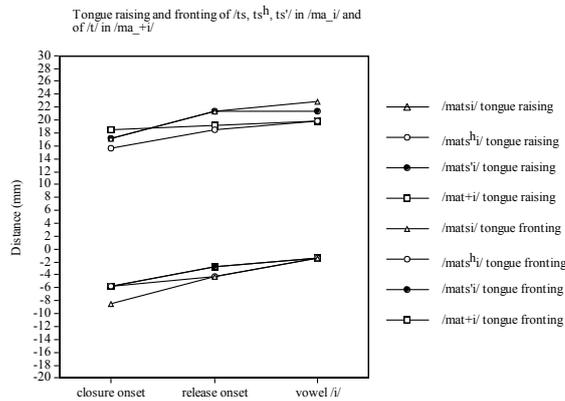


Figure 2. Overlays of traced tongue contours of the consonants: /t/ before a morpheme boundary (a) and /t, ts, t<sup>h</sup>, ts<sup>h</sup>, t', ts'/ within a morpheme (b-g) from female (i) and male (ii) subjects.

In order to more clearly see how the tongue rises and advances in the test words, we measured the distance for tongue raising, and for tongue fronting, as in Figure 1, from a closure of the consonants through a release onset to the vowel /i/ as a function of time. The result is in Figure 3.

a.



b.



pronounce \_\_\_' and the sentences were read four times at normal speed by ten speakers (five males and five females) including the two subjects in the above articulatory experiment, all of whom commanded the Seoul dialect. The test words were tape-recorded and the total 360 tokens (9 test words x 10 subjects x 4 repetitions) were then analyzed. In order to investigate whether or not the lexically-derived lenis affricate and the underlying consonants /t, ts/ before the vowel /i/ have tongue raising and fronting as much as the high front vowel, we investigated F<sub>1</sub> and F<sub>2</sub> frequency values of vowels adjacent to the target consonants. In order to measure F<sub>1</sub> and F<sub>2</sub> values, we put a cursor at the four points — (a) at the midpoint of the vocalic period in the first vowel, (b) at the end of the first vowel, (c) at the onset of the second vowel, (d) at the midpoint of the vocalic period for the second vowel — in wide-band spectrograms of the test words, as shown in Figure 4.

**4 kHz**

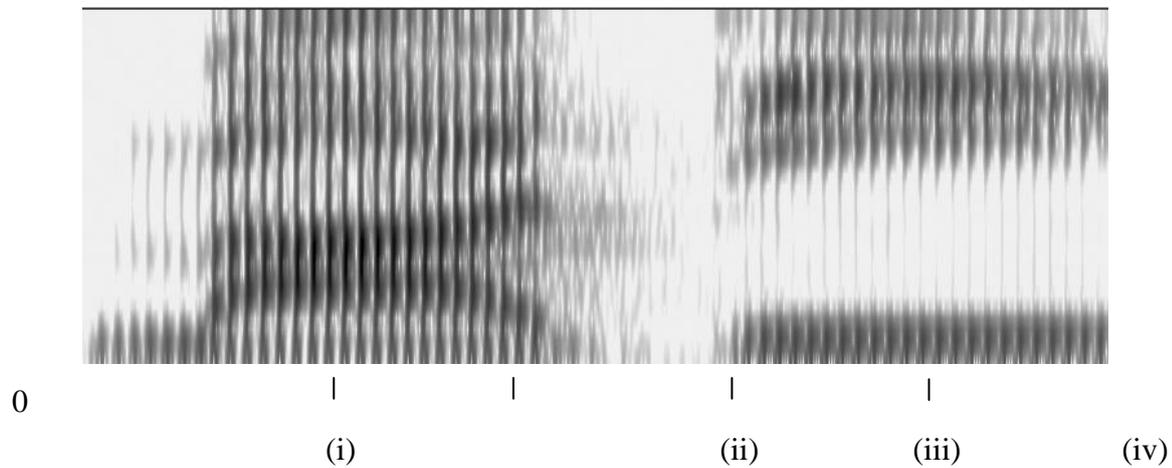
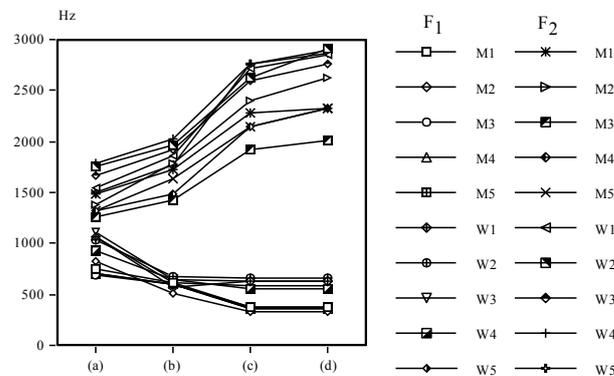


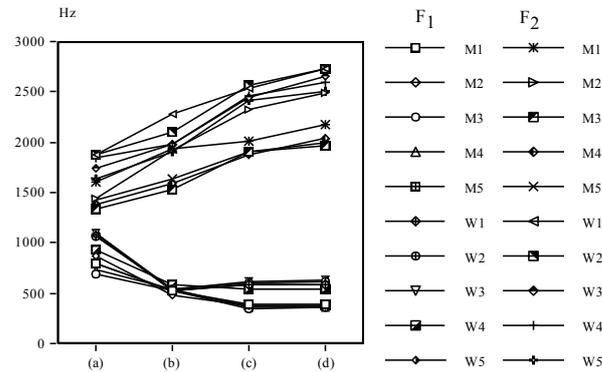
Figure 4. Cursor placements for an F<sub>1</sub> and F<sub>2</sub> transition analysis in /mati/ ‘knot’

Figure 5 shows the average of the F<sub>1</sub> and F<sub>2</sub> values at the four measured points in the four tokens of the test words /mati/ (a), /matsi/ (b) and /mat+i/ (c) spoken by ten subjects.

a.



b.



c.

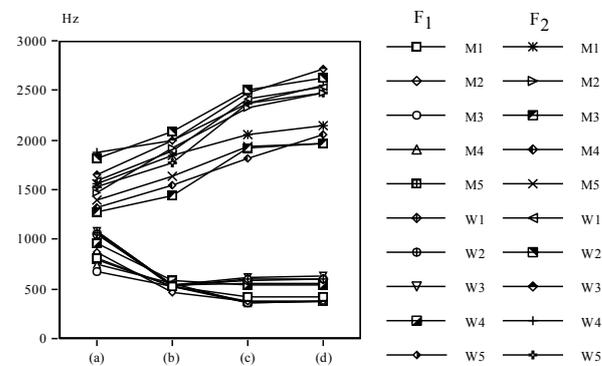


Figure 5. The transition of the average first and second formants at the four examined points in /mati/ (a), /matsi/ (b) and /mat+i/ (c).

We can note that the second formant goes up gradually from the first vowel /a/, throughout the intervening consonants, to the following vowel /i/ across the ten speakers. On the other hand, the first formant begins to fall down gradually in the first vowel and throughout the intervening consonants. This corresponds to the gradual tongue fronting and raising before and during the target consonants in the above articulatory data (Figures 2 and 3). In particular, when we compared the average of F<sub>1</sub> and F<sub>2</sub> value differences between in the middle and at the end of /a/ preceding the underlying affricate and the lexically-derived affricate in /matsi/ and /mat+i/, respectively, in Figure 5 (b, c), a paired samples two-tailed *t*-test revealed that it is not significant, across the ten subjects ( $t(9) < 1$  for F<sub>1</sub>;  $t(9) < 1$  for F<sub>2</sub>).

In addition, we examined whether a vowel preceding or following a target consonant would show transconsonantal vowel-to-vowel transition in the sense of Öhman (1966). The comparison of F<sub>1</sub> and F<sub>2</sub> value difference in the first vowel of the control condition /a\_a/ and the target condition /a\_(+)i/ reveals that the vowel /a/ in the latter is affected by the following vowel /i/ across the underlying plosive, affricate or the lexically-derived affricate. A paired samples two-tailed *t*-test showed that the average of F<sub>1</sub> and F<sub>2</sub> value differences between in the middle and at the end of /a/ preceding a target consonant is

significant, across the ten subjects, in the comparison of /mat+i/ and /matsa/ ( $t(9) = -10.6, p < .0001$  for  $F_1$ ;  $t(9) = 4.1, p < .05$  for  $F_2$ ), /matsi/ and /matsa/ ( $t(9) = -9, p < .0001$  for  $F_1$ ;  $t(9) = -5.9, p < .0005$  for  $F_2$ ), and also /mati/ and /mata/ ( $t(9) = -5.5, p < .0005$  for  $F_1$ ;  $t(9) = 5.6, p < .0005$  for  $F_2$ ).

A similar transition of the first and second formants is also observed in the vowel /a/ following the vowel /i/ across the underlying plosive and affricate in the test words /mita/ (a) and /mitsa/ (b), as shown in Figure 6. The second formant goes down from the vowel /i/, throughout the intervening consonants, to the following vowel /a/ across the ten speakers. As for the first formant, we can note that it rises gradually throughout the intervening consonants and goes up high toward the steady part of the vowel /a/.

a.

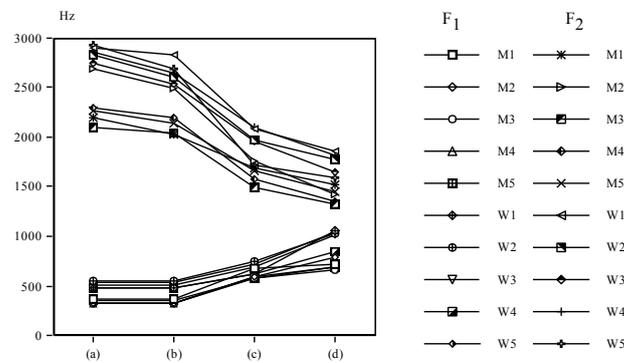
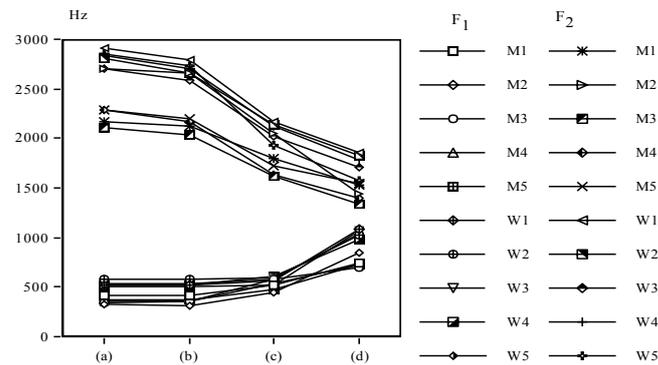


Figure 6. The transition of the first and second formants at the four examined points in /mita/ (a) and /mitsa/ (b)

b.



(Figure 6 continued)

The examination of the  $F_1$  and  $F_2$  values at the onset and in the steady part of the second vowel /a/ in /mitsa, matsa/ and /mita, mata/ reveals significant difference. A paired samples two-tailed  $t$ -test showed that  $F_1$  and  $F_2$  values at the points are statistically significant:  $t(9) = -5, p < .001$  for  $F_1$  and  $t(9) = -6, p < .0005$  for  $F_2$  in /mitsa/ and /matsa/;  $t(9) = -5.6, p < .0005$  for  $F_1$  and  $t(9) = -5.5, p < .0005$  for  $F_2$  in /mita/ and /mata/. The significant difference in  $F_1$  and  $F_2$  values both in /matsa/ vs. /mitsa/ and in /mata/ vs. /mita/ indicates that the second vowel /a/ is affected in tongue raising and fronting when preceded by the vowel /i/, no matter whether the intervening consonant is the plosive /t/ or the affricate /ts/.

In sum, we have examined neighboring vowels'  $F_1$  and  $F_2$  value differences between the steady part and the end of the vowel /a/ preceding the lexically-derived affricate in /mat+i/ and the tautomorphic consonants /t, ts/ in /ma\_(+)i, ma\_a/ and between the onset and the steady part of the vowel /a/ following the consonants /t, ts/ in /ma\_a, mi\_a/. The acoustic data have shown that the intervening consonants are transparent to vowel-to-vowel transition in /ma\_(+)i/ (vs. /ma\_a/) and /mi\_a/ (vs. /ma\_a/), regardless of the underlying lenis plosive, affricate or the lexically-derived lenis affricate. In the next section, we discuss the status of Korean palatalization, based on the above articulatory and acoustic data.

#### 4. Discussion

Given gradual tongue raising and fronting and transconsonantal vowel-to-vowel transition in the experimental data, we propose that Korean palatalization is a phonetic side-effect when the tongue moves toward the following vowel /i/, regardless of a morpheme boundary.

If a consonant is phonologically palatalized, a plateau throughout a consonant before the vowel /i/ in (2a iii) can be articulatorily correlated with the extension of the tongue-body movement for the vowel /i/ throughout the consonant. For example, according to Öhman (1966), in V<sub>1</sub>CV<sub>2</sub> (vowel-consonant-vowel) sequences, each vowel does not influence the transition into or out of the vowel on the other side of intervening palatalized consonants in Russian. This was attributed to the fact that Russian has a palatalized vs. nonpalatalized contrast for consonants in its sound system and Öhman (1966) suggested that because the position of the tongue body is used to distinguish these two sets of consonants, Russian speakers do not let the tongue body be manipulated by V<sub>2</sub> before the intervening palatalized consonant has had its chance to control tongue body position. The blocking of transition into or out of the vowel across the palatalized consonants in Russian can further be interpreted in the target-interpolation model (e.g., Keating 1988a, b) as a consequence of the phonological specification of the consonants for the secondary vocalic features [-back] and [+high], as in the intervening segment in (2a i).

However, this is not the case of Korean palatalization, as already shown in Figures 2, 3, 5, 6 and Tables 1 and 2. Gradual tongue raising and fronting before and during the intervening consonants in Figures 2, 3, 5 and the tables provide empirical evidence that the consonants are anticipatorily coarticulated with the tongue configurations of the following vowel /i/, regardless of a morpheme boundary. The anticipatory coarticulation is expected because the consonants are not phonologically contrastive in the tongue configurations such as tongue fronting and raising, thus being transparent to V-to-V transition. As shown in (5), Korean does not have a palatalized vs. nonpalatalized contrast for consonants. Rather Korean obstruents are phonologically contrastive in terms of the primary articulator (*labial, coronal, dorsal*), the manner of articulation (*continuant, strident*) and the laryngeal characterization (*lenis, aspirated* and *fortis*). For example, Korean coronal consonants are all alveolar and they are contrastive in the phonology by virtue of the manner of articulation and the laryngeal characterization.

(5) Korean obstruents

		<i>labial</i>	<i>coronal</i>	<i>dorsal</i>	
<i>noncontinuant</i>	┌ ├ └	<i>lenis</i>	p	t	k
<i>nonstrident</i>		<i>aspirated</i>	p <sup>h</sup>	t <sup>h</sup>	k <sup>h</sup>
		<i>fortis</i>	p'	t'	k'
<i>noncontinuant</i>	┌	<i>lenis</i>	ts		

<i>strident</i>		<i>aspirated</i>	ts <sup>h</sup>
	—	<i>fortis</i>	ts'
<i>continuant</i>	┌	<i>lenis</i>	s
<i>strident</i>	—	<i>fortis</i>	s'

Since the Korean coronal consonants are not phonologically specified for the feature [+high] for tongue raising and [-back] for tongue fronting, like labial and dorsal ones, we may assume that this is why gradual tongue movements before and during the consonants do occur, as shown in Figures 2, 3 and 5. And transconsonantal vowel-to-vowel transition is also expected, as shown in the above acoustic data.

Given the present proposal of Korean palatalization, the sound change of the plosives /t, t<sup>h</sup>/ into their affricate counterparts across a morpheme boundary in (1b) is a phonological assibilation, following Kim (2001a). That is, only the manner of articulation of the underlying coronal plosives changes into their counterpart affricates across a morpheme boundary with their place of articulation remaining the same as alveolar. According to Kim (2001b, 2004), the plosives /t, t<sup>h</sup>/ and their affricate counterparts are alveolar ([coronal]) with the specification for [-continuant] as stop consonants, and differentiated by the feature values [+/-strident]: the plosives are specified for [-strident] and the affricates /ts, ts<sup>h</sup>/ for [+strident]. In the feature representation of the consonants, then, the sound change in (1b) can be considered as resulting from the insertion of [+strident] in the phonological representation of the plosives /t/ and /t<sup>h</sup>/ in line with Kim (2001a).

## 5. Conclusion

In order to investigate whether the two types of Korean palatalization are a feature-changing phonological process, we have examined stroboscopic cine-MRI data on the coronal consonants /t, t<sup>h</sup>, t', ts, ts<sup>h</sup>, ts'/ in the context /ma\_i/ and /t/ in /ma\_+i/ and acoustic (i.e. F<sub>1</sub> and F<sub>2</sub> transitions in wide-band spectrograms) data on the coronal plosive /t/ and the lexically-derived and underlying affricates /ts/ in /ma\_a, ma\_(+)i, mi\_a, mi\_i/. From the MRI data, we have found that the tongue gradually rises and moves front throughout the consonants up to the following vowel /i/. The gradual tongue fronting and raising were confirmed in the acoustic data on F<sub>1</sub> and F<sub>2</sub> values, and transconsonantal vowel-to-vowel transition in the sense of Öhman (1966) was also observed.

Based on the present phonetic results, we propose that Korean palatalization is a phonetic coarticulatory effect of the following vowel /i/, regardless of a morpheme boundary, in Öhman's (1966) transconsonantal vowel-to-vowel transition model and Keating's (1988a) target-interpolation model. That is, a consonant before the vowel /i/ is phonologically unspecified for tongue raising ([+high]) and fronting ([-back]) which acoustically correlate with F<sub>1</sub> and F<sub>2</sub>, respectively, and remain unspecified for the features

throughout phonetic implementation, as in (2b). Due to the transparent consonant, gradual tongue movements and transconsonantal vowel-to-vowel transition take place, as shown in the present study. It is concluded that Korean palatalization is a phonetic coarticulation, not a phonological process with the division of lexical and postlexical palatalization.

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# Paradox of Negative and Honorific Morphology in Korean

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## Abstract

The two roots with short-form negation and honorification suggest different morphological structures: [[Neg V] Hon] for *al-* ‘know’, *molu-* ‘not.know’, *a-si-* ‘know-HON’, *molu-si-* (\**an(i)-a-si-*) ‘NEG-know-HON’; [Neg [V Hon]] for *iss-* ‘exist’, *eps-* ‘not.exist’, *kyey-si-* ‘exist-HON’, *an(i)-kyey-si-* (\**eps-(u)-si-*) ‘NEG-exist-HON’. Predicate repetition constructions support the [[Neg V] Hon] structure. In this structure, however, the negation suppletion is blocked by the structurally farther honorific suffix. Since government is the only requirement of context allomorphy in Distributed Morphology and the [+hon] feature governs the root, the root can show honorific suppletive allomorphy in the first cycle across negation. Negation fusion occurs in the second cycle after vocabulary insertion of the root. Fusion must refer to vocabulary items, not abstract features, and is interleaved with vocabulary insertion. Therefore, the two distinct morphological operations for suppletion, i.e., fusion and contextual allomorphy, are necessary. The proposed analysis supports separation and late insertion as advanced in Distributed Morphology.

**Keywords:** negation, honorifics, suppletion, contextual allomorphy, fusion, blocking, vocabulary insertion, Distributed Morphology, Korean

## 1. Introduction

Two predicates in Korean show a suppletive negative form instead of the usual short-form negation construction, and three predicates show a suppletive honorific root form in the environment of the subject honorific suffix. This paper concerns a root morpheme meaning ‘exist’ (with exponents *iss-*, *eps-* and *kyey-*) that shows both negative suppletion and honorific suppletion, and deals with their interactions. Specifically, negation is considered to be closer to the root than honorification is, but the structurally inner negative suppletion is blocked by the outer honorific suffix. The paper provides an analysis of this paradoxical situation with different formal mechanisms for the two cases

of suppletion, identifying the proper morphological structure of conjugated predicates in Korean.

The theoretical framework adopted here is Distributed Morphology (Bobaljik 2000, Calabrese 2008, Embick and Noyer 2001, Halle and Marantz 1993, Harley and Noyer 1999, Marantz 1997, 2001, among others). Distributed Morphology assumes that syntax lacks phonological features and manipulates abstract nonphonological features only. This mechanism of separation allows syntax to be uniform between short-form negation and suppletive negation. The difference emerges in PF, that is, after (overt) syntax, where phonological information is provided through vocabulary insertion. Vocabulary insertion can interact with morphological operations.

Section 2 recapitulates the analysis of the suppletive short-form negation in Chung (2007a,b). The suppletion phenomenon is analyzed as fusion of the two morpho-syntactic nodes without phonological features (i.e., prior to vocabulary insertion). Section 3 introduces honorific suppletion and identifies the paradoxical situation arising from the interaction between negative suppletion and honorific suppletion. Then, section 4 provides an integrated solution recognizing different formal apparatuses for the two different cases of suppletion, supporting separation and late insertion. It identifies the morphological structure of fully inflected predicates in Korean. Section 5 concludes the paper.

## **2. A Distributed Morphology Analysis of Suppletive Negation**

This section briefly summarizes the Distributed Morphology analysis of suppletive short-form negation in Korean, found in Chung (2007a,b).

### *2.1. Short-form negation as syntactic negation*

Short-form negation in Korean places the negator *an(i)* before the predicate as in *an(i) ca-ss-ta* ‘not sleep-PAST-DECL’, *an(i) mak-nun-ta* ‘not block-PRES-DECL’ and *an(i) cak-ass-ta* ‘not small-PAST-DECL’. Without the responsible negator, the remaining verbal expression is affirmative. I argue, following H.-D. Ahn (1991), Han, Lidz and Musolino (2007) and J.-Y. Yoon (1990) among others, in favor of a syntactic view on short-form negation: the negator *an(i)* is the head of the functional category NegP.

Short-form negator *an(i)* is allowed before a negative prefix such as *pu(l)-*, *pi-* and *mi-*, as in *an(i) pul-kanungha-* ‘impossible’, *an(i) pi-kwahakcek-i-* ‘unscientific’ and

*an(i) mi-wanseng-i/toy-* ‘incomplete’, but not before another instance of *an(i)*: \**an(i) an(i) kanungha-*, \**an(i) an(i) kwahakcek-i-* and \**an(i) an(i) wanseng-i/toy-*. The ungrammaticality of stacking the negator before a predicate is well-contrasted to the restriction on the occurrence of the negative prefixes. The latter restriction is that a predicate can have only one of these prefixes, hence making forms such as \**pul-pul-A*, \**pi-pi-A*, \**pi-pul-A*, \**pul-mi-A*, \**mi-pi-A* ungrammatical. The similarity and the contrast between the negator and the prefixes show that they are different kinds. If *an(i)* were a prefix, its occurrence would not be explained without a special stipulation on it. On the other hand, if *an(i)* is not such a prefix, there will be no problem in having this negative element in addition to a negative prefix. This shows that *an(i)* is not a negative prefix.

One characteristic of syntactic negation (as opposed to negative prefixes) is scope interaction with respect to quantifiers. The negator *an(i)* shows a clear scope ambiguity effect with a quantifier as in the following examples. (See Chung 2007a for an extensive discussion in favor of the ‘hard-to-get’ Neg >  $\forall$  reading.)

- (1) a. *motun haksayng-i an(i) ka-ss-ta.*  
 all student-NOM NEG go-PAST-DECL  
 $\forall$  > Neg: ‘No student went.’  
 Neg >  $\forall$ : ‘It is not the case that all students went.’
- b. *wuli-ka motun chinkwu-lul an(i) manna-ss-ta.*  
 we-NOM all friend-ACC NEG meet-PAST-DECL  
 $\forall$  > Neg: ‘We met no friend.’  
 Neg >  $\forall$ : ‘It is not the case that we met all friends.’

On the other hand, the above scope ambiguity does not arise with a predicate with a negative prefix, as shown below.

- (2) a. *motun haksayng-i i an-ey pulchansengha-y-ess-ta.*  
 all student-NOM this plan-DAT disapprove-EG-PAST-DECL  
 $\forall$  > *pul-*: ‘All students disapproved this plan.’  
 \**pul-* >  $\forall$
- b. *wuli-ka motun an-ey pulchansengha-y-ess-ta.*  
 we-NOM all plan-DAT disapprove-EG-PAST-DECL  
 $\forall$  > *pul-*: ‘We disapproved all plans.’  
 \**pul-* >  $\forall$

The contrast between *an(i)* and the negative prefixes is a clear indication that *an(i)* is not a negative prefix, but syntactic negation.

Another piece of evidence in favor of the syntactic view of short-form negation

comes from licensing of negative polarity items. One typical and representative environment licensing a negative polarity item is a negative clause, which contains a syntactic (and semantic) negation element. In the following examples, negator *an(i)* serves as such a licenser.

- (3) a. *amu-to an(i) sengsilha-ta.*  
 any-NPI NEG sincere-DECL  
 ‘Nobody is sincere.’  
 b. *na-nun amu-to an(i) manna-ss-ta.*  
 I-TOP any-NPI NEG meet-PAST-DECL  
 ‘I didn’t meet anybody.’  
 c. *amu-to na-lul an(i) manna-ss-ta.*  
 any-NPI I-ACC NEG meet-PAST-DECL  
 ‘Nobody met me.’

The crucial point is that a sentence without *an(i)* or with a negative prefix cannot license a negative polarity item:

- (4) a. *\*amu-to (pul-)sengsilha-ta.*  
 any-NPI (in)sincere-DECL  
 (\*‘Anybody is (in)sincere.’)  
 b. *\*con-un amu pep-(ey)-to (pul-)pokconggha-y-ess-ta.*  
 John-TOP any law-DAT-NPI (dis)obey-EG-PAST-DECL  
 (\*‘John (dis)obeyed any law.’)  
 c. *\*amu-to i pep-ey (pul-)pokconggha-y-ess-ta.*  
 any-NPI this law-DAT (dis)obey-EG-PAST-DECL  
 (\*‘Anybody (dis)obeyed this law.’)

If *an(i)* were a prefix like *pul-*, it should not be able to license a negative polarity item. (See Chung 2007a for more supporting arguments.) This contrast between *an(i)* and negative prefixes is another indication that *an(i)* is a syntactic negator which licenses a negative polarity item.

## 2.2. Suppletive negation: *molu-* for ‘not.know’ and *eps-* for ‘not.exist’

This section looks into the two suppletive negative predicates. The affirmative roots are *al-* ‘know’ and *iss-* ‘exist’, and their negative counterparts are *molu-* ‘not.know’ and *eps-* ‘not.exit’, respectively. These suppletive forms behave like short-form syntactic negation with respect to the distribution of the negator, negative polarity item licensing and scope ambiguity.

The suppletive negative roots *molu-* and *eps-* pattern as if a syntactic negator were present in that *an(i)* cannot be placed before them: \**an(i) molu-* and \**an(i) eps-*. This suggests that these negative roots are a result of syntactic negation, usually done by *an(i)*.

Negative polarity items support the syntactic negation analysis of *molu-* and *eps-*. They license a negative polarity item without the negator *an(i)*.

- (5) a. na-nun *amu* tap-*to* **moll**-ass-ta.  
 I-TOP any answer-NPI not.know-PAST-DECL  
 ‘I didn’t know any answer.’  
 b. *amu-to* tap-ul **moll**-ass-ta.  
 any-NPI answer-ACC not.know-PAST-DECL  
 ‘Nobody knew the answer.’  
 (6) *amu-to* **eps**-ta.  
 any-NPI not.exist-DECL  
 ‘There is nobody.’

A quantifier in a sentence with *molu-* and *eps-* supports these roots’ status of syntactic negation. Consider the scope ambiguity between a quantifier and these suppletive negative predicates.

- (7) a. *motun* haksayng-i ku wuhwa-lul **molu**-n-ta.  
 all student-NOM the fable-ACC not.know-PRES-DECL  
 $\forall > \text{Neg}$ : ‘No student knows the fable.’  
 $\text{Neg} > \forall$ : ‘Not all students know the fable.’  
 b. ku haksayng-i *motun* wuhwa-lul **molu**-n-ta.  
 the student-NOM all fable-ACC not.know-PRES-DECL  
 $\forall > \text{Neg}$ : ‘The student knows no fable.’  
 $\text{Neg} > \forall$ : ‘The student doesn’t know all the fables.’  
 (8) *motun* haksayng-i **eps**-ta.  
 all student-NOM not.exist-DECL  
 $\forall > \text{Neg}$ : ‘There are no students.’  
 $\text{Neg} > \forall$ : ‘Not all students are present.’

This scope ambiguity is unique to syntactic negation and supports the syntactic negative status of the predicates *molu-* and *eps-*.<sup>1</sup>

Negation of *iss-*, however, does not always result in *eps-*. In other cases, the usual negation *an(i) iss-* is found as in (9)c.

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<sup>1</sup>See Chung (2007a) for the parallelism between the usual short-form negation and the suppletive negation regarding the ‘hard-to-get’ reading.

- (9) a. Eysute-ka yeki-ey iss-ess-ta.  
 Esther-NOM here-LOC exist/stay-PAST-DECL  
 ‘Esther was here.’
- b. Eysute-ka yeki-ey **eps**-ess-ta.  
 Esther-NOM here-LOC not.exist-PAST-DECL  
 ‘Esther was not here.’
- c. Eysute-ka yeki-ey **an(i)** iss-ess-ta.  
 Esther-NOM here-LOC NEG be-PAST-DECL  
 ‘Esther was not/did not stay here.’

There is a semantic difference between two (negated) predicates. While *eps-* means nonexistence ‘do not exist’ or simple absence like ‘be not present, be lacking’, *an(i) iss-* involves intention and means ‘intentionally do not stay’. Also, the cases with *an(i) iss-* need an animate subject, which is an agent. In (9), both *eps-* and *an(i) iss-* are possible, because *iss-* is ambiguous between ‘exist, be present’ and ‘stay intentionally’ (See Chung 2007a and In press for more arguments).

### 2.3. A postsyntactic fusion analysis of suppletive negation

The uniformities between the regular syntactic short-form negation construction and the suppletive negative predicates suggest that there is only one uniform short-form negation construction in syntax (overt and covert) and that the difference arises in PF. This means that *molu-* and *eps-* show exactly the same configurations and properties in syntax and semantics as other predicates.

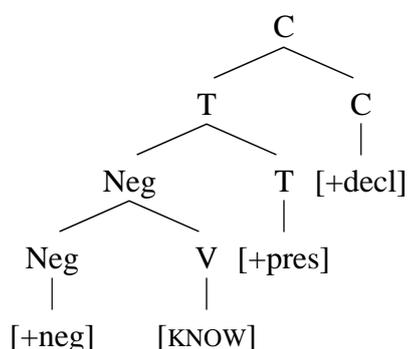
Sells (2001) writes that Korean has three different kinds of clausal negation: long-form negation, short-form negation and suppletive negation (i.e., “lexically negative verbs” in his term). However, this classification misses the fact that the affirmative predicates of those suppletive negative predicates do not have the expected short-form negation construction and that the long-form negation constructions do not have such suppletive cases.

This section presents a postsyntactic morphological fusion analysis in the Distributed Morphology framework.<sup>2</sup> The following structure is obtained for the verbal complex *molu-n-ta* ‘do not know’ at Spell-Out as a result of head movement in syntax or PF. (The ‘exist’ predicate *eps-ess-ta* has the parallel structure.)

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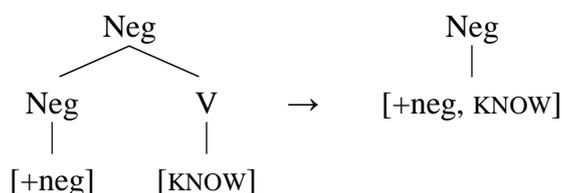
<sup>2</sup>See Chung (2007a) for arguments against a lexicalist approach to suppletive negative predicates including Kim (1999). See also Embick (2007), Embick and Marantz (2008), Embick and Noyer (2001) and Marantz (2001) for criticisms on the lexicalist treatments on blocking of a phrasal form by a lexical form.

(10) Structure for *molu-n-ta* at the end of overt syntax



The *v* head is not present here because ‘know’ is a state verb and does not require an agent argument. For the optionality of the *v*(P), see Bošković (1997), Chomsky (1995), Hale and Keyser (1993) (cf. Harley and Noyer 2000, Marantz 2001). This morphosyntactic structure lacks phonological features and undergoes fusion in PF. Fusion takes the two sister nodes, [KNOW] and [+neg], and turns them into a single terminal node. The resulting node contains all the original syntactico-semantic features, [+neg, KNOW], as shown below:

(11) Fusion of [+neg] and [KNOW] in PF



Subsequently, vocabulary insertion takes place with the following vocabulary items.

(12) a. [+neg, KNOW] ↔ /molu/

b. [KNOW] ↔ /al/

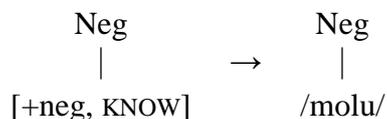
(13) a. [+neg, EXIST] ↔ /eps/

b. [EXIST] ↔ /iss/

(14) [+neg] ↔ /an(i)/

Because of underspecification, any of the vocabulary items in (12) could be inserted in the fused node in (11) (leading to competition). However, in such a situation, the vocabulary item that is most highly specified with the compatible features in the terminal node is chosen. Therefore, (12)a is chosen and the fused terminal node is provided with /molu/, resulting in:

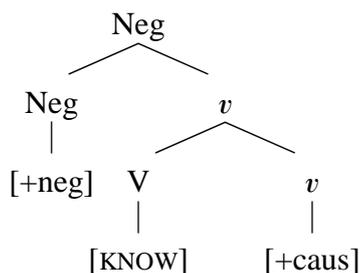
(15) Vocabulary insertion of /molu/ (into the fused node)



In a negative clause with other verbs showing the regular short-form negation, fusion does not occur, and the original V and Neg nodes proceed to vocabulary insertion separately. Hence fusion needs to refer to the syntactico-semantic features in the terminal node, as in (11), so that this process is limited to ‘know’ and ‘exist’.

If another element intervenes between Neg and V in the input structure, this operation will not take place as in the following derived causative of ‘know’ in the negative context.

(16) Structure for *an(i) al-li-* at the end of overt syntax

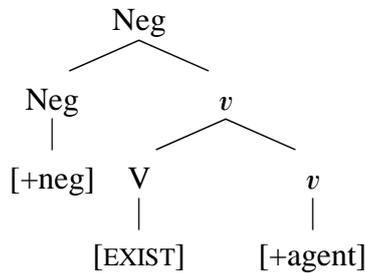


Neg and V are not sisters, and therefore fusion is inapplicable. Then, each terminal node separately undergoes vocabulary insertion, correctly yielding *an(i) al-li-* with the additional vocabulary item (17).

(17) [+caus] ↔ /li/

The case of the agentive, non-suppletive *iss-* ‘stay intentionally’ (whose negative form is *an(i) iss-*) behaves like other regular predicates. The present study recognizes only one root morpheme, which interacts with the *v(P)* projection according to agentivity/volitionality. The agentive *iss-* refers to staying intentionally and involves an agent argument. This property is granted by the additional *v(P)* projection between V(P) and Neg(P).

(18) Complex  $C^0$  after head movement of the agentive *iss-* in a negative clause (partial)



[+neg] and [EXIST] are not sister nodes, and hence fusion of them is inapplicable. Vocabulary insertion converts (18) to *an(i) iss-* with the zero exponent for [+agent].

(19) [+agent] ↔ ∅

This treatment relates the *al-* vs. *al-li-* case to the existential vs. agentive *iss-* case with respect to the agent argument and fusion blocking.

This section has presented how the Distributed Morphology framework explains the suppletive forms of ‘know’ and ‘exist’ in Korean. The morphological fusion operation is sensitive to the syntactico-semantic features of the terminal nodes to be fused (e.g., [KNOW] and [EXIST]). The structure is also critical: only sister nodes can be fused and a hierarchically intervening node blocks this operation. Finally, this operation occurs after syntax. The analysis of fusion of the negation node and the V root node in PF explains why the two non-long-form negation cases exhibit the same syntactic and semantic behaviors. It also explains why there is no independent negator in the two suppletive negation cases and why there is a single vocabulary item instead of the negation plus root sequence.<sup>3</sup>

### 3. Subject Honorification Suppletion and Negation Suppletion

This section turns to subject honorification. After surveying subject honorification and honorific suppletion, it identifies the morphological structure of the inflected predicates with subject honorification. The existential *iss-* is examined, which exhibits both honorific suppletion and negation suppletion. It is then contrasted to *al-* ‘know’ showing negative suppletion only. A paradoxical situation is highlighted resulting from the two

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<sup>3</sup>See Chung (2007a) for more discussions of the present Distributed Morphology analysis and against lexicalist approaches to suppletive negation.

structures of these predicates.

### 3.1. Honorific root suppletion and blocking of negation suppletion

Subject honorification or subject exaltation is used when the subject of a sentence is honored or exalted by the speaker who is lower than, or inferior to, the subject. In this case, the predicate takes the honorific suffix *-si-* (with an epenthetic vowel *-u-* in phonological hiatus situations), and the subject takes an agreeing honorific nominative case suffix, as shown below:<sup>4</sup>

- (20) a. eysute-ka    nichey-lul    ilk-ess-ta.  
 Esther-NOM    Nietzsche-ACC    read-PAST-DECL  
 ‘Esther read Nietzsche (non-honorific).’  
 b. apeci-**kkeyse**    nichey-lul    ilk-u-**si**-ess-ta.  
 father-HON.NOM    Nietzsche-ACC    read-EV-HON-PAST-DECL  
 ‘(My) father read Nietzsche (honorific).’
- (21) a. eysute-ka    khu-ta.  
 Esther-NOM    big-DECL  
 ‘Esther is big (non-honorific).’  
 b. apeci-**kkeyse**    khu-**si**-ta.  
 father-HON.NOM    big-HON-DECL  
 ‘(My) father is big (honorific).’

There are a few predicates whose root form is, from the morphophonological point of view, radically different from the usual root form when the honorific suffix is attached to them. Hence, the root *mek-* ‘eat’ is realized as *capswu-* with the honorific suffix *-si-*, not as *\*mek-u-si-*; and the root *ca-* ‘sleep’ as *cwumu-si-*, not as *\*ca-si-*.

There arises an interesting situation when negation and honorification are put together for the predicate that has both a suppletive negative form and a suppletive honorific root form. The predicate *iss-* ‘exist/be.present’ (with the negative form *eps-* ‘not.exist/be.not.present’ and the honorific form *kyey-si-* ‘exist/be.present-HON’) is realized as *kyey-* in this situation: *an(i) kyey-si-*.

- (22) a. apeci-kkeyse    cha-ey    *an(i)*    *kyey-si*-ta.  
 father-HON.NOM    car-LOC    NEG    exist.HON-HON-DECL  
 ‘Father is not in the car (honorific).’

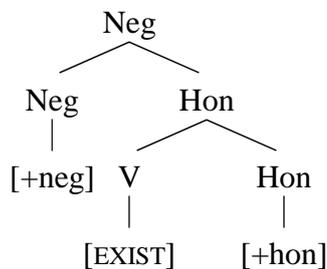
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<sup>4</sup>H.-D. Ahn and H.-J. Yoon (1989), J.-W. Choe (2004), K. Choi (2003), S.-W. Kim (1996) and D.-W. Yang (1996) among others maintain a syntactic view of subject honorification, while S.-J. Chang (1996) and E.-Y. Cho (1994) maintain a pragmatic view. Bobaljik (2008) argues that the agreement features that have long been considered syntactic are in fact morphological, according to which view the problem of whether subject honorification is syntactic or not would disappear.

- b. \*apeci-kkeyse cha-ey eps-u-si-ta.  
 father-HON.NOM car-LOC not.exist-EV-HON-DECL

Vocabulary insertion takes place from root outward cyclically (Bobaljik 2000, Halle and Marantz 1993, Harley and Noyer 1999 among others). When a terminal node is provided with the phonological features at the given cycle, this vocabulary insertion may be sensitive to the morphosyntactic features at an outer cycle. In the following (partial) morphosyntactic structure for *an(i) kyey-si-ess-ta* ‘NEG exist.HON-HON-PAST-DECL’, the root node is first provided with phonological features.

(23) Morphosyntactic structure for [+neg]-[EXIST]-[+hon]-[+past]- (partial)



The [+hon] feature at the next outer cycle chooses /kyey/ for [EXIST]. Hence, with vocabulary items for [EXIST] and other relevant vocabulary items,

(24) Vocabulary items with feature [EXIST]

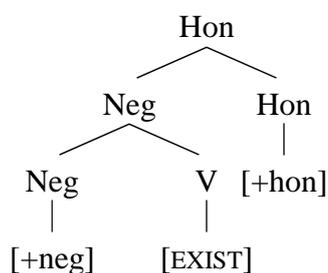
- a. [+neg, EXIST] ↔ /eps/  
 b. [EXIST] ↔ /kyey/ / \_\_\_\_ [+hon]  
 c. [EXIST] ↔ /iss/

(25) Vocabulary items with a functional category feature

- a. [+hon] ↔ /si/  
 b. [+neg] ↔ /an(i)/  
 c. [+past] ↔ /ess/

vocabulary insertion into the root cycle, providing /kyey/ for [EXIST] in the environment of [+hon] in (23), yields [[+neg] [/kyey/ [+hon]] [+past]]. To ensure the choice of /kyey/ in the environment of both negation and honorification, the structure of the inflected predicate is expected to be something like (23), rather than (26) below, in that the [+hon] node is to be structurally closer to the root than the [+neg] node is.

(26) Alternative for [+neg]-[EXIST]-[+hon]-[+past]- (partial)

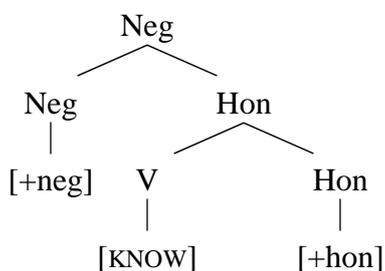


Furthermore, the structure (23) effectively blocks the suppletive negative exponent which would be caused by fusion. Vocabulary insertion converts (23) eventually to *an(i) kyey-si-ess-*, and not *\*eps-u-si-ess-*.

### 3.2. Honorific suppletion and negation suppletion: A paradox

A problem arises when the structure for [+neg]-[KNOW]-[+hon]- is considered. In the following structure identical to (23) except the root feature:

(27) Structure for [+neg]-[KNOW]-[+hon]- before vocabulary insertion



vocabulary insertion would take place separately and the result would be *\*an(i) al-si-* (which would further turn to *\*an(i) a-si-* due to the general phonological rule deleting [l] before a coronal consonant). However, the correct form is *molu-si-*. The problem is the failure of fusion because the root and the [+neg] node are not sisters in (27). Therefore, the suppletive behaviors of ‘exist’ and ‘know’ result in a paradoxical situation regarding which of [+neg] and [+hon] is closely structured with the root.

### 3.3. Predicate iteration constructions

Predicate iteration constructions show that negation is more closely structured with the root than honorification. Predicate iteration constructions include iterated rhe-

toric question, echoed verb construction, and *ha* focus construction.

(28) Iterated rhetoric question

- a. apeci-kkeyse    *an(i)*    po-**si**-ki-nun  
 father-HON.NOM    NEG    see-HON-NMLZ-FOC  
 nwukwu-lul    *an(i)*    po-**si**-ess-e?  
 who-ACC    NEG    see-HON-PAST-INF  
 ‘Father did see somebody, indeed (honorific).  
 (lit. Who on earth didn’t father see?)’
- b. \*apeci-kkeyse    *an(i)*    po-**si**-ki-nun    nwukwu-lul    po-**si**-ess-e?  
 c. \*apeci-kkeyse               po-**si**-ki-nun    nwukwu-lul    *an(i)*    po-**si**-ess-e?  
 d. ?apeci-kkeyse    *an(i)*    po-**si**-ki-nun    nwukwu-lul    *an(i)*    po-ass-e?  
 e. apeci-kkeyse    *an(i)*    po-ki-nun    nwukwu-lul    *an(i)*    po-**si**-ess-e?

(29) Echoed verb construction

- a. apeci-kkeyse    eysute-lul    *an(i)*    po-**si**-ki-nun    *an(i)*  
 father-HON.NOM    Esther-ACC    NEG    see-HON-NMLZ-FOC    NEG  
 po-**si**-ess-e.  
 see-HON-PAST-INF  
 ‘Father certainly did not see Esther.’
- b. \*apeci-kkeyse    eysute-lul    *an(i)*    po-**si**-ki-nun    po-**si**-ess-e.  
 c. \*apeci-kkeyse    eysute-lul            po-si-ki-nun    *an(i)*    po-**si**-ess-e.  
 d. ?apeci-kkeyse    eysute-lul    *an(i)*    po-**si**-ki-nun    *an(i)*    po-ass-e.  
 e. apeci-kkeyse    eysute-lul    *an(i)*    po-ki-nun    *an(i)*    po-**si**-ess-e.

(30) *Ha* focus construction

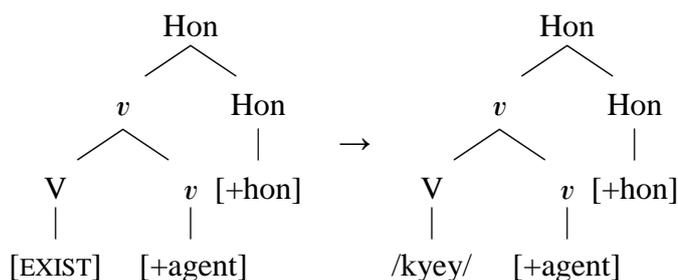
- a. apeci-kkeyse    eysute-lul    *an(i)*    po-si-ki-nun    ha-**si**-ess-e.  
 father-HON.NOM    Esther-ACC    NEG    see-HON-NMLZ-FOC    do-HON-PAST-INF  
 ‘Father certainly did not see Esther.’
- b. \*apeci-kkeyse    eysute-lul    *an(i)*    po-**si**-ki-nun    *an(i)*    ha-**si**-ess-e.  
 c. \*apeci-kkeyse    eysute-lul            po-**si**-ki-nun    *an(i)*    ha-**si**-ess-e.  
 d. \*apeci-kkeyse    eysute-lul            po-**si**-ki-nun            ha-**si**-ess-e.  
 e. apeci-kkeyse    eysute-lul    *an(i)*    po-**si**-ki-nun            ha-y-ess-e.  
 f. apeci-kkeyse    eysute-lul    *an(i)*    po-ki-nun            ha-**si**-ess-e.  
 g. \*apeci-kkeyse    eysute-lul    *an(i)*    po-ki-nun            ha-y-ess-e

These constructions show that negation and the root form a constituent in copying or replacing a certain part of the predicate. Negation is an obligatory part of the second copy or the replacement. On the other hand, the honorific suffix is not an obligatory part of the second copy or the replacement *ha-*. The minimal constituent of the copied or replaced predicate obligatorily includes the root and the negator. This contrast shows that negation is closer to the root than honorification is. This result is compatible with (26) and contrary to the discussions early in this section. (See Chung 2007b and In press for fuller discussions.)

### 3.4. Root suppletion with *v* and [+hon]

How suppletion works in (26) is in order. Consider the honorific agentive exponent *kyey-* from [EXIST]-[*v* +agent]-[+hon]. The *v*<sup>0</sup> node is transparent with respect to vocabulary insertion for [EXIST] when [+hon] is present outside of the *v*<sup>0</sup> node.

(31) Structure of [EXIST]-[*v* +agent]-[+hon]



The vocabulary item (24)b has to be revised as the following, adopting the government view of contextual allomorphy (Bobaljik 2000, Halle and Marantz 1993).

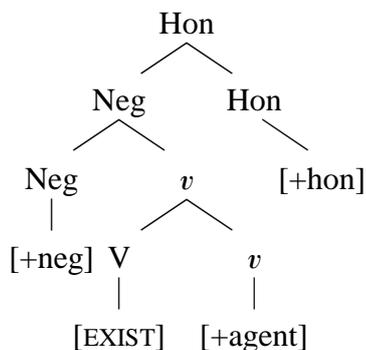
(32) Vocabulary item for [EXIST] (revision of (24)b)

[EXIST] ↔ /kyey/ / governed by [+hon]

Honorification in Korean shows that (outwards-sensitive) contextual allomorphy is not always strictly local (Bobaljik 2000, Embick and Noyer 2001, Halle and Marantz 1993; contra Allen 1978, Siegel 1977, Simpson and Withgott 1986).

Next, consider [+neg]-[EXIST]-[*v* +agent]-[+hon]-. The entire sequence is realized as *an(i) kyey-si-*, not as \**an(i) iss-u-si-*. If the structure [Neg [*v* V *v*]] from section 2.3 is maintained, [+neg]-[EXIST]-[*v* +agent]-[+hon] will have the following structure:

(33) [+neg]-[EXIST]-[*v* +agent]-[+hon]-



The intervening [+neg] is transparent with respect to the root suppletion in the environment of [+hon]. Honorific suppletion formulated as contextual allomorphy allows intermediate nodes between the allomorphic root and the governing allomorphy trigger.

#### 4. Allomorphy: Non-locality and Blocking of Inner Suppletion

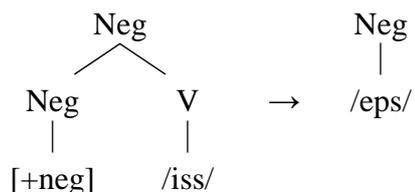
This section provides an integrated analysis of honorific suppletion and negative suppletion along with the government analysis of contextual allomorphy for honorific root suppletion. The status and formalism of negative suppletion fusion are reexamined.

##### 4.1. Blocking interaction of negative suppletion and honorific suppletion

The government approach solves the issue of locality between the root and [+hon]. Further, the Neg-V-Hon sequence should be structured correctly as [[Neg [V]] Hon] to allow the fusion process. This structure is not only necessary for fusion, but also maintainable if the outer [+hon] can trigger its root allomorphy under government.

Negative suppletion is more local, requiring a strict sisterhood configuration, while honorific suppletion simply requires a governing head. However, negative suppletion is blocked by honorific suppletion. The root can show suppletive allomorphy for honorification whether or not [+neg] or anything else intervenes, because [+hon] governs the root. On the other hand, fusion operates cyclically, thus interleaved with vocabulary insertion, and, crucially, is triggered by the higher head (i.e., the higher Neg node containing [+neg] and the root). Then, the blocking effect will follow automatically, if fusion makes reference to vocabulary items of the root node (post-insertion) as in (34) rather than abstract “morphemes” (pre-insertion).

(34) Fusion of [+neg] and /iss/ to /eps/ (revision of (11))



Vocabulary insertion has already applied in the inner cycle, and the root node must be stated as /iss/, not as [EXIST].

In the structure [[[+neg] [EXIST]] [+hon]] (26), the root is provided with /kyey/ because [+hon] governs this node. The choice of the root allomorph (honorific suppletion) is determined in the root cycle. The triggering morphosyntactic feature can “see” across negation. The governing [+hon] feature simply serves as the context of root allomorphy operating in the first cycle.

The negative suppletion, however, happens crucially in the second cycle with /iss/. Therefore, if the output of the first cycle is /kyey/ due to the outer [+hon] in (26) and (33), the negation fusion rule will not apply. When the [+hon] feature is not engaged in a given word, the fusion applies to [+neg] in the next outer cycle along with the root item /iss/ as in (34).

Then, the analysis presented in section 2.3 remains almost the same. In particular, if the fusion operation is restricted to sisters, a null *v* (giving the agentive *iss-* ‘stay intentionally’ in a negative clause as well) will still block the fusion rule. The only change in the new fusion rule is that the root is represented as the vocabulary item instead of the abstract morpheme, i.e., the non-phonological feature bundle [EXIST]. The rule finds its place accordingly. It does not apply before vocabulary insertion, but applies cyclically interleaved with vocabulary insertion. See Trommer (1999), Kandybowicz (2007) and Bobaljik and Thráinsson (1998) among others for different or alternative proposals as opposed to Halle and Marantz’s (1993) pre-insertion fusion.

#### 4.2. In support of late vocabulary insertion

The paradox between negative and honorific morphology can be resolved by employing two different apparatuses for negative suppletion and honorific suppletion. However, a crucial assumption needs to be made. In order for the vocabulary item (32) to be inserted in the structure (26) with [[[+neg] [EXIST]] [+hon]], the [+hon] feature should be present in the structure when vocabulary insertion applies to the root cycle.

In a lexicalist framework, the phonological features and the nonphonological features are added at the same time in each cycle. Such a more “traditional” morphophonological view of morpheme concatenation for [[[+neg] [EXIST]] [+hon]] would look like the following:

(35) Cyclic morpheme concatenation of [[[+neg] [EXIST]] [+hon]] in lexicalism		
	phonological	nonphonological
Cycle 1	iss-	[EXIST]
Cycle 2	eps-	[+neg, EXIST] (< [[+neg] [EXIST]])
Cycle 3	an(i) kyey-si-	[[[+neg] [EXIST]] [+hon]]

This undesirable and implausible derivation with radical exponent changes is unavoidable if the phonological features are provided at the same time as nonphonological features for each cycle.

On the other hand, if phonological features are available only after all the non-phonological features are provided for all the relevant morphological nodes in a certain domain such as word,<sup>5</sup> the entire morphophonological derivation will be coherent and consistent. Determining the correct phonological form of the root in one fell swoop is possible. Therefore, verbal suppletion in Korean provides a strong support for separation and late insertion as advanced in Distributed Morphology, as opposed to lexicalism.

To summarize this section, the suppletion interaction in Korean can be explained with two different mechanisms for the different suppletion types. Negative suppletion is characterized as fusion in (34), replacing the post-insertion root and the sister negation feature. This revised fusion formalism is interleaved with vocabulary insertion. Honorific suppletion is formalized as contextual allomorphy in the government configuration. Because honorific suppletion operates crucially in the root cycle, it blocks negative suppletion operating in the second cycle, resulting in *an(i) kyey-si-*. The discussions support the late vocabulary insertion as assumed in Distributed Morphology.

## 5. Conclusion

This paper has considered root suppletion in negation and honorification, and their interaction. Negative suppletion is blocked by honorific suppletion when both cases of suppletion are engaged in a single root (for [EXIST]). From these phenomena, a paradoxical situation has been identified between negation and honorification regarding which of the two is structurally closer to the root.

To replicate the paradox, different formalisms have been adopted for negative suppletion and honorific suppletion. Honorific suppletion has been analyzed as contextual allomorphy equipped with the government approach. Since the honorific feature serves as the non-local context governing the root, the negation feature can intervene between the root and the honorific feature. This non-local aspect of contextual allomorphy (Bobaljik 2000, Halle and Marantz 1993) for honorific suppletion leads to the revision of the fusion rule in such a way that the rule refers to the vocabulary item, i.e., the result of vocabulary insertion in the root cycle, and the negative feature.

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<sup>5</sup>See Bobaljik and Chung (In prep.) for vocabulary insertion domains based on phases by Chomsky (2000 et seq.).

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# Opacity, Phonetics, and Frequency in Taiwanese Tone Sandhi

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## Abstract

A wug test study of tone sandhi patterns in Taiwanese indicates that sandhi productivity is affected by phonological opacity as well as the durational property and lexical frequency of the sandhi. Opacity outweighs phonetics and frequency as a global effect; frequency effects are evident for everyday users of the language; phonetic effects only surface for occasional users for whom the frequency effects have been weakened due to the lack of use of the language. The simultaneous underlearning of exceptionless opaque patterns, overlearning of phonetic effects, and proper learning of lexical statistics by Taiwanese speakers can be modeled by a Maximum Entropy grammar that encodes learning biases against lexical listing constraints and phonetically unmotivated patterns.

**Keywords:** tone sandhi, opacity, frequency, productivity, Maximum Entropy.

## 1. Introduction

The productivity of a linguistic process refers to its ability to apply to new items (Bybee 2001). The understanding of productivity is important to theoretical linguistics as it provides crucial evidence about the generalizations and cognitive abstractions that speakers make (Bybee 2001, Pierrehumbert 2003).

The productivity of a phonological process crucially depends on various properties of the process. Type frequency, which refers to the dictionary frequency of a pattern, and token frequency, which refers to the frequency of occurrence of a pattern in a corpus, have long been established to influence productivity (Bybee 1985, 2001, Moder 1992, Pierrehumbert 2003, 2006, among others). Recent research has also shown that both the phonetic grounding (Wilson 2003, 2006, Zhang and Lai 2006, Zuraw 2007) and phonological opacity (Hsieh 1970, Sanders 2001, Zhang and Lai 2008) of a pattern may have an effect on productivity. The goal of this research is to investigate



Interestingly, these frequency counts do not put the tones in the same order, which provides us with an opportunity to study which frequency count has the greatest effect on productivity. Furthermore, the effects of frequency may also be manifested differently for speakers in different environments; for example, speakers who speak the language daily may exhibit a stronger frequency effect than those who only speak it occasionally.

(2) Tone frequency counts in Taiwanese:

Syllable type frequency: 55 > 51 > 24 > 21 > 33

Morpheme type frequency: 55 > 24 > 51 > 33 > 21

Token frequency: 55 > 24 > 33 > 51 > 21

Previous research has shown that opacity, phonetics, and frequency all have an effect on the productivity of the sandhi pattern. Hsieh (1970) showed that the application rate of the entire Taiwanese tone sandhi pattern was as low as 10-30% in novel disyllabic words. Hsieh (1975), Wang (1993), and Zhang *et al.* (2006) all showed that the phonotactically transparent sandhi 24 → 33 had a higher application rate to novel words than opaque sandhis in the tone circle. Hsieh (1975) indicated that there might be a frequency effect, as the 55 → 33 sandhi, which has the highest counts for both type and token frequencies, had a higher application rate in novel words than other opaque sandhis in the tone circle. Finally, Zhang *et al.* (2006) reported that Taiwanese speakers tested at the University of Kansas showed a higher productivity for the duration reducing sandhi 33 → 21 than for the duration increasing sandhi 51 → 55. Our current study further quantifies the interaction among these effects. We also explicitly address the question of how these effects may differ for different speaker populations by comparing two groups of speakers — one from Taiwan, who uses the language in their daily functions; one from Kansas, US, who only uses the language occasionally.

### **3. Experimental methods**

#### *3.1. Stimuli and participants*

The basic method of our experiment was to present the subjects with two monosyllables and ask them to pronounce the syllables together as a true disyllabic

word in Taiwanese. Our analyses focused on the tone on the first syllable of the subjects' responses.

There are two within-subjects factors in the experiment. The first is Word Type. Following Hsieh (1970)'s experimental design, we constructed five types of disyllabic words in Taiwanese. The first type is real words, denoted by AO-AO (AO = actual occurring morpheme). These words served as the control for the experiment. The other four types are wug words: \*AO-AO, where both syllables are actual occurring morphemes, but the disyllable is non-occurring; AO-AG (AG = accidental gap), where the first syllable is actual occurring, but the second syllable is an accidental gap in the Taiwanese syllabary; AG-AO, where the first syllable is an accidental gap and the second syllable is actual occurring; and AG-AG, where both syllables are accidental gaps. The AGs were hand-picked by the second author, who is a native speaker of Taiwanese. In each AG, both the segmental composition and the tone of the syllable are legal, but the combination happens to be missing in Taiwanese. The second within-subject factor is Sandhi Type, which is determined by the tone on the first syllable of the disyllables. There are five different sandhi types, represented by the five tones in the tonal inventory on non-checked syllables — 24, 55, 33, 21, and 51. The tone on the second syllable was kept to a constant 33. Necessary frequency controls across the sandhi types were exercised using Tsay and Myers (2005). Eight words for each Word Type × Sandhi Type combination were used, making a total of 200 test words (8×5×5). We also used 160 filler words, which had tones other than 33 on the second syllable.

The experiment also has a between-subject factor, which is Speaker Group. We recruited 20 speakers from Taiwan (6 male, 14 female), who had an average age of 51.6 and all used Taiwanese in their daily functions, and 16 speakers from Kansas, US (6 males, 10 females), who had an average age of 31.3 and had been in the US for an average of 3.8 years — these speakers only spoke Taiwanese for an average of 45 minutes a week, usually in phone calls to their families in Taiwan. The Kansas speakers are also considerably younger than the Taiwan speakers, and sociolinguistic studies have shown that younger speakers use Taiwanese less often due to the increasing influence of Mandarin (Sandel 2003, Scott and Tiun 2007).

### *3.2. Experimental procedure*

The experiment was conducted with SuperLab (Cedrus) in the Phonetics and Psycholinguistics Laboratory at the University of Kansas for the Kansas speakers and in a quiet room for the Taiwan speakers. The stimuli were played through a headphone

worn by the subjects. Each stimulus consisted of two monosyllabic utterances read by the second author, separated by an 800ms interval. The subjects were instructed to put the two syllables together and pronounce them as a true disyllabic word in Taiwanese. Their response was collected by either a Sony PCM-M1 DAT recorder (in Kansas) or a Marantz solid state recorder PMD 671 (in Taiwan).

### 3.3. *Data analyses*

The sandhi tones on the first syllable of the test words were transcribed by the three authors — a native speaker of Taiwanese (Lai), a native speaker of Beijing Mandarin (Zhang), and a native speaker of American English (Sailor), all phonetically trained — using a 1-5 scale with the help of pitch tracks in Praat (Boersma and Weenink 2005). There was clear agreement for nearly all cases among the authors. In cases of disagreement, the judgment of the native Taiwanese author was taken. Based on the transcriptions, the correct response rates for the tone sandhis in each Word Type × Sandhi Type combination for each speaker were then calculated.

Mixed-design ANOVAs with Word Type and Sandhi Type as within-subject factors and Speaker Group as a between-subject factor were conducted for the correct response rates. Regression analyses with the durational property of the sandhis and the type and token frequencies of base tones as predictors for the correct application rates of the opaque sandhis in wug words (\*AO-AO, AO-AG, AG-AO, AG-AG) were also conducted for the two groups of speakers. All statistics were carried out in SPSS.

## 4. **Results and discussion**

The main effects of Speaker Group, Word Type, and Sandhi Type on the correct response rate from the ANOVA are plotted in Figure 1. The effect of Speaker Group is not significant:  $F(1, 34)=0.296, p=0.590$ . The effect of Word Type is significant:  $F(3.552, 120.766)=462.281, p<0.001$ . So is the effect of Sandhi Type:  $F(3.000, 102.012)=37.140, p<0.001$ . Post-hoc analyses with Bonferroni adjustments showed that real words AO-AO have a significantly higher correct response rate than all wug groups ( $p<0.001$  for all paired comparisons). The average correct response rate is 70.1% for real words, but only 16.9% for wug words. Post-hoc analyses also showed that the phonotactically transparent sandhi 24 → 33 has a significantly higher correct response

rate than all opaque sandhis ( $p < 0.001$  for all paired comparisons). The average correct response rate is 44.2% for  $24 \rightarrow 33$ , but only 23.3% for the opaque sandhis.

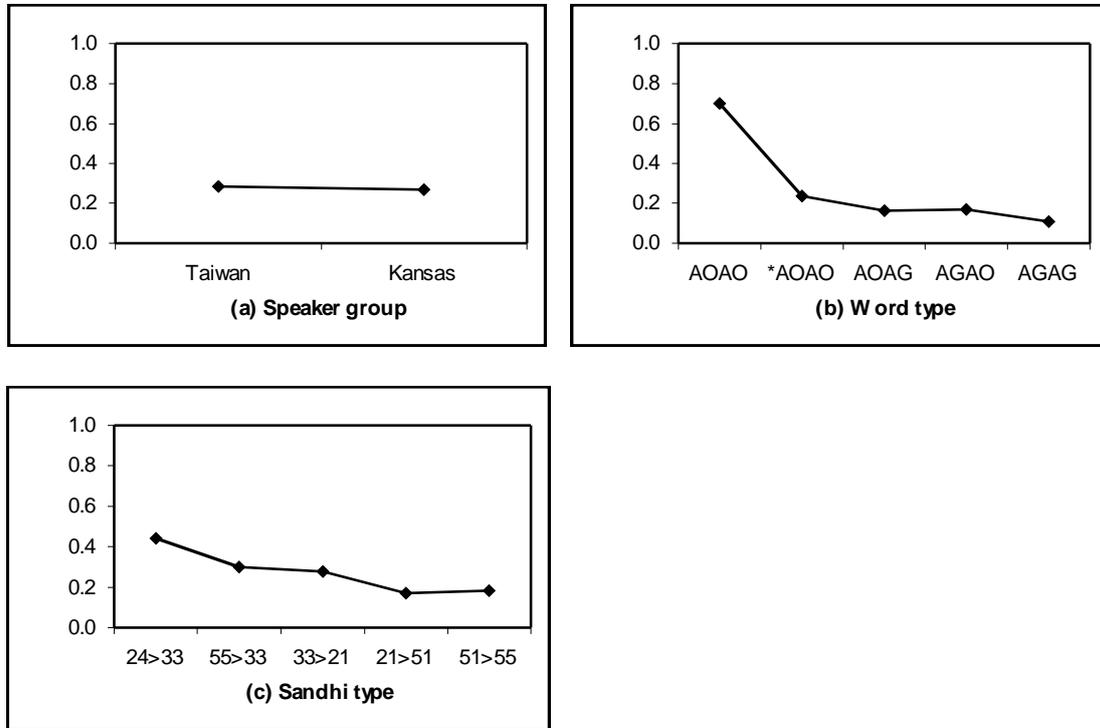


Figure 1: Effects of (a) Speaker Group, (b) Word Type, and (c) Sandhi Type on the correct response rates for tone sandhis in Taiwanese.

The interactions between the within-subject factors and the between-subject factor are plotted in Figure 2. The Word Type  $\times$  Speaker Group interaction just reached significance:  $F(3.552, 120.766) = 2.626, p = 0.044$ . The Sandhi Type  $\times$  Speaker Group interaction is also significant:  $F(3.000, 102.012) = 3.022, p = 0.033$ .

Two separate ANOVAs and subsequent post-hoc analyses on the two subject groups showed that for both Taiwan and Kansas speakers, real words AO-AO have a significantly higher correct response rate than all wug groups at the  $p < 0.001$  level; for Taiwan speakers, the phonotactically transparent sandhi  $24 \rightarrow 33$  has a significantly higher correct response rate than all the opaque sandhis in the tone circle at the  $p < 0.001$  level, and for Kansas speakers,  $24 \rightarrow 33$  has a significantly higher correct response rate than all opaque sandhis at the  $p < 0.05$  level except for  $33 \rightarrow 21$ . These results indicate that both groups of Taiwanese speakers had considerably more trouble in the application of tone sandhis to wug words and the application of opaque tone sandhis.

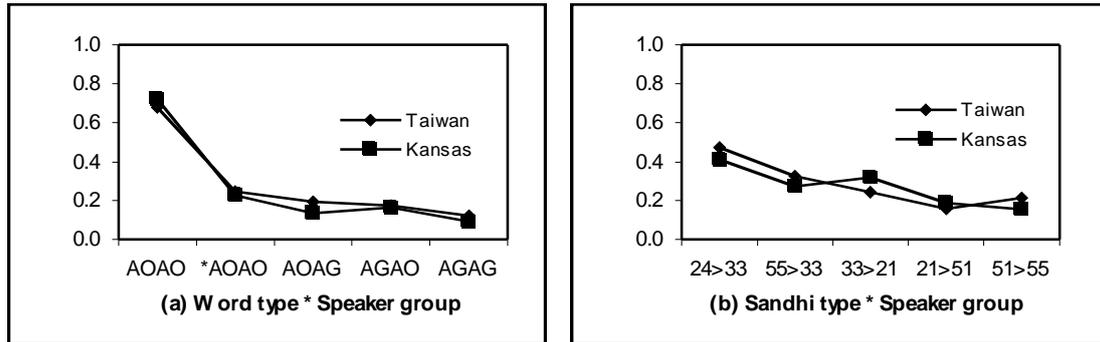


Figure 2: Interactions (a) between Word Type and Speaker Group and (b) between Sandhi Type and Speaker Group on the correct response rates for tone sandhis in Taiwanese.

To further compare the two groups of speakers on the potential effects of phonetics and frequency on sandhi productivity, we conducted an additional mixed-design ANOVA on only the correct response rates for opaque sandhis in wug words. The main effect of Word Type is still significant:  $F(3.000, 102.000)=23.896, p<0.001$ . So is the main effect of Sandhi Type:  $F(2.239, 76.132)=15.229, p<0.001$ . The interactions between the within-subject factors and the between-subject factor are graphed in Figure 3. The Word Type  $\times$  Speaker Group interaction is not significant:  $F(3.000, 102.000)=1.795, p=0.153$ . But the Sandhi Type  $\times$  Speaker Group interaction is significant:  $F(2.239, 76.132)=4.480, p=0.012$ .

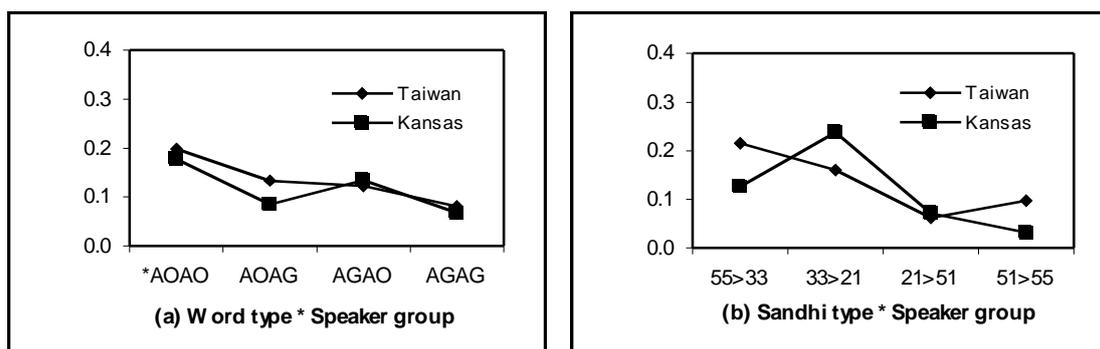


Figure 3: Interactions (a) between Word Type and Speaker Group and (b) between Sandhi Type and Speaker Group on the correct response rates for opaque tone sandhis in Taiwanese wug words.

The significant interaction between Sandhi Type and Speaker Group indicates that the two groups of speakers behaved differently in the application of opaque sandhis to wug words. Figure 3b shows that for Taiwan speakers, the highest productivity is found in the sandhi whose base tone has the highest frequency counts (55 → 33), and the lowest productivity is found in the sandhi whose base tone has the lowest morpheme type and token frequencies (21 → 51); for Kansas speakers, however, the sandhi with the greatest duration reduction (33 → 21) has the highest productivity, while the sandhi with the greatest duration increase (51 → 55) has the lowest productivity. These results indicate that Taiwan speakers' behavior may be closely related to frequencies, while Kansas speakers' behavior may be closely related to phonetic duration.

To further investigate the effects of frequencies and duration on sandhi productivity in the two speaker groups, we conducted a forward stepwise regression analysis for each speaker group with syllable type frequency, morpheme type frequency, and token frequency of the base tone and the amount of duration reduction of the sandhi as potential predictors for the productivity of opaque sandhis in wug words. The values for these predictors are given in Table 1. The frequency counts are from Tsay and Myers (2005) and have been *log*-transformed. The duration reduction data were deduced from the durations of the tones read in isolation reported in Lin (1988). A positive value indicates a duration decrease from the base tone to the sandhi tone, and a negative value indicates a duration increase.

	55 → 33	33 → 21	21 → 51	51 → 55
Syllable type frequency	2.499	2.391	2.407	2.467
Morpheme type frequency	2.872	2.715	2.687	2.736
Token frequency	5.085	5.058	4.972	5.020
Duration reduction (ms)	1	69	-9	-59

Table 1: Predictors for correct response rates for opaque tones sandhis in Taiwanese wug words used in regression analyses.

The regression model for the Taiwan speakers only included token frequency as a significant predictor ( $R^2=.502$ , adjusted  $R^2=.466$ ,  $\beta=.708$ ,  $p=.002$ ; syllable type frequency:  $p=.952$ ; morpheme type frequency:  $p=.664$ ; duration reduction:  $p=.843$ ). The model for the Kansas speakers, on the other hand, only included duration reduction as a significant predictor ( $R^2=.616$ , adjusted  $R^2=.589$ ,  $\beta=.785$ ,  $p<.001$ ; syllable type frequency:  $p=.491$ ; morpheme type frequency:  $p=.558$ ; token frequency:  $p=.348$ ).

In summary, our wug-test results showed a speaker-group independent opacity effect in support of our hypothesis. The opaque tone circle is largely unproductive, as indicated by its low correct response rates in wug words (12.6%). In addition, an analysis of the sandhi errors indicates that the vast majority of the errors are non-application errors (78.7%), which lends further support to the unproductive nature of these sandhis. The phonotactically transparent sandhi 24 → 33, on the other hand, is significantly more productive, as indicated by a higher correct response rate in wug words (34.5%). Moreover, the non-application rate of the sandhi in wug words is considerably lower (31.3%) than those of the opaque sandhis, indicating that even though the speakers might not know the exact outcome of the sandhi, they have effective knowledge of the phonotactic generation that “a rising tone 24 cannot occur in nonfinal positions.”

Our hypothesis that the effects of phonetics and frequency may be speaker-group dependent, in that Kansas speakers will be more strongly affected by duration, while Taiwan speakers will be more strongly affected by frequency counts, is also borne out by the regression analyses. To interpret the speaker-group dependent frequency effect, we assume that the Taiwan speakers exhibit a strong frequency effect due to their everyday usage of the language, and the Kansas speakers have stopped using the language regularly, causing the attrition of lexical strength of all words, which consequently causes the frequency effects to fall below a certain threshold. The age difference between our two groups of speakers, which also translates into usage differences, may have contributed to their difference in frequency effects as well. The difference in phonetic effects between the two speaker groups is correlated with their difference in frequency effects. Due to the incompatibility of the two effects (for instance, phonetic effects predict a high productivity of 33 → 21 and a low productivity of 51 → 55; but frequency effects predict a high productivity for 55 → 33 and a low productivity for 21 → 51), for Taiwan speakers, the phonetic effects may have simply been overridden by the strong frequency effects. But when the frequency effects weaken due to the lack of usage, as for our Kansas speakers, the phonetic effects surface. Therefore, failing to detect the phonetic effects for the Taiwan speakers does not necessarily entail that they do not exist.

We recognize that our experimental result on the speaker group effect may have two opposing interpretations. One interpretation is that it demonstrates the usage-based nature of phonology *à la* Bybee (1985, 2001), as it shows that the speakers' behavior is determined by the context of usage. But conversely, it could also be interpreted as demonstrating that the only true linguistic effects are those of opacity and phonetics, as

they are shared by all speakers; the effects of frequency are metalinguistic. Without committing ourselves to either of these extreme positions, in the following section, we propose an alternative that incorporates both processing and phonological factors to predict the observed behavior of both Taiwan and Kansas speakers. This echoes the position espoused in works such as Hayes and Londe (2006), Pierrehumbert (2003, 2006), Wilson (2006), Zuraw (2000, 2007), and Zhang and Lai (2008).

## 5. A theoretical model

To model Taiwanese speakers' tone sandhi behavior in the wug test, we are faced with the following challenges. First, the model needs to account for the fact that the speakers are exposed to exceptionless opaque patterns in the lexicon, but somehow do not internalize the patterns productively. We term this the underlearning challenge. Second, the model needs to ensure that the speakers have phonetic knowledge that affects productivity, even though the lexical statistics does not inform them of such knowledge. We term this the overlearning challenge. Lastly, the model also needs to capture the speakers' detailed knowledge gleaned from lexical statistics, which we term the proper-learning challenge.

### 5.1. The Maximum Entropy model

The Maximum Entropy model of phonology (Goldwater and Johnson 2003, Wilson 2006, Hayes and Wilson 2008, Jäger, to appear) is a model that is equipped to handle the challenges laid out above. As a variant of Optimality Theory, it is inspired by conditional random fields in information theory (Della Pietra *et al.* 1997, Lafferty *et al.* 2001) and closely related to Harmonic Grammar championed by Smolensky (1986) and Smolensky and Legendre (2006).

In lieu of ranking the constraints on a linear scale, the MaxEnt model assumes that each constraint  $C_i$  has a weight of  $w_i$ . For a candidate  $y$  of a given input  $x$ , if  $C_i(y|x)$  is the number of times  $y$  violates the constraint  $C_i$ , then the Harmonic Score of  $y$  given  $x$  is defined as  $e$  to the negative power of the weighted sum of the numbers of violations of all constraints, as shown in (3).

$$(3) \quad H(y | x) = \exp\left(-\sum_i w_i C_i(y | x)\right)$$

Given the Harmonic Score of  $y$ , the probability of  $y$  as the output to  $x$  is then the proportion of its Harmonic Score to the sum of all Harmonic Scores of  $x$ 's candidates, as shown in (4).

$$(4) \quad p(y|x) = \frac{H(y|x)}{\sum_{y \in \Omega} H(y|x)}, \Omega \text{ is the set of candidates for } x.$$

Given the constraint set, learning in a MaxEnt model from a set of training data  $D$  composed of input-output pairs is to determine the constraint weights that maximize the log probability of  $D$ , which equals to the log of the product of the probabilities of all input-output pairs in  $D$ , as in (5).

$$(5) \quad \log(p(D)) = \log\left(\prod_{y|x \in D} p(y|x)\right)$$

To prevent overfitting the training data, each weight is often considered to be associated with a regularizing Gaussian prior (Martin et al. 1999, among others). The prior specifies  $\mu$  as the default weight for a constraint, and  $\sigma^2$  as the determinant of how severe the penalty is if the weight deviates from the default — the smaller the  $\sigma^2$ , the greater the penalty. Learning, then, is to find the constraint weights that maximize the function combining  $\log(p(D))$  and the penalty, as shown in (6). Crucially, learning *biases* can be encoded as different  $\sigma^2$ s for different constraints, as we will see in §5.3.

$$(6) \quad \log\left(\prod_{y|x \in D} p(y|x)\right) - \sum_i \frac{(w_i - \mu_i)^2}{2\sigma_i^2}$$

## 5.2. Constraints

We turn to the necessary constraints for our analysis in this section. Further statistical analyses of the correct response rates reported above showed that for both Taiwan and Kansas speakers, there is a gradation in sandhi productivity from real words to wug words in which the first syllable is an actual occurring syllable (\*AO-AO, AO-AG) and to wug words in which the first syllable is an accidental gap (AG-AO, AG-AG). We hence represent the three types of words as AO, \*AO, and AG. All pairwise comparisons are significant at the  $p < .001$  level except for the difference between \*AO

and AG for Kansas speakers, which is at  $p < .05$ . This gradation in sandhi productivity from AO to \*AO to AG indicates that the theory needs to encode three different levels of listedness. First, the higher productivity of AO than \*AO requires the listing of disyllabic words in the lexicon, and we posit a group of USELISTED constraints (see Zuraw 2000) on disyllables that force the listed disyllables to be used, as in (7a). Second, \*AO's higher productivity than AG indicates that sandhi *allomorphs* of existing syllables are also listed, and we posit a second group of USELISTED constraints that forces the listed syllable allomorphs to be used in nonfinal sandhi positions, as in (7b). Finally, the modest productivity of the sandhi in AG words indicates that the *tonal* allomorphs independent of segmental contents are also listed in the grammar, and we posit a third group of USELISTED to force the use of such tonal allomorphs, as in (7c).

- (7) a. USELISTED( $\sigma 55$ - $\sigma$ ): Use the listed / $\sigma 33$ - $\sigma$ / for / $\sigma 55$ /+/ $\sigma$ /.  
*Mutatis mutandis* for USELISTED( $\sigma 33$ - $\sigma$ ), USELISTED( $\sigma 21$ - $\sigma$ ), USELISTED( $\sigma 51$ - $\sigma$ ), and USELISTED( $\sigma 24$ - $\sigma$ )
- b. USELISTED( $\sigma 55$ ): Use the listed allomorph / $\sigma 33$ / for / $\sigma 55$ / non-XP-finally.  
*Mutatis mutandis* for USELISTED( $\sigma 33$ ), USELISTED( $\sigma 21$ ), USELISTED( $\sigma 51$ ), and USELISTED( $\sigma 24$ )
- c. USELISTED(55): Use the listed tonal allomorph /33/ for /55/ non-XP-finally.  
*Mutatis mutandis* for USELISTED(33), USELISTED(21), USELISTED(51), and USELISTED(24)

The analysis also needs two other constraints, shown in (8). The markedness constraint \*24-NONFINAL expresses a phonotactically true generalization in Taiwanese. IDENT(Tone) discourages tone sandhi.

- (8) a. \*24-NONFINAL: Tone 24 cannot occur on non-XP-final syllables.  
 b. IDENT(Tone): The tones of the corresponding syllables in the input and the output must be identical.

### 5.3. Learning biases as $\sigma^2$ values

Wilson (2006) argued that learning biases can be encoded as different  $\sigma^2$  values of the Gaussian prior in a MaxEnt model. We capitalize on Wilson's claim to capture the underlearning and overlearning aspects of our Taiwanese speakers' behaviors here.

We assume that the default weight  $\mu$  for all constraints to be zero. The  $\sigma^2$  for \*24-NONFINAL and IDENT(Tone) is set to  $10^{-3}$ ; the  $\sigma^2$  values for USELISTED constraints, however, are  $10^{-3} \times B_{Listed} \times B_{Duration}$ , where  $B_{Listed}$  and  $B_{Duration}$  are two coefficients representing the biases based on listedness and phonetic duration, respectively.

For each type of USELISTED constraints (disyllabic words, monosyllabic allomorphs, tonal allomorphs), we posit  $B_{Listed}$  to be 10 to the negative power of a logistic function, where  $x$  represents the number of morphemes that the type of USELISTED constraints covers on average, as in (9a). As estimated from Tsay and Myers's corpus, the average number of monosyllabic homophones is 2.1, and the average number of morphemes that a lexical tone may denote is 585.4. These values represent the  $x$  values for the USELISTED constraints for monosyllabic allomorphs and tonal allomorphs, respectively. The  $x$  value for the USELISTED constraints for disyllabic words is naturally 1. We can then calculate the  $B_{Listed}$  values for these constraints accordingly, as in (9b). The intuition behind this bias coefficient is that if USELISTED is the learner's strategy to cope with exceptional patterns that cannot be captured by regular means, such as the MARKEDNESS » FAITHFULNESS ranking, then the learner is first of all cautious about positing exceptions, expressed in the model by assigning USELISTED constraints greater penalties if they deviate from the default ranking of 0; secondly, the learner is unwilling to treat massive amounts of data as exceptions, expressed in the model as greater penalties for USELISTED constraints that make generalizations.

(9) a.  $B_{Listed} = 10^{-\frac{1}{1+e^{2-2x}}}$ ,  $x$  = the number of morphemes that the type of

USELISTED constraints covers on average

	$x$	$B_{Listed}$
USELISTED( $\sigma\sigma$ )	1	$10^{-0.5} = .316$
USELISTED( $\sigma$ )	2.1	$10^{-0.9} = .126$
USELISTED(T)	585.4	$10^{-1} = .1$

The  $B_{Duration}$  coefficient expresses a substantive bias *à la* Wilson (2006). It biases against the duration increasing sandhi  $51 \rightarrow 55$  by having a value of .95, but encourages the duration reducing sandhi  $33 \rightarrow 21$  by having a value of 1.05. Duration neutral sandhis  $55 \rightarrow 33$ ,  $24 \rightarrow 33$ , and  $21 \rightarrow 51$  all have a  $B_{Duration}$  of 1.

The  $\sigma^2$  values for all constraints are summarized in Table 2.

Constraint	$\sigma^2$	Constraint	$\sigma^2$
UsLSTD( $\sigma$ 55- $\sigma$ )	.000316	UsLSTD( $\sigma$ 21)	.000126
UsLSTD( $\sigma$ 24- $\sigma$ )	.000316	UsLSTD(55)	.0001
UsLSTD( $\sigma$ 33- $\sigma$ )	.000332	UsLSTD(24)	.0001
UsLSTD( $\sigma$ 51- $\sigma$ )	.000300	UsLSTD(33)	.000105
UsLSTD( $\sigma$ 21- $\sigma$ )	.000316	UsLSTD(51)	.000095
UsLSTD( $\sigma$ 55)	.000126	UsLSTD(21)	.0001
UsLSTD( $\sigma$ 24)	.000126	*24-NONFINAL	.001
UsLSTD( $\sigma$ 33)	.000132	IDENT(Tone)	.001
UsLSTD( $\sigma$ 51)	.000120		

Table 2:  $\sigma^2$  values for all constraints.

#### 5.4. Modeling the speakers

We turn to the modeling of learning of our two groups of speakers in this section. Our modeling was conducted with the MaxEnt learner in OTSoft 2.2 (Hayes et al. 2005). To model the Taiwan speakers, we fed the MaxEnt learner a training dataset of AO-AO input-output pairs that approximates the token frequency distribution of the different sandhi patterns: 13,000 /55-33/→[33-33], 12,000 /24-33/→[33-33], 11,000 /33-33/→[21-33], 10,000 /51-33/→[55-33], and 9,000 /21-33/→[51-33]. To model the Kansas speakers, we simulated the lack of frequency effects by feeding the learner an equal number of AO-AO input-output pairs (10,000) for each sandhi pattern. For each input, we considered 25 candidates that represent all possible tonal combinations. The two grammars learned by the MaxEnt model are given in Table 3.

We can observe that for both groups of speakers, the USELISTED constraints for real disyllables have the greatest weights, followed by \*24-NONFINAL and IDENT(Tone). USELISTED for monosyllabic allomorphs and tonal allomorphs have lower weights, *even though they are never violated by any of the outputs in the training data*. Within each group of USELISTED constraints, for Taiwan speakers, the sandhi that has a higher token frequency has a greater weight, while for Kansas speakers, the sandhi that has a greater duration reduction has a greater weight; the only exception is that the constraints governing 24 → 33 have the lowest weights within the group, as \*24-NONFINAL is able to share some of the burden of enforcing the tone sandhi.

<b>Constraint</b>	<b>Weight (Taiwan)</b>	<b>Weight (Kansas)</b>	<b>Constraint</b>	<b>Weight (Taiwan)</b>	<b>Weight (Kansas)</b>
USLSTD( $\sigma$ 55- $\sigma$ )	2.958	2.782	USLSTD( $\sigma$ 51)	.875	.873
USLSTD( $\sigma$ 33- $\sigma$ )	2.878	2.815	USLSTD( $\sigma$ 21)	.866	.882
USLSTD( $\sigma$ 51- $\sigma$ )	2.745	2.747	USLSTD( $\sigma$ 24)	.755	.730
USLSTD( $\sigma$ 21- $\sigma$ )	2.708	2.782	USLSTD(55)	.736	.701
USLSTD( $\sigma$ 24- $\sigma$ )	2.675	2.556	USLSTD(33)	.721	.707
*24-NONFINAL	1.892	1.868	USLSTD(51)	.696	.694
IDENT(Tone)	1.755	1.740	USLSTD(21)	.688	.701
USLSTD( $\sigma$ 55)	.926	.882	USLSTD(24)	.600	.580
USLSTD( $\sigma$ 33)	.907	.890			

Table 3: Constraint weights for Taiwan and Kansas speakers learned by the MaxEnt model.

To compare the grammars' predictions with the speakers' wug test behavior, we calculated the correct response rates of AO, \*AO, and AG inputs based on each grammar and juxtaposed the predictions with the outcomes of the wug test for the two groups of speakers, as in Figure 4 and Figure 5.

For both groups of speakers, the model successfully captures the overall low productivity of the sandhis in wug words despite the exceptionless input to the learner; it also captures the higher productivity of 24  $\rightarrow$  33 than the opaque sandhis in the tone circle. Among the opaque sandhis, the predictions for both groups of speakers are also well matched with the wug test results: for the Taiwan speakers, the predicted order of productivity mirrors the order of token frequency, with 55  $\rightarrow$  33 being the highest and 21  $\rightarrow$  51 being the lowest; for the Kansas speakers, however, the predicted order of productivity follows a durational pattern, with the duration reduction sandhi 33  $\rightarrow$  21 being the most productive and the duration increasing sandhi 51  $\rightarrow$  55 being the least productive. The only prediction that the grammars fail to make is the magnitudes of the frequency and duration effects in Taiwan and Kansas speakers, respectively: the predicted effects are considerably smaller than the attested effects. However, regression analyses indicate that the grammars' predictions are significantly correlated with the experimental results. Taiwan speakers:  $R^2=.866$ , adjusted  $R^2=.855$ ,  $\beta=.930$ ,  $p<.001$ ; Kansas speakers:  $R^2=.879$ , adjusted  $R^2=.869$ ,  $\beta=.937$ ,  $p<.001$ .

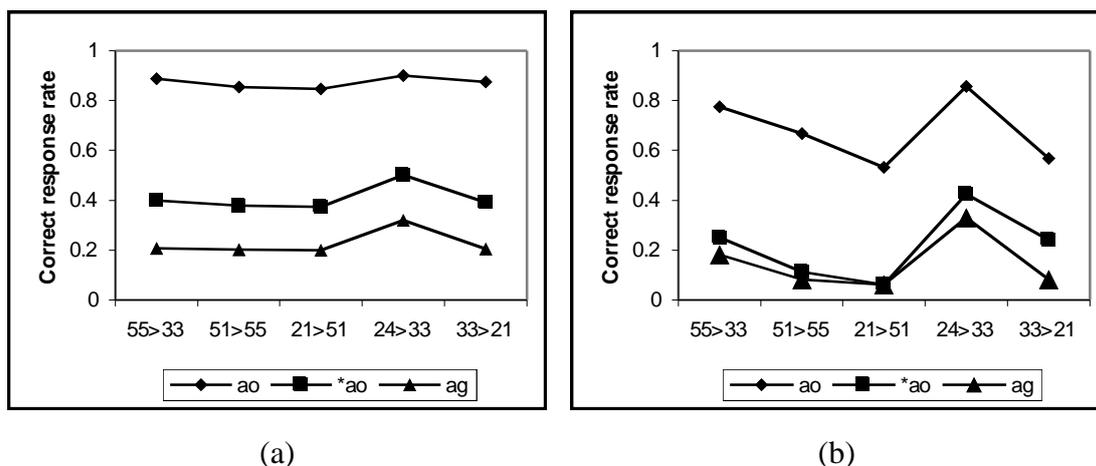


Figure 4: The grammar's predictions (a) and the wug test results (b) for the Taiwan speakers.

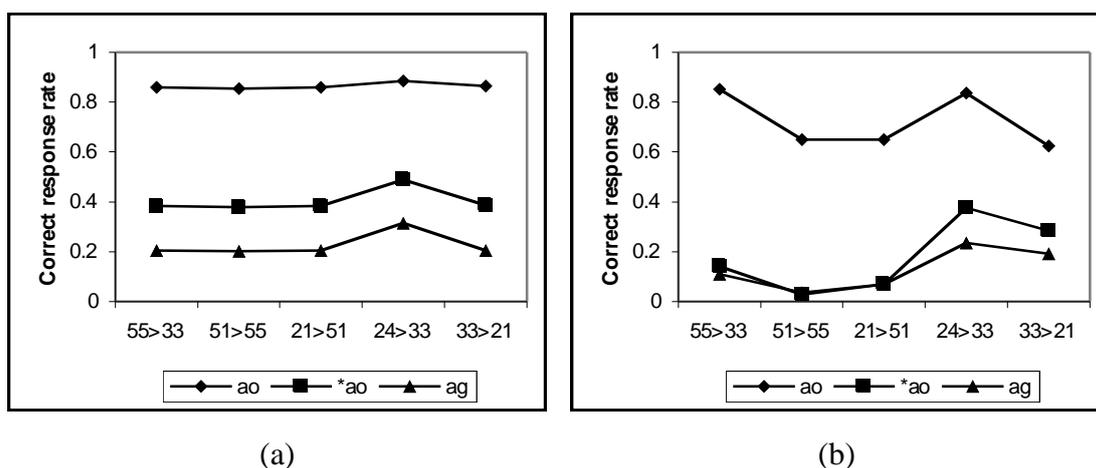


Figure 5: The grammar's predictions (a) and the wug test results (b) for the Kansas speakers.

### 5.5. Model summary

Our model sets out to take on the underlearning, overlearning, and proper learning challenges posed by the wug test data. The underlearning of exceptionless opaque sandhi patterns in the lexicon is achieved by deriving the opaque patterns via USELISTED constraints that directly state the input-output mappings of the sandhis and positing a learning bias against these constraints in the form of lower  $\sigma^2$ s. The magnitude of the effect predicted by the model is well matched with the experimental results. The overlearning of the phonetic knowledge despite the lack of information from lexical statistics is modeled by a substantive learning bias against phonetically

unmotivated patterns, again in the form of lower  $\sigma^2$ s, *à la* Wilson (2006). The model succeeds in predicting the existence of this effect, but the predicted effect size is small compared to the experimental results. The proper learning of lexical statistics happens naturally for the learner, as the MaxEnt model inherently encodes the frequency effects by letting more frequent patterns to have greater pulls on constraint weights. But the magnitude of the effect predicted by the model is again small compared to the experimental results.

The small size the phonetic effect in the model is a direct result of the small frequency effect. Since the model needs to ensure that for Taiwan speakers, the phonetic effect is overshadowed by the frequency effect, it is not able to assign greater substantive biases according the durational property of the sandhis; in particular, the substantive bias cannot be greater than the frequency effect derivable by the model from token frequency exposure. What the model crucially needs, then, is a mechanism that predicts not only the existence, but also the correct magnitude of the frequency effect observed from the wug test.

The lack of frequency effect for the Kansas speakers is captured in the model by feeding it learning data that provide no frequency differentiations among the different sandhis. We recognize that a more comprehensive model should also have an explicit mechanism that captures the attrition of the frequency effect due to lack of usage and the corresponding constraint weight adjustments in the grammar that reflect the usage change. We take the last two points of discussion here as directions of future effort to improve our model.

## **6. Conclusion**

Our wug test study on the tone sandhi patterns in Taiwanese showed that gradient factors such as phonetic duration and lexical frequency interact with formal factors such as opacity in meaningful ways in influencing the productivity of phonological processes. For Taiwanese tone sandhi *per se*, opacity outweighs phonetics and frequency as a global effect, while frequency and phonetic effects are dependent on the speakers' usage of the language in that frequency effects are evident for everyday users of the language, while phonetic effects only surface for occasional users for whom the frequency effects have been weakened due to the lack of use of the language. We have taken the position that a more fruitful approach to phonological grammar is to incorporate both processing and phonological factors to predict the observed behaviors of speakers with different

usage backgrounds, and we have shown that a Maximum Entropy grammar that encodes learning biases against lexical listing constraints and phonetically unmotivated patterns can model the simultaneous underlearning of exceptionless opaque patterns, overlearning of phonetic effects, and proper learning of lexical statistics by the two groups of Taiwanese speakers. Finally, an important methodological point also emerged from the study: in experimental phonology research, *where* the speaker comes from can have a significant impact on both the experimental result and its theoretical modeling, and we as researchers need to be aware of this potential effect and incorporate it in our analyses and modeling of phonology when appropriate.

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## Loans and Language Contact Models in Algonquian and French Cree\*

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When asked about some modern expressions taken from a European language, mainly English, like **computer**, **internet** or **plane**, **Ojibwe** speakers often hesitate, when interviewed in the experiments<sup>1</sup>, referring either to a standardized pretence, such words would not exist in their language, or presenting skilfully a big variety of the language's own corresponding words, like **mazinaabekiwebinigan**, **waazamoo-assab** or **bemissemagak**. The preference for such neologisms may be associated with a kind of national purism from a modern European point of view, but on the other hand it coincides with what we find in early statements made by Baraga and other authors about the language and its nature – characterising it as “being that rich and dynamic that it tended to express all things by own words and forms”<sup>2</sup>. This peculiarity seems to be true of many other Algonquian languages as well.

On the other side, there is the case of the **Michif**<sup>3</sup> language within the same linguistic and geographic context, showing an extreme opposite to the situation

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<sup>1</sup> We mainly refer to lexical data collected by Dvořák from experiments with native speakers, compared with the material available in Nichols & Nyholm (1995) and Rhodes (1985).

<sup>2</sup> Friderik Baraga, letters to sister Amalija, August 1831.

<sup>3</sup> The names *French Cree* and *Michif* denote the same language and are used as synonymous terms in this publication.

above, in combining two typologically extremely different grammars consequently in one system, with the nominal part almost completely integrated from a non Algonquian language, French, representing therefore a striking contrast both to Algonquian and most other language contact cases in general. As to French, it is often involved into “normal” language contacts, from which several Creole languages<sup>4</sup> arose, as is also the case with many other Romance languages; thus it presents a good base for a typological comparison between what is supposed to be a **mixed** respectively a **creole** language. The comparative view of some detailed material reveals essential differences – and parallels – between these two types of languages resulting both from extreme language contact situations.

What is the concrete relation between language type and possibilities for loans and borrowings? This and further questions about contacts between European and Algonquian languages arise when we consider older statements, new opinions and own observations; most parts of gathered information seem to bring some evidence for the proposed or at least indicated (Rhodes, pc<sup>5</sup>) claim that Algonquian languages show a certain immunity from influences by other languages, based mainly on complexity and type of their morphological structure. It is likely to assume that loanwords should be rather rare<sup>6</sup>, therefore, when compared with other situations of contact between (more closely related) languages. The peculiarity described initially should therefore not surprise, according to some legal speculations about connections between language types and their contact behaviour.

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<sup>4</sup> Data from comparative studies in several French-based *Creole languages* gathered and analysed by Steinkrüger are used for the systematic comparison between this type of language contact relations and that found in French Cree as a *mixed language* (sensu proprio) as described by Bakker (1997).

<sup>5</sup> This tendency was also mentioned and briefly commented at the 2006 Rara et Rarissima Conference in Leipzig after the talk about Ojibwe Morphology by Richard Rhodes, to whom I owe my thanks for patiently answering my numerous questions.

<sup>6</sup> This conclusion represents a further step though, as the above assumption is mainly expected to apply on the morphological structure itself, as being stable in the sense of “unchangeable”.

But how should the striking exception of Michif be interpreted in this context? Although being considered as a typological rarum, or – due to the sociolinguistic situation given at its origin – a systematically planned or constructed language<sup>7</sup>, this structure might be considered as an evidence for the assumed contact difficulties based on morphological structure rather than being in opposite to them; the present consideration attempts to associate Michif as a mixed language phenomenon with the tendencies found in general in the languages of the Algonquian family, when exposed to contact, with an account based on morphological structure and dominant parts of the grammar. With Michif and Algonquian morphology, some systematic differences between Creole and mixed languages arise, which can be compared in several aspects of grammar and language contact situations.

Admittedly, there are some points of view which can make it quite acceptable to assume that the strange observation mentioned initially is due to a purist attitude of the speakers towards new words. Coming from a foreign language, they may be viewed as a threat for the mother tongue, since they usually represent new concepts and may often be associated with formerly unknown elements of a new “way of life” and thus eventually considered as threatening the traditional life and heritage, to which the native language is naturally considered to belong. This may be considered as an impediment for new words to be overtaken in the native language, representing thus a big contrast to the creole languages and leading to the above phenomenon – but is it a real one in our case? Why not simply use the words coming from another language, as this is the most simple way and also represents the most usual behaviour in language contact situations? We are trying to explain.

Two other different kinds of behaviour towards the new expressions and concepts associated with them, can generally be observed, both of which seem also to be (at least partly) found among Ojibwe speakers: In the first case, new concepts are not necessarily overtaken into the own language together with the new words from another language, although the innovations are accepted and present in the everyday life; the speakers try

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<sup>7</sup> This is but one of several hypotheses given and explained in Bakker, among which the components of the sociolinguistic situation (intermarriage, mixed identity, social delimitation) clearly prevail as bases for the explanation of its origin.

to systematically integrate the innovations by finding new expressions for them based on the material available in their own language, a widespread phenomenon observed by many languages from different families and types and especially well known in the European area, and this also seems to be the case in our example in Ojibwe. It should be mentioned, though, that this behaviour generally includes at least some influence by a systematic language policy – and the most speakers of the most languages are generally considered to be more likely to accept any foreign word for a new thing of a formerly unknown concept when being confronted with it, in spontaneous situations of language contact – which seems to be an important point for our latter argumentation. But once the way is indicated, the efforts of this “creative method” may result in new conceptualizations for the things as well as in concrete and “faithful” word-by-word translations and, not rarely, calques<sup>8</sup>. Several types and stages of such easily controlled and nationally oriented language purisms (neologisms) – combined with different degrees of loanword tolerances – are known for many European neighbouring and, mostly, related languages.

The other possibility is much less innovative – but not more preservative at all; it consists in restricting the field of use of the own language to commonly known traditional world areas, in that the speakers (consciously or unconsciously?) avoid talking about “the new things” in their own language and seemingly prefer to switch to the foreign language for that purpose – this can seriously endanger the language and may also lead to its death in a long-term view, especially if the foreign language is dominantly used in the same area, and most speakers are bilinguals. This kind of “interaction” is more typical for less related or very different languages. We suspect to have observed such tendencies among some Anishinabe populations as well, since several of the speakers confronted with word lists designating technical devices in English did not like

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<sup>8</sup> There are huge amounts of example material like Breton *dada* “sweet” from French *bonbon* (“good-good”) or Slovenian *izlet* “trip” from German *Ausflug* (“out-fly”), to mention but two European examples. The Ojibwe word for “internet”, *waazamoo-assab*, partly represents this kind of translation, with *assab* (fishing net) and the prefix *wazamoo-* designating “electric” (< lightning), whereas *mazinaabekiwebinigan* “computer” is semantically a new invention, meaning a “picture up and down throwing machine”.

to talk about this item at all and even obviously thought we were making fun of them<sup>9</sup>. However, as quite some speakers in the same areas were able to spontaneously list (or find out by asking other speakers) a big amount of Ojibwe-own expressions for numerous modern technical devices including many details we did not even ask about (as eg. *computer-mouse, keyboard, mouse-pad* etc.) as well as other things pertaining to the context, we suppose that this kind of creative word-forming is well spread and generally productive in the language – and does not represent an exceptional purist attitude. Nevertheless, a kind of taboo-like behaviour can still be noticed from time to time when talking about things concerning the “modern way of life”<sup>10</sup>.

On the other hand, there is an obvious lack of loanwords in this respect, and this was the very starting-point for such tests and considerations – since this observation seems to correspond with both the neologism tendency on the one and the taboo-like attitude on the other side. Surprisingly, some evidence on this behaviour can also be noticed in modern works about Ojibwe and related Algonquian languages of several contemporary authors – but no clear statements or appropriate comments on these observations can be found, except some very short and rather accidental notices<sup>11</sup>. All these considerations as well as our own evidence seem to coincide amazingly with what the earlier authors told when writing their first descriptive works about Ojibwe and other

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<sup>9</sup> Much time was needed initially to obtain the list of such expressions, as we started by full sentences containing them; the original idea was to check how loans from English would be integrated into the native context of morphology and syntax – and to look at phonological consequences. Technical devices were chosen, as it was likely to find many loans in this lexical area – and thus the latter systematic observation was somewhat accidental. I also often wondered if the modern concise dictionaries written by Nichols/Nyholm and Rhodes, containing extremely few loanwords, but huge amounts of indigenous neologisms in these fields, can really reflect the language reality; it came out that they mostly do.

<sup>10</sup> At this opportunity we would like to mention our belief that projects of language encouragement by supporting and popularizing traditional native activities are good and important, but should not be restricted to that; the only responsible and adequate method of language encouragement should cover all fields and levels of a language, without limiting it to a certain biotope.

<sup>11</sup> Rhodes, eg., notices in his 1985 dictionary, that Anishinabe people are more likely to spontaneously switch to English when talking about new concepts than accepting the word into the native speech.

Algonquian languages; Friderik Baraga (1797-1868), who worked as a missionary among the Anishinabe populations (Ojibwe and Ottawa) in the Great Lakes area since 1830 and was nominated “Indian Bishop” in 1852, writes in the letters addressed to his sister Amalija that Ojibwe tends to describe words from European languages in compound word constructions rather than borrowing them. It is amazing in this respect, that the same peculiarity can seemingly be observed in the modern Ojibwe 170 years later. Missing loanwords and borrowings could be an indication of a strong and dominant morphological structure. According to the requirements of this structure, it could be expected that creating new words within the inherited categories of (eg.) *animacy*, *transitivity*, *activity* and *obviation*, is somewhat easier than overtaking loans from other sources into the native language system. Admittedly, it is still difficult to exactly determine what kind of constraints there are or should be for a foreign word whether it can be integrated into the native language system or not, by sole observation that this is predominantly not the case; however, with strong and practically omnipresent categories as *animacy* and *reference tracking/ obviate* and *inverse morphology*<sup>12</sup> dominating the language system, it is to expect, that words taken from outside the system are simply ruled out by the very fact that they are not compatible with the existing categories, as they originally lack an adequate category in their source language. The essential point however seems to be the fact that the animacy constraint rules basic grammatical principles with respect to which types of verbs have to be used with a certain word as object or subject in a sentence, as shown in the following examples;

- |     |     |                           |                      |
|-----|-----|---------------------------|----------------------|
| (1) | a)  | <i>Memengwaan</i>         | <i>owaabamaan.</i>   |
|     |     | Butterfly (NA) <b>obv</b> | 3.see VTA <b>obv</b> |
|     |     | ‘(S)he sees a butterfly.’ |                      |
|     | a’) | <i>Memengwaa</i>          | <i>niwaabamaa.</i>   |
|     |     | Butterfly (NA)            | 1.see VTA            |
|     |     | ‘I see a butterfly.’      |                      |

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<sup>12</sup> It is worth mentioning that the system of inverse morphology/ obviate marking is considered as unique by some authors in Algonquian languages; Wunderlich (2006, pc) even calls it “a genial invention”, on the base of which he argues against the universal rules of Chomsky’s syntax movement.

- |     |                                  |                      |
|-----|----------------------------------|----------------------|
| b)  | <i>Bemisemagak</i> <sup>13</sup> | <i>owaabandaan.</i>  |
|     | plane (NI)                       | 3.see VTI            |
|     | ‘(S)he sees a plane.’            |                      |
| b’) | <i>Bemisemagak</i>               | <i>niwaabandaan.</i> |
|     | Plane (NI)                       | 3.see VTI            |
|     | ‘I see a plane.’                 |                      |
| c)  | <i>Bineshiinhyan</i>             | <i>owaabamaan.</i>   |
|     | bird (NA) <b>obv</b>             | 3.see VTA <b>obv</b> |
|     | ‘(S)he sees a bird.’             |                      |
| c’) | <i>Bineshiinh</i>                | <i>niwaabamaa.</i>   |
|     | bird (NA)                        | 1.see VTA            |
|     | ‘I see a bird.’                  |                      |
- 
- |     |    |                             |                  |
|-----|----|-----------------------------|------------------|
| (2) | a) | <i>Dekaag</i> <sup>14</sup> | <i>omiijin.</i>  |
|     |    | ice-cream (NI)              | 3.eat VTI        |
|     |    | ‘(S)he eats ice-cream.’     |                  |
|     | b) | <i>Dekaag</i>               | <i>kimiijin.</i> |
|     |    | ice-cream (NI)              | 2.eat VTI        |
|     |    | ‘You eat ice-cream.’        |                  |
|     | c) | <i>Wiisini.</i>             |                  |
|     |    | 3.eat VAI                   |                  |
|     |    | ‘(S)he eats.’               |                  |

In (1a) a 3<sup>rd</sup> person subject sees an animate object, which therefore has to be marked (on both the noun and the transitive verb stem) by the *obviative* ending; the obviative category partly corresponds to the object-marking system known from European languages as Accusative case, but it is always used when more than 1 animate element (subject or object) occur in a sentence, whereas it does not apply to sentences with 1<sup>st</sup> or 2<sup>nd</sup> person

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<sup>13</sup> *Bemisemagak* “plane” is an active participle to the verb *bimise* “to fly”.

<sup>14</sup> *Dekaag* “ice-cream” is a passive participle to the (vii) verb *dakaa* “be cool”.

subjects (a'). Additionally, another verb stem is used in (b) – applying for inanimate objects<sup>15</sup>, different from that for animate objects. In c) the object is animate again.

With *dekaag* “ice-cream”, we have an inanimate object in (2), with no further marking required (a, b); in (c) there is no object in the construction, and another verb is used therefore.

With those complex structures pertaining to both verbs and nouns at the same time in an obligatory relation, and, as already said, being omnipresent in the language system, it seems to be very difficult to suddenly adopt a foreign expression for a technical device like “computer” or “plane”, an abstract conception like “politics” or a professional term like “politician” – since the knowledge about animacy, associated with the use of different verbs, is inherited – in comparison to “simply” creating it by using the well known and compatible material, which the speakers are acquainted with. A further point has to be mentioned in this context, which can be made evident in (4): the fact that many verbs (at least partly) contain what would be obligatorily expressed by a separate noun in a European language; this characteristic, which can be considered as (at least partly) polysynthetic (with the semantic and the morphological meanings to be differentiated), may be an additionally hindering factor in overtaking loan words – and is obviously a facilitating circumstance for creating new words in Algonquian languages.

- (3) *Mazinaabekiwabiniganing*      *ozhibii`ige*.  
computer (NI) + **Loc**                      3.write VAI  
'(S)he writes on/with (a) computer.'
- (4) *Dibaakonige*.  
3.be in politics VAI  
'(S)he is politician/ is in politics.'

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<sup>15</sup> This verb stem differs from that for animate objects in containing the *-nd-* element, which is a systematically productive morpheme; in some other cases animacy associates different lexical stems.



Since we have to deal with just the extreme opposite in French Cree, the famous mixed language combined (mainly) of Cree verbal and French nominal system, where nouns were systematically integrated into the language, it is worth considering how and whether we can find a systematic explanation for this contrast in a broader context of the observations made and somewhat typical for Algonquian languages. Even if it seems to be an absurd idea to connect these two extremes at the first glance, we would like to formulate the theoretical possibility to interpret them as belonging to the same phenomenal context, which we expect to be connected with what we called *dominant morphology*. The difficulties appearing in connection with adopting foreign words seem all to be caused predominantly by the complex structure of differentiated marking of animate and inanimate objects and different types of verbs connected with them in Algonquian languages – and there seem to exist two possibilities to consequently avoid them:

- 1.) A more or less strict inventive method including new creations and/or constructions corresponding to the foreign expressions by using inherited material compatible to the grammatical rules and excluding any foreign elements – as interpreted above, or
- 2.) A more or less complete integration of the foreign nominal system by overtaking it consequently as a whole, which enables the speakers to keep the inherited language structure widely intact – with adding the complete foreign system to it.

In the case of Michif, the option (2) has been chosen, leading to the most unusual language possible, with two grammatical systems coexisting and remaining (almost entirely) stable; this is possible, as the Cree verb system – representing the dominant grammatical element – remains mostly uninjured, as shown in the few examples;

- (5) *Li memaengwaen tukoushin*  
 DAMSNA VAI  
*daw li praentawn.*  
 Prep. DAMSN  
 ‘The butterfly appears in the spring.’

- (6) *Si boon la moor shioushtawhk.*  
 It is good DAMS love V to do.  
 ‘It is good to make love.’
- (7) *John ki-wapam-e-w aen šaen. (/ aen šaen-wa)*  
 John Perf-see-3Obv 1 dog (NA)  
 ‘John saw a dog.’

In (5), (6) and (7) the Cree verbs are underlined; the French nouns appear with definite (*li/la*) or indefinite (*aen*) articles, which are also used in the rare cases when words are of Algonquian origin (*li memaengwaen* < Ojibwe). This situation is opposed to that (mostly) found in creole languages, characterized by an extensive reducing and reorganising of the grammar, as evident on the few examples gained by Steinkrüger (2006) from Mauritius Creole;

- (8) *Eski ou kapav koz kreol avek mwa?*  
 Q you able speak creole with 1. non-subj  
 ‘Can you talk creole to me?’
- (9) *Fer enn lot pri pou mwa!*  
 make a other price for 1. non-subj.  
 ‘Make another price for me!’ (Faites un autre prix pour moi!)

On this comparison we see that Michif truly represents another language type, which is not to be confused with that of the creole languages; based on the observation of how the French elements are integrated in the respective system, we can conclude in underlining the following essential differences: whereas creole languages result from mainly *restructuring the whole system*, the *emergence of new categories* and a high degree of *simplification*, mixed languages like French Cree are built by *coexistence/combination of strategies*, *substitution of categories* and an increased *complexity of the system*.

In our short contribution we tried to interpret both the difficulties of nominal loanword acceptance observed in several Algonquian languages and the apparently op-

posed complete integration of the French noun system in Michif as two sides of the same phenomenon, based on the *dominant morphology* of the Algonquian<sup>20</sup> languages.

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<sup>20</sup> Since there is some discussion about whether Michif has to be considered as a mixed or as an Algonquian language – in spite of the productive use of the French definite article *li/la* also for English loans (“*la fun*”, “*la light*”) Rosen considers Michif to be entirely Algonquian – this term may be used correctly.

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# **Solving Post-positional Ambiguity: A Lexical Filtering Device for Hindi Simple Sentences**

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## **Abstract**

My aim in this paper is to work on the spatial cognition in Hindi. This paper finds its root in artificial intelligence. The basic inquiry that shapes in this work is: How can one produce and interpret locative expressions that are appropriate in a given context? This paper will present an analysis of the semantics of locative expressions. The paper will examine the possibility of constructing a computational model of comprehension and production in the spatial domain.

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**Keywords:** Artificial intelligence, Cognition, Locative, Semantics, Computational model, etc.

## **1. Introduction**

Hindi is the name of the language spoken chiefly in north India. This region has states namely Rajasthan, Madhya Pradesh, Chattisgarh, Uttar Pradesh, Uttaranchal, and Bihar. The main aim of this paper is to demonstrate the play of locative expressions in Hindi. It is a SOV language and locative expressions occur post – positional. As in:

1. *pese ke upar katori: rakhi: he*  
coin PREP.SUF. on bowl placed is.AUX

“The bowl is on the coin.”

Here the interesting element is that “*ke upar*” (on) is made of two different locative lexicons but it gives the sense of one locative that is ‘on’ as translated into English. Contrary to SVO languages like English where a locative expression modifies the following phrase in Hindi a locative expression works as post – modifier. Keeping in mind how people can produce and interpret locative expressions that are appropriate in a given context, the data in the paper mainly focus on these questions:

- (i) How do people manage to produce and interpret locatives?
  - (i-a) Do the locative phrase, and the locative phrase in a sentence give the same interpretations, or they vary?
  - (i-b) Why do certain locative phrases come as a null phrase, and others get full expression?
- (ii) What is the possible syntax semantics interface in the construction of locatives?

## **2. Argument**

As we know in human language processing, our brain computes the performance which works out in a given context, and “the brain is viewed as an information processing system in which data can be stored and retrieved and operated on(Sanford,1987)” To prove the accountability of a given performance the question how the acquired knowledge is put to use is crucially important. A human compute system works on the following terms: How we take in the observe data, process it, and work out for actual use, given various contexts. Before giving an explanation to the problem: What are the relevant brain mechanisms for spatial cognition? It would be appropriate to suggest that in general conversation we are not aware of computation consciously<sup>1</sup>. This can be shown by giving a native speaker of Hindi the following sentences: For example:

2. *pen kita:b me he*  
pen book in.PREP is.AUX

“The pen is in the book.”

The speaker cognizes one situation-the book is closed, and the pen is inside the book. He cannot say that the book is open, and the pen is in it. For this interpretation he will use different locative expressions like ‘par’ and the sentence would become:

3. *pen kita:b par he.*  
Pen book on.PREP is.AUX

“The pen is on the book.”

The sentence 3 helps him to cognize two different situations:

- a. The book is closed and the pen is on the book.
- b. The book is open and the pen is on it.

This clarity has come out because locative expressions occur in the sentence. If they were used in the phrase:

4. *kita:b me pen.*  
Book in.PREP pen.

“The pen (is) in the book.”

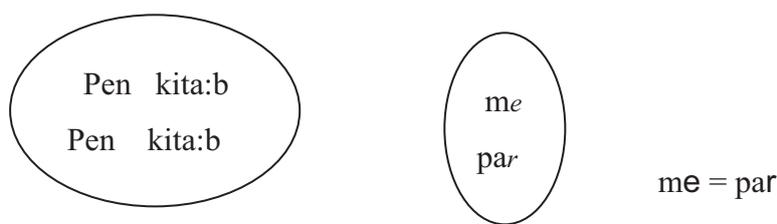
Or

5. *kita:b par pen.*  
Book on.PREP pen.

”The pen (is) on the book.”

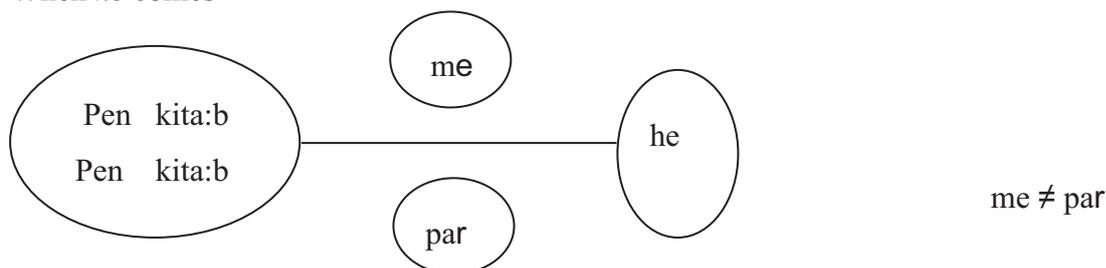
The native speaker is not able to comprehend the various interpretations”(undoubtedly all these embarrassing exaples reveal that the choice of different levels of abstraction in different languages constitutes a highly relevant lexical-

typological parameter(Peter Koch,2001)” if they were used in the phrases. This proves that locative expressions find their meaning in sentences. Though we acquire a language in phrases yet we comprehend it in sentences. Hence syntax finds its expression in pragmatics. From the above example an interesting fact comes into light that verbal element adds clarity to the sentence, and provides various interpretations. Lemke, in this context, argues that in all dynamical systems which show individual properties, we have a situation where “elementary units on any scale interact with many others so that collective properties emerge, we rapidly reach levels of complexity of compound units for which there can be individual identity, memory, and history(Lemke,1997)” Now the question arises whether verbal element entails the post positional meaning or post positions find their meaning itself in the sentence. Let’s take two examples:



**Diagram – I -** Post position without *he*.

When *he* comes



**Diagram – II –** Post position with *he*

## 2.1. Argument

We can say that both *me and par* locatives function like planets, and don't possess any light of their own but when the verbal element *he* comes like sun they start illuminating and showing their light. Then the logical question arises why do we not use full expression in our day to day conversation? The possible answer is: we have been attuned to the economy principle<sup>2</sup> since our childhood. Children expect from their adults to understand what they are intending to say with context by using minimal expressions, and for this reason social environment is important to children's development because it can accelerate or decelerate development(Vygotsky,1962).” For example, if a child says “mil” she may try to express:

- a. Milk, no milk
- b. Give me milk.
- c. I like milk
- d. I do not milk
- e. I have taken milk; and thousands of similar expressions

Now it is up to the mother to understand the minimal expression in the correct context. Similarly competent speakers want to use language minimally, and try to express maximal meaning. The inborn economy tendency in every human being gives rise to thus infinite expressions. Another possibility is that locative expressions show their dependency on other lexicon (noun, verb, etc.), when they come as post position and adverb. As for example:

6. *kamere se fal le a:o.*  
Room from.PREP fruits take come.

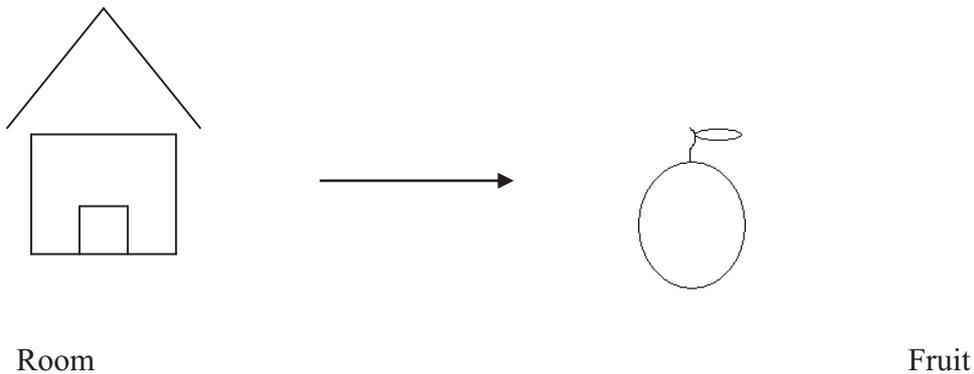
“Bring fruits from the room.”

And

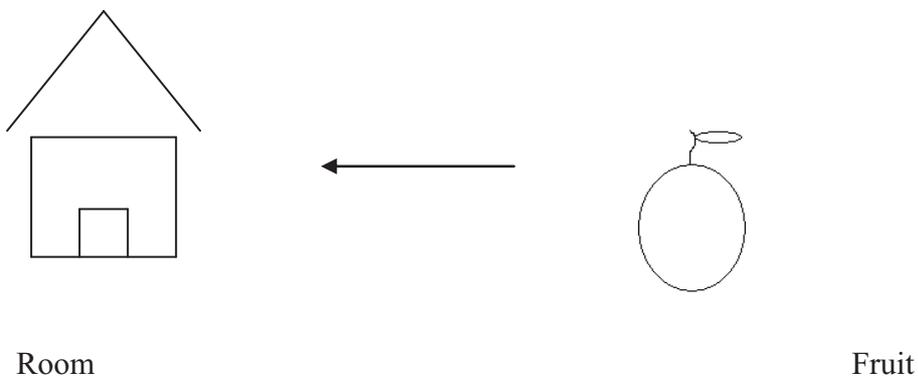
7. *kamera: me fal le a:o.*  
Room in.PREP fruit take come

“Bring fruits in the room.”

Here *se* and *me* represent certain spatial location and their meaning is inverted to one-another with reference to the movement of object and goal.



**Diagram – III** – Movement of object from location for *se*



**Diagram – IV** – Movement of object to location for *me*

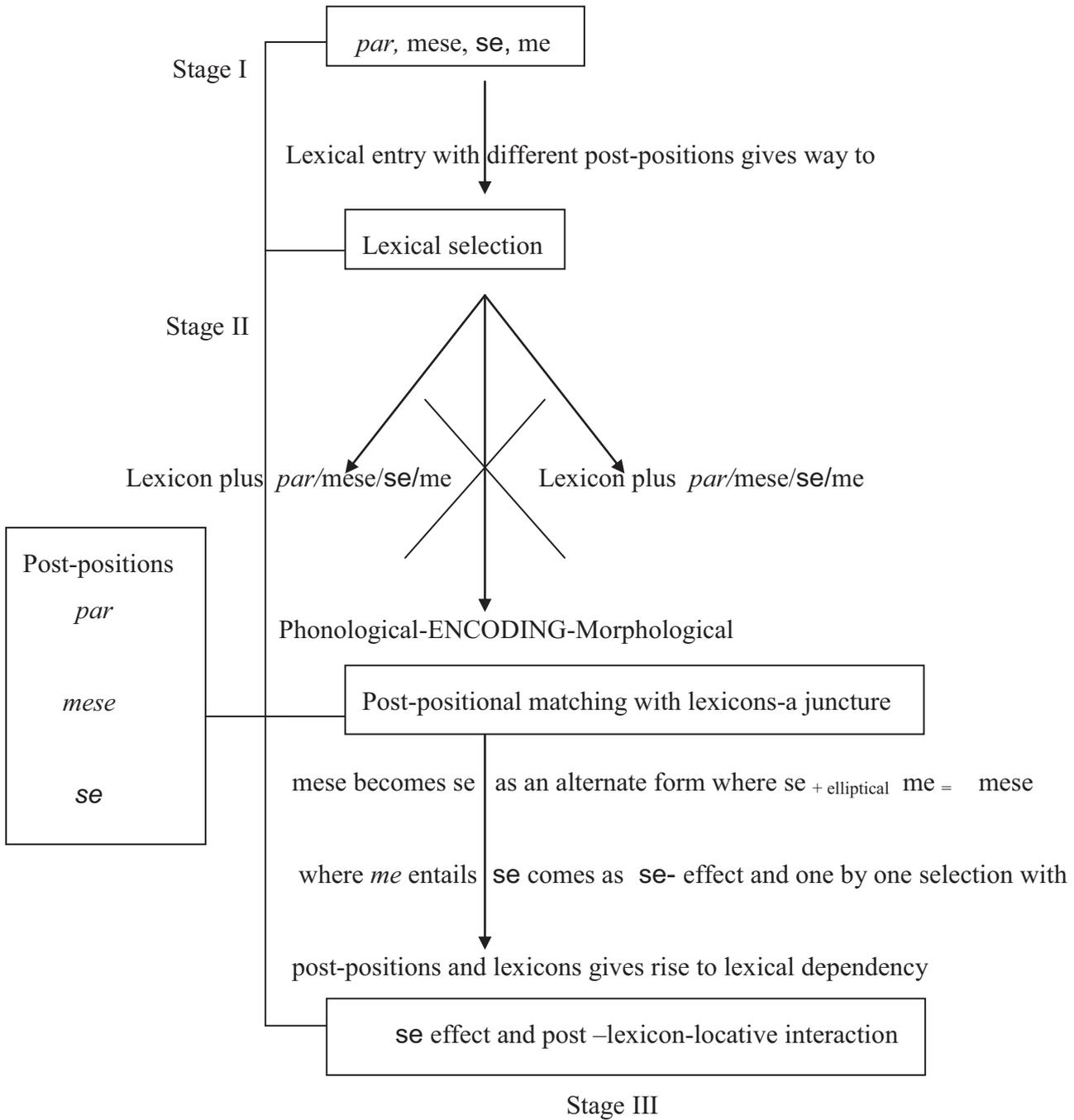
But interestingly there is a post position *mesa* i.e. made of *se* and *me* but gives the meaning of locative of *se*. The reason for this variation is explained as null hypothesis in the paper further. The evidence of null post position is also found in certain noun phrases. As in the question:

8. *ra:m kaha: he?*

Ram where is?

“Where is Ram?”

The possible answer would be *ghar pe or ghar me, kamre par or kamare me* “in home or at home, in the room”. Here *ghar* “home” and *kamre* “room” take both the post-positions *me* and *par* but there are certain lexicons like *i:sku:l(school)*, *ba:ja:r(market)*, *chok(juncture)*, etc. that come with only *me* post- position, and don’t allow the occurrence of *par*. But both of the above mentioned post-positions indicate aim, goal, and objective in the similar manner. The possible criteria for this post-positional selection for specific lexicons(‘morphological motivation’ insists on formal properties of words, whereas ‘semantic motivation’ highlights cognitive relations) can be understood and explained by the computational diagram because “models have been developed for aspects of memory, perception, problem-solving, language production and speech perception...step by step process models are not and can not be the whole concern of information processing theories(Sanford,1987).” This computational model tells us the reasons why certain lexicons come with the specific postpositions. So far the post lexicon locative is concerned the choice of the locatives with the lexicon behaves like a person who is on the road without zebra crossing, and wants to cross the road. The selection of that person for the right timing to proceed depends upon inbuilt calculations of nature that are far more complex and refined with that of advanced mathematics and physics. The competent language user of Hindi uses contextually correct and pragmatically congruous locatives because of null hypothesis and filtering hypotheses. The model below shows the selection procedure:



**Diagram – IV**–Computational model reflecting *se* effect and post lexicon locative interaction

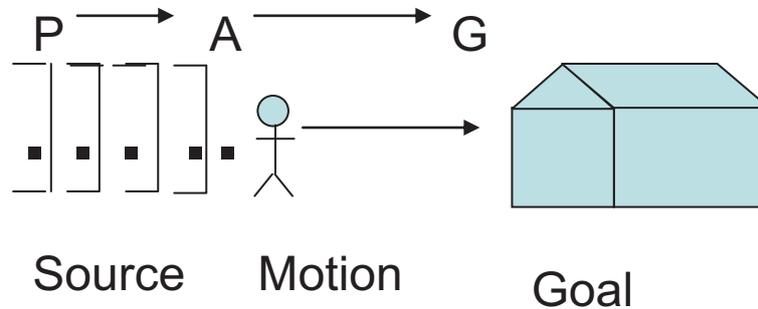
Before putting forward the hypothesis let's have a look over some sentences showing how do the verbal elements effect on the selection of post positions. For example:

- 9.a Ra:m ghar ja:ta: he  
Ram home go is.AUX  
'Ram goes to home'
- b. Ra:m ghar (*me*) ja:ta: he. (*me* = to)
- c. Ra:m gahr (*ne*) ja:ta: he. (*ne*= to)
- d. Ra:m ghar (*ke liye*) ja:ta: he. (*ke liye*= towards)
- e Ra:m ghar (*su:.*) ja:ta: he. (*su:*= from)

## 2.2. Argument

The given parenthesis (*me*), (*ne*), (*ke liye*), (*se*), are different postpositional choices which the speaker may or may not use in the conversation. To tell when a native speaker uses them is a matter of the electrical discharges in brain and nervous system. But we can give a general theoretical description for the above sentences because we can easily understand the workings of mechanical things...such things are substancial, and clear chains of causation(Sanford,1987).” We show:

There is a transfer of agent ‘A’ from any fixed or moving point ‘P’ and the goal is ‘G’ then, the whole process would be like:.

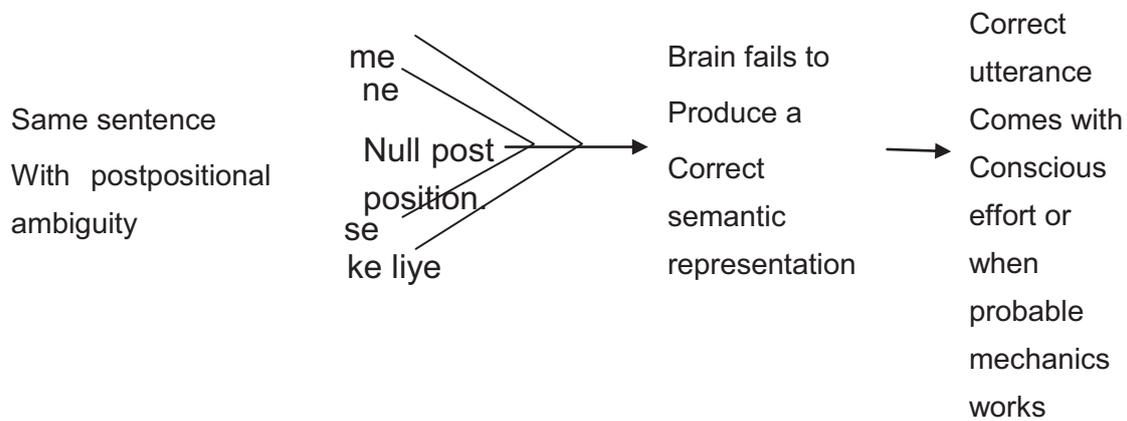


**Diagram-V:** Movement of an agent from the source to the location.

As we know that in any communication, speakers construct sentences which depict state(s) of affairs which the communicators wish to convey to their interlocutor(s). In Hindi, we have these prepositions (*me*), (*ne*), (*ke liye*), (*se*) in the sentences 9.b,c,d, and e, which give the similar sense (s) of 9 a. but the ambiguity among postpositions which the brain fails to compute can be defined through probability mechanics. All these postpositional to= (*nil prep*), (*me*), (*ne*), (*ke liye*), (*se*) expressions in Hindi have high randomness in the conversation. I will propose two hypotheses to show how this ambiguity can be solved in computers by monitoring some of its operations.

### 3. Null postposition hypothesis

My first hypothesis states that there is a null postposition in Hindi: which conserves all the other postpositions given in the parenthesis. In the sentence Ra:m ghar ja:ta: he (IIa), the elliptical gap between ghar and ja:ta: is filled by (*me*), (*ne*), (*ke liye*) or (*se*). We show this:



**Diagram-VI** The relationship between postpositional ambiguities, brains fallacy and probability mechanics

The speakers use the sentence 9a or they may use 9 b, c, d, and e. respectively. We suppose they use either 9 d or 9 e at random with equal probability, i.e. with probability of 1/2. But for 9 b and 9 c, there is also an internal probability of 2/3 for the null postpositional sentence; because the difference between (me) and (ne) is very minute for the speakers (some speakers prefer me instead of ne). We can then find the randomness for computation:

$$9 \quad a \quad = \quad 1/2 \times 2/3 = 2/6 = 1/3$$

This probability result has come out when we consider *me = ne*, and *ke liye:=se* in 9b, 9c, 9d and 9e. (as a native speaker of Hindi my tacit knowledge permits me to equal them and later on apply them in a context free sentence). Now we have three sentences, one is with null postposition, and the rest of the two are with either *me/ne* or *ke liye/se*, to disambiguate. In order to move from this postpositional ambiguity, we need a filtering device which can filter out the wrong expressions.

#### 4. Filtering hypothesis

Our awareness in the conversation shows that computation process is something we apply once we are speaking consciously, and not all the time—“ a set of conceptions being applied to a current situation which lead to a restricted set of terms through which the current situation can be understood or thought about (Sanford, 1987).” The brain’s fallacy and the probability mechanics shows this above. In natural language processing<sup>3</sup>, we require to have access to the syntactic analysis of the sentence as well as knowledge of the prior discourse to produce a correct semantic representation. This filtering device exists in human body as a prior discourse but in computers to get the desired outcome from the input data in language is still a big problem<sup>4</sup>. Our main work is to disambiguate the sentences.

Let us rewrite the sentence 9 with modification.

- 10 a. *ra:m ghar ja:ta: he [par nahi phuchta:]*  
*but neg. reach (trans)*  
b. *ra:m ghar (me) ja:ta: he [par nahi pahuchta:]*  
c. *ra:m ghar (ne) ja:ta: he [par nahi pahuchta:]*  
d. *ra:m ghar (ke liye) ja:ta: he [par nahi phuchta:]*  
e. *ra:m ghar (se) ja:ta: he [par nahi phuchta:]*

The additional phrases given in the brackets play a crucial role to disambiguate the postpositional differences. Earlier we have placed the null postposition as the store house of the other postposition i.e. *(me)*, *(ne)*, *(ke liye)* and *(se)*. But interestingly when we add the additional information to the previous sentences in 10b and 10c prove to be incorrect. This indicates an important factor which in term we codifies the postpositions. The phrase *par nahi phuchta*: ‘but doesn’t reach’ represents an unfulfilled goal which gives an oppositional sense relation to *(me)* and *(ne)*. The filtering device is a negative expression of the verb that deletes sentences 10b and 10c from the computational system. We show this in the following diagram:

FILTER

Ra:m ghar	Null locatives	→			Null locatives	
	(me)	→			* 10b	
	(ne)	→	nahi	ja:ta	*10c	he
	(ke liye)	→	phuhta;		→ ke liye 10d	
	(se)	→	(neg. filter Passes only 10d & 10e)		→ se 10e	

**Diagram-VII The filtering device shows the unacceptable sentences with “\*”**

Earlier we have seen in 9 that all the expressions give the same sense; and the usability criterion was on the random selection for computation.

In Diagram VII we have shown that with the help of filtering device we have not only cleared the half ambiguity but also the excessive probability. And similarly there are other verbs in Hindi which also behaves in the same manner. As we show:

Ra:m	Noun	[nil prep; me, se, ke liye etc.]	Verb he (is.AUX)	FILTERING
Ra:m	Noun-haath,	‘hand’	Verb- jalta: ‘to burn’ he	NEGATIVE SHOWS SAME BEHAVIOUR FOR THESE VERBS WITH THE RESPECTIVE POST- POSITIONS
Ra:m	Noun – Kursi	‘seat’	Verb- beithta: ‘to sit’ he	

**Diagram –VIII Generalized filter for the simple sentences**

## 5. Conclusion

Hence, we can say there is a knowledgeable neuron-functional mechanisms work in brain that “encodes subpatterns of feature values that occur in the environment. The different frequencies with which various such patterns occurring encoded in the set of strengths, of the atoms(Smolensky,1986b:215)” which often permits ambiguity in expressions, and interlocutors often decode the ambiguity by pragmatic fillers. But, at the same time the meta-linguistic system which monitors the correctness of the sentences (about to be produced), can be modified semantically to delete ambiguous representation. This device can solve half of the ambiguity of computation for certain Hindi postpositions.

I have presented here the relationship between computational problem-solving and comprehension. I have collected data showing that locative problems have a vague structure, which needs to be systematically dealt to infer disambiguation. I have also indicated that the comprehension of locatives expression is not a frame-based process, but rather is a constructive process through which the deep structure is built from the sentences. This computation process is done by means of computational model and generalized filter, which build the deep structure on the basis of the semantics of the logical forms of the sentences and on the deep structure under construction. These ideas are being applied to the construction of databases from natural language input, and further implemented to develop a translation machine with high degree of artificial intelligence for computers.

## 6. Notes

1. Icons dominate the language, and the mediation between what we mean and what matters to us is recognised by cultural and semiotic process that at times remains aloof from the immediate spatial and temporal environment.
2. Chomsky’s work on Minimalism focuses light on economy principle where he tries to pare down the linguistics rule like the law of physics.
3. By using this information processing approach of the process model we are equipped to think about thought in a concrete way.

4. Understanding that our intuitions are fallible will we make the effort to question ourselves and seek other's opinions.

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# Linguistic Markers of Information Structure in Latvian

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## **Abstract**

The article gives analysis of two levels of the information structure: the topic – focus structure and the givenness (given – new information) in literary-colloquial speech. Studying these levels attention has been drawn to formal indicators: nominal phrases explicitly expressing the category of definiteness, anaphoric pronouns as well as the indirect order of the subject, predicate and object.

Presuming that the topic is the starting point of an utterance, or that part of its meaning of which the message bears a certain idea, as well as the fact that it is usually before the focus, analysis is given as to what parts of a sentence can form the topic. The attention has also been drawn to how the topic – focus structure is influenced by the opposition given – new partition.

**Keywords:** topic, focus, given information, new information, definiteness.

The research on the information structure is essential in the analysis of the text structure and in identifying anaphoric references. This research will be useful for the development of the semi-automatic semantic analyzer of the Latvian language.

The aim of this report is to define three types of possible explicit indicators of information structure in Latvian. They are: possible indicators of opposition “definite – indefinite”, anaphoric expressions and peculiarities of the word order (mainly position of subject (S), predicate (P), and object (O)) in the context of information structure. The research aims to be one of the first attempts to analyze the information structure of an utterance in Latvian. Consequently, it will mark the main tasks in the analysis of the discourse structure and informative structure in the Latvian language.

The Latvian language together with Lithuanian belongs to the Baltic languages group of the Indo-European languages and is an inflective language, where the ending of the nominal expresses gender, number and case. There are no articles in Latvian.

Dialogues from newspaper articles reflecting literary colloquial speech have been

used as a language material. In comparison with a standardized formal text literary colloquial speech has a more unimpeded sentence structure – and more frequent use of pronouns.

The structure of the given sentences has been first analyzed by applying morphological and syntactic analyzer and manually. The syntactic parser<sup>1</sup> partially marks units related with anaphoric references. The sentences have been considered from the point of view of the information structure: firstly, whether the noun phrase subject or object has any indicator of definiteness/indefiniteness and, secondly, what is the position of the subject – predicate – object with respect to indirect SPO order with further analysis of reasons that influence the indirect order, i.e. – information structure and context or the sentence structure. The mentioned phenomena will not be viewed in parts of complex sentences – principal clauses and subordinate clauses as a linear organization is determined by the structure of a compound sentence in general. Indirect SPO position appears without a particular communicative function – in both clauses – principal and subordinate. Here the main attention will be paid to coordinate sentences with indirect word order and explicit indicators of the definiteness.

Unlike the Latvian linguistics there is plenty of research on information structure and communicative structure in the world linguistics. The functional sentence perspective (terms – “nucleus” and “focus”) contrary to its formal division – grammatical subject and grammatical object – was introduced by Vilem Mathesius (Mathesius 1967: 239) in the 20th century. He points out that this division is not only psychological but also grammatical. Moreover, this division shows that word order in languages with flexible word order is one of the most important indicators of the functional sentence perspective.

Speaking about organization of message, there are various approaches and different terminology. Both “thematic structure” and “information structure” are referred to almost the same phenomenon, but according to the tradition of Russian linguistics we speak about the “communicative organization” of sentence (Тестелец 2001). It demonstrates the relationship of the message with its context and sentence package. Information packaging indicates how information conveyed by linguistic means fits into the context or discourse (Vallduvi and Engdahl 1996: 460). Writing about the communicative structure, Russian linguists point out that its constituent parts are “theme” and “rheme” which partly overlap with the given and the new. Although the English terminology also mentions “theme” and “rheme”

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<sup>1</sup> <http://www.semti-kamols.lv/analyze/analyze.php>

(Halliday 2004: 64), terms like “topic” and “comment/focus” are more frequent.

It is hard to find the most relevant position in the different approaches of discourse analysis as well as its terminology. Igor Mel’čuk points out that communicative structure specifies the manner in which the speaker wants his message to be organized: what should be presented first and what should be added later; what should be explicitly asserted and what can be only presupposed; what should be emphasized and what can be left in the background (Mel’čuk 2001: 58). As the first of the opposition pairs he offers the following communicative categories: thematicity and givenness.

As there is a strong tradition to call parts of the information structure “topic” (the starting point of an utterance; part of its meaning of what the message bears a certain idea) and “focus” (what is communicated about), these terms will be used in this article. I regard these terms as analogue for “theme” and “rheme” [VPSV 2007].

Without going into details, but keeping in mind that frequently the features of the topic, the given and the definite overlap and often the features of the focus, the new and the indefinite are the same, an attempt will be made to analyze the information structure of an indirectly placed object and the subject with explicit indicators of definiteness, by separating two levels – themacity and givenness.

Information status of a nominal is very important in information structure. In many languages a noun phrase may contain an element, whose sole or principal role is to indicate the definiteness or indefiniteness of the noun phrase. In Latvian there is no regular category of definiteness, thus formally it is more difficult to separate the given information from the new. However, there are some indicators which allow us to identify the phenomenon either as new, unknown and indefinite or, as mentioned before, definite and as referential in discourse – indefinite and definite adjectives, demonstrative pronouns in the function of an article, anaphoric pronouns and word order.

Definiteness of the noun phrases in Latvian can be revealed with an adjective as attribute. The adjective strictly demands the category of definiteness. Indefinite adjectives in Latvian are older. They were used in all situations including a noun phrase with two attributes – pronoun and adjective. However, in Latvian as well as in Lithuanian, the indefinite – definite position has developed gradually. The definite ending has formed by the adjective in a definite number, gender and case by adding a pronoun *jis\*/ji\** (he/she) in the corresponding gender, number and case (*labai* (good-F.DAT.SG.INDF) + *jai* (she-F.DAT.SG) > *labajai* > *labajai* (good-F.SG.DAT.DEF)). (Endzelīns 1907: 55) Certainly, not always the definite or indefinite ending of the

adjective possesses the function to indicate the definiteness.

Although not regularly, but definiteness can be indicated by a demonstrative pronoun in the function of an article (*šīs* (this-M.NOM.SG.), *šī* (this-F.NOM.SG)) which is the attribute of a noun. The use of the demonstrative pronouns in spoken Latvian shows that it is often necessary to express the definiteness of the certain object or phenomenon and the relationship with the prior utterance and context. Together with other indicators of definiteness the text will also deal with anaphoric pronouns (*tas*, *viņš*).

It is more complicated to distinguish indefiniteness as it is marked by the indefinite pronoun, the indefinite ending of an adjective or is expressed by word order. One of the possibilities to mark the nominal phrase as new, unknown before and indefinite, is to place the syntactic subject after the verb at the end of the sentence. It is vivid in fairytales rendered by children e.g., in (1), (2) and (3).

(1)

<i>Dzīvoja (PRED) meitenīte (SBJ)</i>
There lived a little girl
Focus
New information

The whole sentence is new information and the subject is also indefinite. Research on such structures in natural Latvian has still to be done, as there is similarity with sentences with indirect word order without subjective information, i.e. *Līst lietus – līst*(rain-PRS.3SG) *lietus* (rain-M.SG.NOM) – *It is raining*. It seems that in such sentences we should deal withthetic utterances. Although the first mentioned example could bethetic utterance, indirect word order indicates an indefinite noun.

(2)

<i>Viņai</i>	<i>bija (PRED)</i>	<i>pīrādziņi (SBJ)</i>
she-F.SG.DAT	have-PST,3	bacon buns-M.PL,NOM
Topic	Focus	
Given	New	
She had bacon buns		

(3)

<i>Viņa (SBJ)</i>	<i>tos (OBJ)</i>	<i>nesa (PRED)</i>	<i>vecmāmiņai (O)</i>
she-F.SG.DAT	them-M.PL.ACC	bring-PST.3	granny-F.SG.DAT
Topic	Focus		
Given		New	
She brought them to her granny			

In the sentence (4) the definite and the given information is expressed by the determinant at the beginning of this sentence while the subject is indefinite and new in the context.

Analyzing the information structure these indicators can be taken into account, thus identifying the common accessible information and the new first mentioned information for the hearer. The topic, the given and the definite certainly do not mean the same as the definite noun phrase can express also new information (Lyons 1999: 228). It still has to be admitted that in cases when the nominal phrase in Latvian is marked as definite (with its possible indicators of definiteness), this nominal phrase will be qualified as given information.

(4)

<i>Vecmāmiņai</i>	<i>bija (PRED)</i>	<i>vilks (SBJ)</i>
granny-F.SG.DAT.DEF	have-PST,3	wolf-M.SG.NOM.INDF
Topic	Focus	
Given	New	
The granny had a wolf		

Very often it is not possible to change the word order in a certain context in Latvian as this would change the information structure of sentence. On the contrary, changing the word order does not often change the syntactic relationship. The attribute has to be placed before the head of the phrase, while the position of other parts of the sentence is not strictly determined. There could be cases where the change of the position of the attribute changes its function. The attribute turns into semi-predicative component. (*Saule uzlēca sarkana* (semi-predicative component) – The sun rose red; *Sarkana* (attribute) *saule uzlēca* – Red sun rose.) Syntactic function of a modifier can change depending on its placement – whether it is a modifier or a situant. If the verb has several objects they are placed before and after the verb to have the most precise indication of the relationship between the verb and its objects, besides the traditional place of the direct object is immediately after the predicate while the indirect object can be placed either before or after the predicate. Particles and modifiers are very important in the thematic structure of the sentence; however, this report will deal only with the indirect placement of the SPO with emphasis on whether such indirect word order is expressive word order.

Nevertheless all six combinations are possible in colloquial Latvian, analyzing indirect SPO order, order SOP is dominant, and it seems like a neutral word order. Not only in spoken language (less – in literary colloquial speech) but also in newspaper texts there is a trend to start a sentence directly with new information, placing the object,

even indefinite and new, at the beginning of the sentence. However, it seems to be a typical thematic structure of newspapers texts.

In English the topic tends to be expressed by the subject. In the Latvian language, too, the subject is most often the topic while information is expressed in the following order: the topic/given/subject followed by the new/focus/predicate, objects. Analyzing the extract of a text we can see regularly expressed information:

(5)

<i>Šī grāmata (SBJ)</i>	<i>nav ne statistika, ne vispārējo tēžu kopsavilkums (PRED)</i>
Topic	Focus
Given	New
This book	is neither statistics, nor summary of general theses

(6)

<i>Tā (SBJ)</i>	<i>ir par dzīvjiem cilvēkiem (PRED)</i>
Topic	Focus
Given	New
It	is about human beings

(7)

<i>Tā (SBJ)</i>	<i>nav domāta (PRED) tikai juristiem (OBJ)</i>
Topic	Focus
Given	New
It	is not for lawyers only

(8)

<i>Bet arī juristi (SBJ)</i>	<i>tajā</i>	<i>varēs gūt (PRED)</i>	<i>ko noderīgu (OBJ)</i>
lawyers-M.PL.NOM	it-F.SG.LOC	can-FUT.3; find-INF	useful-M.SG.ACC
Topic	Focus		
Given	New		
But the lawyers too will find something useful in it			

(9)

<i>Tā (SBJ)</i>	<i>paredzēta(P)</i>	<i>plašam lasītāju lokam (OBJ)</i>
It	is meant	wide-M.SG.DAT;people-M.PL.GEN;circle-M.SG.DAT
Topic	Focus	
Given	New	
It is meant for a wide circle of people		

The first sentence (5) starts with given/topic/subject. The anaphoric pronoun *tas* 'it' is used in the sentences (6), (7), (8), and (9), giving the same subject. It has to be

mentioned that unit (8) shows, that the new information (*juristiem*) is at the end of the first utterance, but in the next unit it is the topic showing that the information is already given and definite.

Definite nominal phrase can be placed before or after the predicate. It can be expressed as subject and indirect or direct object. If a definite nominal phrase is at the beginning of the sentence it would be natural if it overlapped with the given and the topic. For example, in the following utterance (10), where the subject is not explicitly given.

(10)

<i>To visu (OBJ)</i>	<i>noteica (PRED)</i>	<i>Maskavā</i>
everything-M.SG.ACC	rule-pst.3	Moscow-F.SG.LOC
Topic	Focus	
Given	New	
Everything was ruled in Moscow		

However, if the sentence (11) with a predicate in the third person and without a subject is introduced by situant, the definite object forms the focus.

(11)

<i>Un toreiz</i>	<i>šo ideoloģiju (OBJ)</i>	<i>arī diezgan atklāti</i>	<i>pauda (PRED)</i>
and then	this ideology-F.SG.ACC	rather openly	expressed-PST,3
Topic	Focus		
Given		New	
And then this ideology was expressed rather openly			

It is interesting to observe the communicative structure in utterances (12), (13) where the definite direct object is placed between an anaphoric pronoun as a subject and predicate. Here the subject has the function of topic while the object is focus.

(12)

<i>Viņi (SBJ)</i>	<i>to ainu (OBJ)</i>	<i>zināja (PRED)</i>	<i>diezgan labi</i>
they	that picture-F.SG.ACC	know-PST.3	quite well
Topic	Focus		
Given		New	
They knew that picture very well			

(13)

<i>Bet tos dzejolīšus (OBJ)</i>	<i>man (OBJ)</i>	<i>neviens (SBJ)</i>	<i>nevar īsti atņemt (PRED)</i>
poems-M.PL.ACC	I-SG.DAT	nobody-M.SG.NOM	can't-PRS.3; take away-INF
Topic	Focus		
Given		New	
But nobody can take away those poems from me			

But in the sentence (13) the definite and nominal phrase has the function of the topic, because the given subject stands between the object and the predicate.

Topic can even be a part of the predicate.

(14)

<i>Un tieši</i>	<i>tādi (PRED)</i>	<i>ir</i>	<i>šie skaisti nopļautie lauki (SBJ)</i>
and exactly	such-M.PL.NOM	is-PRS.3	these beautifully mowed fields-M.PL.NOM
Topic	Focus		
Given			
And this is exactly how these beautifully mowed fields look like			

For example, utterance (14) contains only given information. Both nominal phrases are marked as definite. The formal features show that the pronoun *tādi* “such” replaces the mentioned adjective in the previous sentence. Besides, the nominal phrase is expressed by two indicators of definiteness. The adjective with a definite ending is obligatory in relation with the demonstrative pronoun and noun. The question is: what is the topic – focus structure of the utterance. The context tells that the topic is definite and given while focus is not expressed by a typical feature, as it is also definite and given. But it seems that in this sentence topic is expressed by nominal predicate and we cannot talk about sentence-initially focus.

Similar information structure has the sentence (15).

(15)

<i>Tā</i>	<i>manu turpmāko dzīvi (O)</i>	<i>ievirzīja (P)</i>	<i>šī saruna (S)</i>
so	my future life-F.SG.ACC	direct-PST,3	this conversation
Topic	Focus		
New			Given
This was how my future life was directed by this conversation			

Here definite nominal phrase – subject – seems as a final topic but the given (direct object) forms focus. But at the beginning of the sentence there is a situation that

forms topic, and both nominal phrases are parts of focus. The topic expressed by the situant can be seen also in the sentence (16).

(16)

<i>Un pēkšņi</i>	<i>zvana (PRED)</i>	<i>viņa mamma (SBJ)</i>
and suddenly	rings-PRS.3	his mother
Topic	Focus	
New		
And suddenly his mother rings		

## Conclusions

1. If a sentence begins with a subject, the subject is a topic, but if the subject stands at the end of the sentence and in the topic there is a determiner, the subject– nominal phrase – expresses the new information.
2. Preverbal object not necessarily express subjective information. It can be both part of topic (if it comes first), and focus (if the sentence begins with a situant or determiner). In word order SOP, object (even definite) is part of focus, because topic is formed subject.
3. If the sentence does not have a subject or there is only a verb in the 3<sup>rd</sup> person form, the object forms topic, but the verbal phrase – focus.
4. In a specific context topic can be formed also by situants, determinants and nominal predicates.
5. Latvian linguistics still needs profound discussion concerning the terminology of information structure and aspects of its research, as well as analyses of information structure in complex sentences. It would also be vitally important to analyze the sentence intonation, its logical emphasis and the structure of the rheme.

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# A Bound-Variable Analysis of the Korean Anaphor *caki*: Evidence from Corpus\*

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## Abstract

We consider the binding-theoretic status of the Korean long-distance anaphor *caki*. After examining competing analyses, including the cyclic head movement account for long-distance anaphors (Cole et al., 1990) and the treatment of *caki* as a pronoun, we argue that *caki* is a bound variable. We show how this bound variable account can unify local, long-distance, and discourse-bound instances of *caki*. Furthermore, we present the results of a corpus study, the findings of which are twofold. Firstly, we find support for our analysis in that the majority of instances of *caki* fit the bound variable account. Secondly, by broadening our analysis to find alternative means of binding *caki*, we are able to capture purported counterexamples within our bound variable analysis.

**Keywords:** Korean, long-distance anaphor, binding, topic, bound variable.

## 1. Introduction

It has been argued that the binding of long-distance anaphors can be reduced to a series of local dependencies by cyclic head movement of the anaphor to a matrix Infl position at LF (Chomsky, 1986; Cole et al., 1990; Cole and Sung, 1994). As a consequence, these anaphors are predicted to be subject-oriented. In Korean, however, the long-distance anaphor *caki* is not strictly subject oriented, and it is able to be bound by local and non-subject arguments, as in (1).

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- (1) John<sub>i</sub>-i Mary<sub>j</sub>-eykey [Tom<sub>k</sub>-i caki<sub>i,j,k</sub>-lul coaha-n-ta-ko]  
 John-NOM Mary-DAT Ton-NOM self-ACC like-PRES-DECL-COMP  
 malha-yess-ta.  
 say-PAST-DECL  
 ‘John told Mary that Tom likes self.’ (Sohng 2003, ex 11a)

Given that *caki* can be bound locally, as well as at a distance, the need for postulating LF movement is called into question. If *caki* can be bound locally, then an LF movement would violate economy constraints, in that such a movement would not be absolutely necessary to prevent the crashing of the sentence. In this paper, we present a bound variable analysis of *caki* which provides a single account for local and long-distance cases, be they subject-oriented or not.

This paper is organized as follows: in section 2, we show that the current literature suggests two different analyses for *caki*, either an anaphor binding treatment in line with the generative account for long-distance anaphors, or a treatment in which *caki* is considered to be a pronominal, falling under coreference rather than binding. Section 3 will comprise the argument for the treatment of *caki* as a bound variable, based upon a treatment of nominals as generalized quantifiers, and exploiting quantifier raising (QR) as a means of creating the necessary operator-variable structure. In section 4, we turn to corpus data, demonstrating that despite some initially challenging examples, the bound variable analysis does indeed capture all the observed facts. Finally, section 5 summarizes the arguments presented in this paper.

## 2. Anaphora vs. Coreference

### 2.1. Generative Account of Anaphora

In Cole et al. (1990), and further refined in Cole and Sung (1994), it is argued that long-distance anaphors are most adequately analyzed as undergoing movement to a local Infl head, and then undergoing cyclic head movement to the matrix Infl position. There, the anaphor is bound by the matrix subject, the only available c-commanding antecedent. This analysis thus predicts strict subject orientation, even though it is founded upon an otherwise unmotivated initial movement of the anaphor to Infl. Interestingly though, in their discussion of *caki*, Cole et al. conclude that *caki* is not a long-distance anaphor, but rather a pronominal.

This issue is taken up again in Sohng (2003), where it is argued that *caki* can be made compatible with the cyclic head movement account, bringing it in line with the account of other long-distance anaphors in neighbouring languages, such as Chinese and Japanese. Sohng first provides a modified version of this head-movement analysis, adding the possibility that the long-distance reflexive can be chain bound by any NP which binds one of the links in the movement chain up to the matrix Infl. Furthermore, there is an added parameter which states a preference for direct matrix subject binding over chain-binding by lower antecedents. Combined, these are argued to account for local and non-subject binding of *caki*, as in (1), within the cyclic head-movement analysis.

## 2.2. Evidence for Coreferentiality

Even though *caki* can be brought in line with the generative account for long-distance anaphors, there are still arguments which lead to the conclusion that *caki* is in fact a pronominal. As already discussed, *caki* can be bound locally, or long-distance. In fact, *caki* is even more versatile, not even requiring a c-commanding antecedent within the same sentence.

- (2) Na-nun Suni<sub>i</sub>-eykey chayk-ul pilye cwu-ess-ta.  
 I-TOP Suni-DAT book-ACC lend give-PAST-DECL.  
 Kulendey sasil ku chayk-un caki<sub>i</sub> oppa-ka  
 and yet in fact that book-TOP self elder brother-NOM  
 ceney nay-key pilye cwun kes ita.  
 before me-DAT lend give thing be  
 ‘I lent a book to Suni. But the fact is that self’s brother had lent it to me before.’ (Kim 2000, ex 2b)

In (2), *caki* is bound by *Suni* from the previous sentence. Assuming that c-command is a sentential relation, *caki* is not c-commanded by *Suni*, and no LF movement is available to resolve this problem. That *caki* can be bound in this manner has led to claims that it is discourse-bound.

Furthermore, *caki* can be bound by a non-c-commanding antecedent within the same sentence. For instance, in (3), although *caki* is not c-commanded by a genitive embedded in a DP, it is read as being coreferential with that genitive.

- (3) Suni<sub>i</sub>-uy sinpal-un caki<sub>i</sub>-uy pal-pota hwelssin kuta.

Suni-GEN shoes-TOP self-GEN foot-than a lot big  
'Suni's shoes are a lot bigger than self's feet.'

Because *caki* can have antecedents which do not c-command it within the same clause, this is seen to be an argument for treating it as a pronominal, rather than an anaphor.

Finally, there are exceptional cases where *caki* does not appear to require an antecedent at all, as in (4).

- (4) Caki-ka chakhay.  
you-NOM good  
'You all are good.' (Sohng 2003, ex 16a)

Sohng (2003) refers to this as inherent reference, wherein a *caki* without an antecedent is inherently 2<sup>nd</sup> person. This can also be used deictically, and two antecedentless instances of *caki* can be used to refer to different people given enough explicit pointing, as in (5).

- (5) Caki<sub>i</sub>-ka caki<sub>i/j</sub>-lul coaha-n-ta.  
self-NOM self-ACC like-PRES-DECL  
'You like yourself.'  
'You like you.' (Different addressees)

The sentence in (5) is actually ambiguous, with one reading being that the object *caki* is bound by the inherently-referential subject *caki*. The second reading indicated is the deictic usage, with each *caki* indicating a different 2<sup>nd</sup> person addressee. Without an antecedent, *caki* is also used as a term of intimate address. As these uses of *caki* are substantially different from the other cases, antecedentless 2<sup>nd</sup> person *caki* will not be analyzed further in this paper. However, the fact that such readings do obtain makes for a useful test. Because of this inherent 2<sup>nd</sup> person reference, no sentence containing a *caki* is judged as being technically ungrammatical; there is always a possible "last resort" meaning. While we are not concerned with the underlying nature of this meaning, it can be employed as a test for the presence of an antecedent. Given that a *caki* without an antecedent is interpreted as 2<sup>nd</sup> person, we can conclude that any *caki* which is not interpreted as 2<sup>nd</sup> person must at some level have an antecedent, either through coreference or binding, which obviates the inherent reading.

To summarize the facts presented so far, the example of *caki* being bound from a genitive, and from a prior sentence calls into question the requirement for a c-command relation between *caki* and its antecedent. Yet, in the face of this apparent contradictory data, *caki* is generally considered to be an anaphor, bound, and not a pronominal. In the next section, we provide support for a binding analysis, and advance a proposal which can account for all the counterexamples.

### 3. The Case for Binding

The data presented in the previous section appear to make a strong case for abandoning a treatment of *caki* as a bound form. However, some of that evidence can be discounted, and there is equally compelling evidence that *caki* must be bound. In this section, the facts supporting a bound variable analysis will be presented, leading into an implementation of such an analysis. The first argument in favour of a bound variable analysis comes from VP-ellipsis, as discussed in Cho (1996), and exemplified in (6).

- (6) John-<sub>i</sub>      caki-lul      kwasinhay-ss-ko,      Mary-to      kule-ha-yess-ta.  
 John-NOM self-ACC overtrust-PAST-and      Mary-also so-do-PAST-DECL  
 ‘John overtrusted himself, and Mary did too.’ (Cho 1996, ex 19a)  
 =Mary overtrusted Mary. (√ Sloppy)  
 =Mary overtrusted John. (\* Strict)

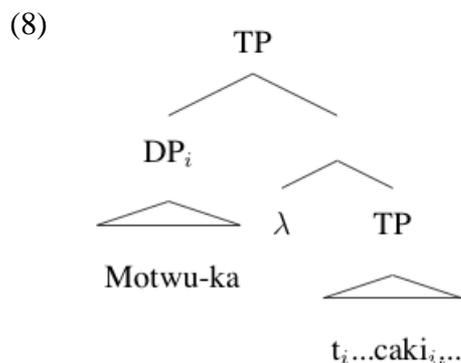
In this VP ellipsis construction, there is just one possible reading for the elided conjunct. Only the sloppy reading where Mary overtrusted Mary is possible, indicating that the elided *caki* is still locally bound within its conjunct. If *caki* really were coreferential, then the strict reading where Mary also overtrusted John should be available.

Perhaps the strongest argument against treating *caki* as coreferential comes from cases involving quantifiers, as in (7).

- (7) Motwu<sub>i</sub>-ka      caki<sub>i</sub>-lul      salang-ha-n-ta.  
 everyone-NOM self-ACC love-do-PRES-DECL  
 ‘Everyone loves self.’

Here, *caki* is bound by the quantifier *motwu* (everyone); the result is unquestionably

a bound variable reading. At LF, the underlying structure for (7) will be (8), the result of an application of QR and lambda-abstraction. This LF structure maps onto the semantic form in (9).



- (9) Every  $\lambda x[x \text{ loves } x]$   
 $= \lambda P.\forall y[\text{person}(y)][P(y)](\lambda x[x \text{ loves } x])$   
 $= \forall y[\text{person}(y)][y \text{ loves } y]$

This bound variable analysis for quantifier cases applies equally well for local and for long-distance cases, as illustrated in (10).

- (10) a. Motwu<sub>i</sub>-ka [John<sub>j</sub>-i caki<sub>i</sub>-lul salang-ha-n-tako]  
 everyone-NOM John-NOM self-ACC love-do-PRES-COMP  
 sayngkak-ha-n-ta.  
 think-do-PRES-DECL  
 ‘Everyone thinks John loves self.’ (Moon 1995, ex 3:93)
- b. Every  $\lambda x[x \text{ thinks } [\text{John loves } x]]$   
 $= \lambda P.\forall y[\text{person}(y)][P(y)](\lambda x[x \text{ thinks } [\text{John loves } x]])$   
 $= \forall y[\text{person}(y)][y \text{ thinks } [\text{John loves } y]]$

In discussion of this example, Moon (1995) is quite clear on the point that this can have a bound variable reading where *motwu* (everyone) binds *caki*. As QR and variable binding can account for this long-distance relationship without requiring any LF movement of *caki*, we propose that this bound variable analysis can be extended to all instances of *caki*.

If other nominals, such as proper nouns, are treated as generalized quantifiers, it then becomes possible to treat all cases of *caki* as bound variables. As generalized quantifiers, proper nouns would also undergo QR, yielding exactly the same operator-variable structure as in (10). In so doing, local and long-distance binding of *caki* can be unified under one analysis, as opposed to the long-distance case

requiring a special mechanism to raise *caki* at LF. On the surface, it may seem that this analysis is no less costly at LF, in that all antecedents now undergo LF movement, but this movement is independently motivated, and is not taking place solely for the benefit of *caki*. Regardless of *caki*, QR is a well-motivated phenomenon, making the current proposal more economical at LF.

The bound variable analysis also allows for an account of the genitive case from (3), where *caki*'s antecedent was embedded within a possessive DP. As shown in (11), this can also happen with quantifiers binding *caki*.

- (11) Motwu<sub>i</sub>-uy    sinpal-un    caki<sub>i</sub>-uy    pal-pota    hwelssin    kuta.  
 everyone-GEN shoes-TOP self-GEN    foot-than    a lot    big  
 'Everyone's shoes are a lot bigger than self's feet.'

The most reasonable conclusion to draw from this example is that QR allows the quantifier to escape the DP, and bind its variable. Thus, the generalized quantifier analysis provides an explanation for the genitive problem: the same instance of QR which accounts for (11) will also account for (3).

At this point, it is worth noting that while QR can, to some extent, allow *caki* to be bound by elements which do not c-command it on the surface, there are restrictions on the power of QR. One prediction is that *caki* should not be bound by a nominal that is within a subject clause island, a domain typically opaque to QR. As shown in (12), the prediction is borne out, as neither *Tom* nor *Mary* may bind *caki*. Instead, the inherent reference of antecedentless *caki* emerges.

- (12) [Tom<sub>i</sub>-i    Mary<sub>j</sub>-lul    salang-ha-n-ta-nun]    sasil-i    caki<sub>k</sub>-lul  
 Tom-NOM Mary-ACC love-do-PRES-DECL-ADNOM    fact-NOM    you-ACC  
 nollaykh-yess-ta.  
 surprise-PAST-DECL.  
 'The fact that Tom loves Mary surprised you.'

The sentence in (12) is ungrammatical under the reading where *caki* and *Mary* are coindexed or where *caki* and *Tom* are coindexed. At best, this sentence could be grammatical if *caki* took the inherent reference reading, but this would not be a case of binding. So while the QR analysis solves some problems through the postulation of LF movement, that movement is constrained enough to avoid overgenerating instances of binding.

To account for discourse binding of *caki*, Gil (1998) proposes that *caki* is not

necessarily subject oriented, but rather topic oriented. Gil argues that this approach also captures cases where *caki* is discourse-bound, with no antecedent within the sentence. To do this, she posits an empty topic operator which may serve as an antecedent for *caki*. This operator would itself be coreferential, getting its reference from prior discourse, but it would sit in an A' position similar to that occupied by a quantifier after QR. From this position, the operator would bind *caki*. This is illustrated in (13).

- (13) Ani, [Op<sub>*i*</sub>]<sub>Top</sub> caki<sub>*i*</sub>-ka kasse.  
 no self-NOM went.  
 'No, self went.' (Where 'self' is from prior context.)

In (13), the empty operator (Op), coreferential with something from prior discourse, binds *caki* within the sentence. By adopting this analysis, discourse binding cases can be reduced to sentence-local binding by a covert operator.

Gil further speculates that all instances of *caki* can be unified under the rubric of topic binding, a proposal which is not incompatible with the notion of treating *caki* as a bound variable; topicalization can simply be seen as a form of A' movement (possibly even covert), similar to QR. Under this analysis, the observed subject orientation becomes an epiphenomenal effect, merely the result of a general tendency for discourse topics to emerge as sentential subjects. As an A' phenomenon, topicalization creates the necessary operator-variable structure.

To summarize the proposal so far: *caki* is to be treated as a bound variable, and semantic operator can be posited to account for the discourse binding examples. With this proposal in place, local and long-distance binding of *caki* have been unified under one analysis, and all the data which appeared to support a coreferential analysis have been addressed. We now turn to our corpus study and provide further empirical support for the bound variable analysis of *caki*.

#### 4. Corpus Study

We automatically extracted 675 sentences containing *caki* from 550,000 word Sejong Colloquial Corpus, published by the National Korean Language Institute and the Department of Tourism and Culture in Korea ([www.sejong.or.kr](http://www.sejong.or.kr)). The corpus is a collection of transcribed recordings of radio/TV interviews, plays, soap operas, news and talk shows. Out of 675 tokens, 655 were analyzed: 623 contained 3<sup>rd</sup>

person *caki*, 23 contained 2nd person *caki* and 9 contained 1st person *caki*. 20 were unanalyzable as they were incomplete, garbled, or contained speech errors to the extent that they were incomprehensible. As stated above, instances of 3<sup>rd</sup> person *caki* are of particular interest, as they should only obtain when there this a 3<sup>rd</sup> person antecedent binding *caki*. For this reason, we only consider the 3<sup>rd</sup> person cases here.

Type	Number	Percent
C-commanding Antecedent	497	80%
Non-c-commanding Antecedent	26	4%
No Antecedent	100	16%

Table 1: Distribution of 3<sup>rd</sup> Person *caki* by Type of Antecedent

Breaking these down by the type of antecedent gives the distribution shown in Table 1. First, we discuss those cases where there was a c-commanding antecedent, then turn to the cases with a non-c-commanding antecedent, then turning finally to those with no antecedent.

#### 4.1. *Caki with C-commanding Antecedent*

The majority of tokens containing 3<sup>rd</sup> person *caki* had a c-commanding antecedent for *caki* (497 out of 623 tokens). The antecedent was in the form of a full referential noun phrase, null pronoun, or trace. The distribution is summarized in Table 2.

Type	Number	Percent
Full Noun Phrase	347	70%
Null Pronoun	129	26%
Trace	21	4%

Table 2: Distribution of C-commanding Antecedents

Examples from the corpus of *caki* with c-commanding antecedents are given in (14)-(16). In (14), the matrix subject *yengkam-tul-un* (old man-PL-TOP) c-commands and antecedes the embedded subject *caki-ka* (self-NOM). In (15), a null pronoun subject can be postulated that in turn c-commands and antecedes *caki* in the same clause, and in (16) a trace of an empty relative pronoun operator can be postulated in the subject

gap position of a relative clause, which in turn c-commands and antecedes *caki*.<sup>1</sup>

- (14) Yengkam-tul<sub>i</sub>-un selo [caki<sub>i</sub>-ka wonnim-uy apeci-lako]  
 old man-PL-TOP each self-NOM chief-GEN father-COMP  
 wukyetay-taka  
 insist-then  
 ‘The old men<sub>i</sub> each insisted that self<sub>i</sub> is the chief’s father, and then’  
 [2;;001.txt]
- (15) *pro*<sub>i</sub> Nul caki<sub>i</sub> maum-taylo-ya.  
*pro* always self mind-according to-DECL  
 ‘(He)<sub>i</sub> always acts as he<sub>i</sub> wants.’ [6;;006.txt]
- (16) [t<sub>i</sub> Caki<sub>i</sub> ipcang-man yaykiha-nun] anay<sub>i</sub> -ka ttaylo-nun  
 t self view-only tell-ADNOM wife-NOM sometimes-TOP  
 yasokha-si-cyo?  
 heartless-HONOR-INT  
 ‘Do you sometimes think the wife who<sub>i</sub> only tells self’s<sub>i</sub> view is heartless?’  
 [221;;090.txt]

All these examples containing *caki* with a c-commanding antecedent are consistent with bound variable analysis of *caki*. In all these cases, QR of the antecedent and subsequent binding of *caki* can be postulated.

#### 4.2. *Caki* with a Non-c-commanding Antecedent

In 26 tokens containing 3rd person *caki*, the antecedent of *caki* did not c-command it. This constitutes a direct challenge to our binding analysis, as an antecedent generally needs to c-command the element which it binds. In 22 of these examples, the antecedent of *caki* was a clear topic of the sentence, in 2 tokens, the antecedent of *caki* occurred in a genitive phrase, and in 2 tokens, the phrase containing *caki* has been displaced, undergoing movement over the antecedent. The distribution is summarized in Table 3.

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<sup>1</sup> Each example from the corpus is annotated with a token id and the file it is from. For instance, (14) is annotated with [2;;001.txt]. 2 is the token id and 001.txt refers to the file name.

Type	Number	Percent
Topic Antecedent	22	84%
Genitive Antecedent	2	8%
Displaced <i>caki</i>	2	8%

Table 3: Distribution of Non-c-commanding Antecedents

Examples of *caki* whose antecedent is topical, but does not c-command it are given in (17) and (18). In (17), the antecedent was a subject with a topic marker in a clause conjoined to the clause containing *caki*, and the antecedent occurred in a topic introducing phrase such as *according to Yoshida* in (18).

- (17) Kyengsam<sub>i</sub>-un mayil pap-ul cie talak-ey nehe cwuko-n  
 Kyengsam-TOP everyday meal-ACC make attic-at put give-and  
 caki<sub>i</sub>-nun cwung-ul capule tany-ess-ta.  
 self-TOP monk-ACC catch go-PAST-DECL  
 ‘Kyengsam<sub>i</sub> made a meal and put it in the attic every day and self<sub>i</sub> went  
 around to catch the monk.’ [19;;008.txt]

- (18) Yoshida<sub>i</sub> yayki-incuk, caki<sub>i</sub>-ka ilcey ttay  
 Yoshida tell-according to self-NOM Japanese occupation time  
 Cwungkwuk pongchen-uy chongyengsa-lo iss-ess-nuntey  
 China Pongchen-GEN consulate general-as exist-PAST-and  
 ‘According to Yoshida<sub>i</sub>, during the Japanese occupation self<sub>i</sub> was the  
 consulate general of Pongchen in China and’ [23;;013.txt]

Despite their apparent status as counterexamples to the binding analysis, with closer inspection, it can be argued that all these examples can map onto an operator-variable structure and so are consistent with the bound variable analysis of *caki*. First, we saw in section 3 that *caki* can be bound by a discourse topic. Thus, the instances where the antecedent of *caki* is a topic of the sentence should be able to map onto a topic-operator-variable structure that binds *caki* in a similar way in which instances with a discourse topic map on to a topic-operator-variable structure that binds *caki*.

Sentence (19) contains an example of *caki* whose antecedent is marked with genitive case.

- (19) Ku<sub>i</sub>-uy chilyopep-un kuce caki<sub>i</sub>-ka sangkakna-nun  
 he-GEN treatment-TOP always self-NOM think-ADNOM  
 tay-lo chilyoha-nun saylo-wun pangpep-i-ci.  
 in accordance to treat-ADNOM new-ADNOM method-COP-DECL  
 ‘His<sub>i</sub> treatment method is a new method where self<sub>i</sub> always treats in  
 accordance to his thoughts.’ [18;;008.txt]

As was discussed in section 3, these structures are comparable to cases where *caki* is bound by a quantifier from a similar position, forming an operator-variable construction.

Finally, a case where *caki* has undergone movement is shown in (20).

- (20) [Caki<sub>i</sub> nalumtaylo nonlicekulo]<sub>j</sub> yay<sub>i</sub>-nun t<sub>j</sub> ihay-lul  
 self in one’s own way logically kid-TOP t<sub>j</sub> understanding-ACC  
 hakwu iss-eyo.  
 do be-DECL  
 ‘The kid<sub>i</sub> understands logically in self’s<sub>i</sub> own way. [547;;182.txt]

If the moved phrase undergoes reconstruction and is interpreted in the source position, a c-commanding relation between the antecedent and *caki* obtains. This reconstructed structure can then straightforwardly map onto an operator-variable structure where *caki* is bound by its antecedent.

#### 4.3. *Caki with no Antecedent*

We found 100 tokens with no overt antecedent for 3<sup>rd</sup> person *caki* in the same sentence. The absence of an antecedent also provides a challenge for our analysis, as bound forms generally require an antecedent. Recalling the cases of antecedentless *caki* in section 2.2, those emerged as 2<sup>nd</sup> person. That these examples are in the 3<sup>rd</sup> person suggests the presence of a covert antecedent, obviating the inherent 2<sup>nd</sup> person reading. Upon further investigation of these instances of antecedentless *caki*, we classified them into 5 categories, the distribution of which is summarized in Table 5.

Type	Number	Percent
Discourse Topic	34	34%
Generic	25	25%
Sentence Fragment	21	21%
Reportative Particle	13	13%
Compound Noun	7	7%

Table 3: Distribution of Non-c-commanding Antecedents

The first (and most numerous) type of antecedentless *caki* was that where the antecedent was discourse salient, as shown in (21).

- (21) A: Park Tongsil sensayng <Yelsaka>-nun nwuka ...?  
 Park Tongsil teacher Yelsaka-Top who ...  
 ‘Who (composed) Yelsaka that teacher Park Tongsil (sang)?’  
 B: Caki-ka mantul-ess-ciyo.  
 self-NOM make-PAST-DECL  
 ‘Self made it.’ [348;;118.txt]

In (21), *caki* refers to *Park Tongsil sensayng* (Park Tongsil teacher) mentioned in the previous discourse. While it may at first glance appear counterintuitive to be using a *wh*-question as a diagnostic for topicality, the “new” information, the identity of the composer, is already contained within the question. As *Park Tongsil sensayng* (Park Tongsil teacher) is salient in the discourse, it can function as the discourse topic binding *caki*. Gil (1998) herself uses similar question-answer sequences to motivate her treatment of *caki* as topic-bound.

An example of a generic sentences containing an antecedentless *caki* is given in (22). In this case, a generic operator can be postulated that binds *caki*, producing a generic reading in the familiar operator-variable configuration.

- (22) Caki swukcey-nun caki-ka ha-nun ke-ya.  
 self homework-TOP self-NOM do-ADNOM Fut-DECL  
 ‘In general, self should do self’s homework.’ [111;;053.txt]

Example (23) contains a case where *caki* occurred in a sentence fragment with an elided matrix clause that is part of a narrative. In (23), the speaker is describing the content of a letter he received from a student.

- (23) Context: The speaker is talking about a letter he received from a student.  
 Caki-nun yeksa sikan-i cham silh-ess-ta.  
 self-TOP history time-NOM very dislike-PAST-DECL  
 ‘(The student said) self disliked history very much.’ [210;;088.txt]

The sentence fragment in (23) is embedded in a quote context. If the quote context is spelled out (*the student said*), then it would be in the form of a matrix clause. With the recovered matrix clause, *caki* now has an antecedent that binds it: *the student*.

An example of *caki* occurring in a sentence with a reportative particle on the predicate is given in (24). The reportative particle such as *tay* or *lay* contributes the meaning component that contains the reporter of the proposition, the exact reference of which is determined by the discourse context, and a predicate of saying the proposition. In other words, the reportative particle can be seen as introducing an implicit argument that refers to the reporter (Bhatt and Pancheva, 2006). This implicit argument can then bind *caki*.

- (24) Enceyna caki-ka mac-tay.  
 always self-NOM correct-REPORT  
 ‘(Steve said) self is always correct.’ [8;;007.txt]

According to the discourse contexts, the reporter in (24) is *Steve*. Once recovered from context, this reporter binds *caki*.

Lastly, there are cases where *caki* appears in a compound noun, as exemplified in (25).

- (25) Kuken caki pyenmyeng-i-ko wiysen-i-ya.  
 that-TOP self excuse-COP-and hypocrisy-COP-DECL  
 ‘That is self-excuse and hypocrisy.’ [78;;044.txt]

We conclude that these should be treated as fixed expressions, similarly to *self-control* or *self-esteem* in English, and therefore should be exempt from having a binder.

## 5. Conclusion

In this paper, we have argued that the Korean long-distance anaphor *caki* is best

analyzed as a bound variable. Its antecedents bind *caki* from an A' position either via QR, or through topicalization. To account for discourse-bound *caki*, we have exploited a previously proposed empty topic operator. In sum, we are thus able to treat local and long-distance cases of *caki* under a single analysis without postulating any otherwise-unmotivated LF movement. This analysis allows us to account for apparent counter-examples to the generative anaphor-binding account, as well as data which is incompatible with a coreferential analysis of *caki*.

The results of our corpus study support the bound variable analysis as well. While new potential counter-examples, such as the data involving generics and reportative particles, were raised, we have shown how these too are compatible with our analysis.

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## A dynamic approach to the semantics of *almost* and *barely*

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### Abstract

The age-old debate on the semantic classification of proximative adverbs has tended more recently towards empirical investigation; e.g., Amaral (2007), Pons Bordería and Schwenter (2005), Ziegeler (2006). The present study continues such trends, examining the semantic analysis of the English proximative adverbs, *almost* and *barely*, from a dynamic perspective, and providing new results obtained from the evaluations of speakers of differing dialectal backgrounds. It is found that the responses vary significantly, as in earlier studies, according to the aspectual nature of the predicate, and slightly according to affective factors. The synchronic status of variation can now be positioned within a diachronic framework, revealing the negative inferences of *almost* as conventionalising implicatures, but the positive inferences of its polar counterpart, *barely*, as de-conventionalising entailments.

**Keywords:** proximative adverbs, entailments, implicatures, R- and Q-based inferences.

### 1. Introduction

The semantic status of the approximative adverbs in English, *almost* and *barely* ('proximatives' after the grammaticalisation tradition of Heine (1994) and his followers), has been the subject of an on-going debate which has been fraught with tension since Sadock (1981) first questioned the accepted doctrine of the time that the negative inferences arising from the use of *almost* were not entailments, but conversational implicatures. Atlas (1984; 2005), Anscombe and Ducrot (1983), and Hitzeman (1992) followed in Sadock's path of questioning, and more recent studies such as Sevi (1998), Ziegeler (2000a, henceforth, Study 1), Horn (2002), and Pons Bordería and Schwenter (2005), the last account introducing new insights from Spanish containing evidence of the expletive appearance of negation in contexts in which it had been thought to be only an implicit inference, and suggesting ambiguity between polar and proximal readings of the adverbs. A full chronological summary of the various earlier positions taken can be found in Horn (2002). Ziegeler (2006, henceforth, Study 2) investigated expletive uses in Chinese, and Amaral (2007) has now provided us with similar examples from European Portuguese. The studies conducted by Horn (2002), Pons Bordería and Schwenter (2005) and Amaral (2007) interpret the occurrence of expletive or pleonastic negation as an indication that the negative inferences contained in the meaning of the proximative when not expressed pleonastically are 'unasserted' entailments (after Horn (2002)), and that the so-called 'flip-flop' between polar and proximal readings means that the polar readings are in focus. However, few of the earlier studies have given any consideration to the understanding of

the semantics of *almost* and *barely* as a dynamic or changing phenomenon, with present-day uses representing merely a stage in a meaning shift over an enduring time period. The present study will therefore examine in greater detail evidence taken from speakers' interpretations of (constructed) *almost* sentences, in which the negative inferences were shown previously to vary quantitatively according to the aspectual environment of the predicate, and similar example sentences using *barely* will also be analysed. As well as this, the combined factors of both predicate aspect and evaluatively favoured or disfavoured predicate events will be considered in a sample of data from native speakers of English from various dialect backgrounds, and a new method of analysis will be used to investigate whether the polar inferences are entailments or conversational implicatures.

In the second section, some of the arguments on the status of *almost* will be discussed, and in section 3, the present-day distribution of *barely* will be reviewed. Section 4 will look at the historical development of present-day meanings, and section 5 presents intuitive data from different groups of native speakers. Section 6 will discuss the evidence from the point of view of variation shown in the data, as well as the position of the two adverbs from a diachronic pragmatic perspective.

## 2. Previous discussions

### 2.1 *Adversative conjuncts*

The volume of research that has increasingly been produced relating to the topic of proximatives crosslinguistically provides obvious testimony for the problems that are perceived in the definition of their meanings, and the intermediate functional positions they are likely to occupy. In many ways, the role of the proximative encroaches into the linguistic domain of fuzzy logic (as pointed out by Sadock (1981), in that, depending on one's point of view, it may be understood to refer to the existence of *P* and the non-existence of *P* at the same time. It is obviously within such understanding that earlier studies had proposed a conversational implicature account for the semantics of proximatives, in particular for those of *almost* and its synonyms. Sadock's (1981) first introduction of a scalar explanation, using the first Gricean maxim of Quantity, was based on the premises (i) that the implicature so generated was calculable as a generalised conversational implicature, (ii) the ability for the implicature to be cancelled without redundancy or contradiction, using *not only* (well-known as a diagnostic cancelling phrase to test for a scalar implicature – see, e.g., Levinson (2000: 81), and (iii) the cancellation of what has more recently been referred to by Amaral (2007) in an entailment analysis as the 'standard of comparison' – the maximal degree on the quantity scale to which the proximative sense is oriented, as in

- (1) Bill almost, but did not quite swim the English Channel.<sup>1</sup>

The cancellation is shown by the use of the adversative, or contrastive conjunct *but*, which in such cases serves to rule out the possibility of the swim including the whole of the

English Channel. This cancellation was referred to again in Study 1 and Study 2, in which the use of an adversative conjunctive clause was held to illustrate that it was the proximal meaning of orientation towards *P* that was cancelled. In what are known as Conjunctive Analyses (Horn 2002) - those which treat the proximal meaning of proximatives as distinct from the polar meanings - it may seem therefore, that the use of such conjunctions enables the polar meaning of negation to surface under the cancellation of the proximal meaning. However, in Studies 1 and 2, it was considered that the polar meaning and the proximal meaning were not distinct components of meaning, but merely two sides of the same pragmatic coin: the bipolar Quantity maxim, i.e., Horn's (1984) R-inferences vs. Q-inferences, the precedence of either inference depending very much on contextual indicators. In accordance with diachronic developments in the expression of modal verbs (e.g., Traugott 1989; Ziegeler 2000b; Traugott and Dasher 2002), it was found possible therefore to create counterfactual inferences from the cancellation of the R-inference by an adversative clause, so producing a Q-inference, and it was even suggested (Ziegeler 2006) that Q-inferences were only metonymically-derived, R-inferences being basic to most interpretations involving scales of Quantity. Crosslinguistic evidence, furthermore (e.g. Heine 1992, Kuteva 2001, Malchukov 2004, and Pustet 2008), showed that there was nothing redundant, rhetorical, or reinforcing about the use of *but*-adversative clauses with proximatives, as had been suggested, e.g., by Horn (2002). The contrast shown in examples like (1) was seen as holding between the R-inferred orientation of the modal or proximative meaning (predicting the event to which it approximated), and the aversion or interruption of the goal-directed event created by the information conveyed in the contrastive proposition in the *but*-clause. This analysis will be expanded further in 2.3.

## 2.2 Aspectual variation

The implicature analysis was taken up later by Atlas (1984) who claimed for an account based on the aspectual tendencies of the predicates with which the proximative adverb was combined – suggesting that only for Accomplishment and Achievement predicates does *almost P* entail  $\sim P$ . He illustrated the aspectual contrast by suggesting that the implicature explanation is quite adequate to account for the semantics of *almost* with stative predicates, such as,

- (2) Moore almost understood ‘material object’ and he understood it

and maintaining that there was no contradiction in the conjoined clause (note that (2) would be slightly odd, as noted above, with a *but* –conjunct instead). The only partial concession to an entailment explanation was considered to be due to the fact that *almost* is equivalent to *not quite*, and *not quite* with telic predicates is equivalent to *not*. Since such predicates presuppose a terminal boundary, it is possible to agree with him, though there may be some exceptions, as seen below. In order to come to terms with such proposals, it is sometimes necessary to equate partial completion of *P* with the event of *P* per se. Consider, for example:

(3) My balloon is almost inflated

One could not deny one state of balloon-inflation as incompatible with another state of inflation, in which the balloon was even more inflated than before – the balloon is inflated from the moment of the first puff. However, it would be wrong to suggest that

(4) My balloon is almost inflated and it is inflated

makes for any kind of logical contradiction. If anything, all it suggests is that the passive participle carries an inference, perhaps a presupposition, of an implicit terminal point, which *almost* may, under most circumstances, help to elucidate.<sup>2</sup> We shall see later in the study why this is so.

At the same time, Atlas highlighted an important point in regard to the use of proximatives, and that is that there is no restriction on their contextual distribution, at least for English. His aspectual account was taken up in Study 1 and Study 2, and across both English and Chinese native speaker samples, the aspectual categories taken into consideration being based upon Langacker's (1987) summary of the parallels between verbal and nominal aspect. The following three categorizations were investigated: (i) imperfective situations, including stative and activity verb predicates or progressive aspect predicates: for example *When I saw Sue she was almost running* and (ii) perfective events, e.g., *John almost fell off the bridge* since they indicate that the time span over which the event occurs is of too brief a duration to accommodate proximity. If anything, the proximity could only be supplied by the time-scale, not the semantic composition of the predicate itself (Ziegeler 2000a: 1766). It is for such reasons that only perfective events, expressing highly punctual duration, may be considered as relevant to counterfactual readings of *almost*. In such situations *P* becomes a predicted value, not an actual value, and hence with past time reference is easily rendered as hypothetical/counterfactual.

Another aspectual category investigated was (iii), that of interconnected entities/accomplishments. Interconnected entities is the term given by Langacker to refer to count nouns with compositional distribution over a collective of members; e.g. *team*, *constellation* and *alphabet*, and they were considered to express in nominal terms the same telicity expressed by Accomplishment predicates, as in *The dog almost crossed the road*. These were investigated as their internal composition was considered to provide the ambiguity between what is *P* and what is not *P* (so that even examples like *Sam is almost bald* could be argued to fall within such categories, *bald* having a terminal boundary). Thus the aspectual distribution of *almost* in the previous Studies 1 and 2 was taken into consideration as a synchronic factor determining the level of hypotheticality that could be derived from its use. Such aspectual distinctions will continue to be used in the present study as a semantic variable of investigation. It was found that there was quantitative variability where aspectual differences are concerned, with higher degrees of contradiction assessed for sentences with bounded, perfective predicates than those with unbounded, imperfective predicates. At the same time, there was no rejection of any aspectual environment as unacceptable. What was apparent in the use of *almost* with variable aspectual conditions is that the adverb casts a meronymic shadow over whatever falls

within its scope, whether or not that entity can, under other circumstances, be thought of as lexically decompositional in any way.

Another argument in favour of a decompositional analysis can be found in the use of *almost* with cumulative entailments, as shown in (5a) using an example similar to one used in Study 2, and taken from the *ICE-GB* (w2a-028):

- (5) a. He was almost underwater  
entailing b. He was not underwater  
entailing c. He was not even slightly underwater  
which contradicts, by transitivity:  
d. ?? He was almost underwater, but he was not even slightly underwater.

As discussed in Study 2, the use of minimisers rules out a number of cases where it would not be possible to use a proximative without some minimal sign of *P* being in evidence. It can thus be seen that *not underwater* is not a contradictory of *almost underwater*, as there are cases where both situations may prove false, leaving *slightly underwater* as a valid possibility. Also, the partial representation of *P* (*almost underwater*) cannot be expressed without entailing *slightly underwater*, in which case it cannot compatibly entail *not underwater* at the same time. That such examples are not uncommon in natural discourse may also be shown by the fact that (5a) is not a constructed example, and yet there is still no precise ‘standard of comparison’ supplied to accommodate the counterfactual needs of our ideal proximative.

However, the problem does not go away with the removal of *almost* altogether, and (5b) does not necessarily entail (5c), regardless of what it co-occurs with. (5a) may be uttered in all sincerity when the facts clearly indicate that the subject was indeed partially submerged beneath the surface of the water, hence underwater. What *almost* contributes to such meanings is to focus not so much on any compositional degree expressed by the predicate, but on the degree to which the subject is wholly affected. The proximity expressed in (5a), therefore, is not towards the surface of the water, but towards the complete immersion of the subject referent.

The use of equative examples such as (5a), then, presupposes a different analysis, in which the scope of *almost* actually extends leftward over the subject, rather than rightward over the predicate. It will be seen later that such scope variation may be simply a legacy of the historical stages through which the developing adverb has gone; in the meantime, it is also necessary to point out that the referential ambiguity that is revealed in such examples is an illustration of what Langacker (2002: 189) termed ‘active zones’; i.e., referential metonymies in which a whole entity may stand for a part, that part being the part most salient to the action concerned; e.g., *I stroked the cat* (‘the cat’s back’). In (5a), an understanding of *almost P* as *P* involves the use of such whole-part metonymies, so that *he was almost underwater*, and *he was underwater* are not contradictory. In such readings, *almost P* is compatible with *P* only insofar as the hearer understands a partial representation of *P* to be equivalent to *P* itself.

### 2.3 Orientational meanings

It should also be noted that compositionality, rather than gradability, is basic to the meaning of *almost*-predicates, since gradability (assuming also orientation), towards a definitive end-goal, is a secondary (R-based) inference primed from the meanings of proximity alone. There is nothing in the meaning of proximity to *P* to entail that whatever is proximate to *P* is also necessarily moving in the direction of *P*.<sup>3</sup> For this reason, it is logical to suggest that not only the negative polar component of meaning, but the positive proximal component of the so-called Conjunctive Analysis as well is itself a conversational implicature – an R-based implicature of Quantity in which the expression of mere proximity to *P* stands for orientation towards *P* itself. This means that the Conjunctive Analysis should be revised to account for two polar meanings: positive and negative, with a basic assumption that the only entailed and asserted component of meaning is ‘closeness’ to *P*, the proximal component from which the two polar readings are derived, as shown in Figure 1 (*X* representing the point of proximity to *P* and the crossed arrow representing the cancelled R-implicature):

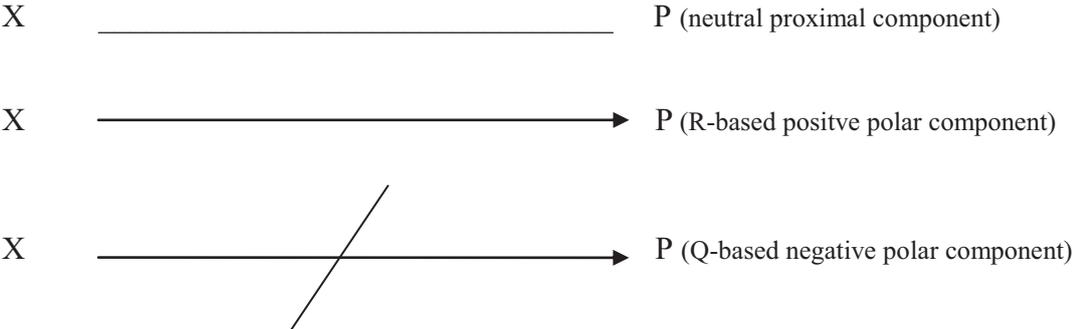


Figure 1. Diagrammatic representation suggesting a 3-part division in a revised Conjunctive Analysis.

*Not-P* appears thus no more an entailment of *almost P* than are *not-Q*, *not-R*, or *not-S*. There are infinite possible negative entailments derivable from *almost P*, and the only reason that *not-P* is raised as an inference of the proximate sense is due to the relevance of *P* as a target of orientation in the first place, derived by R-based implicatures. On the other hand if *not-P* presupposes that *P* is not part of the meaning of *almost P*, it could be argued that it may be difficult to reconcile an assertion (proximity to *P*) with an entailment suggesting that *P* is *not* part of its meaning. It is for this reason that the relationships between what is included and what is not included as part of the meaning of proximatives must be only pragmatic.

The R-based inferences of orientation are readily perceived in examples such as Horn (2008) describes, contrasting *almost* and *barely*:

- (6) The tank is almost half full – so {let’s drive on/#we’d better stop for gas}.
- (7) The tank is barely half full – so {we’d better stop for gas/#let’s drive on}.

The orientation towards *P* in (6) and towards  $\sim P$  in (7) is described as rhetorical; however, the connecting clauses suggest that the meaning is affected by nuances of desirability. In (6) the directional inferences in *almost* are conventionalised to the point at which the amount of petrol referred to may even be understood as increasing; hence the optimism of the speakers. In (7) the R-based orientation is towards the emptying of the tank, a more realistic, but less desirable situation. It will be seen in the empirical investigations to follow that the correlation of R-based inferences with desirable or undesirable situations can be readily assessed in elicitation tasks.

### 2.3.1 *Inverted readings*

The orientational approach may also supply evidence from the so-called ‘inverted’ readings of *almost*- and its counterparts in a number of other languages. Schwenter (2002) and Pons Bordería and Schwenter (2005) revealed that in Spanish, a form of pleonastic or expletive negation could occur in the case of the approximative adverbs *casi*, *por poco*, (‘almost’) and *apenas* (‘barely’) providing a sort of ‘double-negative’ in cases in which the predicated event was not likely to occur or undesirable; e.g. (2005: 263):

- (8) Por poco se mata  
‘She was almost killed’
- (9) Por poco no se mata  
‘She was almost killed’

In (9), the negated form is ambiguous between expressing the same as its positive counterpart in (8) and the meaning ‘almost-not’, or ‘barely’, which they describe as its canonical meaning. Pons Bordería and Schwenter (2005) show that the expletive use was more frequent at earlier times than after the 15<sup>th</sup> century, and that the patterns of pre-verbal negation found generally in Spanish at the time provided a parallel model for the use of such forms. The return of such uses in present-day Spanish they believe to be due to reasons of emphasis or to assert the underlying negative inferences which are held (in accordance with Horn 2002) to be (otherwise unasserted) entailments.

Further examples with expletive negation come from Chinese (see Zhu 1959; Li 1976; Peyraube 1979; Biq 1989); e.g. (L, 1976: 528):

- (10) Ta      cha yidiar      mei      zou  
he      miss-a-little      not      leave  
‘He almost left’  
‘He barely left’

In the Chinese cases, the explanations for anomalous expletive negation are similarly that the event complemented of the proximative was either unexpected or undesirable (e.g., Biq 1989). Given that the orientational meanings, as explained earlier, are R-based extensions of meaning in which proximity to *P* further implicates direction towards *P*, it would not be surprising, in the event that *P* referred to undesirable or unexpected events, to find that language users would wish to explicitly encode the avoidance of a misfortune or an

improbability, normally implicitly expressed using Q-based implicatures. The use of the negative, therefore, may be to reassure the hearer of the positive outcome of an otherwise implicitly unfavourable situation.

Pons Bordería and Schwenter (2005) arrive at the conclusion that the inverted readings they are obtaining from their historical and contemporary data from Spanish are due to the process of cryptanalysis (Croft 2000), a process whereby certain unmarked grammatical or semantic properties of a syntactic unit may be explicated in context with the use of an overt grammatical marker (similar, in fact, to the process of reinforcement in grammaticalisation (Lehmann 1995: 22)). However, although Croft uses cryptanalysis to explain the overt marking of negative entailments in context, there is nothing in his account that would prohibit implicatures from being subject to the same process, and therefore, if the explanation is to be convincing, it goes nowhere to proving that the inferences that are being assertively marked for their semantic value are always entailed. Croft's cryptanalysis may apply equally to a pragmatically implicit sense in the context (in fact, it would be much less likely to apply to an entailed one as if it did it would produce a tautological effect: we do not need to talk about *unmarried bachelors*, for example, and the entailment of being unmarried in the meaning of *bachelor* is equally unasserted). Thus, for the studies of pleonastic negation, we are left with the arguments that although an implicature definition of proximatives may not allow for the strength to support overt expression in context, there is also the counter-argument that an entailment analysis would, on the other hand, suggest that the negative inferences are being redundantly encoded (asserted or unasserted) and that there would be no need for their overt expression. It is doubtful, therefore, that such studies, though interesting, can *necessarily* support an entailment analysis of proximatives at all.

### 3. Distributional properties of *barely*

#### 3.1 *Adversative and causal conjuncts*

*Barely* has been credited with expressing the opposite semantics to *almost*, i.e., *almost-not*, and yet it has not received the same degree of attention that *almost* has (as shown in Horn 2002), probably because its semantics may seem, for some, a little less controversial. For Atlas (1997), at least, it is claimed that the inferences of the use of *hardly*, its synonymous counterpart, are clearly spelt out as entailments, regardless of whether the lexical aspectual character of the verbal predicate denotes Achievements, Accomplishments, or imperfective Processes. Perhaps the only controversy surrounding the use of *barely* is whether it can necessarily be described as a mirror-image of *almost*, as Sevi (1998) and Horn (2002) suggest. Amaral (2007) considers that it may not be assigned this status, but does not go into detail of why this should be so, apart from comparing the possibilities of cancellation between *barely* and *almost-not* (p. 11):

- (11) ??Bush barely won, but he got more votes in Ohio than he expected
- (12) Bush almost didn't win, but he got more votes in Ohio than he expected.

(12) explicates or asserts what is R-implicated in (11), but not yet a part of the semantics of *barely* (hence the oddity of (11)). Horn (2002) finds the Bush victory can readily be reasserted in such examples as:

(13) Bush barely won the presidential election, but win it he did

If the entailment analysis is to hold, the apparent redundancy of what may seem to be a reaffirming of the entailment in the first clause is not a redundancy at all, if it is considered instead that the adversative clause only reaffirms the entailment of Bush's winning in the face of the doubts created by its accompanying R-inferences, orientating the hearer's anticipations towards the non-achievements of Bush. The tug-of-war between the pragmatic prominence of the entailment (if it is an entailment) and that of the increasingly powerful R-inferences in the use of *barely*, it will be seen, is something that was not known at earlier historical periods, and is most likely a recent by-product of its use, especially with bounded predicates.

Although it may be argued that (13) is not completely unacceptable, it is marginally less acceptable than (12), in which the R-inferences associated with the use of *almost-not* can be cancelled. Sevi (1998: 33), however, finds problems with cancelling *barely* using an implicature diagnostic:

(14) ?? I barely caught the train this morning, in fact I didn't catch it

in which a perfective event is referred to, as in (11-13). He contrasts such examples with quantitative uses of *barely*, illustrating that they can co-occur felicitously with cancelling elements:

(15) I hardly/barely have any friends left, in fact I have none<sup>4</sup>

(15) illustrates that cancellation is less possible when *barely* is used as a modifier of actions or events: on this account it could be argued that the same diagnosis applies to *almost* which, as shown in Study 1 and 2, becomes more contradictory when speakers are attempting to read cancellations of perfective events. One normally knows whether or not one caught the train this morning, though there may be some doubts surrounding the relations one has with people one could call 'friends'. Thus, the coherence of an *in fact* clause in such instances is not entirely inconsistent, and it could be argued that if *barely* and *almost* are to be compared at all, then *almost* is a quantifying adverb with a pre-determiner function, which is developing into an anti-resultative marker in English, while *barely* is a manner adverb which may be developing into a quantifying, pre-determiner in English (depending on its frequency of co-occurrence with quantifiers and pre-determiners). The reasons for such arguments are shown below.

*Barely*, unlike *almost*, is not quantificational in functional origin, and unlike *almost*, originally a modifier for a quantifying determiner ('mostly all'), began life as a manner adverb, as seen below. *Almost* is not a manner adverb, but a measure adverb, describing

proximity to a point, which is consequently inferred to be a point of orientation via R-based implicatures. *Barely* describes the *way* in which an action was attained, i.e., with minimal sufficiency. It does not, unlike *almost*, contain as part of its inherent lexical meaning any sense of proximity, and does not require a gradable predicate with which to co-occur, so that if *P* barely occurred, *P* therefore did occur, but minimally. Although it may contain inferences of the difficulty of the attainment of *P*, *barely P* is always *P*, while *almost P* can be both *P* and *not-P* at the same time, depending on perceptions of predicate gradability (and even punctual events may be induced into demonstrating gradability within certain limits). The meaning of *P* in *barely P* thus appears to be an entailment, just as it is in any other manner adverb(ial), such as *easily P*, *smoothly P*, *heavily P*, *with difficulty P* and so on. The only difference between *barely P* and *almost P* is based on the precedence of scalar inferences: while *almost P* Q-implicates ‘not *P*’, while entailing ‘mostly *P*’, *barely P* R-implicates ‘not-*P*’, while (apparently) entailing *P*. The reason that the implicature-cancellation does not work in (14) is due to the fact that it is not correcting any R-based inference that the train was not caught, and therefore only reinforces the entailment in the *barely*-clause that the train was caught, suggesting instead a redundancy. It would seem, therefore, that we are looking not at mirror image adverbs of degree, but at one adverb of degree which can simply be synonymous in its negated form with a minimiser adverb.

#### 4. The historical distribution of *almost* and *barely*

##### 4.1 *Almost*

From the studies that have been conducted so far on the understanding and interpretation of *almost* in English, it could be argued that there is insufficient naturally-occurring data to provide a clear picture of whether the studies are examining actual uses or possible uses. Thus, it was considered necessary to investigate the distribution of *almost* in natural usage, starting from a historical perspective, in order to determine what factors in its early stages of development may have contributed to the meanings that are associated with it today, and whether the constructed sentences often used in empirical examples may correspond to actual usage.

In the *OED Online* (based on the 2<sup>nd</sup> edition, 1989) four senses are shown historically for the use of *almost*, the second composed of two parts and most closely corresponding to the present-day usage. The first sense provides the earliest citing of its use, at around 1000 CE, the function being that of a combined adverb + quantifier (‘mostly all’), often occurring with a nominal complement. This usage endures well into Early Modern English:

- (16) **1570** R. ASCHAM *Scholem*. II. (Arb.) 133:  
Thies giuers were almost Northmen.  
‘These givers were mostly all Northmen’

It is interesting that uses like (16) could appear at earlier times, and yet would not be acceptable today without invoking the sense that the entire group of men were transforming into Northmen (revealing the conventionalisation of R-based inferences); i.e., the present-day meanings reveal the fact that the orientation sense supplied by the R-based inference in the context has subsumed any previous lexical senses of quantificational proximity and the scope may no longer extend leftwards ('mostly all these givers'). The original, time-stable quantifier meaning of 'mostly all' has been lost to a certain extent as the adverb extends its uses to an increasing range of complements. The last usage of the original sense is cited as appearing in 1658.

It is an interesting observation that the semantic consequences of employing a proximative marker developed from a modified quantifying pre-determiner, as in the case of *almost*, are such that its distribution to modify verbal complements, even in present-day usage, may be relatively restricted, and therefore the 'counterfactual' uses often described for this adverb may be more illusory than at first appear in most of the studies which have focused on the co-occurrence of *almost* with perfective, bounded verb types. From the evidence of the *OED* it would appear that non-compositional predicates such as punctual, perfective lexical verb types (e.g., as in (12)) were the least prototypical of all the environments in which the adverb could occur. For this reason, a survey was conducted of the use of *almost* from the last Middle English section to the end of the Early Modern English section of the Helsinki Corpus, in order to investigate just how frequent such environments were historically.<sup>5</sup> The data produced only 7 examples of *almost* co-occurring with a bare preterite main verb form, out of 123 tokens in total (5.69%), in the period dating from 1420-1710.<sup>6</sup> The earliest is the following:

- (17) And I dowed the cony bytwene his eeris that almost I benamme his lyf from hym  
'and I struck the rabbit between his ears so that I almost took his life from him'

(1420-1500). Caxton, *The History of Reynard the Fox*  
(Ed. Blake, p. 58)

It is clear from such examples, and some of those above, that the use of *almost* initially with bare main verb forms could appear in pre-subject position with the scope extending over the entire proposition. Thus, it was not proximity to a specific action that was expressed so much as proximity to the possibility of the truth of a whole proposition, a more textual function. The likelihood of scope reduction with main verbal complements appears to become more prominent as time progresses, as shown in the last example found for the period surveyed:

- (18) and he had suffered so much in his Reputation, that he almost dispaired to recover it.

(1680) Burnet, Gilbert. *Some Passages of the Life and Death of the Right Honourable John, Earl of Rochester*. p. 13

The first example of the time period surveyed co-occurring with a cancelling *but*-clause appears in 1420 (this example was not included in the total count of 7, since it contains a participle predicate):

(19) I had almost spoke wyth Mestresse An Hault, but I dyd not.

(1420-1500). John Paston. *Letters*, p. 441.

The low frequency of lexical verbal predicates co-occurring with *almost* is continued into present-day usage: a survey of such uses in the *ICE-GB* reveals that of 264 tokens of *almost*, only 16 (or 6.06%) appeared with bare lexical (past or present) verbs (the count including auxiliaries accompanied by present participles, but not past participles as for the historical data); e.g.,

(20) They're almost doing a league now (s1a-079)

The earlier use of progressive participles in Study 1 (such as *almost running*) was criticized as a test sentence by Amaral (2007: 207) and yet such uses occur in natural discourse, as shown. In addition, three of the 16 examples co-occur with stative, perception verbs:

(21) ... popping their heads through curtains and uh little songs where you could almost hear Gilbert and Sullivan's patter songs coming through ... (s1b-044)

The use of a stative, imperfective verb similarly makes the standard of comparison (between *P* and  $\sim P$ ) somewhat vague, and it could be argued that (21) could not be uttered in all sincerity unless the subject could recognise at least some valid representation of the totality of *P*, i.e., Gilbert and Sullivan. While it is possible to use the adverb with such predicates, it may be questioned just how much counterfactuality is intended as part of the utterance. In (21) it seems that the speaker's intentions are not so much to report what is not happening, but what is close to happening.

It is for this reason that it may be possible to hypothesise that the use of *almost* as a counterfactual predicate marker, or focus adverb, has often been significantly exaggerated, and that much of its present-day usage reflects its source origins as a quantifying determiner over noun phrases, expressing nearly-complete quantities of entities or attributes, a function which is continued into present-day English to illustrate a majority of uses. The occurrence with main-verbal predicates appears to be a relatively extended use, and fairly limited in actual distribution today. For this reason, it is possible to suggest that as a quantifying adverb, it may be most prototypically used to express partial representations of complete states, or part-whole relationships, while not necessarily producing counterfactual inferences at the same time.

#### 4.2 *Barely*

The primary meaning of *barely*, according to the *OED Online*, is that of an adverb referring to nakedness, and they provide examples dating from 1483. However, earlier examples reveal a meaning which may appear to be extended from the meaning of nakedness, i.e., meaning ‘openly, without disguise or concealment, clearly, plainly’. These may refer to acts of speaking, as in:

- (22) **c950** *Lindisf. Gosp.* John xvi. 29 Nu..bærlice ðu spreces.  
‘Now ... you speak openly’

Such uses (which have also been observed by Traugott (2006)) appear to be restricted to verbs of communication in the *OED* data. It would seem likely that the meaning of physical nakedness would have preceded the extended meaning of nakedness in communication, a possible metaphor of its original meaning. Another meaning which appears derived from this carries the meaning of ‘unconditionally, without qualification or reserve, wholly, completely’, and a related sense: ‘merely, simply, only’ (see also Traugott’s (2006) more comprehensive summary of the semantic changes involved in *barely*):

- (23) **1682** NORRIS *Hierocles* 89 Goodness of action does not consist barely in not sinning.

The meaning of ‘simply’ overlaps with another sense, more closely related to its present day meanings: ‘only just’, ‘with difficulty’:

- (24) **1768** ELLIS in *Phil. Trans.* LVIII. 77 Some wax that was barely fluid.

This meaning is dated from 1494, indicating an overlap with other senses, but there are no clear unambiguous examples before (24). A more comprehensive and systematic search would be needed to discern the exact dates of the earliest examples of the different senses, but there appears to be, nonetheless, a distinct pathway of development (some of which is described already in the *OED Online*) from: *physical nakedness* > *abstract, verbal nakedness* > *absence of verbal condition or concealment* > *absence of verbal elaboration, with simplicity* > *minimally*, > *with difficulty*, i.e., the negatively polarised inferences are the result of a long and gradual semantic development over several centuries, in which related meanings may overlap. As an antonym of *almost*, meaning ‘almost not’, then, it can only be attributed that status in its latest, present-day uses.<sup>7</sup>

The *ICE-GB* lists very few – only 12 uses - in total in the entire corpus, suggesting that it may be competing with other forms such as *hardly*. The environments it appears in are: past participles (3), adjectives (3), one past participle used as an adjective, two main verbs, one past and one present tense, one noun phrase, and one quantifying pre-determiner used as a noun (*barely half*). There is no clear preference in this data for main verb uses and they are unlikely to feature prominently in natural discourse. However, the extent of the range of uses is well in evidence, suggesting it can be used in almost any environment as a minimizing adverb.

## 5. Empirical investigations

The historical evidence, though requiring of a much more comprehensive survey (which would be beyond the scope of the present study) does reveal, for the most part, what types of pragmatic developments may be possible in present-day analyses of the adverbs. As noted above for the studies of expletive negation in the use of proximatives in other languages, the use of explicit negation may indicate that the situation referred to in the predicate may be otherwise disfavoured or impossible within its context. Given the possibility, then, for factors of affective meaning to influence the usage of such forms, any disfavoured readings found to influence the interpretation of the proximative meanings would supply even more evidence against an entailment analysis of the canonical meanings, which should not be open to such interpretation. For this reason, a survey was designed in order to examine whether entailment readings could be resistant to the presence of a predicate expressing an unfavourable event when co-occurring with the proximative adverbs, *almost* and *barely*. The speakers selected were first year undergraduates of the National University of Singapore, whose L1 background was named as English. 38 students were surveyed, all with the use of an online questionnaire form. In addition, 25 non-students from various dialectal, age and educational backgrounds were surveyed by email as a control group.<sup>8</sup>

### 5.1 *The survey sentences*

The sentences used for analysis were the following:

1. Sam barely lost his wallet.
2. Sam almost lost his wallet.
3. The old lady barely fell over.
4. The old lady almost fell over.
5. The ship barely missed the dangerous rocks.
6. The ship almost missed the dangerous rocks.
7. The telephone barely rang.
8. The telephone almost rang.
9. Bob is barely bald.
10. Bob is almost bald.
11. It's barely raining.
12. It's almost raining.
13. The pristine rainforest was barely destroyed.
14. The pristine rainforest was almost destroyed.

The respondents were asked to evaluate each of the sentences according to whether they thought what had barely or almost happened actually did happen (in which case the response would yield a 'yes' answer), or whether it did not happen (when the response

would be ‘no’). Such responses were not intended to prove the implicature status of the inferences contained in the sentences, since there were no cancellation devices to test for such inferences. However, a case for entailment would be strongly supported by scores of close to 100% of ‘yes’ answers for *barely*-sentences and ‘no’ answers for *almost*-sentences. Given the *necessary* relation that exists in the entailment analysis of *almost P* and *not-P*, and *barely P* and *P*, any variation shown in the responses would weaken the definition of an entailment, which should hold in all possible worlds. For this reason, the first four sentences were selected for the fact that they refer to potentially unfavourable circumstances on the part of the subject. The plausibility of an entailment reading of the *barely* sentences 1 and 3 is thus at stake since they are polarized towards a negatively-evaluative event and there is a conflict between the logical entailment readings and the obviously disfavoured interpretations of such meaning. The situation is reversed in sentences 5 and 6, in which the use of a lexically negative predicate makes it preferred for both sentences to be interpreted with a positive ‘yes’ response in either case, the negative inferences associated with *almost* leading to a disfavoured reading in S6.

The next two sentences used were neutral as to evaluative nuances, and thus were intended as a control on the previous 6 sentences. However, they were also designed to investigate pragmatic plausibility when interpretation is unaffected by evaluative factors. The first eight sentences were also selected on the basis of their aspectual properties – all containing predicates referring to punctual and bounded (perfective) events. The second six sentences contained imperfective situations and passive participles as their predicates, in order to test whether the aspectual differences would create more variable interpretations of their truth values. Thus, if the responses to S1-8 were more closely in line with an entailment analysis (unanimous ‘yes’ answers for the *barely* sentences and unanimous ‘no’ answers for the *almost* ones), then the next eight sentences would determine whether such biases would hold through non-perfective and/or telic environments.

## 5.2 Results and discussion

The results of the responses to the sentences of the survey are as follows.

Table 1: *Almost* – evaluations of negative inferences in percentages, graded by environment  
Group 1 = Singaporean (N = 38); Group 2 = Non-Singaporean (N = 25).

Environment	Group 1	Group 2
Perfective events (S8)	94.7	92
Imperfectives (S12)	81.5	86
Perfective events (S2,4)	80.2av.	56av.
Perfective events (S6)	71	56
Accomplishments (S14)	63.1	48
Telic states (S10)	34.2	32

Table 2. *Barely* sentences: evaluations of positive inferences in percentages, graded by environment for Group 1 only. Group 1 = Singaporean group (N = 38, 37 for S1); Group 2 = Non-Singaporean group (N = 25)

Environment	Group 1	Group 2
Imperfectives (progressives: S11)	63.1	88
Perfective events (S5)	55.2	60
Perfective events (S7)	47.3	76
Accomplishments (S13)	47.3	40
Telic states (S9)	42.1	34
Perfective events (S1,3)	31.5av.	49av.

It can be seen in Table 2 from the percentage of positive responses to S1 and S3 (31.5%) that the Singaporean group (Group 1) was more likely to be influenced by the unfavourable or dispreferred nuances associated with the negatively evaluable predicates than the non-Singaporean group (Group 2) (49%), though both groups scored low for these sentences. In Table 1 the non-Singaporean group's negative answers to S6 (56%) was lower, though, than the Singaporean group at 71%. This may indicate that for *almost* there is a stronger tendency to evaluate unfavourable situations as occurring for Group 1 than for Group 2, and for *barely* there is a stronger tendency to evaluate predicates referring to unfavourable situations as not occurring for Group 1 than for Group 2. There is also a wide range of variation shown reflecting aspectual differences.

Given the definition of an entailment as a necessary relationship holding in every possible world, the results should be held against the hypothesis that for all *barely*-sentences, 100% 'yes' answers should obtain, and for all *almost*-sentences, 100% 'no' answers should obtain. However, we have seen that this is not the case, and therefore, the inferences derived are not entailments but variably conventionalizing implicatures, with the highest scores for both groups being for S8 (94.7% for Group 1 and 92% for Group 2) – an evaluatively-neutral example with a perfective predicate. A conventional implicature differs from an entailment in that it is peripheral to the main assertion of the proposition, or less crucial to its truth conditions (Abbott 2006: 11-13). The distinct difference has not always been clear in previous accounts: Grice's only (1975) example, *therefore* in *He is an Englishman, therefore he is brave*, lends itself to the interpretation that, although being brave is a consequence of the subject's being English, the relationship is not a necessary one and does not have to hold in all possible worlds. So it could be argued that one of the differences between an entailment and a conventional implicature is that entailments propose a necessary relationship between *p* and *q*, while conventional implicatures suggest only a sufficient, or possible relationship between *p* and *q*. This is why the data, distributed

in the way shown in Tables 1-2, suggest a likely conventional implicature analysis of *almost*.

The tendencies shown are thus graded with regard to environments, in descending order of implicature conventionalization. The expression of the data in this way suggests that the entailment analysis may not universally apply to all environments, and that if the meaning of *almost* is to be described in actual usage, then consideration must be given to its non-counterfactual meanings as well as its counterfactual ones. If there were entailments associated with every use of the proximatives, the data would incline more towards 100% in each environment. However, the data shown above are disparate and the differences reveal that this is not the case. The environmental distinctions may therefore provide instead an insight into the rate at which the implicatures in the proximatives are now conventionalizing to become entailments, and that it may take some time before such inferences are generalized to all environments.

In Table 1, it can be seen that the order of grading for each environment is the same for both groups, though the figures for negative inferences generally are much lower for Group 2, showing a certain degree of hesitancy in accommodating an entailment analysis of *almost*. However, the negative inferences are nearly categorical for both groups for perfective events that are neutral for evaluative influences (S8). For positively-evaluable perfective events (S2 and 4), though, the results show only a marginal preference for negative inferences for Group 2, which may be conventionalized at a lower level than for Group 1 (80.2: 56). For the control sentence (S6) the Singaporean group shows a lower preference for negative inferences (71%, ranked 4<sup>th</sup>) in a context in which they would be unfavourable; there is still a bias towards the canonical polar meaning. This could mean that the preferences for negative inferences for S2 and S4, then, are determined by factors other than evaluative factors (for Group 2 there is no difference where this is concerned (56% av. for S2, 4 and S6), thus it cannot be determined that there is any affective influence here at all). For accomplishments (S14), the ranking is lower for both groups, though the preference is still for negative inferences for Group 1 (63.1%) again as against only 48% for Group 2. The results almost agree for the environments of telic states (34.2: 32), suggesting that preferences for interpretations of the two aspectual environments at either end of the scale are almost the same across the two groups.

The grading for *barely* in Table 2 for the non-Singaporean group (Group 2) is more widely spread across nearly a 50% range, suggesting that there was less indecision about the polarization of the inferences than for Group 1, with only a 31.6% range. The highest scoring environment, imperfectives, matches the ranking of the Singaporean (Group 1) equivalent, though the score is higher (88: 63.1). The main difference in grading shown is in the perfective events. For the evaluatively-negative perfective events, S1 and S3, in the Singaporean group (1), the average score is only 31.5%, while for the non-Singaporean group (2), the score is 49%, with a 17.5% difference. Furthermore, it is not the lowest score available for the latter group. There is also a large margin of difference between the scores for evaluatively-neutral perfective events (S7): 76% for the Group 2 and only 47.3% for the Group 1 – nearly 30%. These data mean that the positive inferences (*barely*  $P \rightarrow P$ ) are much more conventionalized for the non-Singaporean group, and that in the absence of a decisive preference where *barely* is concerned, the Singaporean group may have been

influenced more strongly by evaluative influences, as shown in the differences between the two groups for the responses to S1 and 3, and also the 24% rise over S1 and 3 for Group 1 in preferences for positive inferences with the evaluatively-positive control sentence (S5). The control sentence (S5) though, shows little difference between the two groups (55: 60).

## 6. Conclusions

When the results of the two studies are compared, it is easily evident that the counterfactual inferences (or polar components of meaning) surrounding the use of *almost* and *barely* do not reflect any categorical tendencies for entailment readings to hold, whatever the environment. The distribution of the respondents' intuitions varies according to whether the predicate refers to a disfavoured event and also according to aspectual changes in the predicate. This indicates that the meanings are clearly reflective of an implicature which has the potential to be conventionalized in some environments (but not in others), making it indefeasible only in certain environments, i.e., bounded, perfective events neutral to affective interpretation.

The case for an entailment analysis for *almost* is thus little changed from what was predicted by Atlas (1984), in which he claimed that it held only for Achievements and Accomplishments. However, it might be possible to modify such restrictions to suggest, on the basis of the data above, that the entailment case of Accomplishments is not as sound as Atlas may have wanted it to be. The Achievement predicates shown in S2, 4, 6, and 8, described above as perfective events, certainly reflect for Group 1 the tendencies Atlas predicted, though not for Group 2. The data for the two environments of telic states and Accomplishments is not categorical in respect of the preferences for negative inferences for both groups, as shown in Table 1. The study therefore supports the claims of Ziegeler (2000a, 2006), that conventionalized implicatures are in evidence with many perfective or punctual event predicates, and for the other types, the conventionalization has not yet begun, since non-perfective predicates are taken to represent the partial representation of *P* at the same time as its non-representation.

The present study does not use any type of cancellation devices to determine if the intuitions expressed by the respondents are either entailments or implicatures. However, seen alongside the historical and present-day statistical patterns, the variation more clearly demonstrates the tendency for the gradual conventionalization of conversational implicatures over time. Thus, probably the most accurate interpretation of the inferences surrounding *almost* are that it can be described generally as a conventionalising implicature, in the sense that the entailment does not yet hold in every possible world.<sup>9</sup> This is also supported by the fact that, at least for *almost*, the environments most likely to produce counterfactual inferences (i.e., perfective events) are relatively infrequent historically and rarely-occurring in present-day corpus data. For *barely*, the number of uses is infrequent enough to suggest that the meanings associated with its functions as a proximative marker are only in their incipient stages. However, the hypothesis that *barely* expressed an entailment of its prejacent, discussed in 3, cannot hold for every instance in the face of the present data. It is more likely the case that the entailment which once held historically is

now weakening to accommodate the R-based inferences created by its own negatively-polarised senses of the minimalism of the predicate within its scope and may thus be devolving to the status of a conventional implicature as well. In this way, both the historical evidence as well as the variational data illustrate that the two adverbs cannot be regarded as mirror-images of one another and are describable only in terms of a dynamic pragmatic perspective, with meanings shifting gradually over time, across dialectal communities and linguistic environments at the same time.

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## Notes

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<sup>1</sup> On the use of *quite*, it should be noted that the meaning intended is ‘wholly, completely’ rather than ‘partially’ or ‘rather’ as noted also by Atlas (1984: 350).

<sup>2</sup> Note, though, that it is not redundant to say: *My balloon is inflated to its maximum capacity*.

<sup>3</sup> In fact, Nouwen (2006) supplies adequate information to suggest contradictions between temporal orientation and the presumed polar orientation of *almost*, e.g., *Travis was almost on time* (p. 8), in which the usual relation between the polar orientation and the proximity point is reversed.

<sup>4</sup> *Hardly* is usually considered synonymous with *barely* but supports an ironic usage as well, as noted by Atlas (1997), marking it as polysemous. Further examination of its possibilities will be left to the broader scope of future research.

<sup>5</sup> The period selected was based on evidence from the *OED Online* that showed no (non-participial) verbal complements appearing before this time.

<sup>6</sup> The forms searched were taken from the range of forms shown in the *OED*, i.e., *allem-*, *alm-*, *amaist*, *a'most*, *almost*. The survey did not include examples in which the adverb co-occurred with a past participle or in the pluperfect.

<sup>7</sup> Traugott (2006) also notes that the entailment of *p* with *barely* has always been observed, and that the negative orientation is only a recent phenomenon.

<sup>8</sup> I am grateful to Keith Allan and Mark Newbrook for their help in distributing the online surveys of the second group to various students and colleagues in Britain and Australia, and also to the many Singaporean English Language undergraduate students from the National University of Singapore who patiently participated in the electronic surveys distributed on the student intranet for the data for Group 1.

<sup>9</sup> The stated relationship does not imply one that is *definitive* of conventional implicatures, which are notoriously difficult to describe in many accounts.

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# Two Types of Case Alternation in Mongolian\*

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## Abstract

In modern Mongolian there are two major case alternations involving the accusative suffix: direct objects as well as the subjects of (some) embedded clauses can occur either in the morphologically unmarked form (nominative) or in the accusative form. The first case alternation is well-known cross-linguistically as the phenomenon of “differential object marking”. The second alternation we will refer to as “differential embedded subject marking”, to avoid confusing it with the differential marking of matrix subjects. In this paper, we present the results of a questionnaire, which was conducted to investigate the conditions governing the case alternation on subjects in embedded object clauses, and propose that the accusative case in Mongolian has the function of distinguishing the argument to which it attaches from the matrix subject.

**Keywords:** case, case function, differential object marking, differential subject marking, Mongolian, Altaic.

## 1. Introduction

Modern Mongolian exhibits two types of case alternation: Differential Object Marking (DOM) and Differential Embedded Subject Marking (DeSM). DOM refers to the cross-linguistic phenomenon that some direct objects are accusative-marked whereas others are not, and DeSM refers to case alternations of subjects of embedded clauses. Here we will focus on the alternation between nominative versus accusative for

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both DOM and DeSM (other alternations are also possible for DSM).

In this paper, we will discuss these case alternations from the perspective of the functions of case (cf. Comrie, 1989; de Hoop & Narasimhan, 2005, de Hoop and Malchukov, 2008). According to de Hoop and Malchukov (2008) “[t]he identifying strategy makes use of case morphology to encode specific semantic/pragmatic information about the nominal argument in question”, whereas “[t]he distinguishing strategy is a more specific strategy that is used for distinguishing between the two core arguments of a transitive clause, i.e. the subject and the object”.

Our proposal is that the function of the accusative case in Mongolian is clearly distinguishing; one could even say that it functions as a “non-(matrix-)subject-marker”. DOM in Mongolian indicates distinguishing function of the accusative case. This indication is supported by our data about DSM in Mongolian. Therefore, we assume that in Mongolian the accusative case distinguishes not only between two different arguments in the same clause but it also distinguishes between the two adjacent subjects across clause boundaries which also have similar features in terms of referentiality and animacy.

Section 2 introduces Mongolian as a language of the Altaic language family including its typological characteristics. In section 3, we will discuss each of the two case alternations. We will also derive our hypothesis about possible conditioning factors like adjacency and relative referentiality/animacy which trigger the accusative marking of embedded subjects. The experimental survey which we designed to test our hypotheses will be discussed with its results in section 4. Section 5 gives a summary and outlines the intended goals for further research.

## **2. Preface to Mongolian**

Modern Mongolian is spoken in Mongolia by its estimated 3 million habitants. It is also spoken, at least understood by other Mongolic minorities in Buryatia, western Mongolia and by the peoples in the autonomous province of Inner Mongolia in China. We will focus on Khalkha Mongolian, the general dialect of Mongolian and also the official language in Mongolia, which we will refer to in the present paper as “Mongolian”.

In the literature (Pope, 1951; Dörfer, 1966; Binnick, 1979), Mongolian is usually assigned to the Altaic language family, along with the Turkic and Manchu-Tungusic languages, because of its typological similarities even to Japanese and Korean. In spite

of the common typological characteristics among these languages, this genetic relation is still debatable. They are also often referred to as the Altaic Sprachbund because of their regional language contacts over a long period.

The typological characteristics of Mongolian, which it shares with other Altaic languages, are vowel harmony, agglutinated morphology, SOV-structure and the absence of a gender system. On the other hand, there are also some fine morpho-syntactic differences among the Altaic languages, e.g. subject-verb agreement which is absent in Mongolian, but present in Turkish.

### **3. Case alternations in Mongolian**

#### *3.1. Functions of case-marking*

It is broadly argued that there are two functions of case marking: **indexing and distinguishing** (Comrie, 1989; de Hoop & Narasimhan 2005, Malchukov, 2005). According to the indexing function, the overt case marking indicates some specific information about the thematic role of the arguments under consideration. For example, ergative case expresses agentivity, accusative case concerns patient, and so on. De Hoop & Narasimhan (2005) assume that overt case marking in its indexing function is associated with argument strength. That is, the strong arguments which are prototypical and highly prominent take case suffixes.

Another function of case marking is to distinguish between different arguments, e.g. between the agents and patients. Overt case marking on one of these arguments is sufficient for distinguishing them. If only patient-like arguments of transitive clauses are marked morphologically, while other arguments of transitive and intransitive clauses are morphologically unmarked, this results in a nominative-accusative case alignment. If on the other hand only patient-like arguments of transitive clauses are marked morphologically, while the other arguments of transitive and intransitive clauses are morphologically unmarked, this results in an ergative-absolutive case alignment. According to de Hoop & Narasimhan (2005), arguments are to be differentiated if they are close to each other in argument strength. That is, if both arguments show similar features in terms of their referentiality and animacy, they must be distinguished by overt case marking on one of these.

We will propose in this paper that the accusative case in Mongolian has clearly the distinguishing function. Moreover, while by DOM in Mongolian it is distinguished between the subjects and objects, our Mongolian data about case alternation of subjects

in embedded clauses show that overt case marking differentiates between two subjects in a complex clause and supports our assumption of a distinguishing function. This will be discussed in detail in the following sections.

### 3.2. Differential Object Marking<sup>2</sup>

In Mongolian, the direct objects in transitive clauses are marked differently morphologically. They can either take the accusative suffix *-(i)g* or occur in unmarked nominative, a form, which is morphologically zero. This phenomenon of DOM appears in many languages and some factors which trigger DOM cross-linguistically are pointed out in the literature (e.g. Bossong, 1985; Aissen, 2003 among others). According to these authors, DOM is triggered mainly by referentiality, animacy and topicality. DOM in Mongolian mainly patterns according to the Referentiality Scale in (1), which is suggested by Aissen (2003, p. 437).

(1) **pers. pro. > prop. names > def. NPs > indef. spec. NPs > indef. non-spec. NPs**

If the direct objects are realized by personal pronouns, proper names and definite noun phrases, the accusative marking is obligatory, whereas accusative marking on weak indefinite and incorporated<sup>3</sup> noun phrases is ungrammatical, as shown in (2) and (3).

(2) *Bi tuun\*(ig)/Tuya\*(-g)/ene uul\*(-ig) har-san.*  
 I 3.PS.ACC/Tuya-ACC / this mountain-ACC see-PST  
 “I saw him/her/Tuya/ this mountain.” **high in referentiality**

(3) *Bi zahia bich-sen.*  
 I letter.NOM write-PST  
 “I wrote a letter.” **low in referentiality**

Indefinite noun phrases show an interesting variation in Mongolian DOM. Some indefinite noun phrases can but do not have to be marked with the accusative case, in other words, it is optional. This optionality seems, at first glance, to depend on the specific feature of the direct objects, as illustrated in (4), similar to Turkish (Enç 1991,

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<sup>2</sup> See Guntsetseg (to appear) for detailed descriptions about DOM In Mongolian.

<sup>3</sup> Incorporated noun phrases build a semantic unit together with the verb and do not introduce discourse referents. Cf. Dayal (2003) and Öztürk (2005) for detailed information.

von Heusinger & Kornfilt 2005).

- (4) a. *Bold neg ohin uns-sen.*  
Bold a girl.NOM kiss-PST  
“Bold kissed a girl.”  
b. *Bold neg ohin-ig uns-sen.*  
Bold a girl-ACC kiss-PST  
“Bold kissed a (certain) girl.”

In (4b), the accusative case requires a specific interpretation; it is a certain girl who is kissed by Bold, whereas in (4a) is unclear whether or not a specific girl is meant. In other words, in (4a) *neg ohin* can be interpreted either as specific or as non-specific. Since in both (4a) and (4b) the need for distinguishing the two arguments is the same, it the accusative case is less likely to be used to distinguish, and more likely to be used to index the specificity of the argument.

On the other hand, there are also cases where the accusative case on indefinite noun phrases with *neg* is hardly acceptable, despite having a specific reading, as illustrated in (5).

- (5) *Bold neg nom(\*<sup>2</sup>-ig) unsh-san.*  
Bold a book-ACC read-PST  
“Bold read a book.”

The ungrammaticality of accusative marking in (5) could be due either to the fact that there is no need to distinguish the arguments (the distinction is guaranteed by the fact that books cannot read, but can only be read), or to the fact that what the accusative indexes is only the specificity of human arguments.

Generally speaking, it is difficult to decide whether DOM in Mongolian has the indexing or distinguishing function, since the set of arguments which would be morphologically marked in each case would overlap considerably. Thus DOM appears to be compatible with both a distinguishing function of the accusative as well as with an indexing function. In order to find evidence for distinguishing more clearly the function of the accusative in Mongolian, we turn to the differential marking of subjects of embedded object clauses.

### 3.3. *Differential Embedded Subject Marking*

Another type of case alternation involving the accusative in Mongolian is that subjects of embedded clauses (further “embedded subject”, abbr. S<sub>E</sub>) are marked in different cases. This alternation depends on the type of the embedded clause. In relative clauses,

subjects can occur in nominative, genitive, and in few cases, even in ablative form, as illustrated in (6). Subjects of embedded temporal clauses are marked either with accusative case or they can occur morphologically unmarked (in nominative form), as shown in (7).

- (6) *Bi yerunhiilegch/-in/-uus bich-sen zahia-g unsh-san.*  
 I president.NOM/-GEN/-ABL write-PST letter-ACC read-PST  
 “I read the letter which the president wrote.”

- (7) *Bold/-ig ir-sn-ii daraa bi yav-na.*  
 Bold.NOM/-ACC come-PST-GEN after I go-FUT  
 “I will go after Bold comes.”

For our discussion in the present paper, we will focus on the case alternation of subjects in embedded object clauses. Before we begin with the investigation of the conditions underlying this alternation, we point out some important morphosyntactic features of embedded object clauses. Firstly, the object clauses are always suffixed with the accusative case.

- (8) *Bi ene oyutan haana amidar-dag-ig med-ne.*  
 I this student where live-HAB-ACC know-PRS  
 “I know where this student lives.”

Secondly, there are two possibilities where the embedded clause can occur within a complex clause. Since Mongolian is a verb final language, the embedded clause must occur before the main verb, but it can occur either after the subject of the main clause (further “matrix subject”, abbr. SM) or before it. These two possibilities are represented in (9). Sentence (8) has the structure (9a), and (8’) has the form (9b).

- (9) a. **SM [SE (OE) VE] VM**  
 b. **[SE (OE) VE] SM VM**  
 (8’) *Ene oyutan haana amidar-dag-ig bi med-ne.*  
 this student where live-HAB-ACC I know-PRS  
 “I know where this student lives.”

The subjects of the embedded object clauses can occur in nominative, accusative and also in genitive, as shown in our example (10). The case alternation is still present, when the whole clause has the form like in (9b).

- (10) a. *Bi ene oyutan haana amidar-dag-ig med-ne.*  
 I this student.**NOM** where live-HAB-ACC know-PRS  
 “I know where this student lives.”
- b. *Bi ene oyutn-ig haana amidar-dag-ig med-ne.*  
 I this student-**ACC** where live-HAB-ACC know-PRS  
 “I know where this student lives.”
- c. *Bi ene oyutn-i haana amidar-dag-ig med-ne.*  
 I this student-**GEN** where live-HAB-ACC know-PRS  
 “I know where this student lives.”

We will focus on the alternation between nominative and accusative because they seem to compete with each other, also in temporal clauses as in (6). The question here is: why is there an alternation and when do the embedded subjects take the accusative case?

At this point, we should mention that this kind of case alternation of subjects is much different from other types of differential subject marking, for example in ergative languages. In these languages the ergative cases express the agentivity and control feature of the subjects in a simple clause, possibly with an indexing function.

In Mongolian we propose that the accusative case attached to the embedded subjects has the function to distinguish it from the matrix subjects. When the whole complex clause has the form in (9a), both subjects are immediately in adjacent position, which might trigger accusative marking of the second noun phrase in order to signal: I am not the matrix subject, or I do not belong to the main clause.

Another factor would be the relationship of both subjects with respect to their position on the referentiality and animacy scales. From the perspective of distinguishing function, if the embedded subjects are higher in referentiality and animacy than the matrix subjects, then the accusative marking of embedded subjects is necessary.

Based on these observations, we have hypothesized the following factors for accusative marking on embedded subjects:

- **Hypothesis of adjacency:** If the matrix and embedded subjects are immediately adjacent like in (9a), then the second noun phrase should get the accusative case, in order to signal it is not the matrix subject.
- **Hypothesis of relative referentiality and animacy:** if embedded and matrix subjects differ in the referentiality and animacy features, such that the embedded subjects are higher on these scales, the accusative marking of embedded subjects is clearly preferred.

We tested our hypotheses with a web questionnaire, which will be discussed in detail in the next section.

## 4. Web Questionnaire

### 4.1. Design and method

The 156 participants were all native speakers of Mongolian, and most of them accessed the questionnaire website by means of an advertisement link placed on a popular Mongolian website (<http://www.medeel.com>). The 54 sentences were distributed over 6 questionnaires, so that each participant saw only 9 out of 54 conditions/items. The test sentences were mixed with an equal number of filler sentences in the questionnaires. We collected 26 judgements per item via a web questionnaire, using the WEBEXP2 software, where the participants had to choose 1 (very bad), 2, 3, or 4 (very good), as a response to how good the sentence displayed sounded.

The design of the questionnaire was as follows

**Dependent variable:** acceptability judgement

**Independent variable:**

- a. **Case:** nominative vs. accusative
- b. **Adjacency:**
  - 1: **SM SE** matrix and embedded subjects are immediately adjacent
  - 2: **SM Adv SE** matrix and embedded subjects are separated by an Adverb
  - 3: **SE...SM** matrix subject follows the embedded clause
- c. **Relative referentiality:**
  - 1: **SM > SE** matrix subject is higher on referentiality scale than embedded subject
  - 2: **SM = SE** matrix and embedded subjects have equal referentiality
  - 3: **SM < SE** matrix subject is lower on referentiality scale than embedded subject
- d. **Relative animacy:**
  - 1: **SM > SE** matrix subject is higher on animacy scale than embedded subject
  - 2: **SM = SE** matrix and embedded subjects have equal animacy
  - 3: **SM < SE** matrix subject is lower on animacy scale than embedded subject

Some of the test sentences used in the web questionnaire will be presented below. There were 54 (2x3x3x3) conditions and accordingly 54 test items, that is, one lexicalization per condition. The test items divided into 6 different questionnaires. Each subject saw 9 of them. The ratio between the test items and the control sentences was 1:1. There were 26 judgements per item.

#### 4.2. Results and interpretation

The data were analysed by means of a crossed 4-way between-subjects analysis of variance. We will discuss only selected results and have attached all results in the appendixes. The first result is about the interaction between the case and adjacency of both subjects, displayed in figure 1. In fact, there is significant effect of this interaction ( $F(2,1398)=10.2$ ;  $p<0,001$ ) in the sense of:

- If matrix and embedded subjects are adjacent, under 1 in the figure, then there is a significant preference for accusative marking of the embedded subject.
- If matrix and embedded subjects are NOT directly adjacent, under 2 and 3 in the figure, then there is NO preference for case marking of the embedded subject.

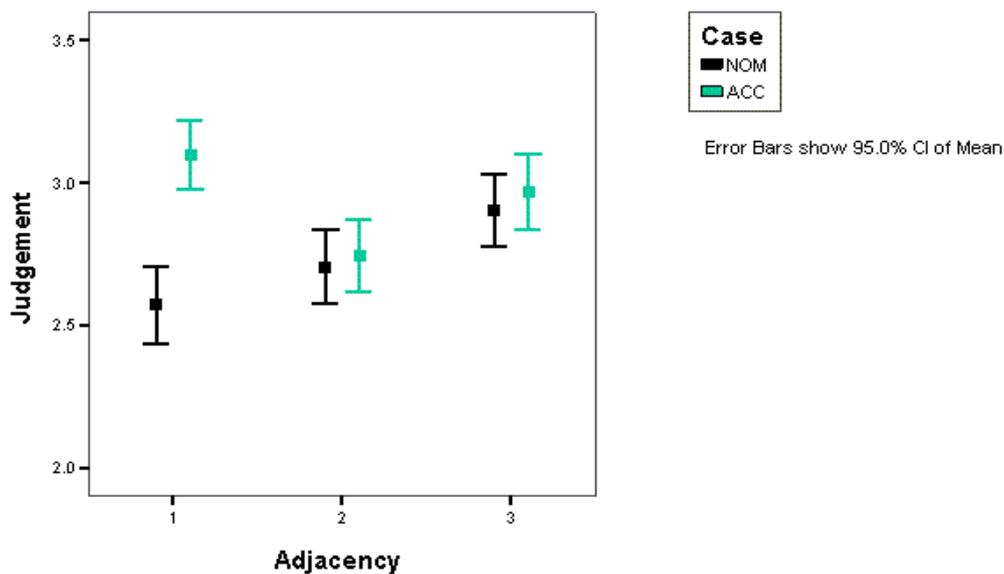


Figure 1. Interaction between case and adjacency of subjects

The test items for that are repeated in (11)-(13).

- (11) *Neg bagsh Tuya(-g) hicheel-d idevhtei orolz-oh-ig sanuul-av.*  
 a teacher Tuya-ACC lesson-DAT diligently participate-INF-ACC warn-PST  
 “A teacher warned that Tuya has to participate diligently at the lesson.”

- (12) *Neg bagsh unuudur Tuya(-g) hicheel-d idevhtei orolz-oh-ig*  
 a teacher today Tuya-ACC lesson-DAT diligently participate-INF-ACC  
 сануул-ав.  
 warn-PST  
 “Today a teacher warned that Tuya has to participate diligently at the lesson.”
- (13) *Tuya(-g) hicheel-d idevhtei orolz-oh-ig neg bagsh сануул-ав.*  
 Tuya-ACC lesson-DAT diligently participate-INF-ACC a teacher warn-PST  
 “A teacher warned that Tuya has to participate diligently at the lesson.”

The next 2 figures show the results about the hypothesis of referentiality and animacy, i.e. about the question whether there is an interaction between case and these features. Some of the test sentences where the subjects are adjacent but differ in relative referentiality are repeated below. Their results are shown in figure 2.

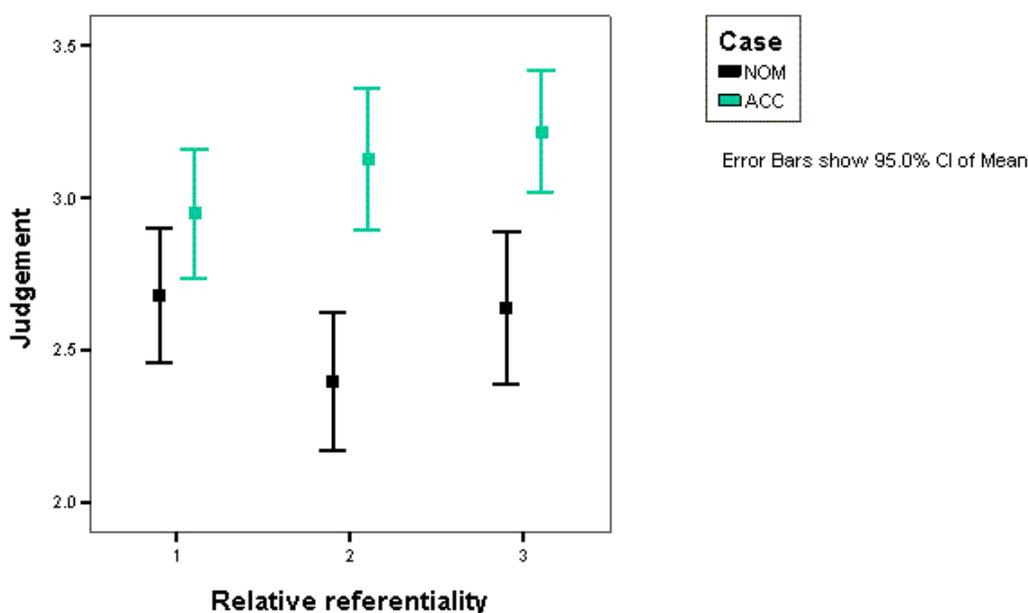


Figure 2. Interaction between case and relative referentiality of adjacent subjects

- (14) *Tuya neg shiree(-g) end bai-sn-ig har-san.*  
 Tuya a table-ACC here be-PST-ACC see-PST  
 “Tuya saw a table was here.”

(15) *Tsetsegee Bold(-ig) unuudur huduu-nuus ir-sn-ig sons-son.*  
 Tsetsegee Bold-ACC today country-ABL come-PST-ACC hear-PST  
 “Tsetsegee heard that Bold came today from the countryside.”

(16) *Neg zereg ene buu(-g) yaj ajilla-dag-ig nadad zaa-j ug-sun.*  
 a soldier this gun-ACC how work-HAB-ACC me show-CVB give-PST  
 “A soldier showed me how this gun functions.”

Figure 2 can be interpreted as follows. If the two subjects are adjacent, then accusative marked embedded subjects are significantly preferred to nominative embedded subjects only if they are equal to or higher than the matrix subject on the referentiality scale.

Finally, figure 3 shows the interaction between the case of embedded subjects and the relative animacy of both adjacent subjects. There is a significant preference for accusative marking of the embedded subjects adjacent to the matrix subjects if its animacy is equal to or higher than the animacy of the matrix subjects. Examples from the questionnaire are shown below.

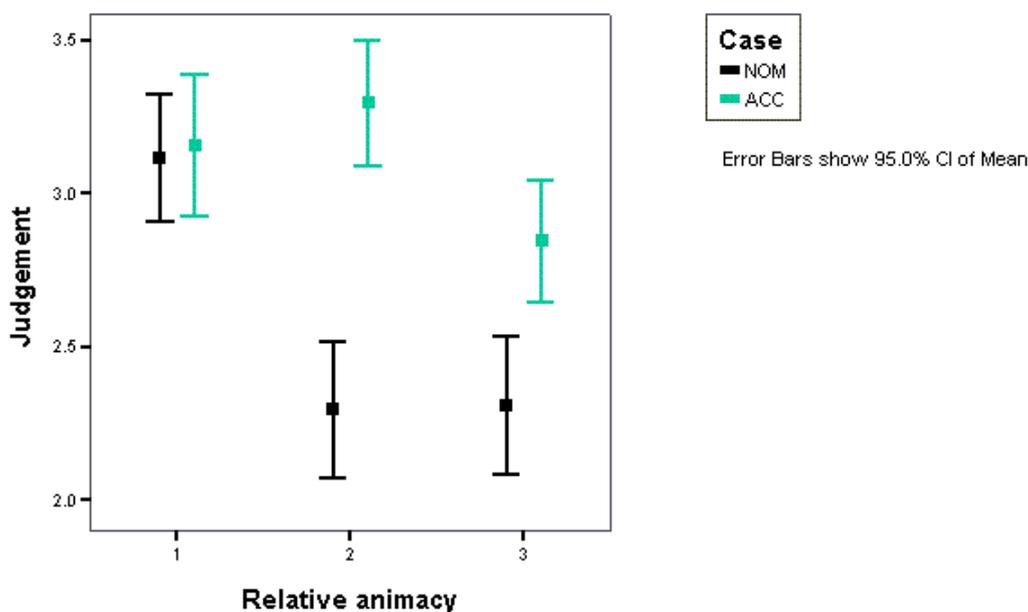


Figure 3. Interaction between case and relative animacy of adjacent subjects

(17) *Tuya neg shiree(-g) end bai-sn-ig har-san.*

Tuya a table-ACC here be-PST-ACC see-PST

“Tuya saw a table was here.”

(18) *Sarnai neg oyutan(-ig) end amidar-dag-ig med-ne.*

Sarnai a student-ACC here live-HAB-ACC know-PRS

“Sarnai knows that a student lives here.”

(19) *Ene GPS bagaj neg hun(-ig) haana bai-gaa-g todorhoil-dog.*

this GPS instrument a man-ACC where be-PRS-ACC determine-HAB

“This GPS instrument determines where a man is.”

To conclude, we see that the adjacency of subjects plays a role for accusative marking of embedded subjects, but only if the embedded subjects are equal to or higher in referentiality than the matrix subject, or if they have the same or higher animacy feature than matrix subjects. In other words, the accusative case occurs to distinguish between the two adjacent subjects provided that the matrix subject is lower than the embedded subject on the referentiality and/or animacy scale.

#### **4. Summary and further research**

The conditions for two major case alternations involving the accusative suffix in Mongolian indicate that it functions to distinguish not only between the two different arguments in the same clause (DOM), but also between the two adjacent subjects across clause boundaries. Put differently, the accusative case signals that the noun phrase to which it suffixes is not the matrix subject.

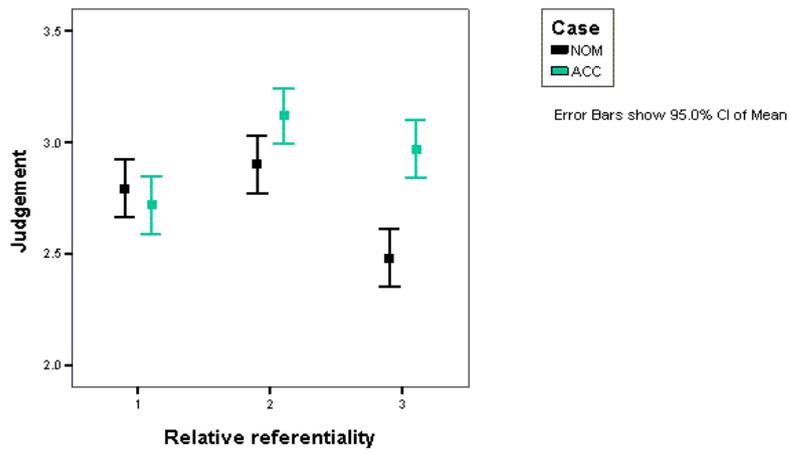
If the idea that the accusative case can also be used to distinguish arguments across clause boundaries, provided they are adjacent and the matrix subject is lower on referentiality and/or animacy scale, there is a reasonable expectation for this to be the case irrespective of the type of embedded clause. Since temporal subclauses also display a case alternation on the embedded subject involving the accusative, it would be interesting to find out whether this prediction is born out. This had to be left for future work.

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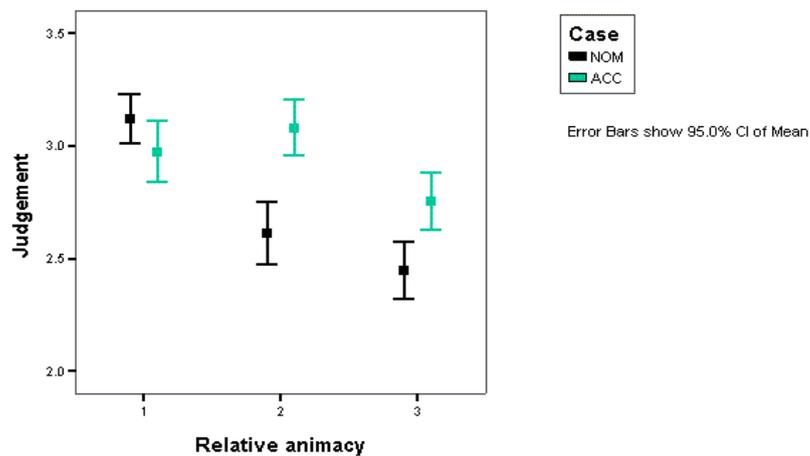
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## Appendixes

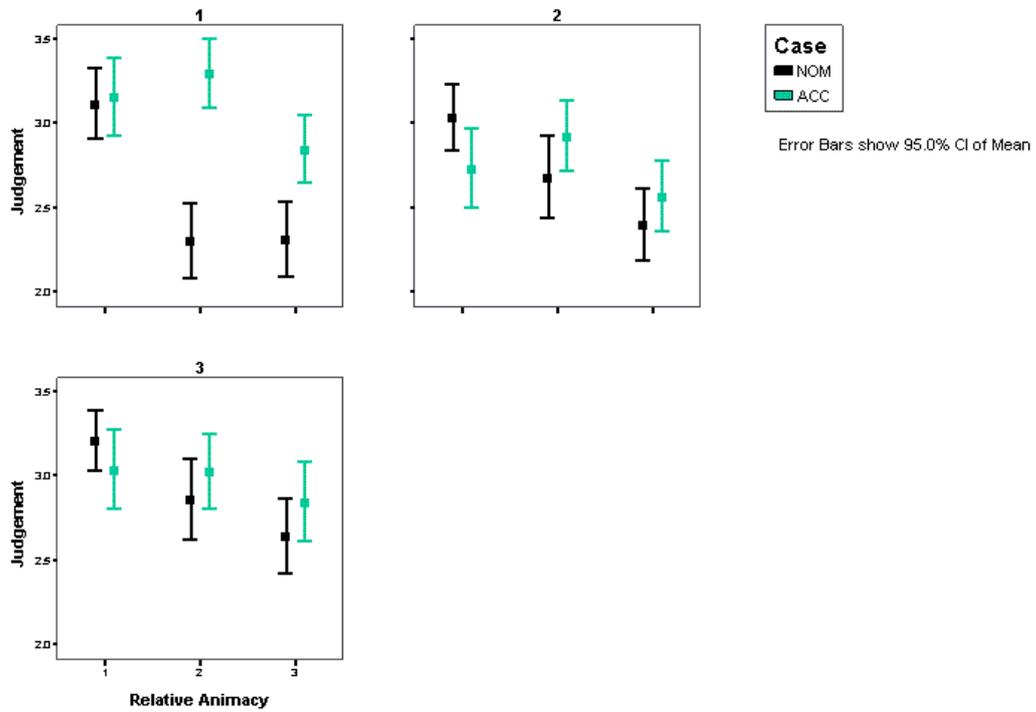
### Interaction between case and relative referentiality



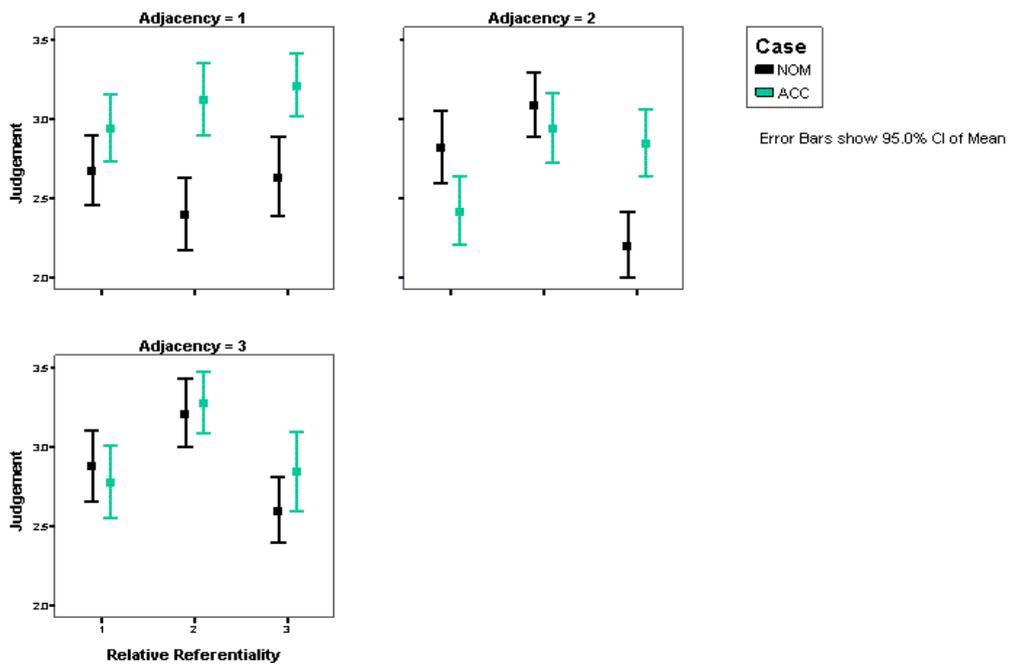
### Interaction between case and relative animacy



Interaction between case and relative animacy, split by adjacency



Interaction between case and relative referentiality, split by adjacency



# The Tonal Structures and the Locations of the Main Accent of Kyungsang Korean Words

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## Abstract

This paper explicitly provides the experimental analyses for the fundamental arguments of Kyungsang (KS) tone. It provides the locations of the main accent in KS words and its basic tonal units. Furthermore through the results it ultimately contributes to the typological categorization of KS Korean tone. That is, the results of the current experimental analysis of the KS words provide us the evidences that KS Korean is a pitch-accent language. In KS Korean only one accent is assigned on a syllable and other syllables are predictable in terms of pitch. The accent type of South Kyungsang Korean is H\*+L with two register tones (H and L). North Kyungsang Korean has two types of accent L+H\* and H\*.

## 1. Introduction

Even though Korea is a small country, there exist several different dialects in the country. Among those dialects especially Southeastern dialects of Korean (South and North Kyungsang Koreans), unlike other dialects, show lexical contrast patterns based on pitch (f<sub>0</sub>). In this paper, therefore, we examine this tonal phenomenon in terms of the tone structures and the locations of the main (highest) High tone of the dialects and try to figure out what prosodic type this lexical contrast in tone patterns reflects.

Traditional works (Gim 1994, 1998, Lee 1997) claim that Kyungsang (KS) Korean is a tone language. They argue that KS Korean has three distinctive tones as High (H), Mid (M) and Low (L) and these tones are assigned on each syllable in a word. The height of non-high-toned syllables in KS Korean words is unpredictable. Therefore, they insist that KS Korean is a tone language. However, in a pitch-accent language like Japanese, an accent is assigned on only one syllable or mora in a word and the height of the other non-accented syllables is decided by rules (McCawley 1970, 1978). The primary purpose of this paper is to investigate the location of the main (highest) H in KS words and to decide whether the High tone in KS words function as in tone languages or as in pitch accent languages. The typological category of KS dialect is examined through the current experimental study.

Now let us consider some example words having multiple High tones. In KS Korean, some words have H tones in adjacent syllables. Both native and loanwords are assumed to have the same tonal characteristics (SKK: South Kyungsang Korean, NKK: North Kyungsang Korean).

(1) KS Words (N/A: not available tone patterns)

a. H H	b. H H L	c. H H H L	d. H H L L
SKK: əm.ma ‘mother’	mu.ɔ̃i.ke ‘rainbow’	in.ti.a.na ‘Indiana’	hal.a.pə.ɔ̃i ‘grandfather’
NKK: no.njən ‘old age’	ma.na.nim ‘madam’	-----N/A-----	hal.a.pə.ɔ̃i ‘grandfather’



(3) North Kyungsnag Korean (tones in parenthesis are tones of derivational nouns or compound words)

Disyllable	Trisyllable	Quadrisyllable
<b>HH</b>	<b>HHL</b>	<b>HHLL</b>
HL	HLL	LHLL
LH	LHL	(HLLL)
	LLH	(LLHL)
		(LLLH)

NKK also has words having multiple High tones like SKK but the actual tone patterns are a little bit different from SKK. In NKK trisyllabic words, there is no tone pattern like LHH of SKK, and in NKK quadrisyllabic words there are no tone patterns like HHHL, LHHL and LHHH of SKK. This dialectal difference in tone patterns of SKK and NKK also triggers our interests about conducting the current experimental study of these Southeastern dialects. Now let us examine the arguments of previous works that defines KS Korean as a tone language.

2.3. Previous argument of KS Korean Typology

In this part we introduce the arguments of traditional works categorizing KS Korean as a tone language (Lee 1997, Gim 1994, 1998). Among these, we summarize Lee's (1997) assumption about the different characteristics between tone languages and pitch-accent languages in (4) (see also McCawley 1970, 1978 for prosodic typology).

(4) Prosodic Typology (Lee 1997)

a. Tone languages

- Height of pitch has the function distinguishing the meanings of words.
- Distinctive heights are assigned on each syllable in words in the “phonological level” (Lexical level).
- The underlying tone that assigned in each syllable is not changed by sentence types (That is, they are not changed on the post-lexical level).
- Languages like Chinese, Igbo, Ganada, Mende, Tamang, Tswana, Otomi, and Huichol belong to this category.

b. Pitch-accent languages

- Accent is assigned on only one syllable or mora ( $\mu$ ) in a word and the height of the other non-accented syllables is decided by rules as shown in Japanese case:
  - 1) The moras following an accented mora is Low tone (pitch fall)
  - 2) The first mora is Low and the moras preceding an accented mora are High tone when the last mora is accented: LHH', LHHH',...etc.
  - 3) Unaccented words have Low tone in the first mora and High tone in the rest of the moras of the words: LHH, LHHH,...etc.
- The accent of each word is assigned at the “phonological level” (Lexical level).

Following Lee's (1997) assumption, we can simply describe the main difference between tone languages and pitch accent languages as below: First, in tone languages, each syllable in a word is assigned by a distinctive tone. However, in pitch-accent languages, only one tone is assigned on only one mora or a syllable in a word. Lee (1997) further argues that KS Korean has three distinctive tones as High (H), Mid (M) and Low (L) tone and these tones are assigned on each syllable at the “phonological (lexical) level”. Unlike Japanese, the height of non-high-toned syllables is not

predictable by rules in KS Korean. Therefore, he argues that KS Korean is a tone language. Throughout the current experimental study, we will argue against his claim and will show KS Korean is a pitch-accent language. That is, the height of the other non-accented syllables is somewhat predictable by rules similar to Japanese<sup>1</sup>.

### 3. Instrumental Study of Kyungsang Korean Tone Patterns

Before presenting the instrumental study, we show once again that some KS words have multiple High tones. The relevant tone patterns are shown in table (5) and (6).

#### (5) Multiple High Tone Patterns of SKK and NKK

	HH	HHL	HHLL	HHHL
SKK	əm.ma 'mother'	mu.ɕʒi.ke 'rainbow'	hal.a.pə.ɕʒi 'grand father'	in.ti.a.na 'Indiana'
NKK	no.njən 'old age'	ma.na.nim 'madam'	hal.a.pə.ɕʒi 'grand father'	N/A <sup>2</sup>

In the table (5), the tone patterns having multiple High tones are shown for both SKK and NKK dialects. In this table, both dialects have same tone patterns in di-, tri-, and quadrisyllabic words. In table (6), however, the tone patterns show a difference between SKK and NKK. As we mentioned previously, NKK words do not have all the tone patterns that SKK have. That is, even though SKK has LHH, LHHL, and LHHH tone patterns, NKK does not have these tone patterns. However, in spite of this mismatch, NKK has tone patterns like LLH, LLHL and LLLH. In this section, we will examine these NKK tone patterns to compare with the tone patterns of SKK LHH, LHHL and LHHH. We assume that this comparison may provide important information about the tone structure of both dialects.

#### (6) Difference in tone patterns between SKK and NKK (N/A: not available)

	LHH	LHHL	LHHH
SKK	non.t'u.rəŋ 'rice-field barrier'	men.t̚.ra.mi 'cockscorn'	pa.i.ol.lin 'violin'
NKK	N/A	N/A	N/A

(NKK has LLH, LLHL and LLLH instead of the counter parts of the SKK tones)

From the both tables, we can draw a question. Which of the High-toned syllables has the main accent in these multiply H toned words? The experimental data of the present paper will answer this question. In order to do this, the current study will examine the whole tone patterns of KS words and the characteristics of KS tone patterns. Then, we will be able to determine where the main accent is located. In the process of the analysis of the present data, we could show that KS Korean is a pitch-accent language and SKK and NKK show somewhat different patterns with respect to tonal structure. Now we provide the materials which are used for the current experimental study.

#### 3.1 Materials for recording

The materials for the current experiment study are provided in (7).

#### (7) Tokens of the Recording (σ: syllable)

Native	SKK		NKK	
	Tone Pattern	Number of Words	Tone pattern	Number of Words
2 σ	HH	3	HH	3
	HL	3	HL	3
	LH	3	LH	3

3 $\sigma$	HHL	3	HHL	3
	HLL	3	HLL	2
	LHL	3	LHL	3
	LHH	3	LLH	3
4 $\sigma$	HHLL	2	HHLL	2
	HLLL	3	HLLL	3
	LHLL	3	LHLL	3
	LHHL	3	LLHL	3
	LHHH	1	LLLH	0
<b>Loanwords</b>	<b>Tone Pattern</b>	<b>Number of Words</b>	<b>Tone Pattern</b>	<b>Number of Words</b>
2 $\sigma$	HH	3	HH	3
	HL	3	HL	3
	LH	3	LH	3
3 $\sigma$	HHL	3	HHL	3
	HLL	2	LHL	3
	LHH	3	LHL	0
	LHL	3	LLH	3
4 $\sigma$	HHHL	3		
	HHLL	1	HHLL	3
	HLLL	1	HLLL	1
	LHHH	3	LHLL	0
	LHHL	3	LLHL	3
	LHLL	1	LLLH	3
<b>Total Number</b>		65		59
124				

The words for current recording in each dialect are divided by the syllable number: di-, tri-, and quadrisyllabic words. In both SKK and NKK disyllabic words, HH, HL and LH words are recorded. In SKK trisyllabic words HHL, HLL, LHL and LHH words and in NKK HHL, HLL LHL, and LLH words are recorded. In SKK quadrisyllabic words, HHHL, HHLL, HLLL, LHLL, LHHL, and LHHH words and in NKK HHLL, HLLL, LHLL, LLHL, and LLLH words are recorded. We try to include all the tone patterns of each syllable composition except for the case without proper words for recording. The words are chosen from both native and loanwords. Each tone pattern has mostly three words but some tone patterns have less than that because of the difficulty of finding proper words for recording. The word list consists of 124 words. The subjects read each word five times. Thus, the total number of token for each subject is 620. The data set is then  $620 \times 5 = 3100$ , given an overall number of tokens.

#### 4. Methods and the Result of the Current Experiment

In this section, we show the experimental procedures briefly and the result of the current experiment. At first, we provide the conveyer sentence for the words reflecting each of the tone patterns. We also provide the f<sub>0</sub> pitch measurement procedures of the recorded data and the subject characteristics of the current recording. Second, we show the data result of the current experiment in graphs. These graphs will provide the basis for the analysis of the characteristics of KS tone patterns and the accent location of tone patterns having multiple High tones.

##### 4.1. Methods

##### 4.1.1 Conveyer Sentence

The conveyer sentence carrying the words reflecting each tone pattern words is \_\_\_ *i/ka* (nom. suffix) *itta* (there is). ‘*There is \_\_\_\_\_.*’ All the words are nouns and they are subjects of the sentence. The nominative suffixes are assumed not to have any tone so they do not affect the tone pattern of the target words.

#### 4.1.2. Measurement

The measurement procedures of f0 pitch of the recorded data are provided in (8).

##### (8) Measuring Procedure

- a. Four measuring points are set in one syllable<sup>3</sup>: beginning, two middle points and final points (1/4, 2/4, 3/4 and 4/4 time) and they are marked by alphabets and numbers (e.g. the first syllable has a1, a2, a3 and a4 and the second syllable has b1, b2, b3, and b4...etc).
- b. The distance between each point in a syllable is approximately proportional in terms of time (ms). If there are strong effects of consonants, however, the locations of the points are adjusted to avoid them.
- c. If the final point of the preceding syllable (e.g. a4) and the beginning point of the following syllable (e.g. b1) are not easy to distinguish in some data, the point is marked as a4 and it is interpreted as both final and beginning points of two adjacent syllables.

#### 4.1.3. Subjects

Five native speakers of each dialect were recorded for the current study. Four of the five SKK native speakers were born in the SK region and lived there for their whole life, and four of the five NKK native speakers were born in the NK region and lived their whole life there, too. The other speaker of each dialect was also born in the dialect speaking region and lived there at least 22 years (SKK) and 31 years (NKK). For the current paper, we analyze a portion of a larger study. That is, only three subjects of each dialect are analyzed here: one male and two female SKK native speakers and three female NKK native speakers. The age range of SKK speakers is from the mid thirties to the early fifties while the NKK speakers are all in their mid thirties.

#### 4.2. Data

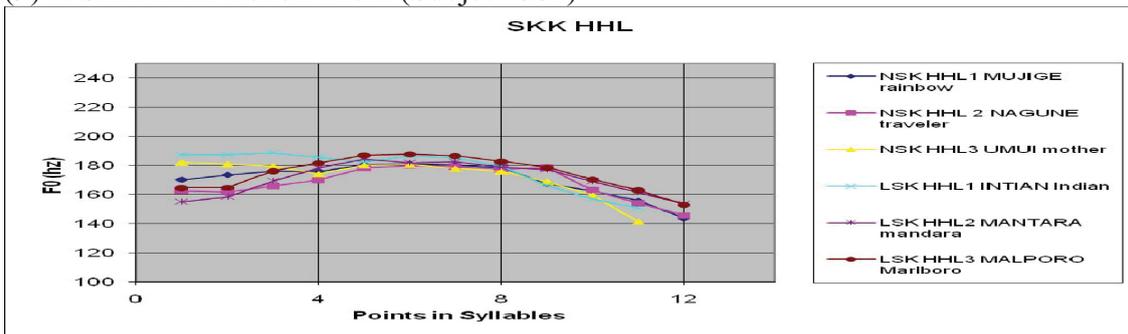
In this section we provide the statistic graphs of the measured data of KS Korean words. The accent types of KS Korean and other characteristics of KS Korean tone patterns will be discussed in section 5 on the basis of the present data analysis. The current paper provides only the data of trisyllabic words in both KS dialects that are crucially representing the characteristics of KS tone patterns.

##### 4.2.1. South Kyungsang Korean (SKK)

###### 4.2.1.1 SKK Trisyllabic Words

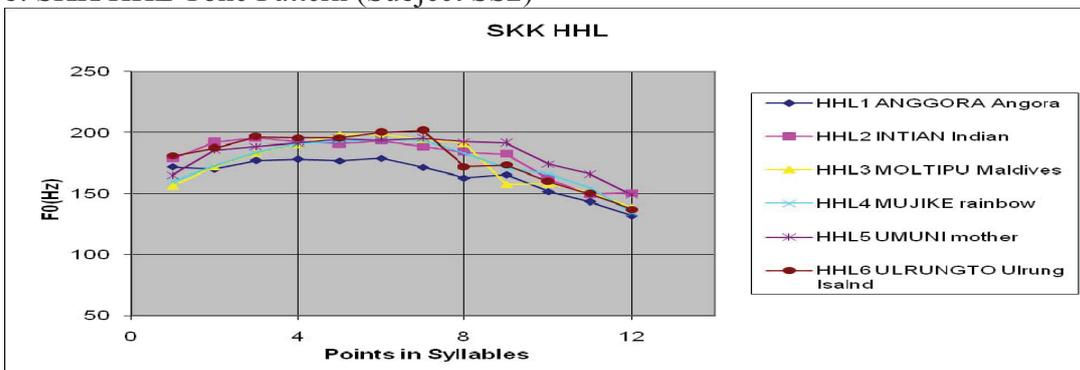
The first tone pattern in (9) is the HHL tone pattern of South Kyungsang Korean. There are graphs of three subjects for each tone pattern in both KS dialects in all the following data representation. Each tone pattern graph basically shows the f0 contour of six different words in most cases. Each syllable in every word has basically four measuring points of pitch (f0). For instance, the first syllable is from point one to point four and the second syllable is from point five to point eight and the last syllable is from point nine to point twelve in most data representation. The syllable deviation is represented by vertical grid lines inside the graphs.

(9) a. SKK HHL Tone Pattern (Subject SS1)<sup>4</sup>

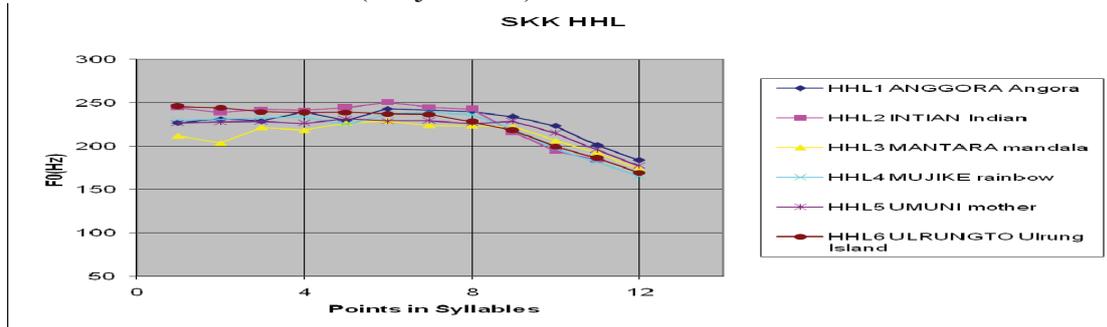


In graph (9a), each f0 contour trajectory is a single token of a word among 5 repetitions of a speaker. Each word in one tone pattern is marked by number e.g. HHL1, HHL2, HHL3,...etc. for the HHL tone pattern in trisyllabic words. The graph shows that the first syllables are lower than the second syllables except for the words starting with vowel (so called vowel effect). The following syllable of the accented tone (highest f0) is falling. The late peak can be seen. That is, the high pitch of the second syllable (accented syllable) remains in the beginning of the third syllable after the peak pitch. Therefore, the accent type of SKK HHL is H\*L on the second syllable. The first High tone is a register tone because the f0 transition from the first syllable to the second syllable is somewhat flat. This kind transition will be observed in the following SKK data. The height of the first syllables shows that the first H tone in the first syllable is a register tone. This register tone will be compared to the first syllable H tone on HHL words in NKK. Briefly speaking the first H tone in NKK words is somewhat different from the SKK initial H tone in terms of F0 transition to the following accented syllable (see graphs of (13) in section 4.2.2.1). The following two graphs of other two SKK subjects show similar patterns.

b. SKK HHL Tone Pattern (Subject SS2)

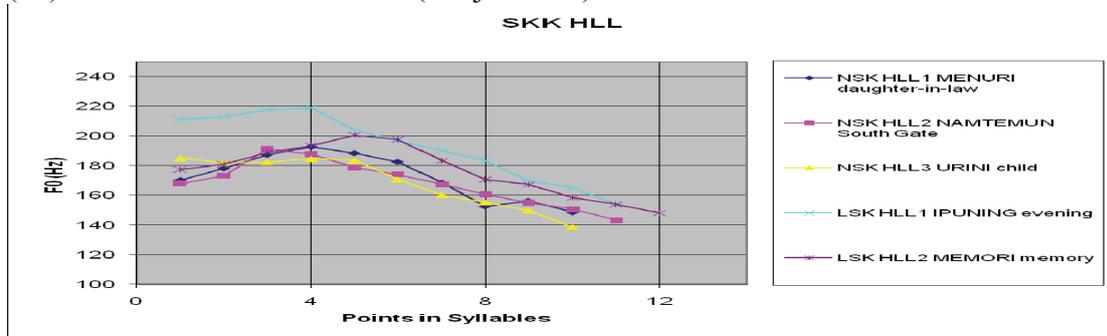


c. SKK HHL Tone Pattern (Subject SS3)



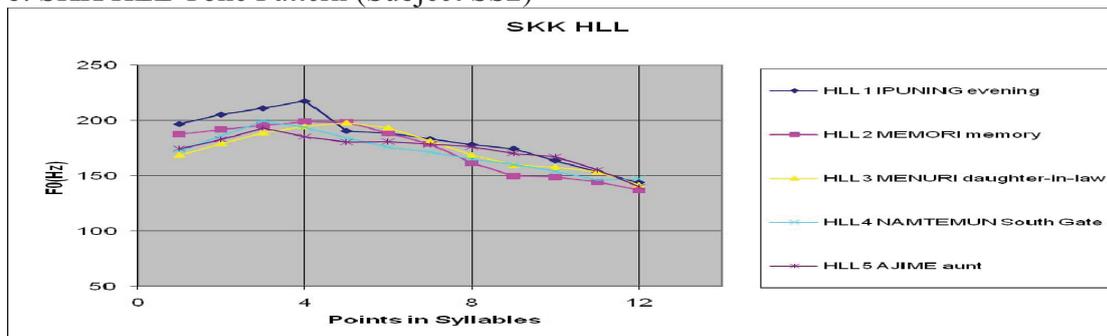
The second tone pattern in (10) is the HLL tone pattern of SKK. There are also graphs of three subjects for this tone pattern. Each graph of this tone pattern shows the tonal representation of five different words.

(10) a. SKK HLL Tone Pattern (Subject SS1)

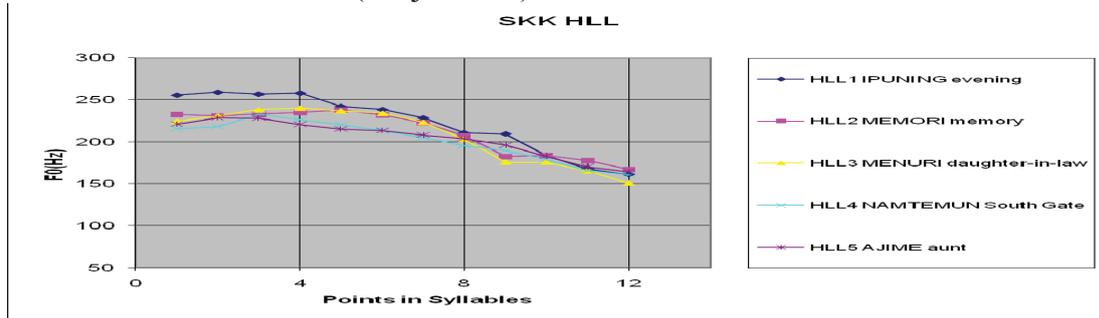


In graph (10a), the late peak is also observed. It is maintained after the pitch peak in the beginning of the second syllable. The accent type of the tone pattern is H\*L. You can also see the vowel (or consonant) effect. The effect showing the gap between the initial points in terms of f0 frequency is somewhat huge in between consonant initial words and vowel initial words. This may cause the misjudgment about the initial height of KS Korean words. That is, even though some words are in the same tone pattern like HLL, the initial tones are maybe misjudged as different tonal categories as H and M simply because of the vowel (or consonant) effect. The shape like a cap in these SKK words is the representative f0 contour shape of the Japanese HLL tone pattern. The following two graphs of other two SKK subjects show similar patterns except for the third subject (Subject SS3). In this subject's graph, the late peak after the pitch peak is somewhat not clearly represented in the beginning of the second syllable.

b. SKK HLL Tone Pattern (Subject SS2)

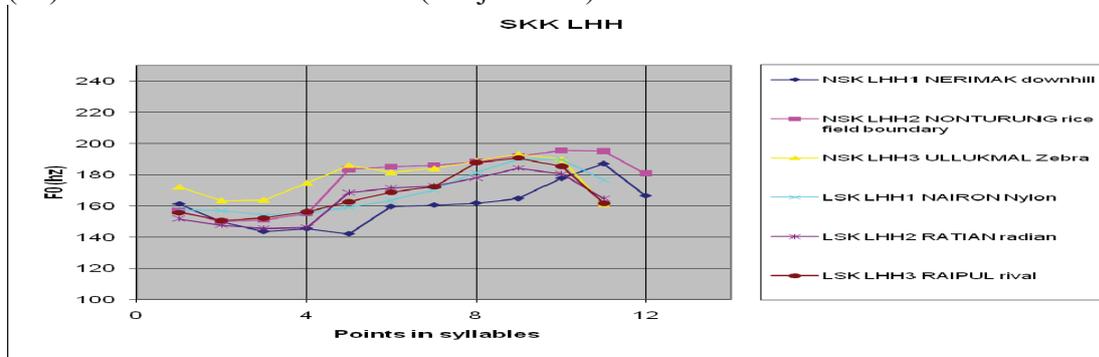


c. SKK HLL Tone Pattern (Subject SS3)



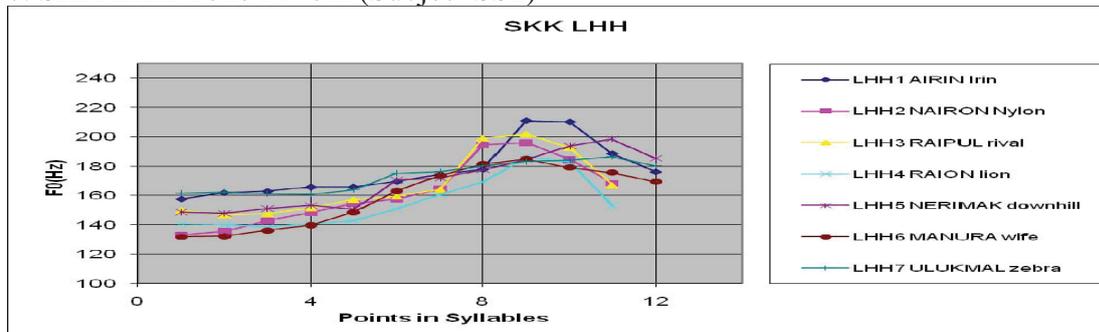
The third tone pattern that is shown in (11) is the LHH tone pattern of SKK. There are also graphs of three subjects for this tone pattern. Each graph of this tone pattern also shows the f0 contour of six different words.

(11) a. SKK LHH Tone Pattern (Subject SS1)

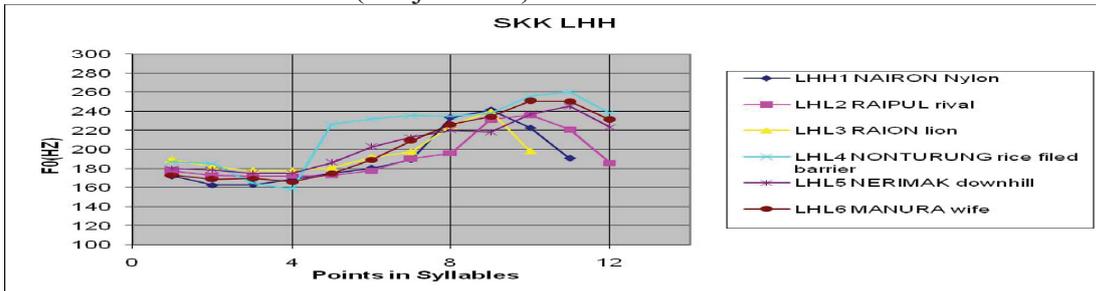


In graph (11a), the second syllable is higher than the first syllable and the third syllable is higher than the second syllable. The last part of the third syllable is falling. There is Low falling in the first syllables. Therefore, the tone type of the pattern is LHH\*(L) with initial Low register tone. The main accent is on the last syllable. We will see later, however, the graph shown here is different from the LLH tone pattern of NKK words. That is, here the second syllable sharply rises however in the LLH tone pattern of NKK, the L tone is sustained quite late before the rising part of the third syllable (so called late rising). The following two graphs of other two SKK subjects show similar patterns even though the height distinction between the first syllable and the second syllable in second subject (SS2) in (11b) is not dramatically distinguishable comparing to the first subject (SS1) in (11a).

b. SKK LHH Tone Pattern (Subject SS2)

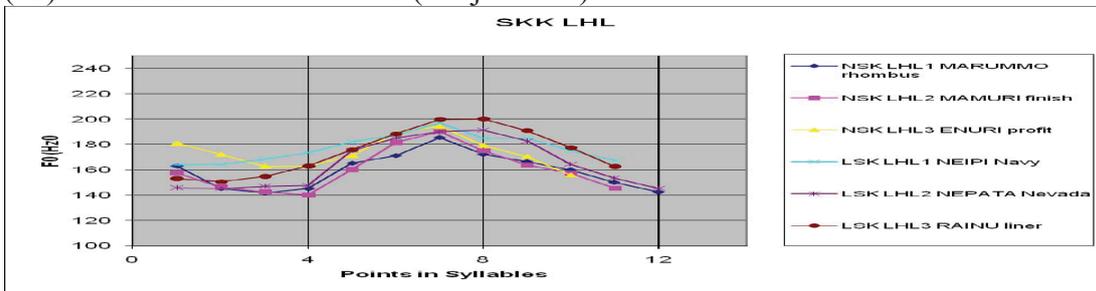


c. SKK LHH Tone Pattern (Subject SS3)



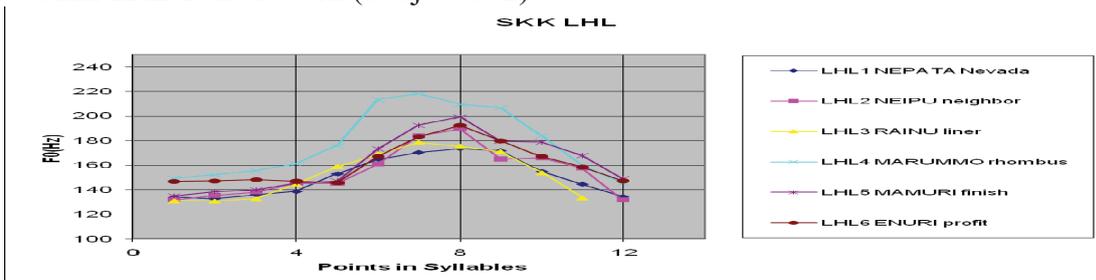
The last tone pattern in (12) is the LHL tone pattern of SKK. There are also graphs of three subjects for this tone pattern. Each graph of this tone pattern also shows the f0 contour of six different words.

(12) a. SKK LHL Tone Pattern (Subject SS1)

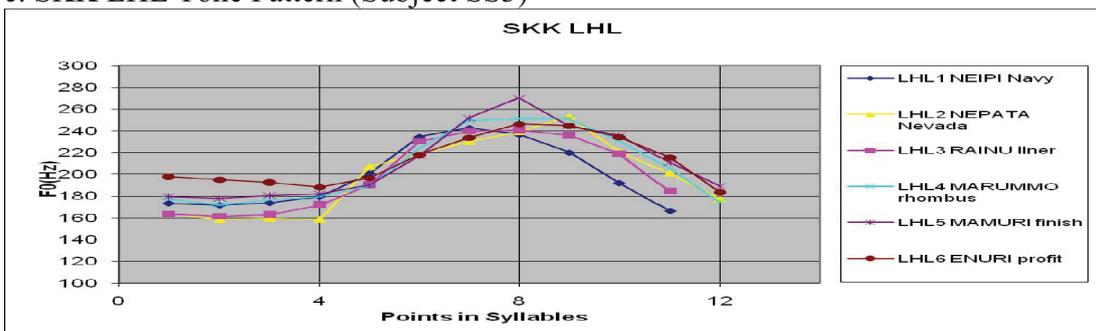


In graph (12a), the first syllable is Low (falling) and the second syllable is rising from the end of the first syllable. The final syllable is falling after a little late peak. Therefore, the accent type is H\*L with the initial Low register tone. The following two graphs of other two SK subjects show similar patterns even though the initial L falling is little weaker in the second subject (SS2) in (12b) comparing to other two subjects.

b. SKK LHL Tone Pattern (Subject SS2)



c. SKK LHL Tone Pattern (Subject SS3)



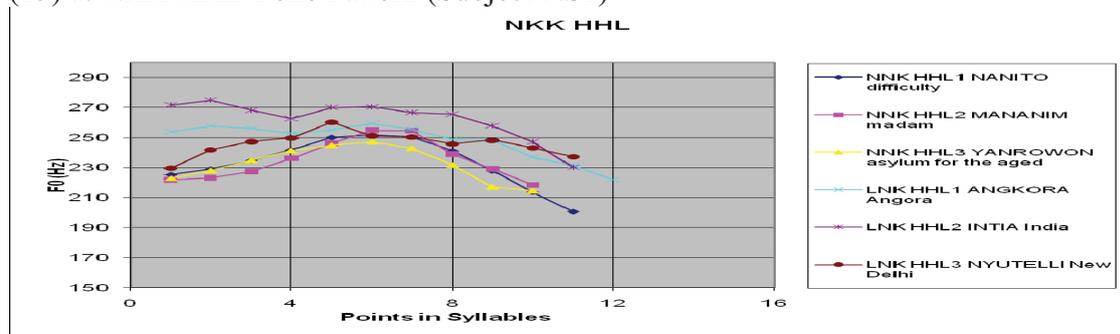
From the above data, we can summarize the general characteristics of SKK tone patterns as follows. The accent type of SKK H tone is H\*+L with two initial register tones (H and L). The accent type H\*+L shows the late peak as well as the falling after the peak pitch. The late peak exists in the beginning of the following syllable after the peak pitch. The Low register tone can be judged from the Low falling in the first syllable and the H register tone can be judged from the relatively high f0 frequency of the H tone in the first syllable comparing to the pitch peak. That is, unlike NKK initial H of the HHL tone pattern, SKK HHL tone pattern shows an almost level f0 trajectory in the first two H tones of the pattern. This is why we judge the register H tone in the first syllable rather than only one H\* on the second syllable (We will compare this case later to NKK patterns). The vowel effect shows that the initial syllables starting with vowels have higher f0 frequency than those with consonants. In the next part, we will see North Kyungsang Korean words. NKK shows somewhat different tone patterns from SKK.

#### 4.2.2. North Kyungsang Korean (NKK)

##### 4.2.2.1 NKK trisyllabic words

The first tone pattern in (13) is the HHL tone pattern of NKK. There are also graphs of three subjects for each tone pattern in this KS dialect in all the following data representation. Each tone pattern graph basically shows the f0 contour of six different words. Each syllable in every word has four measuring points. The syllable deviation is represented by the vertical grid lines in all the following graphs.

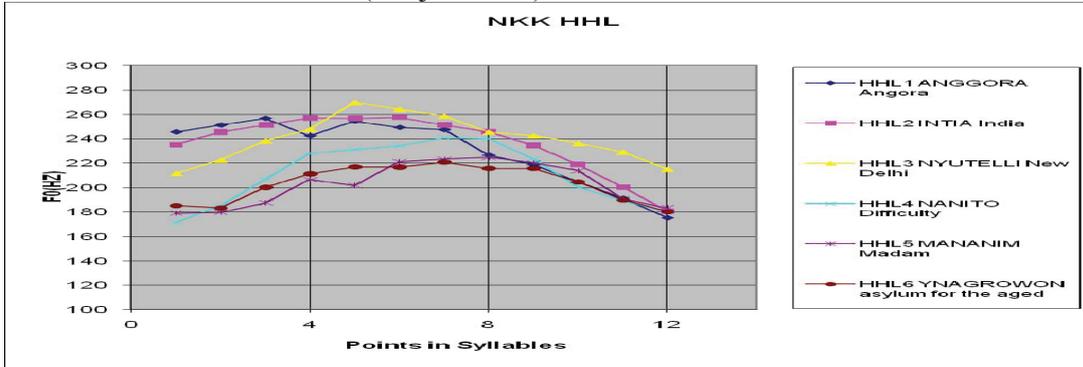
(13) a. NKK HHL Tone Pattern (Subject NS1)



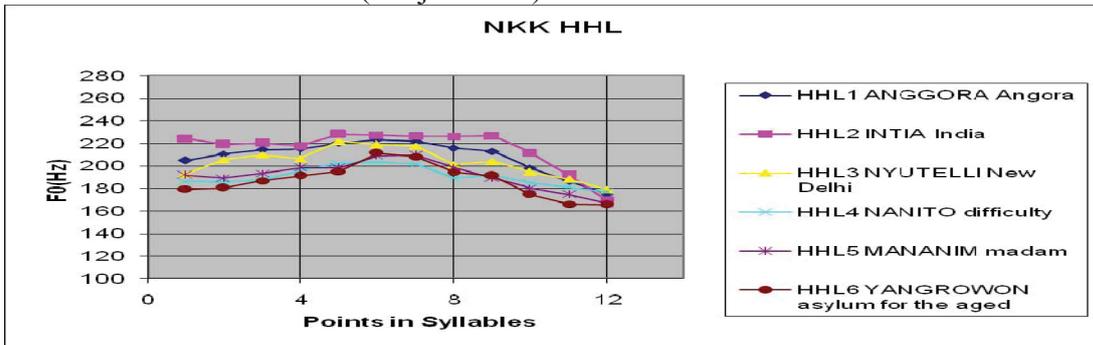
In graph (13a), the vowel (or consonant) effect is observed. The first points of two loanwords (ANGKORA [aŋ.ko.ra] ‘angora’ and INTIA [in.ti.a] ‘India’) are higher in the pitch than the consonant initial words like NYUTELI [nju.tel.li] ‘New Deli’. The second syllable is higher than the first syllable so the main accent is on the second syllable. The late peak remains in the beginning of the third syllable and the peak is interpolated to the final point. There is a difference between the native SKK HHL tone pattern in (9) and this graph. In (9) the transition from the first syllable to the second syllable pick is somewhat flat, but here the transition trajectory shows a slightly rising curve. Therefore, in SKK HHL tone pattern, the first H tone is interpreted as a register H. However, in NKK HHL tone pattern, the first H tone is not interpreted as a register H tone because of the rising transition from the first syllable to the second peak syllable. This means that the accent type of NKK HHL tone patterns is H\* on the

second syllable. The following two graphs of other two NKK subjects show similar patterns even though the rising curve from the first syllable to the second syllable in the third subject (NS3) in (13c) is not as enhance as in other two subjects.

b. NKK HHL Tone Pattern (Subject NS2)

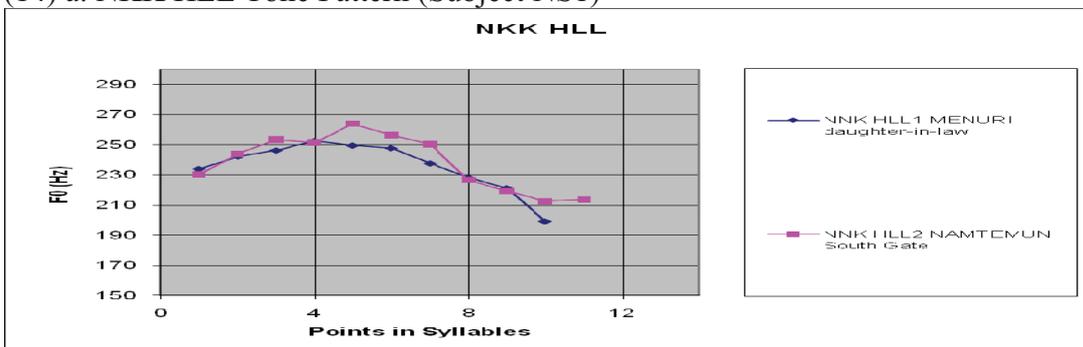


c. NKK HHL Tone Pattern (Subject NS3)



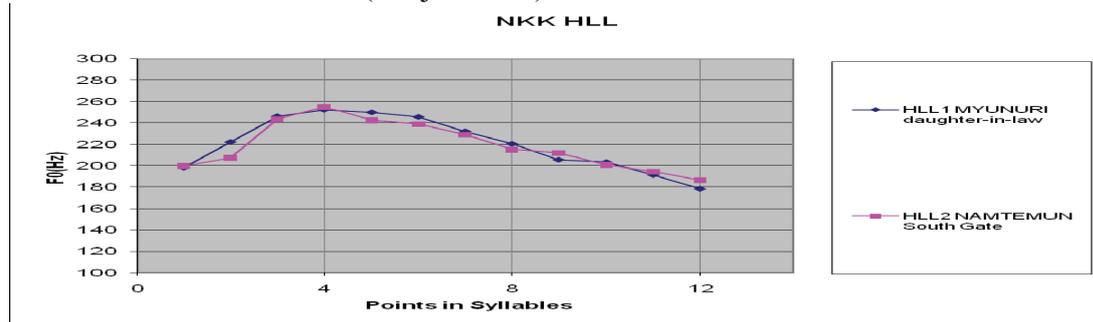
The second tone pattern in (14) is the HLL tone pattern of NKK. There are also graphs of three subjects for this tone pattern. Each graph of this tone pattern shows the tonal representation of two different words because of the lack of proper words for recording.

(14) a. NKK HLL Tone Pattern (Subject NS1)

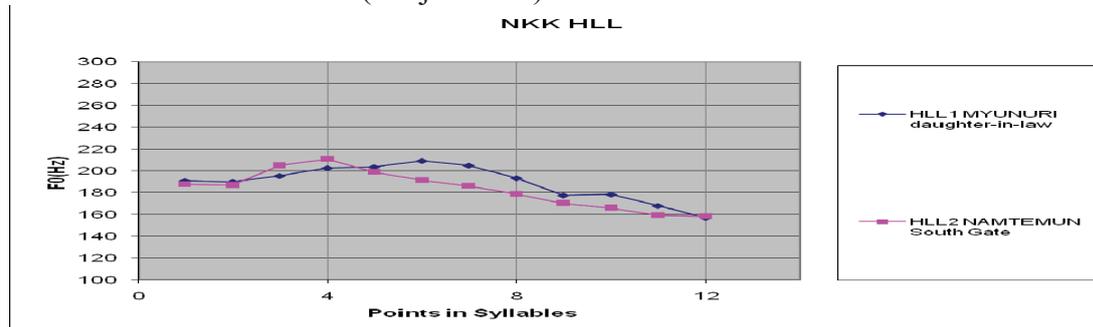


In graph (14a), the first syllable has an H tone. The late peak is shown in the beginning of the second syllable as in the SKK forms. The accent type is H\*. The following two graphs of other two NKK subjects show similar patterns even though the rising curve from the first syllable to the second syllable in the third subject (NS3) in (14c) is not as enhance as in other two subjects.

b. NKK HLL Tone Pattern (Subject NS2)

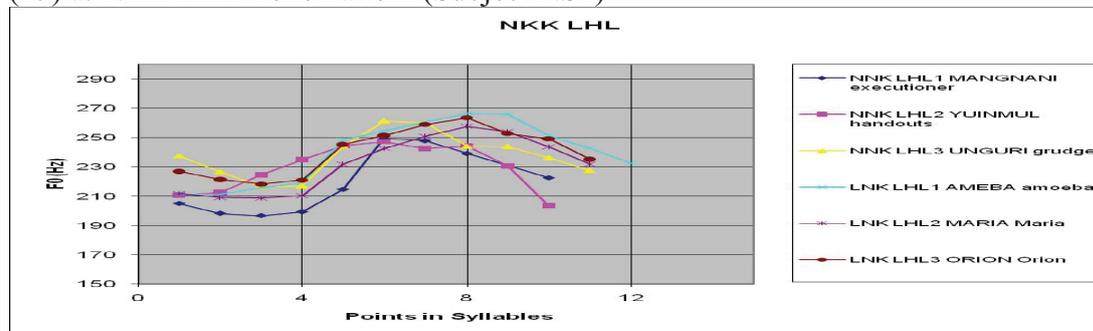


c. NKK HLL Tone Pattern (Subject NS3)



The third tone pattern shown in (15) is the LHL tone pattern of NKK. There are also graphs of three subjects for this tone pattern. Each graph of this tone pattern also shows the f<sub>0</sub> contour of six different words.

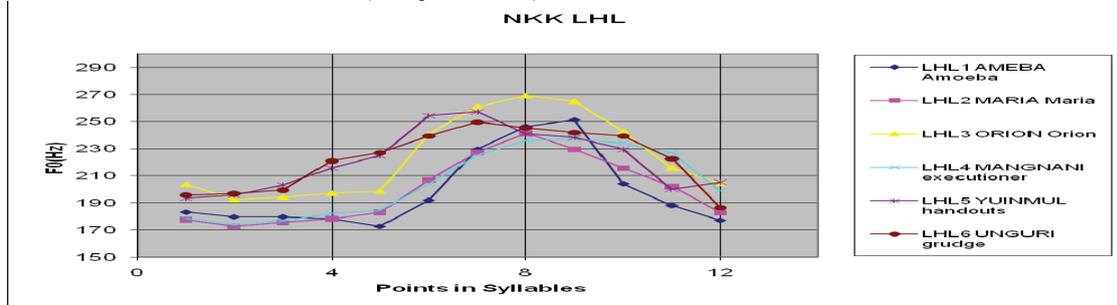
(15) a. NKK LHL Tone Pattern (Subject NS1)



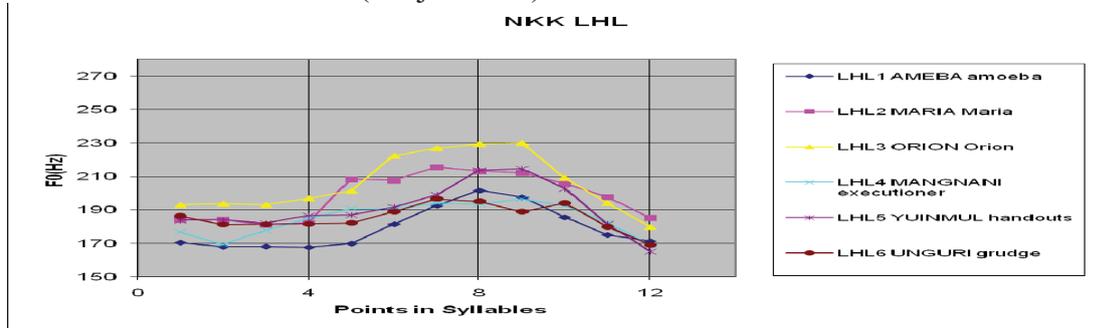
In graph (15a), the second syllable has an H tone. However, the L tone part preceding the accent is quite delayed to the beginning part of the second syllable before rising comparing to the native SKK LHL data in (12) (except for the word YUINMUL [ju.in.mul] ‘handouts’). Therefore, the accent type of NKK LHL tone pattern is L+H\*. This is somewhat surprising result because SKK has only one accent type (H\*+L) with two initial register tones (H and L) but NKK shows two different types of accent as H\* and L+H\*. The late peak effect is maintained for almost half of the last syllable in the words MARIA [ma.ri.a] ‘Maria’ and ORION [o.ri.on] ‘Orion’. There is no deep fall after the pitch accent L+H\* in the third syllable. This is a just interpolation from the peak to the last part of the words. The vowel effect is also observed. The following two graphs of other two NKK subjects show similar patterns even though the rising curve

from the first syllable to the second syllable in the third subject (NS3) in (15c) is not as enhance as in other two subjects.

b. NKK LHL Tone Pattern (Subject NS2)

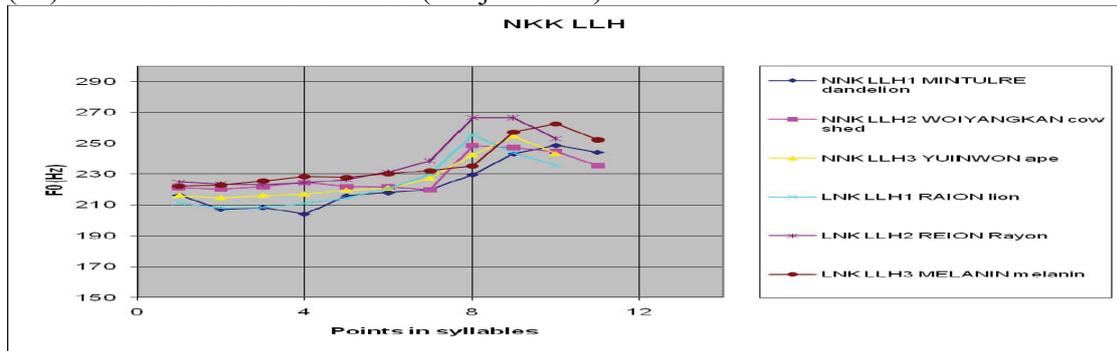


c. NNK LHL Tone Pattern (Subject NS3)



The last tone pattern in (16) is the LLH tone pattern of NKK. There are also graphs of three subjects for this tone pattern. Each graph of this tone pattern also shows the f0 contour of six different words. One thing to keep in mind for the analysis of the following graph (16a) is that most words end either at the tenth or at the eleventh point. This means that the second syllable of the words starts from either the sixth or at the seventh point, not from the eighth point.

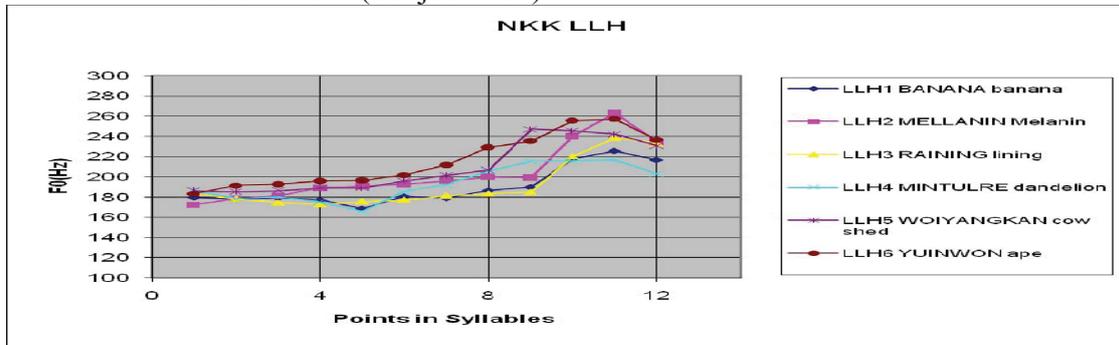
(16) a. NNK LLH Tone Pattern (Subject NS1)



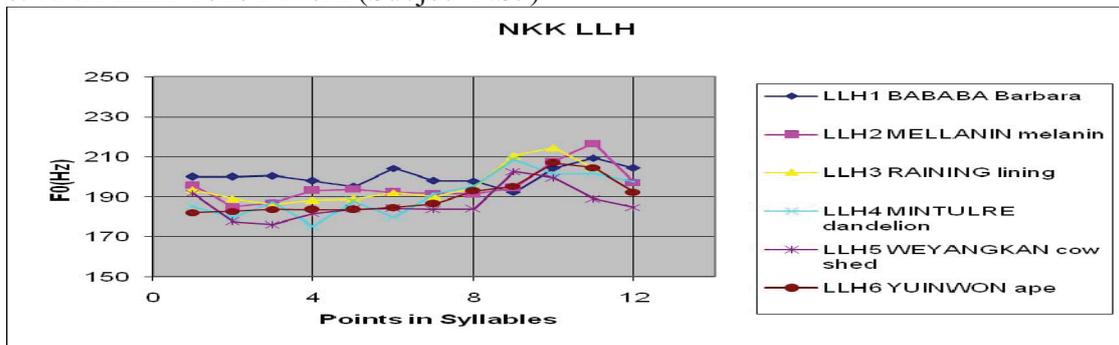
In graph (16a), unlike the LHH tone pattern in SKK, the second syllable is Low and the third syllable is a high tone. The High peak remains in the last part of the third syllable. The fall is not that deep in the last part of the final syllable compared to SKK LHH words in (12). There is a low plateau in the first two syllables and the rising is quite delayed. Therefore, the accent type is L+H\*. The observations from the above data show that the accent types of NKK are two different kinds: L+H\* and H\*.

it does not seem that there are register tones as High or Low in word initial position in NKK. The following two graphs of other two NKK subjects show similar patterns even though the rising from the second syllable to the third syllable in the third subject (NS3) in (16c) is not as enhance as in other two subjects.

b. NNK LLH Tone Pattern (Subject NS2)



c. NNK LLH Tone Pattern (Subject NS3)



From the above NKK data, we can summarize the general characteristics of the NKK tone patterns as follows: There are two accent types in NKK as H\* and L+H\*. The accent type H\* shows the late peak as well as the interpolation after the peak pitch. The late peak exists in the beginning of the following syllable after the peak pitch. The H tone before this accent H\* in the HHL tone pattern cannot be judged as a register H tone because there is rising transition from the first H to the following pitch peak H\*. This is different phenomenon from SKK HHL tone pattern as we saw before. That is, in SKK HHL tone pattern the first two H tones show a plateau thus the first H tone is judged as a register H tone. The initial L tone preceding the peak pitch in NKK LLH and LHL tone patterns, unlike SKK LHH and LHL, shows delay before rising to the following H tone. This delay of Low tone before rising to the pitch peak can be judged as the accent type L+H\* instead of the initial L register tone before an accent H\*. That is, unlike the SKK tone pattern, NKK shows two tone types without any initial register tone. The vowel effect shows that the vowel initial syllables have higher f0 frequency than consonant initial ones.

So far, we looked over the data result of SK tone patterns and we can see the constancy in tonal representation of each word in all the subjects of both KS Korean dialects. In the following section we will summarize the result and analyze the tone patterns in terms of typological categorization.

## 5. Analysis

In this section, we argue that KS Korean is a pitch accent language based on our experimental data result. First, we can summarize the overall accent type of the SKK words. Analyses for di- and quadrisyllabic words are also the same as trisyllabic words (We do not provide the analyzed data here).

(17) The Accent Pattern of SSK Tones ( $\sigma$ : Syllable)

			1 <sup>st</sup> $\sigma$ accent	2 <sup>nd</sup> $\sigma$ accent	3 <sup>rd</sup> $\sigma$ accent	4 <sup>th</sup> $\sigma$ accent
2 $\sigma$ words	Register tones	H		HH*(L)		
		L		LH*(L)		
	None		H*L			
3 $\sigma$ words	Register tones	H		HH*L		
		L		LH*L	LHH*(L)	
	None	None	H*LL			
4 $\sigma$ words	Register tones	H		H H*L L	HH H*L	
		L		L H*L L	LH H*L	LHH H*(L)
	None	None	H*L LL			

In table (17), the accent type of SKK is H\*L with two register tones: H and L. The height of the other syllables except for these accented syllables is somewhat predictable. In SKK, like Japanese, the syllable height right before the accented syllable is High: LHH\*(L). The syllable height after the accented syllable is Low: H\*LL, LH\*LL,... etc. And these additional tones can be gotten through interpolation.

This is against Lee's (1997) argument of the unpredictability of KS tones as mentioned in (4). From the careful examination of the current data result of both SK dialects, we can say that the typological category of SKK seems to fit a pitch-accent language rather than a tone language. That is, as we can see in the SKK data, like Japanese, the height of the non-accented syllables in SKK words is predictable. That is, the height of the syllables following the accented syllable is Low tone and that preceding the accented syllable is High tone.

As a consequence, this shows the syntagmatic movement of the accent (H\*+L) from the first syllable to the last syllable and a representative pattern of a pitch-accent language like Japanese. Therefore, we can claim that the South Kyungsang Korean is a pitch-accent language with two initial register High and Low tones. SKK tone patterns are similar to Kyoto (Kansai) Japanese that has register tones as well as accent tones. However, we will not discuss the comparison of the two languages here.

Now let us consider the accentual pattern in North Kyungsang Korean words.

(18) The Accent Pattern of NKK Tones ( $\sigma$ : Syllable)

		Accent Type	1 <sup>st</sup> $\sigma$ accent	2 <sup>nd</sup> $\sigma$ accent	3 <sup>rd</sup> $\sigma$ accent	4 <sup>th</sup> $\sigma$ accent
2 $\sigma$ word	H*		H*L	HH*		
	L+H*			L+H*		
3 $\sigma$ words	H*		H*LL	HH*L		
	L+H*			L+H*L	LL+H*	
4 $\sigma$ words	H*		H*LLL	H H*LL		
	L+H*			L+H*LL	LL+H*L	LLL+H*

In table (18), NKK has two types of accent patterns (H\* and L+H\*) and this also shows a syntagmatic movement of the accents from the first syllable to the last syllable in the

words. The tones following the pitch accent are Low tones and the preceding tones of the H\* accent type are High tones and those of the L+H\* accent type are Low tones. The height of the syllables other than an accented one is also predictable. Therefore, we can also claim that North Kyungsang Korean is a pitch-accent language with two types of accent: H\* and L+H\*.

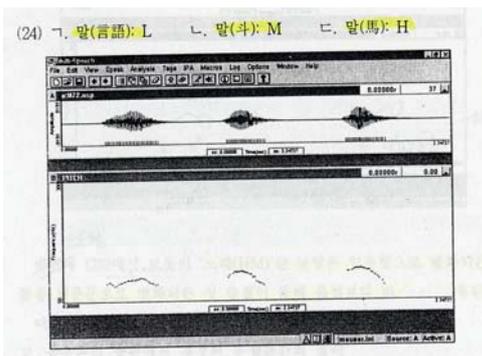
## 6. Other Considerations about KS Tone Patterns

In this section, we will discuss the typological issue of KS Korean regarding to the comparison of the traditional works and the present study. We argue that KS Korean is a pitch-accent language unlike the assumption of the previous works. Let us recall the previous arguments about this issue. Lee (1997) and Gim (1994, 1998) argue that KS Korean is a tone language. The reasons of the argument are mainly because, first, KS Korean has three distinctive tones as High (H), Mid (M) and Low (L). And second, each tone is assigned on each syllable in a word paradigmatically so the height of the syllables in a word is unpredictable unlike Japanese. Lee (1997) provides the f0 contour outcomes as the evidence of the existence of the M tone in KS Korean as shown in (19).

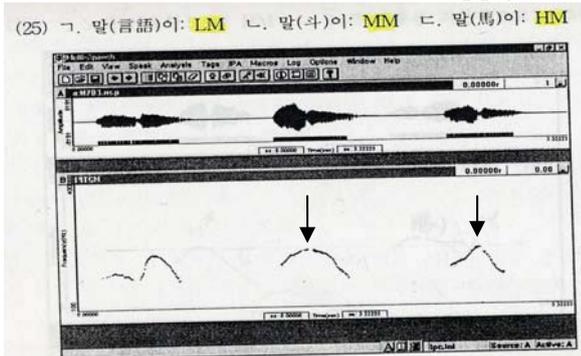
From now on we will argue two main reasons against the traditional assumption that KS Korean is a tone language typologically: First, the existence of M tone and second the unpredictability of non-high toned syllables. First, we discuss the three main reasons why we are against the argument of the M tone existence. First, let us examine the Lee's (1997) f0 contour data:

- (19) The Tone Patterns of South Kyungsang Korean (In the following two pictures, from left to right, the L tone word is [mal] 'language', the M tone word is [mal] 'a measuring unit' and the H tone word is [mal] 'horse' respectively. And both the pictures are a little bit tilted to the upper right side in the process of scanning).

a. F0 Contour of L, M, and H



b. F0 Contour with nom. suffix '-오' [i] (M tone)



Actually as we can see in the above two pictures (19a, b), there seems to be no difference in the peak height between the M tone and the H tone in the two pictures. The height difference between M and H tone in (19a) looks smaller than the difference between the initial consonant pitch and the initial vowel pitch that shown in the data result of the current experimental study.

Lee (1997) also argues when the words have suffix '-오' [i] as shown in (19b) the difference between the M and H tone becomes more distinguishable but there seems to be no clearly enhanced differences between them in (19b). For instance, the height of

M tone looks more similar with the height of H tone in **M+M** and **H+M** tone pattern even after the suffixation of [i]. That is, the height of M tone (represented as an arrow) in the word (**MM**) ‘**a measuring unit**+suffix [i]’ looks same as (or even higher than) the height of H tone (represented as an arrow) in the right most word (**HM**) ‘**a horse** +suffix [i]’. Therefore, we can assume that the M tone in the word “**a measuring unit**+suffix [i]’ (**MM**) is simply a High tone. Some KS native speakers may listen to the difference between M and H tone. However, this may happen because the difference of perceptual height of M and H may come from the relationship between the height of the preceding noun and the following suffix. For instance, in the prosodic word ‘a measurement unit (**M**)+suffix [i] (**M**)’, the height of the noun ‘a measurement unit’ [mal] and the suffix [i] is same (flat f0 contour) but in the word ‘horse (**H**)+suffix [i] (**M**)’, the height of the noun and that of the suffix are different (falling f0 contour). This difference may cause the perceptual differences (most Native KS speakers actually do not distinguish the difference between H and M tone in perception of quotation forms: Choi 1998, Kim 1991, 1994) between the heights of the two nouns with the suffix. However, this does not entail that the heights of the two nouns are actually in the different height category as lexical H and M tone. Therefore, we can argue that there is no M tone in KS Korean and this argument can be supported by the fact that the native speaker of KS Korean actually cannot distinguish the difference between the height of M and H tone in perception.

Second reason why we argue against the M tone existence comes from the data that Lee (1997) and Gim (1994, 1998) provides. They showed MH and LM tone words in their data, however, no LH tone pattern words are provided in their disyllabic word data. That is, only LM and MH but no LH tone pattern words are provided in the data. This shows the poverty of three way contrasts in disyllabic tone patterns. Therefore we can think that the M tone in their data is actually one of H or L tone. The possible output tone patterns would be ideally 27 different patterns with H, M and L three tone based analysis in the trisyllabic words ( $3 \times 3 \times 3 = 27$ ). However, the tone patterns of SKK trisyllabic words are only four in term of two tone, H and L, based analysis. Therefore, it is not easy to believe that the underlyingly specified tone patterns in SKK trisyllabic words may have 27 different types.

Third, let us consider the vowel (consonant) effect that we observed in our current data result. As we can see in the current data, it is a segment effect that may affect the perception of the tonal interpretation of a few very sensitive listeners. That is, the words with initial vowel sound mostly higher than the words with initial consonant do in terms of pitch (F0). Therefore, there is a possibility that the vowel initial words may be misjudged as M (or H) comparing to the consonant initial words (L or M). That is, the same LH tone pattern words may be heard as LM tone or MH tone patterns according to the initial segment effect of the words. The very important notation about the tonal perception and categorization is that the word initial segment may affect the perception of the pitch differences.

Now we argue against the second reason of the assumption that KS Korean is a tone language typologically, which is the unpredictability of tonal assignment in each syllable in KS Korean words (Lee 1997). Our current data shows that the highest KS pitch is an accent and the height of the other non-accented syllables is somewhat predictable unlike Lee’s (1997) argument. In SKK, the pitch accent is H\*+L and the height of syllables following the pitch accent is L and that of syllables preceding the

pitch accent is H except for the two initial register tones (L or H). Unlike Lee's (1997) claim, this shows that only one accent is assigned in only one syllable and the height of the other syllables than accented one is somewhat predictable in KS Korean words. The register tones are lexically specified so they are unpredictable (contrastive).

From this aspects, we can think that SKK is similar with the Kyoto (Kansai) Japanese (Western Japanese dialect) in terms of the existence of the initial register tones and the syntagmatic movement of the pitch accent H\*+L (see McCawely 1970 for Kansai Japanese cases). And NKK is typologically similar with the Tokyo (Kanto) Japanese (Eastern Japanese dialect) in terms of the pitch accents without the initial register tones. However, NKK is also similar with Swedish in terms of the two different accents and positional contrastive accents.

The prosodic typology of the KS Korean, therefore, can be summarized as in (20):

(20) Prosodic Typology of KS Korean (c.f. de Jong, 2006)

	With Tone	Without Tone
Accent-position contrast (Lexical contrast)	Swedish <b>North Kyungsang Korean</b> <b>South Kyungsang Korean,</b> Kyoto (Western) Japanese	English Tokyo (Eastern) Japanese
Accent non-position contrast (No lexical contrast)	Cherokee	Hungarian
Non-accent language	Chinese	<b>Seoul Korean</b>

In table (20), the accent-positional contrast tone languages have accents as H\*+L, L+H\* or H\* as well as initial register tones as H or L. The accent-positional contrast no tone languages have only one tone (H\*+L) like Tokyo Japanese or no lexical tone like English. The accent non-positional contrast languages have predictable accent positions, that is, the accents are not lexically specified but fixed: Cherokee has two tones (H and L) and a predictable penultimate H accent as LH, LHL,...etc. and Hungarian has only an initial pitch accent. The non-accent no tone languages have no tonal prominence in word (lexical) level like Seoul Korean.

## 7. Conclusion

In this paper, we argued the three main points through the experimental data analysis of KS Korean tone patterns. First, the main accent position of KS Korean words that have two high tones in series. Second, the accentual structure and the characteristics of the tone patterns of KS Korean words, and third the typology of the KS Korean tone system. From the analyzed data, we could draw a conclusion that South Kyungsang Korean is a pitch accent language that has two word initial register tones (H and L) and a pitch accent (H\*+L). The location of the main accent shows a syntagmatic movement and the height of the other non-accented syllables is somewhat predictable. North Kyungsang Korean is also a pitch accent language. However, unlike the Southern dialect, it does not have register tones but has two different types of accent: L+H\* and H\*. However, it still shows the syntagmatic movement of the pitch accents in the words and the height of non-accented syllables is also predictable. Finally, we also came to know that the main accent of the KS Korean words having multiple H tones lies on the second H toned syllables.

For future research we would like to examine the segment (vowel or consonant) effects and the height effect of neighboring syllables including affixes in tonal perception of both native and non-native KS Korean speakers. And we also would like to examine whether the M tone really exists in the perception and production domain of native and non-native speakers of KS Korean.

## Notes

1. Tokyo Japanese and Kyoto Japanese actually show somewhat different characteristics. We will not discuss this here. Briefly, South Kyungsang Korean is similar to Kyoto (Kansai) Japanese rather than Tokyo Japanese.
2. There are actually variations in this tone pattern in NKK. However we do not discuss this here.
3. Only vowels and sonorants are measured for f0 contour.
4. In all the following graphs, NSK and LSK mean SK native and loanwords, and NNK and LNK mean NK native and loanwords.

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# **Systemics and geolinguistics: evidence and testimony in Middle Alsace**

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## **Abstract**

Situated to the south-west of the German-speaking domain, the dialectal area of Alsace-Lorraine (Elsass-Lothringen) is distinguished by its variety: the extreme north-west is for instance « Luxemburgish » and the extreme south « Swiss », that is to say Mosel Franconian respectively High Alemannic. In order to delimitate dialect boundaries we only need to study the auxiliaries SEIN and HABEN (to BE and to HAVE) because they are omnipresent and above all the most frequent verbs of our language. Even if we know that dialect zones are never clearly definable by reason of the high dependence on the selected criteria, we can say that Middle Alsace is simultaneously Lower and Upper Alsace, but also a specific area. This article describes geographical, historical and cultural characteristics of this region and then concentrates on the dynamic forces illustrated by a systemic approach of all forms of SEIN and HABEN (SI and HA) as well as the development of the vowels and consonants, the formation of diminutives, syntactical and lexical peculiarities, morphology and use of the subjunctives and conditionals, prosody...

**Keywords** : Alsace-Lorraine, German dialects, Sein and Haben, geolinguistics, systemics

## **Professor Marthe Philipp**

First I have to pay tribute to Marthe Philipp, my colleague and friend, master and mentor. Because the fate decided to put the date of my presentation on the 24<sup>th</sup> of July 2008, I feel obliged to dedicate it to her. The reason is that Prof. Philipp would have been 86 years old on that day. Unfortunately she died one year ago, on July 15<sup>th</sup>, so that this great linguist could not cooperate in my present paper. Be that as it may, I seize the opportunity to remember who she was.

As a daughter of Alsace, her own destiny is a quite Alsatian one, particularly of a certain generation. So she had in 1940 to leave her country because of the French evacuation. The same year, the German-speaking pupil passed the « Baccalauréat » in the Normandie. In 1941 Marthe Philipp went back to Alsace which was now part of the third Reich. As an apolitical student, she used the situation to pass in her language the « Abitur ». One year later she inscribed at the « Reichsuniversität Strassburg » in order to study English, German, French and Italian. In 1944 the war made it impossible to keep on studying so that she had to wait till 1947 before she could begin new studies in the same town, but this time at a university which was now administrated by the French. Nevertheless the German language together with its dialects was and remained her passion.

In phonology she started from the « infinitely small », « Le système phonologique du parler de Blaesheim » (1965)<sup>1</sup>, to end up in the « infinitely great » in the German-speaking domain, namely « Phonologie de l'allemand » (1970)<sup>2</sup> which she translated four years later : « Phonologie des Deutschen »<sup>3</sup>.

The same year 1974 she published her meanwhile famous « *Que sais-je ? Grammaire de l'allemand* », revised and completed in 1980<sup>4</sup>.

Already co-author and in charge of the « Atlas linguistique et ethnographique de la Lorraine germanophone » (1977)<sup>5</sup>, she brought to completion the second Alsatian atlas « Atlas linguistique et ethnographique de l'Alsace »<sup>6</sup> – to which I contributed too – that came out in 1984 (year of birth of my daughter).

Well, all these works were « prematurely » systemic even though Marthe Philipp did not yet use this word. On the other hand, her last important book was it openly : « Semantik des Deutschen » (1998)<sup>7</sup>, what she explains at the beginning of the second chapter whose subtitle was just « Semantik und Systemik » (p. 57).

Therefore I can say that I was very lucky to meet this « Lady » 36 years ago at the University of Strasbourg, a Lady who was to supervise my master degree<sup>8</sup> (1981) and my thesis<sup>9</sup> (1988) in German dialectology.

## **Middle Alsace**

The subject of this article is another fruit of our 36 years old cooperation whose « crowning achievement » - she told it to a colleague - was the publication of « Sein und Haben im elsass-lothringischen Mundartraum. Ein organisiertes Chaos » (2002)<sup>10</sup>.

You can see on the map « Mundarttypen » (types of dialects) where Middle Alsace (Mittelsass) with its Middle Alsatian (Mittelsässisch) lies. At first sight it seems to be a transitional zone between « Unterelsässisch » (Low Alsatian) and « Oberelsässisch » (Upper Alsatian), an average of both. Or is it rather an original region with characteristic features ?<sup>11,12</sup>

Well, it depends on the angle, perspective, attitude, reference point, viewpoint and point of view of the observer, in short on the selected criteria. So the chosen premises are decisive – because only a moving approach is conceivable to apprehend dialects.

Thus, the Lower Alsatian from the Lower Rhine, Marthe Philipp, did not share the point of view, the field of vision, of the Upper Alsatian from Upper Rhine who writes these lines. They have gone naturally and (fuzzy) logically different ways which led to various perceptions about their meeting point « Middle Alsace » where they were regularly joining together. Indeed, this plot of ground separates as well as it puts together, it is a kind of midfield, therefore difficult to delimit and to define.

A look at the map shows us among other things the wasp-waist of a slender region, a slim territory. That the most characteristic feature of the dialects in Middle Alsace is the loss of final –n seems to illustrate pertinently the « morpho-geographical reduction ». Is then Middle Alsace a neither-nor or an as-well-as ? A sort of  $67^{1/2}$  ? - 67 is the number that represents the administrative entity « département du Bas-Rhin (Basse Alsace) », 68 the « département du Haut-Rhin (Haute Alsace) ». Opinions are divided on that matter.

However, only field work can give us an answer, if at all. Already a look at the relief puts us on the right track because the first answer is geological. Originally there was here in the middle of Alsace the « Landgraben », a ditch with a stream, the « Eckersbach ». It was a marshland, that means hardly conducive to settlement. This unfriendly territory already separated the Germanic Triboker from the Celtic tribes about 2000 years ago, then the former Nordgau from the Sundgau, that is the north from the south, the diocese of Strassburg from that of Basle, the early counties of Lower from Upper Alsace, the « Bezirke » of the « Reichsland » before being confirmed by the current limits of the « départements ». So we have in the middle of Middle Alsace a very old (fold) natural boundary.

## **Middle Alsace : land of culture**

Heart, lung, core, we are not lacking in metaphors to designate this Rhenish fringe, memory of the eternal Alsace.

Let us remember the renowned Convent of the Odilienberg, situated in the north-west of our area, a world-famous place of Christian pilgrimage, dedicated to Otilie, the patron saint of Alsace.

A little further into the south, right in the middle of the plain stands the proud old town Schlettstadt, the heart of the Rhenish humanism in the 16<sup>th</sup> century where the humanist library of Beatus Rhenanus is to visit. Schlettstadt is also the country of three great humanists named Johannes Mentelin – the printer of the first Bible in German - , Martin Bucer, the reformer, Jakob Wimpheling, the historian and « praeceptor » of the German Nation of that time (das Heilige Römische Reich Deutscher Nation, the Holy Roman Empire).

However, the most famous son of this region is born a bit deeper into the south, namely in Kaysersberg in 1875. I mean the Protestant theologian, musicologist, organist specialist of Johann Sebastian Bach, philosopher and doctor, Albert Schweitzer, Nobel prize-winner for Freedom in 1952; he died in 1965.

## **Middle Alsatian and systemics**

The vernacular language is a real jewel. As a core of the popular memory it is quite tough and not easy to grasp. So I think that the only productive approach has to be systemic. By the way, what do I mean by « systemic »? Well, we all know that any natural linguistic system can only be open, complex, in a situation of homeostatic balance, based on an autoregulating continuum, taking part in different networks, linked one another in constant interrelations so that the observance of the researcher(s) is automatically plural and holistic. For in science(s) just like in life, all factors are connected : ebb and flow (yin and yang), input(s), throughput(s), output(s) elude each attempt and temptation of static analysis because the taken directions are generally unforeseeable. As for the influence of the observer on the so-called observed facts, it is too often underestimated. According to the postulated premises, to the adopted posture, it is obvious that the results will differ: undeniable facts which seriously relativize the allegedly scientific pretensions – and this in all sciences.

So in our area, the « Bewusstseinsgrenzen », that means the subjectively perceived boundaries which the speakers are conscious of, play an important part. For instance, we can ask ourselves from where onwards, referring to which criteria, basing upon which impressions, a North-Alsatian will feel « Mittelelsässisch » as something specific, different, even as « Oberelsässisch », that is to say « South-Alsatian » ? From where a « Low Rhiner » does think he is hearing Swiss German in his own country ? From where a « South-Alsatian » will regard his compatriot of Middle Alsace as someone who speaks strangely and oddly like those of the north ? When will he peremptorily baptizes him *Bäägser*? « Bäägser » is a typical nickname with which Alsatians tease one another, but only northwards. Therefore Mülhauser call Strassburger « Bääägser » because of a different lengthening of the stem vowels which sound in « southern ears » heavily overstressed, even ridiculous. But Strassburger use this « nice label » too when they deride their neighbours of north-west, the Lothringer, the latter keeping this epithet for the Luxemburger. So we have here to do with a symptomatic change of referent which goes for once in only one direction.

But « Alsatian », what is it actually ?

Certainly not South Rhine Franconian (Südrheinfränkisch) – see the map – the dialect spoken in the extreme north-east of Alsace in the region of Weissenburg (Weisseburich) and Selz with its « Bavarian » diphthongs unknown in Alemannic. Nevertheless, the natives claim to speak « Alsatian » even if some « real » Alsatians do assert : *S'isch ke Elsassisch, s'isch Ditsch !* (It's not Alsatian, it's German !)

And in this respect our Middle Alsace is complex, awfully complex.

About thirty years ago, a dialect band, « D'Stüdànte », natives of Ebersheim near Schlettstadt were called *Ewerländer* (« Upperlander », « Southern people ») respectively *Bäägser* depending on whether they were singing some kilometres further northwards or southwards.

No, really, our residents of the south of the « département du Bas-Rhin 67 » and of the north of the « département du Haut-Rhin 68 », our Middle (average) Alsatians are quite difficult to place, all the more so since there is no problem of linguistic intercomprehension, but a natural continuum. Let us go back now to the « hard » science:

## Linguistic analysis

For a long time, dialectologists have favoured traditional analysis which allowed from well-defined criteria, mainly the Second Sound Shift with its Rhenish Fan (Zweite Lautverschiebung und Rheinischer Fächer) and the New High German Monophthongization to draw clearly visible areas.

This method is not to devalue because it still gives rise to good results, in our case to a certain extent for what we named « Unterelsässisch » (Low Alsatian), a relatively homogeneous subdivision.

On the other hand, in Middle Alsace, a turbulent zone par excellence, we have to refine the reference system if we want to have a clear understanding of what occurs here. Therefore is the systemic approach, though more demanding, the only one which renders possible a certain organization of an apparent chaos – this is what we attempted to put into practice in our book of 2002<sup>10</sup>.

This time, we took our data again, but concentrated on Middle Alsace in order to locate the dynamic of the « flowing » of « Sein und Haben ».

How far may we say that we have to do with a transitional zone (Übergangslandschaft)? First, we note that the simple forms are replaced by doublet forms:

- 1) For both verbs: In the infinitive  
                                  In the first person singular  
                                  In the three persons plural
- 2) For « Sein » only: In the past participle

So the system hesitates, chaos sets in, at least seemingly, intermediate forms are used until, further in the south – when we come from the north – the paradigm is reorganised.

For our two verbs « Sein » (to be) and « Haben » (to have), *si(n)*, *hå(n)*, we notice that the influence of the north is not stronger than that of the south, according to the data collected in our 38 points of investigation situated in the middle of Middle Alsace. Only at the foot of the Vogesen and along the Rhine a few preferences may be detected. However, certain forms indicate sometimes different directions. For instance (*ich*) *håpp* (*ich* habe, I have) and (*mir*) *hånn* (*wir* haben, we have) are northern forms, whereas (*ich*) *hå(nn)* and (*mir*) *hann* are southern.

On the other hand, the forms without final *-n* are expressly Middle Alsatian (Mittellelsässisch): Infinitive *si, hå*

First person singular *bi, hå*

Plural *si, ha*

Past participle *gsi*

Only slowly, about twenty up to thirty km further southerly, Middle Alsace gives way to Upper Alsace with its Upper Alsatian (Oberelsässisch). The past participle of « Haben » (gehabt) *ghet* is replaced with *ghå*, an outstanding and striking isogloss which roughly coincides with the appearance of the first subjunctives I (present): *hai(k) hei(k)* (habe), *sei(k)* (sei).

So the last « buttresses » of the zone of influence of Strassburg are disappearing. We are going imperceptively (in continuity) from a system to another without any abrupt change.

Compared with Baden, the opposite region on the other side of the Rhine, Alsace is dialectally a little more « dynamic » on account of a left side which was much more frequented for centuries so that the (northern) Franconian influence penetrated deeper on this side of the Rhine, what caused a dialectal asymmetry between west and east with the linguistic consequence that Middle Alsace has a much more northern aspect than Middle Baden (« Rheinstaffelung », Rhine terrace-formation).

Of course, the dialectal continuum which we baptized « Mittellelsässisch » is not limited to a study of the most frequent verbs of our language. Therefore, before closing this paper, I would like to mention some peculiarities that demonstrate the abundance and luxury of this intermediate Alsatian, this original « go-between ».

### Other perspectives and views, other cases

As I already wrote it above, these dialects sound rapidly « southern » to speakers of the north of Alsace. One of the reasons is the development of vowels and consonants, first of all the final *-e* becoming nearly *-a*:

*måche* > *måcha* « machen » to make

*schlofe* > *schlofa* « schlafen » to sleep

Another reason is the lengthening of the open syllable:

*Nawwel* > *Naawel* « Nebel » mist

*redde* > *reedda* « reden » to speak

The change of the half-consonant *j* to the voiceless plosive *g*:

*Raaja* > *Raaga* « Regen » rain

*Mååja* > *Mååga* « Magen » stomach

Development of long vowels into diphthongs:

*klaan* > *klään* > *klein* > *klain* > *klai* with loss of final **-n**

Points of articulation of diphthongs differing:

*Frau* > *Fröu* > *Froi*

Transition of the palatal fricative « Ich-Laut » to velar « Ach-Laut » in all positions:

*Strich* > *Strich [x]* « Zitzen » teats

*Büch* > *Büch [x]* « Bauch » belly

Suffix with or without consonant or with another one:  
*glücklich* > *glickli* > *glicklig* « glücklich » happy  
*rumpflich* > *rumpfli* > *rumpfig* « runzelig » wrinkled

Just like for « Sein » and « Haben », the final *-n* has been gradually lost by all short verbs in the infinitive:

*sähn* > *sah* « sehen » to see  
*gehn* > *geh* « gehen » to go  
*lonn* > *lo* « lassen » to let  
*gänn* > *ga* « geben » to give

as well as by an increasing number of lexemes from north to south :

*Bein* > *Bai* « Bein » leg  
*Win* > *Wi* « Wein » wine

In grammatical morphology, the formation of the diminutives evolves too from north to south:

*Maidl, Meidl* (plural *Maidle*) > *Maidla* (plural *Maidler* in Colmar).

Further in the south, there is an only form for singular and plural (like in New High German « Mädchen, Mä(g)dlein ») girl :

*Maidla* (*Maidli* along the Rhine)

The synthetic subjunctive II (imperfect, preterite) occurs very often. In order to express the conditional, it frequently « carries » a redundant morphem *ikt*.<sup>9</sup>

*hatt* > *hattikt* « hätte » would have  
*wisst* > *wisstikt* « wüsste » would know  
*sott* > *sottikt* « sollte » should  
*kam(t)* > *kamtikt* « käme » would come

Typical of this area is in the same context the analytic phrase with *gat*, coming from subjunctive II of *ga* (see above) « geben »:

*Ich gat garn assa* (ich würde gern essen, I would like to eat) which corresponds in Mosel Franconian of Lothringen and Luxemburg to *ech géif gär iessen*, whereas the rest of Alsace together with practically the whole south of the German-speaking countries uses only *täte* (from « tun » to do):

*I tat garn assa.*

A propos South-Germany, it is in Middle Alsace too that speakers begin not to differentiate the infinitive from the past participle of the modal auxiliaries (preterite-present verbs):

*Des het'r gewellt* Low Alsatian and Northern Middle Alsatian « das hat er gewollt » he has wanted it (he wanted it) > *dås het'r wella* Southern Middle Alsatian and Upper Alsatian.

Finally, it is also in Middle Alsace that appears the reduplicating of an infinitive in order to insist on the movement and the intention:

*Ar kummt geh fähra* « er kommt fahrend » he is coming riding

*Ar geht geh schâffa* « er geht arbeiten, will arbeiten gehen » he is going to work. This sort of Alemannic phrases are widespread in South Alsace and Switzerland, not only with « gehen », but also with « kommen » (*s'kunnt ku ragna*) and « lassen » (*lâ(ss) mi lâ mâche !* Swiss German). They are not easy to translate.

## Epilog

I cannot bring this paper to an end before having shown how a child – torn between the north and the south – can be inventive. Starting from the perfect with past participle of the Low Rhine *ich hâb's ghet* « ich hab's gehabt » (I have had it, I had it), this four years old girl had added the past participle of the Upper Rhine *ghâ* in order to form a real grammatical hapax which was quite ingenious because it allowed to rig up an original distinctive pluperfect *ich hâb's ghet ghâ* instead of an agrammatical repetition:

*\*ich hâb's ghet ghet, \*ich hâ's ghâ ghâ* « ich hab's gehabt gehabt, ich hatte es gehabt) I had had it - another repetition (syncretic form) which is correct in English.

She simply generalized by drawing an analogy with the « normal » pluperfects (double perfects) like:

*Ich hâb's gemacht ghet* from her mother and

*Ich hâ's gmâcht ghâ* from her father

for « ich hab's gemacht gehabt, ich hatte es gemacht », I had made it.

This smart person was my daughter. As symbiosis of the Middle (Central) Alsace, the neat and dainty Elfi Weider was already 20 years ago putting in the centre of my reflections an imaginary and real dialectal zone which is so fascinating.

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# Coordination of Iterative Terms in Romanian – A Contrastive Study

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## Abstract

This paper examines the syntactic behavior of two omnisyndetic coordinations (also called *correlative coordinations*), i.e. the disjunctive and the conjunctive types in Romanian, by explaining its data in a Romance perspective. Major issue has been whether these structures have symmetric or asymmetric structures. If all these Romance languages share a symmetric analysis for the disjunctive type Conj...Conj, it is not the case for the conjunctive type. Our aim is to show that the postulation of a conjunctive status for the Romanian structure *și...și* ('both...and'), which is the most widespread view in Romanian grammars, is inadequate for the Romanian data.

**Keywords:** simple / omnisyndetic / asyndetic coordination, disjunction, conjunction, Romance.

## 1. Introduction

In the literature on coordination phenomenon (see Haspelmath (2000), Huddleston and Pullum (2002), among others), one may find three main types of coordinate structures, with regard to the presence / the lack of the coordinator: i) *simple coordination*, when the coordinator appears with the last (or first, for head-final languages) conjunct, and optionally with the other conjuncts (except the first one), cf. (1a-b); ii) *omnisyndetic* or *correlative coordination*, in which the coordinator seems to appear on each conjunct, cf. (2a-b), and, finally, iii) *asyndetic coordination*, when it is not overtly marked by a coordinator, but it is achieved by means of juxtaposition, cf. (3a-b).

- (1) a. *Paul a appris [l'espagnol **et** le français].* (French)  
b. *Paul has learnt [Spanish **and** French].* (English)
- (2) a. *Paul a appris [**et** l'espagnol **et** le français].* (French)

- b. *Paul has learnt [both Spanish and French].* (English)
- (3) a. *Paul parle [l'espagnol, le français, l'anglais].* (French)  
 “Paul speaks Spanish, French, English”  
 b. *John invited [all his colleagues, all his students].* (English)

In this paper, we focus on the second type, the omnisyndetic structures, which a priori are more constrained than simple coordinations (cf. Mouret (2007), Mouret *et al.* (2008)). The restrictions operating on correlative coordinations include almost all levels of linguistic analysis: they concern syntactic, semantic, discursive and prosodic aspects. At the syntactic level, they are restricted with respect to the categories they conjoin, i.e. they conjoin maximal projections, but not words. From a semantic point of view, they accept only a Boolean reading. Let's take two examples in French (a priori available for other languages, too). If there is a conjunction of propositions, the conjunction *et* ('and') is ambiguous between a collective or distributive reading in simple coordination (4a), while it has only distributive reading in omnisyndetic structures (4b). We observe the same difference in the case of the disjunction of propositions: the conjunction *ou* ('or') has an inclusive or exclusive reading in simple coordination (5a), whereas in correlative structures, only the exclusive interpretation is available (5b).

- (4) a. *Paul et Marie se sont mariés.*  
 “Paul and Mary married (together or not)”  
 b. *Et Paul et Marie se sont mariés.*  
 “Both Paul and Mary married (not together)”
- (5) a. *Paul ou Marie viendront / viendra à la fête.*  
 Paul or Mary come.3pl/sg.FUT to the party  
 “Paul or Mary will come to the party”  
 b. *Ou Paul ou Marie viendra à la fête.*  
 Either Paul or Mary come.3sg.FUT to the party  
 “Either Paul or Mary will come to the party”

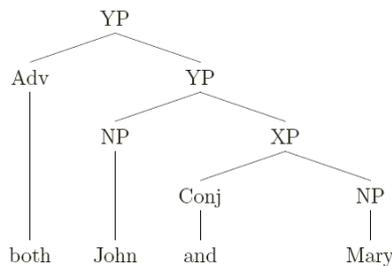
Finally, omnisyndetic coordination obeys a prosodic and discourse-related constraint, each conjunct being emphasized and forming an intonational phrase. These structures are compatible with focus and topic, but the relation involved by the doubled constituent obligatorily receives a contrastive interpretation.

Representative pairs we are concerned with in this study are the disjunction *either...or* and the conjunctive type *both...and*.<sup>1</sup> Cross-linguistically, there are two main structures proposed in the literature:

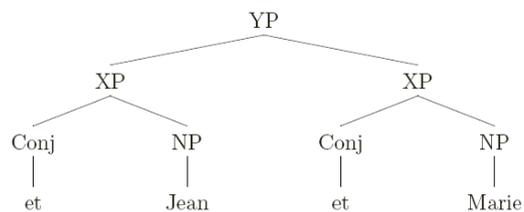
a. an asymmetric structure A (cf. (6a)), available for Germanic languages (such as English, German or Norwegian) (cf. Johannessen (2005), Hendriks (2004), Hofmeister (2008)), where the initial element of the structure is a Focus Particle (with relatively free distribution, restrictions by focus and intonation, scopal effects), modifying the whole coordination, thus the term *initial coordination*.

b. a symmetric structure B (cf. (6b)), available for French (cf. Piot (2000), Mouret (2005) and Mouret (2007)) and for Romance languages more generally (and a priori for Japanese and Korean), where all coordinators represent the same conjunctions combining with each conjunct, hence the term *conjunction doubling*.

(6) a. Asymmetric Structure A



b. Symmetric Structure B



Some languages use both structure A and structure B; for example, French has two different structures for the additive coordination: an asymmetric structure *à la fois...et* (7a) and a symmetric construction *et...et* (7b).

(7) a. *Jean lit [à la fois [en français et an anglais]].*

“John reads both in French and in English”

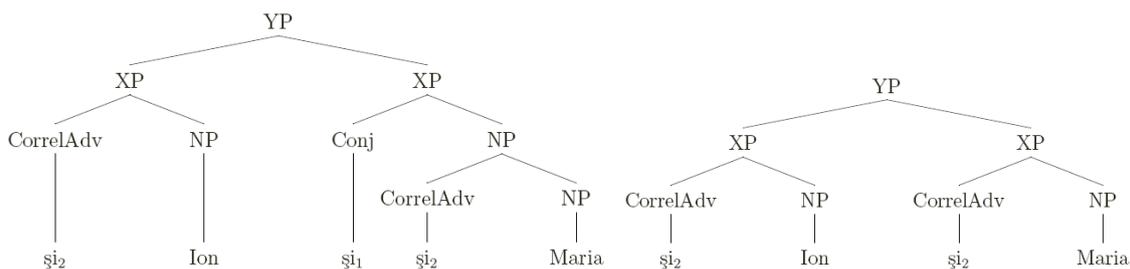
b. *Jean lit [[et en français] [et en anglais]].*

“John reads both in French and in English”

A superficial Romance overview may suggest a common analysis for all Romance languages, i.e. a symmetric structure. Romanian data show that we have to handle a hybrid case: a symmetric structure B for the disjunction type (cf. table 1), whereas for the ‘additive coordination’ we have two possibilities: an asymmetric structure with conjunction (C<sub>1</sub>, cf. (8a)) or a symmetric one without conjunction (C<sub>2</sub>, cf. (8b)), in both cases the correlative elements behaving like adverbials.

(8) a. Correlative Structure C<sub>1</sub>

b. Correlative Structure C<sub>2</sub>



The paper is structured as follows: In Section 2, we briefly mention the main distributional properties in Romance languages, and contrast French and Italian vs. Spanish and Romanian. In Section 3, we argue that, contrary to most Romanian grammars, Romanian elements *și...și* ('both...and') are (correlative) adverbs, rather than conjunctions. At the end of this section, we propose a revisited analysis of correlative coordination in the four Romance languages.

## 2. Main properties of the correlative coordination in Romance

### 2.1. Forms of the coordinators

**Table 1. Correlative coordinators of four Romance languages**

	<b>French</b>	<b>Italian</b>	<b>Spanish</b>	<b>Romanian</b>
<b>Disjunction Type</b>	<i>ou...ou</i> <i>ou bien...ou bien</i> <i>soit...soit<sub>c</sub></i> <i>soit que...soit que<sub>c</sub></i>	<i>o...o</i>	<i>o...o</i>	<i>sau...sau</i> <i>ori...ori</i> <i>fie...fie<sub>c</sub></i>
<b>Conjunctive Type</b>	<i>et...et</i> <i>à la fois...et</i>	<i>sia...sia<sub>c</sub></i> <i>sia...che<sub>c</sub></i>	<i>*y...y</i> <i>a la vez...y</i>	<i>și...și</i>

The index c in the left indicates that the form is always used in correlative structures.

A quick look at the table 1 shows that Spanish seems special, since it lacks the correlative pair *\*y...y* (9d).<sup>2</sup> A superficial examination of (9) would conclude that Romanian resembles French and Italian, but not Spanish.

- (9) a. *Et Jean et Marie sont venus à la fête.* (French)  
 b. *Sia Gianni sia Maria sono venuti alla festa.* (Italian)  
 c. *Și Ion, și Maria au venit la petrecere.* (Romanian)  
 d. *\*Y Juan y Marìa han venido a la fiesta.* (Spanish)

“Both John and Mary came to the party.”

Nevertheless, the structure *și...și* significantly differs from its counterparts, as shown by the empirical arguments mentioned in the section 3.

## 2.2. Properties of the coordinators<sup>3</sup>

If we look at the distribution of correlative items in these four languages, we observe at least three common properties. First of all, correlative items join phrasal categories such as NP (10-11-12-13a), PP (10-11-12-13b) or AP (10-11-12-13c) in all these languages.

(10) F a. *J'ai vu {soit / et} Jean {soit / et} Marie.*

“I saw {either / both} John {or / and} Mary”

b. *Je vais {soit / et} en Corée {soit / et} au Japon.*

“I’m going {either / both} to Korea {or / and} to Japan”

c. *Il est {soit / et} beau {soit / et} intelligent.*

“He is {either / both} beautiful {or / and} smart”

(11) I a. *(Io) ho visto {o / sia} Gianni {o / che} Maria.*

“I saw {either / both} John {or / and} Mary”

b. *(Io) vado {o / sia} in Corea {o / sia} in Giappone.*

“I’m going {either / both} to Korea {or / and} to Japan”

c. *(Lui) e {o / sia} bello {o / che} intelligente.*

“He is {either / both} beautiful {or / and} smart”

(12) S a. *(Yo) he visto o a Juan o a María.*

“I saw {either / both} John {or / and} Mary”

b. *(Yo) voy o a Corea o a Japón.*

“I’m going {either / both} to Korea {or / and} to Japan”

c. *(Él) es o guapo o inteligente.*

“He is {either / both} beautiful {or / and} smart”

(13) R a. *Maria adoră {fie / și} proza, {fie / și} poezia.*

“Maria adores {either / both} prose {or / and} poetry”

b. *(Eu) voi merge {fie / și} în Coreea, {fie / și} în Japonia.*

“I will go {either / both} to Korea {or / and} to Japan”

c. *(El) este {fie / și} frumos, {fie / și} inteligent.*

“He’s {either / both} beautiful {or / and} smart”

As an additional remark, one may say that, inside the VP, the correlative coordination is more complicated, since the distributions of correlative items and speakers’

acceptability vary cross-linguistically.<sup>4</sup>

Secondly, examples (14-15-16-17) show that such correlative items can also join embedded clauses:

(14) F a. *Paul s' imagine soit que Jean n'est pas là soit que Marie le cache.*

“Paul thinks either that John is not here or that Mary hides him”

b. *Raconte-moi soit ce que tu as lu à la maison, soit ce que tu as appris à l'école.*

“Tell-me either what you read at home or what you learnt at school”

c. *Je propose et que Jean vienne et que Marie le cache.*

“I propose both that John come and that Mary hide him”

(15) I a. *Paolo pensa o che Gianni non c'è o che Maria lo nasconde.*

“Paul thinks either that John is not here or that Mary hides him”

b. *Raccontami o quello che (tu) hai letto a casa o quello che (tu) hai imparato a scuola.*

“Tell-me either what you read at home or what you learnt at school”

c. *(Io) propongo sia che Gianni venga sia che Maria lo nasconda.*

“I suggest both that John come and that Mary hide him”

(16) S a. *Pablo se imaginaba o que Juan no estaba allí o que María lo escondía.*

“Pablo thought either that John was not there or that Mary hid him”

b. *Cuéntame o lo que (tù) has leído en casa o lo que (tù) has aprendido en el colegio.*

“Tell-me either what you read at home or what you learnt at school”

(17) R a. *Paula își imaginează fie că Ion nu e aici, fie că Maria îl ascunde.*

“Paul thinks either that John is not here or that Mary hides him”

b. *Povestește-mi fie ce ai citit (tu) acasă, fie ce ai învățat la școală.*

“Tell-me either what you read at home, or what you learnt at school”

c. *(Eu) propun și ca Ion să vină și ca Maria să-l ascundă.*

“I suggest both that John come and that Mary hide him”

However, these coordinators are more constrained with root clauses. On the one hand, the disjunction type seems less constrained than the conjunctive one (in French or Italian), as examples in (18-19-20-21) show;<sup>5</sup> on the other hand, declarative sentences are less constrained than imperative or interrogative clauses, as we observe in (22-23-24-25).

(18) F a. *Soit il fera beau soit il fera mauvais.*

Either it be.FUT fine or it be.FUT bad

“Either the weather will be fine or the weather will be bad.”

b. %*En ce moment, et ses élèves le fatiguent et ses collègues l’agacent.*

“At the moment, both his students are wearing him out, and his colleagues are annoying him”

(19) I a. *O il presidente guarisce entro domani, o la riunione verrà annullata.*

“Either the president gets better until tomorrow, or the meeting will be cancelled”

b. \**In questo momento, sia i suoi studenti lo stancano sia\che i suoi colleghi lo innervosiscono.*

“At the moment, both his students are wearing him out, and his colleagues are annoying him”

(20) S *O el presidente se pone bueno antes de mañana, o la reunión tendrá que ser suspendida.*

“Either the president gets better until tomorrow, or the meeting will be cancelled”

(21) R a. *Fie președintele se va însănătoși până mâine, fie reuniunea va fi anulată.*

“Either the president will get better until tomorrow, or the meeting will be cancelled”

b. *Și gazul se scumpește, și vremea se răcește.*

“Both the gas is getting expensive, and the weather is getting bad”

(22) F a. *Soit tu manges, soit tu prépares tes devoirs.*

Either you eat.IND, or you do.IND your homework.pl

b. \**Soit mange, soit prépare tes devoirs!*

Either eat.2sg.IMPERAT, or do.2sg.IMPERAT your homework.pl

c. \**Soit qui viendra soit où on ira?*

Either who come.3sg.FUT or where we go.1pl.FUT

(23) I a. *O mangi, o fai i compiti.*

Either eat.2sg.IND, or do.2sg.IND the homework.pl

b. \**O mangia, o fa i compiti!*

Either eat.2sg.IMPERAT, or do.2sg.IMPERAT the homework.pl

c. \**O chi verrà o dove andremo?*

Either who come.3sg.FUT or where go.1pl.FUT

(24) S a. *O comes, o haces los deberes.*

Either eat.2sg.IND, or do.2sg.IND the homework.pl

b. \**O come, o haz los deberes, ¡decídet!*

Either eat.2sg.IMPERAT, or do.2sg.IMPERAT the homework.pl

c. \**O quien vendrá o dónde iremos?*

Either who come.3sg.FUT or where go.1pl.FUT

(25) R a. *Fie mănânci, fie citești.*

Either eat.2sg.IND, or read.2sg.IND

b. \**Fie mănâncă, fie citește, decide-te!*

Either eat.2sg.IMPERAT, or read.2sg.IMPERAT, decide yourself

c. \**Fie cine a venit fie unde mergem?*

Either who come.3sg.FUT or where go.1pl.FUT

This restriction on main (declarative) clauses can be explained by the Boolean interpretation of omnisyndetic coordination (interpreted as conjoining propositions), assuming Ginzburg and Sag (2000)'s hypothesis that only declarative clauses have a propositional content. If interrogatives and imperatives do not have a propositional content, when embedded clauses are coordinated, one can interpret the coordination as scoping over the matrix clauses as well.

### 3. More on Romanian data

We give arguments for assigning structure B (given in (6b)) to Romanian disjunctive *sau / ori / fie...sau / ori / fie* ('either...or') and for assigning structures C (given in (8a-b)) to Romanian *și...și* ('both...and').

#### 3.1. Correlative disjunction

Unlike English focus particles (e.g. *either*, cf. (26a)), 'initial' elements such as *sau / ori / fie* cannot float outside the coordination (26b-c).

(26) a. *John either ate [rice or beans].*

b. *Ion a mâncat [fie orez, fie fasole].*

"John ate [either rice or beans]"

c. \**Ion fie a mâncat [orez, fie fasole].*

"John either ate [rice or beans]"

Unlike English *either* or *both* occurring only before the first term, Romanian correlative items can be iterated:

(27) *Maria ar vrea să învețe fie engleza, fie franceza, fie german, fie japoneza.*

“Mary would wish to learn either English, or French, or German, or Japanese”

Therefore, we consider that the symmetric structure B (proposed for French doubled conjunctions, cf. Mouret (2005) and Mouret (2007)) is appropriate for Romanian disjunctive structure *sau / ori / fie...sau / ori / fie* (‘either...or’).

### 3.2. Arguments against the conjunctive status of *și...și*<sup>6</sup>

Romanian grammars (e.g. GALR (2005)) distinguish between the conjunction *și*<sub>1</sub> (‘and’) and the homonymous form behaving like an adverb (*și*<sub>2</sub>):

(28) a. *Ion și<sub>1</sub> Maria vorbesc franceza.*

“John and Mary speak French”

b. *Și<sub>2</sub> Ion vorbește franceza.*

“Also John speaks French”

c. *Ion vorbește și<sub>2</sub> franceza.*

“John speaks also French”

As for the correlative occurrences of the element *și* (e.g. *și...și* ‘both...and’), the widespread view is that this distribution is restricted to adverbial items, which by ‘repetition’ lose their meaning, inheriting conjunctive properties (cf. GALR I (2005: 644)). Furthermore, the *și* occurrences in correlative pairs (*și...și*) are analyzed as conjunctions, without any empirical evidence.

In this sub-section, we give some arguments against the conjunctive status of *și...și*, arguing for an adverbial interpretation of *și* in correlative environments.

First, *și* can be preceded by a coordinating conjunction which exclusively realizes the coordination relation: it can combine with conjunctions like *și* ‘and’ or *dar* ‘but’ (29a). Even if the first correlative item is absent, a conjunction can occur before the second conjunct (29b).

(29) a. *Manolescu scrie și poezie {și / dar} și proză.*

Manolescu writes *și* poetry {and / but} *și* prose

“Manolescu writes both poetry and prose”

b. *La petrecere va veni Paul, {și / dar} și Mircea.*

to the party will come Paul, {and / but} **also** Mircea

“Paul will come to the party, and Mircea too”

As already mentioned, this item can occur outside coordination, in independent sentences, having a commonly accepted adverbial status: *și* ('too' / 'also') (see table 5):

- (30) a. *La petrecere, vor veni și prietenii, și colegii lui Ion.*  
to the party, will come **și** friends, **și** colleagues of John  
"Both John's friends and his colleagues will come to the party"
- b. *La petrecere, vor veni și {prietenii / colegii} lui Ion.*  
to the party, will come **also** {friends / colleagues} of Ion  
"Ion's friends / colleagues will come to the party, too"

Generally, the phrase composed by modifiers like *cam* 'rather', *chiar* 'even', *doar*, *numai* 'only', *și* 'also', *nici* 'neither', etc. (called semiadverbs in traditional grammars) and their host always bears 'emphatic' or contrastive stress, and that is exactly what we observe with the modifier *și*: prosodically, the constituent modified by *și* becomes stressed (receiving a special intonation).<sup>7</sup>

- (31) a. [Chiar Ion] a venit.                      b. (Eu) am [doar trei copii].  
"Even John came"                                      "I have only three children"
- c. [Și Ion] a picat examenul.                      d. [[Și Ion] [și Maria]] au venit.  
"Also John failed the exam"                      "Both John and Mary came"

An additional argument concerns the fact that the correlative conjunction (*fie...fie* 'either...or') always precedes each conjunct, whereas the adverbial *și* can occur inside the conjunct, following the subjunctive marker *să* 'that' (32a) or modifying a NP inside a coordinated VP (33a).

- (32) a. *Paul adoră [să și cânte la pian], [să și danseze].*  
Paul adores [Subj și play piano], [Subj și dance]  
"Paul adores both playing piano and dancing"
- b. \**Paul adoră [să fie cânte la pian], [să fie danseze].*  
Paul adores [Subj fie play piano], [Subj fie dance]  
"Paul adores either playing piano, or dancing"
- (33) a. *Maria [și-a făcut și patul], [a scris și tema la matematică].*  
Maria [made și her bed], [wrote și the-homework for maths]  
Maria both made her bed, and wrote the homework for the maths class"
- b. \**Maria [și-a făcut fie patul], [a scris fie tema la matematică].*

Maria [made *fie* her bed], [wrote *fie* the-homework for maths]

“Maria either made her bed, or wrote the homework for the maths class”

Another piece of evidence distinguishing between correlative conjunctions and the correlative *și* is related to the insertion of an incidental phrase. A significant difference between correlative conjunctions and adverbs is that one can insert an incidental element (like *poate* ‘perhaps’, *pare-se* ‘it seems’) after the conjunction *fie*, but not after the correlative *și*:

(34) a. *Ion vine fie azi fie {poate / pare-se} mâine.*

“John comes either today or {perhaps / it-seems} tomorrow”

b. \**Ion vine și azi, și poate mâine.*

John comes *și* today, *și* perhaps tomorrow

“John comes both today and perhaps tomorrow”

b'. *Ion vine și azi, (dar) {poate / pare-se} și mâine.*

John comes *și* today, (but) {perhaps / it-seems} *și* tomorrow

“John comes both today and perhaps tomorrow”

Moreover, there are some adverbs (*chiar* ‘even’) that can modify the adverbial *și*:

(35) a. *La petrecere, va veni (chiar) și primarul satului.*<sup>8</sup>

to party, will come even *și* the-major of-the-village

“Even the major of the village will come to the party”

b. *La petrecere, va veni Băsescu și chiar și fostul președinte.*

to party, will-come John and even *și* the ex-president

“Băsescu and even the ex-president will come to the party”

The distributional behavior of the adverbial *și* is not singular in Romanian. There is a class of adverbs (the so-called ‘intensifiers’) that has the same distribution as *și* (and *nici*, cf. Ciompec (1985)). Inside this special adverbial class, Barbu (1999) and (2004) distinguishes between lexical intensifiers (= adverbs<sub>1</sub>) and affixes (= adverbs<sub>2</sub>). Elements of the first sub-set (adverbs<sub>1</sub>) would be items like: *nici* (‘neither’, ‘nor’), *abia* (‘hardly’), *aproape* (‘almost’), *chiar* (‘even’), *doar*, *măcar*, *numai* (‘only’), *încă* (‘still’), *și* (‘also’, ‘already’), while the second sub-class (adverbs<sub>2</sub>) contain: *și* (‘also’, ‘already’), *cam* (‘rather’), *mai* (‘nearly’, ‘still’, ‘again’), *prea* (‘too’), *tot* (‘still’, ‘repeatedly’). In table 2, one may see the general precedence order rule for both adverbial classes.

**Table 2. General precedence order rule**

(PO) <b>adv</b> <sub>1</sub> <i>să nu</i> pron aux <b>adv</b> <sub>2</sub> vb
---

<p><i>să</i> = subjunctive marker (see <i>que</i> in French)  <i>nu</i> = negation  pron = weak pronouns  aux = auxiliaries  adv = monosyllabic adverbs (<i>cam, prea, mai, și, tot</i>)  vb = lexical verb</p>
---

**Table 3. Precedence order rule for the adverbial *și***

(PO)	( <i>și</i> )	<i>să</i>	<i>nu</i>	pron	aux	( <i>și</i> )	vb
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As the table 3 shows, the adverbial *și* can have both distributions, either at the edge of the verb cluster (= adverb<sub>1</sub>), or inside, between the auxiliary and the lexical verb (= adverb<sub>2</sub>).<sup>9</sup> We observe some variations related to the verbal mood or tense: with the subjunctive, both distributions are available (36); with the past tense, for example, it can occur only between the auxiliary and the past participle (37).

(36) a. *Maria vrea [**și** să citească], [**și** să deseneze].*

Maria wants [*și* Subj read], [*și* Subj draw]

b. *Maria vrea [să **și** citească], [să **și** deseneze].*

Maria wants [Subj *și* read], [Subj *și* draw]

“Maria wants both to read and to draw”

(37) a. *Astăzi, [**am și** băut], [**am și** mâncat].*

today [Aux *și* Vb] [Aux *și* Vb]

b. \**Astăzi, [**și** am băut], [**și** am mâncat].*

today [*și* Aux Vb] [*și* Aux Vb]

“Today I have both drunk and eaten”

To sum up this section, we can say that the Conj...Conj structure is available only for the disjunction type in Romanian (like in Spanish). With correlative adverbs (*și...și*), what we have is in fact simple coordination, or asyndetic coordination: **Adv...{Conj / ∅} Adv**.<sup>10</sup>

As for the Romance perspective, the four Romance languages have one common correlative structure, i.e. the Conj...Conj structure, as the new analysis of Romance shows in table 4.

**Table 4. Analysis of Correlative coordination in 4 Romance languages**

	<b>French</b>	<b>Italian</b>	<b>Spanish</b>	<b>Romanian</b>
<b>Disjunction</b>	<i>Conj...Conj</i>	<i>Conj...Conj</i>	<i>Conj...Conj</i>	<i>Conj...Conj</i>

<b>Type</b>				
<b>Conjunctive Type</b>	<i>Conj...Conj</i> <i>Adv...Conj</i>	<i>Conj...Conj</i>	— <i>Adv...Conj</i>	— <i>Adv...Adv</i>

**Table 5. Categorical status of the different correlative items**

		<b>French</b>	<b>Italian</b>	<b>Spanish</b>	<b>Romanian</b>
<b>Conj</b>	simple conjunction	<i>et</i>	<i>e</i>	<i>y</i>	<i>și<sub>1</sub></i>
<b>/</b>	correlative conjunction	<i>et...et</i>	<i>sia...sia<sub>c</sub></i>	—	—
<b>Adv</b>	simple adverb	<i>'aussi'</i>	<i>'anche'</i>	<i>'tambien'</i>	<i>și<sub>2</sub></i>
	correlative adverb	<i>à la fois</i>		<i>a la vez</i>	<i>și<sub>2</sub>...și<sub>2</sub></i>

#### 4. Conclusion

Assuming three main types of coordinate structures (simplex, omnisyndetic and asyndetic), in this paper we have focused on omnisyndetic constructions, the disjunctive *either...or* and the conjunctive *both...and* in four Romance languages (French, Italian, Spanish and Romanian). First, we have mentioned some of their common distributional properties in Romance and, then, we showed the hybrid case of Romanian, by a detailed analysis of the correlative *și...și*. We have provided some empirical evidence for analysing the *și...și* ('both...and') structure as asyndetic with the element *și* as an adverbial, by showing the double status of the element *și* (conjunction or adverbial). A more precise analysis of the distribution of correlative coordinations (e.g. Why is the omnisyndetic structure allowed for disjunction and not for conjunction in French and Italian? Why declarative sentences are less constrained than imperative or interrogative clauses), as well as an extension to other omnisyndetic coordinations (e.g. the negative type *nici...nici* 'neither...nor', which a priori has the same syntactic analysis as *și...și* 'both...and') still need to be provided.

#### 5. Notes

<sup>1</sup> We leave aside the negative pair *neither...nor* which generally behaves as the conjunctive type *both...and* (at least, in Romanian). We use these terms (disjunction type, conjunctive type) for the sake of simplicity.

<sup>2</sup> Its equivalent would be *tanto...como*, rarely used (in political discourse), or the adverbial *a la vez*, corresponding to the French *à la fois...et* (which follows the structure A, given in (6)):

(i) a. Voy (\*y) a Corea y a Japón.

go.1sg.IND CORREL to Korea and to Japan

b. Voy **a la vez** a Corea y a Japón.

go.1sg.IND both to Korea and to Japan

“I’m going both to Korea and to Japan”

<sup>3</sup> For Spanish examples, we retain only the pair *o...o* (see the footnote number 2).

<sup>4</sup> A priori, one can obtain a similarity between French and Italian on the one side, and Spanish and Romanian on the other side, according to at least two facts: first, the coordinator can freely combine with non-finite verbal categories in French or Italian, but this possibility is limited in Spanish and unavailable in Romanian; secondly, disjunctive coordinators combine with finite verbal categories (even if our data study shows some speakers’ variation), while conjunctive ones are more constrained in French and Italian. We need further work in order to check these hypotheses.

<sup>5</sup> % notes speakers’ variation.

<sup>6</sup>The same observations hold for the pair *nici...nici* ‘neither...nor’ (cf. Bilbiie (2006)).

<sup>7</sup>*Semiadverbs* (cf. Ciompec 1985) behave differently from circumstantial adverbs, since they have modal or aspectual meaning (=intensifiers, so that they always need a head to modify), they can modify almost everything, they have relatively rigid order, in the immediate neighbourhood of the selected element. Barbu 2004 makes a distinction inside this class between lexical adverbs and affixal adverbs (the latter mentioned only occurring inside the verbal complex, next to the lexical verb).

<sup>8</sup>The adverbial item *chiar* (‘even’) marks the idea of surprise, an unexpected event (“The major of the village was the one least expected to come to the party”).

<sup>9</sup>The different distributions of the element *și* correspond to a different syntactic (and semantic) status, i.e. the occurrence of *și* as adverb<sub>2</sub> could be interpreted as an affix.

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# **Interactional Aspects of Sharedness of Information in Korean Conversation**

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## **Abstract**

In conversation, speakers' knowledge about the referents being talked about is reflected in shaping sequential structures in conversation. This research is to explore how the sequential structures are realized in shaping sequential structures in conversation. After reviewing prior research on information status, turn- constructional practice, and repair, this study examines the constructions in which knowledge status is of concern: (i) elliptical constructions, (ii) constructions with pronominal elements, and (iii) constructions with an overt NP with a broad or ambiguous category. After that, I discuss types of sequential structures in the following two terms: (i) turn extensions and unattached elements, and (ii) repair sequences. Based on the discussion, this study deals with the motivations for occurrence of incremental TCUs and repair sequences: (i) recipient design, (ii) invitation for uptake from the recipient, (iii) solving problems in understanding the prior talk, and (iv) request for more specific and clear information. The study shows that these motivations are major interacting factors which are responsible for shaping turns in the processes of sharing information between speaker and hearer. In summary, this research shows an interactive nature of conversation in sharing information between speaker and hearer.

**Keywords:** knowledge status, turn increments, lack of recipient uptake, recipient design, repair, ellipsis.

## **1. Introduction**

"Language use is a form of joint action" (Clark 1996), and conversation is basically a process of exchanging information between speaker and hearer. Thus, speakers monitor each other's speech in the course of producing utterances, constantly negotiating among participants in sharing information, regularly revising, elaborating, or specifying preceding turns according to the status of the information being delivered. In recent years, a great amount of research on turn-construction practice has been carried out in conversation analysis, characterizing turn-constructional units (TCUs), transition-relevance places (TRPs), co-construction, repair, prosody, projectability, and so on

(Ford and Thompson 1996, Ford, Fox and Thompson 2002, Ono and Thompson 1995, 1996, Schegloff 1996, 2000, Schegloff et al. 1977, Tanaka 1999, among others).

However, little research has been carried out on the question of how the interlocutors' knowledge about the referents being talked is reflected in shaping sequential structures in conversation. The purpose of this research is to explore how the sequential structures are realized when the current speaker's assumption about the shared knowledge fails. Here, assumed knowledge means that the current speaker assumes that the hearer assumes, "knows," or can infer a particular thing (Clark 1996, Clark and Haviland 1977, cf. Chafe 1976, Prince 1981). Based upon this definition, this research will explore some aspects of sequential structures realized as turn extension or increments (Ford et al. 2002, Kim 2001, Schegloff 2000) or second-turn repair sequences which are adopted as devices for seeking more information among participants (Schegloff 1997, Schegloff et al. 1977), when the current speaker faces the problem of failure of assumed knowledge.

In this research, first I will discuss previous studies of information status, particularly, assumed knowledge, the speaker's turn-constructional practice, and repair as foundations for the exploration of the relationship between knowledge status and sequential structures. Second, I will examine constructions in which knowledge status is of concern in the following terms: (i) elliptical constructions, (ii) constructions with pronominal elements, and (iii) constructions with an overt NP with a broad or ambiguous category, among others. Third, I will examine types of sequential structures with respect to the knowledge status of the referent being talked about, in the following two broad terms: (i) turn extensions and unattached elements (Ford et al. 2002, Kim 2001, Ono and Suzuki 1992, Ono and Thompson 1994, Schegloff 2000), and (ii) repair sequences. The former case is related to the situation in which the current speaker provides additional information after the completion point of the host TCU as turn extensions or unattached elements. The latter case deals with the situation in which the next speaker produces an utterance which functions as a next-turn repair initiator (NTRI), and then the current speaker produces a second- or third turn with a more informative TCU.

After discussing types and sequential structures of constructions which are sensitive to the knowledge status of the referents, this study will explore interactional motivations for constructing such interactional sequences. It will discuss occurrence of incremental TCUs and repair sequences in the following four terms: (i) invitation for uptake from the recipient (Ford et al. 2002, K. Kim 2001, Schegloff 2000), and (ii) recipient design (Sacks and Schegloff 1979), (iii) indication of problems in

understanding the prior talk, and (iv) request for more specific and clear information. This study will show that these motivations are major interacting factors which are responsible for shaping turns in the negotiating processes of seeking more information between speaker and hearer.

In summary, this paper will show that speakers, depending on the knowledge status of the referents being talked about, are actively engaged in the process of negotiation by adding specific types of turn components or indicating the need for more information. Based on the analysis of Korean conversational data, this research will discuss the current speaker's turn expansion and third-turn repair as information-sharing strategies in the process of exchanging information. The research shows an interactive nature of conversation manifested in the use of incremental TCUs in securing and providing information according to the interactants' need for seeking more information in communication.

## **2. Previous Studies of Information Status and Sequence Organization**

In doing this research, I will first discuss information/knowledge status, particularly, assumed knowledge, the speaker's turn-constructive practice, and repair as foundations for the exploration of the relationship between knowledge status and the sequential structures.

In functional linguistics and discourse analysis, a great amount of research has been carried out on the information status of referents, information flow, and the taxonomy of information states from textual and cognitive perspectives (Kuno 1972, 1978, Halliday 1967, Halliday & Hasan 1976, Chafe 1976, 1980, 1987, 1994, Prince 1981, 1992, Gundel et al. 1993, among others). In such research, terms such as given/old-new information, shared or assumed information, news-worthiness, theme, topic, afterthought, emphasis, and contrast have been proposed to explain knowledge status of the referents in information flow. In making a distinction between new and old information, terms such as recoverability, predictability, saliency, shared knowledge, and familiarity have been proposed. A number of researchers have proposed taxonomies of the status of information/knowledge of referents in two-, three-, or multiple ways. That is, Kuno, Halliday, Halliday and Hasan proposed taxonomies of a two-way distinction (i.e., given vs. new information), Chafe (1987) and Prince (1992) those of a three way distinction (i.e., active, semiactive, and inactive), and Prince (1981) and Gundel (1993) those of multiple-way distinctions. These studies have shown that

speakers are sensitive to the information status of the referents being talked about in producing utterances. They have focused on the information status of nominal expressions, but little research has been carried out on information status with respect to the sequential structures in conversation.

Since the research on turn-taking carried out by Sacks et al. (1974), interaction-based research has provided a new way of examining turn constructions in conversation in terms of interactional needs and motivations (Ford, Fox and Thompson 2002, Kim 2001, Ono and Suzuki 1992, Schegloff 2000, Schegloff et al. 1977). Among many topics discussed in conversation analysis and interactional linguistics, Ford et al. (2002), Kim (2001), and Schegloff (2000) show that variability of turn constructions can be explained in terms of turn extensions or increments. They claim that turn increments are closely related with interactional contingencies, including lack of recipient uptake.

In conversation analysis, repair is one of the most widely discussed topics in conversation. Schegloff et al. (1977) and Schegloff (1997: 503) define repair as "practices for dealing with problems or troubles in speaking, hearing, and understanding the talk in conversation." Such a definition provides a new way of examining repair phenomena in conversation in terms of interactional needs and motivations (Jefferson 1974, Schegloff 1979, 1997 Schegloff et al. 1977, among others). Beginning with research on repair in conversation by Jefferson (1974) and Schegloff et al. (1977), many studies have characterized repair phenomena in conversation from a conversation-analytic, interactional perspective (Schegloff 1979, Fox, Hayashi, and Jasperson 1996). Furthermore, Banno (1998) and H. Kim (2006) discuss types of elaboration repair, as a particular type of non-error self-repair. These studies show how repair is shaped by the syntactic practices of the speakers of a language, and the ways in which repair shapes those practices.

As discussed above, interaction-based research has provided a way of exploring how forms and types of turn-constructive units (TCUs) are interactionally determined by the negotiation between participants in talk-in-interaction. However, little research has been done on the question how turns are shaped according to the information status between speaker and hearer. In this regard, it is necessary to examine instances of variability of turn constructions in their sequential and interactional contexts as a way of characterizing the nature of TCUs.

### 3. Database and Methodology

In exploring the interactional nature of retroactive elaboration in conversation, it is imperative that one should look at naturally occurring data to perform an empirically-grounded micro-analysis of turn-constructive practices. In carrying out the research on knowledge status and sequential aspects of variability of turn constructions, I used four audio-taped face-to-face conversations in Korean. Each of the conversation is about 13 to 30 minutes long, totaling approximately one hour and forty minutes. Among the data, two are multi-party conversations among graduate students, the other two are dialogues between two acquaintances. The topics of the conversations are school life, learning/teaching English, and job experiences, among others. Based on these four conversations, this research will explore the contexts in which instances of variability of turn constructions are produced. In the present data, a total of 96 instances of variability of turn constructions were found. Based on these statistics, this research will characterize variability of turn shapes in terms of turn-constructive practice.

The conversations in the database were collected and transcribed by adopting the transcription convention proposed by Du Bois et al. (1993). The transcription convention in the data takes an intonation unit as a basic unit of spoken language, each line representing one IU. Bearing this in mind, let us consider an excerpt which involves ellipsis and turn increments.

(1) [Graduate students are talking about a phonetic analysis of voices.]

1 Y: kunkka Yumi enni-ka cham kulehkey kkaykkusha-tay-yo ikey <—A  
that:is Yumi Sister-NM well such clear-QUOT-HON this  
'That is, Sister Yumi's is clear, this.'

2 S: uuum.  
'uh-huh.'

3 Y: moksoli cachey-ka <—B  
voice itself-NM  
'the voice itself.'  
(3 intonation units deleted)

4 J: tutki-ey-nun an nangnangha-ntey.  
hearing-LOC-TM not clear-CIRCUM  
'as for hearing, (it's) not clear?'

5 Y: ø nangnangh-ay, <—C  
clear-IE

‘(It’s) clear,’  
 6     *tutki-ey-to*  
       hearing-LOC-too  
       ‘even for hearing.’  
 7     *nangnangha-cyo*       *Yumi-enni*     *moksoli*                                     ←—D  
       lear-COMM:HON        *Yumi-Sister*    *voice*  
       ‘(It’s) clear, Sister Yumi’s voice.’

In (1), Speaker Y produces the NP *Yumi enni* 'Sister Yumi('s voice)' first, the pronominal *ike* 'this', and then the NP *moksoli* 'voice'. As this example shows, the current speaker first produces an elliptical phrase, and then she revises her utterance in an escalating manner, resulting in turn increments. In Line 5, she produces a TCU in an elliptical construction with no subject. And in Line 7, she produces a full sentential TCU with inversion. As this excerpt shows, speakers produce TCUs in elliptical constructions, pronominals, and turn increments, particularly with respect to knowledge status of the referents being talked about. In conversation, such constructions take a variety of sequential structures, depending on the status and sharedness of information. In this research, I will examine instances of constructions with ellipsis or pronominals and turn increments which are sensitive to the information status of the referents being talked about. In the next section, I will discuss types of constructions with respect to information status in the database.

#### 4. Types of Knowledge-Status Sensitive Constructions

##### 4.1. Knowledge Status in Discourse and Grammar

In this section, let us discuss types of some constructions which are sensitive to the status of knowledge of the referents being talked about. As discussed above, interaction-based research has provided a way of exploring how forms and types of turn-constructive units (TCUs) are interactionally determined by the negotiation between participants in talk-in-interaction. In this regard, it is necessary to examine instances of variability of turn constructions in their sequential and interactional contexts as a way of characterizing the nature of TCUs. Here, I will examine constructions in which knowledge status is of concern in the following terms: (i) elliptical constructions which involves zero anaphora, (ii) constructions with pronominal elements, (iii) constructions

with lexical full NPs of broad or ambiguous categories, and (iv) non-constituents of the host TCU, especially unattached NPs, among others. As is well known, the Korean language has many elliptical constructions, resulting from the current speaker's assumption of shared knowledge about the referent. As a second case, the current speaker often produces an utterance with an overt pronominal, based on the assumption that the referent is shared by the hearer. As a third case, the current speaker sometimes produces a broad, ambiguous overt NP, which needs to be specified with an additional TCU. Based on an examination of these constructions, I will classify added segments in the following subcategories: (i) overt constituent NPs of the preceding elliptical constructions, (ii) replaced lexical full NPs of the pronominals, (iii) elaborated, specified lexical full NPs, and (iv) expanded elements, such as unattached NPs.

In producing these constructions, speakers are sensitive to the knowledge status of the referents being talked about, and such sensitivity is reflected in the practice of constructing turn shapes. As has been discussed, conversation is basically a process of exchanging information between speaker and hearer, and they constantly negotiate with each other in sharing information. Let us take a look at Excerpt (2):

- (2) S: .. akka malssumhasi-n ku yehaksayng-yo,  
           before mention-ATTR that girl:student-HON  
 .. kayey myec haknyen-i-eyo?                    ←—A  
           that:girl what grade-be-HON  
           '(As for) the girl student who you mentioned before,  
           what grade is she in?'
- P: .. etten yehaksayng malssumhasi-na-yo?       ←—B  
           which girl:student mention-Q-HON  
           'Which girl student are you talking about?'
- S: .. onul saylo onta-nun haksayng,           ←—C  
           today newly come-ATTR student,  
           'the student you who (you said) is coming today,'
- P: a:,  
       'oh,'  
       ce: ... ø kotunghakkyo 2 haknyen toy-nipta.  
       welll ø high:school 2 grade become-HON  
       'oh, well, (she) is a second-year high school student.'

As shown in (2), the current speaker sometimes produces a turn, assuming that the next

speaker shares information about the referent which (s)he is talking about (marked A). However, such an assumption does not hold, and the next speaker produces a turn which signals that (s)he does not share the information (marked B). In such a context, the current speaker provides additional, specific information in the next turn (marked C). As this excerpt shows, the current speakers' assumption about the sharedness of the knowledge about the referent is reflected in the shaping turn constructions. In this respect, there is a need to pay attention to the knowledge status of the referents and the sequential structures.

In Section 2, we have seen that Prince (1992) proposes a taxonomy of information status in terms of two distinct divisions: discourse-old/discourse-new and hearer-old/ hearer-old. Among the four theoretically possible information statuses, of which only three are possible in the analysis of discourse. Schiffrin (1987:268), on the other hand, proposes a taxonomy of meta-knowledge of speaker/hearer shared knowledge based on the sharedness of information about the referent between speaker and hearer.

Figure 1. Meta-knowledge about speaker/hearer shared knowledge (Schiffrin 1987)

Does speaker know of hearer's knowledge?	Yes	No
Does hearer know of X?	Yes (a)	(b)
	No (c)	(d)

As shown in Figure 1, according to Schiffrin, the hearer knows the background information and the speaker knows that; in (b) the hearer knows the background information and the speaker does not know that; in (c), the hearer does not know the background information and the speaker knows that; in (d), the hearer does not know the background information and the speaker does not know that.

In conversation, it is not always the case that the current speaker knows whether a speaker shares knowledge about the speaker's topic of talk because one cannot be in the mind of the other. The speaker only assumes that the hearer also has the background knowledge. Then, the question is whether the current speaker's assumption about the shared knowledge will hold or fail. If the current speaker's assumption holds, then the conversation keeps going. But when the assumption fails, there arise sequences of repair. In this respect, I will classify interaction sequences into two broad categories: (i) self-repair sequences, and (ii) next-turn repair sequences. According to the sharedness of the background knowledge, speakers makes negotiation with each other about the knowledge status of the referent being talked about, and such a practice of negotiation is



waiting for her thesis supervisor in the office, talking with other graduate students in the department office. She suddenly produces a sentential TCU without a subject NP, assuming that the information about the referent is being shared. However, Y, the next speaker, provides a candidate NP for the missing subject, which gets an affirmative response from Speaker S. As these excerpts show, the turns marked as A and B are produced as incremental TCUs to provide or secure more specific information about the referents being talked about.

As shown above, the use of zero anaphora is prevalent in Korean conversation. When such elliptical constructions are produced, speakers are sensitive to the status of information about the referents being talked about. In (3i), the current speaker produces an incremental TCU to provide more information retroactively. In (3ii), on the other hand, the next speaker's response functions as a try marker or a next turn repair initiator (NTRI), which functions as a request for more information. This fact suggests that speakers are sensitive to the status of information about the referents, and turn shapes are negotiated to get enough information to keep the conversation going. This usage shows that incremental TCUs and NTRIs are used as devices which function as devices for providing and seeking more specific information in Korean conversation in which the use of zero anaphora is prevalent.

#### *4.3. Pronominal Constructions*

As a second type of knowledge-sensitive constructions, the use of pronominal expressions is often sensitive to the knowledge status of the referents being talked about, especially when speakers use pronominal expressions without antecedents in the prior discourse. In Korean, pronouns are rarely used and the usage is limited to certain limited contexts. In discourse, it is common and natural for speakers to produce antecedents in the form of full lexical NPs, and use pronominals in the next mention to refer back to them. However, in conversation, speakers sometimes, though not frequently, produce a pronominal expression in the first mention in the host TCU upon the assumption that the information about the referent is shared with the addressee. In certain cases, such an assumption does not hold. In such a case, the current speaker provides the 'antecedent' in the form of a full lexical NP retroactively.

- (4) J: .. ani,  
no,  
(0) cepen cwu-ey,

last week-LOC  
 . yeki o-ass-ess-ketun-yo, <—A  
 here come-PST-PST-RETRO-HON  
 'Well, no, (he) came here,'  
 Y: (0) ung.  
 'Yeah.'  
 J: kkwasa-ey. <—B  
 dept.:office-LOC  
 'the department office.'  
 Y: ung.  
 'Yeah.'

As shown in (4), in conversation, speakers sometimes use pronominal elements first, then they backtrack to the repairable pronominals and replace them with full lexical NPs. That is, in (4), Speaker J, talking about a fellow graduate student, produces a deictic expression *yeki* 'here' first, and then she replaces it with a full lexical NP *kkwasa* 'department office'.

As a second case of the use of pronominals, the next speaker produces an NTRI which seeks more specific information about the referent expressed in the form of a pronominal.

(5) a. B: (6 intonation units omitted)  
 .. enni way kuke isschanha. <—A  
 'Sister, well, (you know) (there goes) that thing.'  
 A: ... (1.5) ku key mwey-a, <—B  
 that thing what-IE  
 'what is that thing?'  
 B: ... ai.  
 'well.'  
 A: (2.0) [wethe suphulei?] <—C  
 'water spray?'  
 B: [suphulei] <—D  
 'spray.'  
 b. M: .. nay-ka maynnal tayhakkyo-ttay,  
 I-NM every:day college-time  
 .. kulen kes-man ccochatany-ess-ketun. <—A

such thing-only chase:after-PST-RETRO

'When I was at college, I always chased after such things.'

S: ... (0.7) *kulen ke*, <—B  
           *such thing*,  
 .. *kangcwa tutnun ke?* <—C  
           *lecture attend thing*  
           'such things, attending (English) classes?'

M: .. *ung*,  
       'Yeah,'

In (5), we can see examples of next turn repair. That is, in (5a), two women are talking about a cosmetic. Speaker A produces a TCU with the pronominal *kuke* 'that (thing)' (marked C) based on the assumption that the knowledge about the referent is being shared with the hearer. But such an assumption is challenged by the next speaker. After that, turns which seek more information follow. In (5b), two speakers are talking about attending English classes during the summer vacation. In this context, Speaker M uses a pronominal element *kelen kes* 'such things' (marked C) in referring to attending English classes, assuming that the information expressed in the pronominal form is shared with the addressee. This assumption fails, and thus, Speaker S, after a 0.7 second pause, first produces the NTRI *kelen ke* 'such a thing' (marked E). Immediately after that, she produces the phrase *kangcwa tutnun ke* 'attending (English) classes' (marked F) as a candidate referent for the pronominal, which gets an affirmative response in the next turn. These excerpts shows that speakers are sensitive to knowledge status of the referents being talked about in the use of pronominals, and turns are shaped according to the degree of the sharedness of the knowledge in conversation.

#### 4.4. Constructions with Broad/Ambiguous NPs

Knowledge status is of concern in the use of NPs with broad or ambiguous categories. In conversation, the current speaker sometimes produces vague or ambiguous expressions based on the assumption that speaker and hearer share the knowledge about the referents being talked about, but sometimes such an assumption does not hold. In such a context, the current speaker produces an incremental TCU to make reformulation repair, or the next speaker produces a TCU which seeks more specific information about the referent. First let us consider some excerpts which involve incremental TCUs.

- (6) a. M: ... (0.7) ku=,  
that  
.. *hakkyo-eyse hanun ehak phulokulaym kulen ke iss-canha.* <—A  
Campus-LOC do language program such thing be-IE  
.. *ehakwen,* <—B  
language:institute  
.. *kekise ha-nun ke-ya.*  
there do-ATTR thing-IE  
‘that, there are language programs on campus, (you know),  
the language institute, they provide (the programs).’
- b. M: .. *kulay kaciko,*  
such that  
.. *wenlay kekise sensayngnim-i-ess-tay-yo,*  
originally there teacher-be-PST-HEAR-IE  
.. *sayngmwul sensayngnim-i-nci.* <—C  
biology teacher-be-maybe  
‘And (she) was a teacher there, maybe a biology teacher.’

Excerpts in (6) illustrate instances of incremental TCUs which occur after the host TCU as a way of providing more specific information. In (6a), Speaker M, in her talk about the summer English program on campus, produces the vague term *hakkyo* ‘school’ in her first mention. After that, she produces an incremental TCU, *ehakwen* ‘language learning center’, which is more specific and narrow in scope. Likewise, in (6b), Speaker M talks about a newly employed foreigner at the university career information center. In this excerpt, M first says that the referent was a *sensayngnim* ‘teacher’, which is a rather broad and vague term. Then, she reformulates the problem spot by adding *sayngmwul* (*sensayngnim*) ‘biology (teacher)’, which results in a more specific term. As these excerpts clearly show, speakers produce incremental TCUs as a reformulation repair device to provide more specific information to the interlocutor.

As a second type of the use of broad or ambiguous NPs, the next speaker produces an NTRI which functions as a device for seeking more specific information.

- (6) P: [twu si pan-kkaci-]  
two o'clock half-by  
‘by two and half (o'clock),  
S: [wencwu],

	wencwu haksayng.	<—A
	Wonjoo student	
	'Wonjoo, Wonjoo student,'	
P:	(0) wencwu?	<—B
	'Wonjoo?'	
S:	wencwu-eyse isa on haksayng,	<—C
	Wonjoo-from move come student	
	'(the) student moved from Wonjoo.'	

In (6), two teachers are talking about a student. Speaker S produces the NP *wencwu*, which is ambiguous, and then he repeats the NP because of the turn is overlapped with P's turn. In such a context, P repeat the NP with rising intonation, which functions as an NTRI. Then, S provides a modified NP which provides more specific information.

As the discussion above shows, when the current speaker produces a TCU with ambiguous or vague NPs, we can see there are two sequential organizations: (i) speakers produce incremental TCUs as a reformulation repair device to provide more specific information to the addressee, and (ii) the next speaker produces an NTRI to make a request for more specific information.

So far, we have examined four types of constructions in which knowledge status is of concern: (i) elliptical constructions which involves zero anaphora, (ii) constructions with pronominal elements, and (iii) constructions with lexical full NPs of broad or ambiguous categories. As has been shown, in producing these constructions, speakers are sensitive the knowledge status of the referents being talked about, and such sensitivity is reflected in the practice of constructing turn shapes. The discussion so far has shown that repair sequences or the current speaker's turn increments are used as information sharing strategies in the process of exchanging information.

## 5. Motivations in Turn-Construction Practice in Sharing Information

So far, we have seen some types of constructions which are sensitive to the knowledge status of the referents. The discussion has shown that the status of information is an object of active negotiation throughout the course of exchanging information among interactants, which is reflected in the sequential structures of turn taking. In this section, let us explore interactional motivations for constructing such interactional sequences.





'Chung-Ang Herald,'

In (8), the participants in the conversation are talking about *The Chung-Ang Herald*, the University English magazine. In this excerpt, Speaker S first produces the NP *Herald* (marked A), assuming that the next speaker shares with her the information about the referent. However, she receives a backchanneling response only from the next speaker. So she revises her utterance into a more specific NP with a pre-modifying clause (marked B) and a partial repeat of the preceding utterance. But still the next speaker does not take a turn. So, with a short pause, S provides another additional information in the form of an NP. After that, she gets another response in the form of an address term. Then, she provides a proper name of the magazine, specifying what she said before. As this excerpt shows, the current speaker revises or reformulates what (s)he said before to make it understood by the recipient.

Third, occurrence of incremental turns in the next IU used for retroactive elaboration is related to the turn-constructural practice of inviting recipient uptake in the process of sharing information among participants (Ford et al. 2002, K. Kim 2001, Schegloff 2000). Ford et al. (2002) state that speakers add segments which occur after a possible completion point in the absence of recipient uptake to provide a renewed possible TRP. Such an act to invite uptake from the recipient can be understood as an act of sharing information among participants.

- (9) B: ... ku ttay 235 kulaym-i-ess-na?  
that time 235 gram-be-PST-IE  
... onsu-i-ess-na?  
ounce-be-PST-IE  
.. 235 onsu-i-ess-na?  
235 ounce-be-PST-IE?  
'At that time, did it contain 235 grams? Or was it in ounce?  
Or did it contain 235 ounces?'
- A: ... al swu-ka eps-ci.  
know way-NM not-COMM  
'(We) cannot know (or I have no idea).'

In (9), two speakers are talking about a cosmetic. When B was wondering about the weight of the cosmetic, she first produces an utterance of whether it contained 235 grams or not. But she does not receive a response from the hearer. Then, she revises the

measurement units from *gram* to *ounce*. But still she does not get a response. Then, she partially revises and repeats what she said, and then she gets a response from the next speaker. As this excerpt shows, added segments which function as devices for creating a renewed TRP are used to share information about the referents being talked about among participants (Ford et al. 2002, K. Kim 2001, Schegloff 2000).

Fourth, the occurrence of next-turn repair initiators in the next-turn position signals problems in understanding the prior talk. NTRIs function as devices for seeking more specific and clear information. As has been discussed, the notion *repair* is defined broadly as "practices for dealing with problems or troubles in speaking, hearing, and understanding the talk in conversation." Such a definition involves not only 'error' correction but also problems in understanding the talk caused by insufficient amount of information about the referents being talked about.

(10) (Excerpt (5) repeated here)

B: (6 intonation units omitted)

.. enni way kuke isschanha. <—A

'Sister, well, (you know) (there goes) that thing.'

A: ... (1.5) ku key mwey-a, <—B

that thing what-IE

'what is that thing?'

B: ... ai.

'well.'

A: (2.0) [wethe suphulei?] <—C

'water spray?'

B: [suphulei] <—D

'spray.'

As shown in (10), when the current speaker produces an utterance with a pronoun based upon the assumption that the information about the referent is shared, the next speaker produces an NTRI, which seeks clear, specific information. Still she cannot get more information she produces an NP as a candidate answer for the referent. As this excerpt shows, speakers produce NTRIs not only to signal problems in understanding the prior talk but also to seek more specific and clear information.

As we have seen, speakers actively negotiate with each other in the course of exchanging information, which is realized as turn increments and repair sequences. In this regard, we have explored interactional motivations for constructing such

interactional sequences in the following terms: (i) recipient design, (ii) invitation for uptake from the recipient to share information, (iii) indication of problems in understanding the prior talk, and (iv) requesting for more specific and clear information.

## **6. Summary and Conclusions**

So far, we have discussed the question of how the interlocutors' knowledge about the referents being talked about is reflected in shaping sequential structures in conversation. This research has explored aspects of sequential structures realized as turn extension or increments. It has also dealt with repair sequences which are used as devices for seeking information among participants, when the current speaker's assumption about the sharedness of information about the referents being talked about.

To characterize sequential structures constructed according to the knowledge status, this research has reviewed previous studies which deal with information status, the speaker's turn-constructive practice, and repair as foundations for the present study. After that, I have examined the constructions in which knowledge status is of concern: (i) elliptical constructions, (ii) constructions with pronominal elements, and (iii) constructions with an overt NP with a broad or ambiguous category. Through an examination of these constructions, I have discussed types of sequential structures in the following two terms: (i) turn extensions and unattached elements, and (ii) repair sequences. Examination has shown that in conversation speakers use the constructions discussed above based on the assumption that the information being delivered is shared between speaker and hearer. However, when such an assumption fails or when the current speaker feels the need to provide more explicit information, (s)he produces incremental turns, or replaces the pronominal elements or ambiguous expressions with more informative expressions.

After discussing types and sequential structures of constructions which are sensitive to the knowledge status of the referents, this research has discussed interactional motivations for constructing such interactional sequences. It has dealt with the motivations for occurrence of incremental TCUs and repair sequences in the following four terms: (i) recipient design (Sacks and Schegloff 1979), (ii) invitation for uptake from the recipient (Ford et al. 2002, K. Kim 2001, Schegloff 2000), (iii) solving problems in understanding the prior talk, and (iv) request for more specific and clear information. The study has shown that these motivations are major interacting factors which are responsible for shaping turns in the processes of sharing information between

speaker and hearer.

In summary, this research has shown that speakers are actively engaged in the process of negotiation by the means of incremental TCUs and repair mechanisms for seeking more specific, clear information. The research has shown an interactive nature of conversation in sharing information between speaker and hearer.

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# **A Comparative Study of English Loanword Abbreviations in Japanese and Korean**

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## **Abstract**

In Japanese (J) and Korean (K), many words are borrowed from English into each language, and they form part of their lexicons. Many English loanwords are assimilated into J and K, and some of them undergo change in meanings and forms from the original English words. This research examines types of abbreviations in English loanwords and to explore linguistic motivations responsible for the formation of loanword abbreviations in Japanese English (JE) and KE (Korean English). This research will examine abbreviations in JE and KE and classify them into three types: (i) initialism/acronyms, (ii) clipping, and (iii) blending. Based on the examination of types and word formation rules of abbreviations in JE and KE, this study explores linguistic motivations responsible for the formation of abbreviations in JE and KE. It shows that economy and distinctiveness/contrastiveness are the most important motivations which are involved in the formation of abbreviations in JE and KE.

**Keywords:** morphology, loanwords, Japalish, Konglish, abbreviation, acronym, initialism, clipping, blending, economic motivation, distinctiveness, contrastiveness.

## **1. Introduction**

In Japanese (J) and Korean (K), many words are borrowed from English into each language, and they form part of their lexicons. In Japanese and Korean, words and phrases loaned or coined from English are often treated as non-standard, incorrect or bad language, termed Japlish (Japanese English: JE) and Konglish (Korean English: KE). So far, JE and KE have been treated as

examples of corrupted English, and many English educators have pointed out problems of JE and KE from a pedagogical perspective. However, little research has been done on the formation of abbreviated expressions in JE and KE from a cognitive perspective. The purposes of this research are to examine types of abbreviations in English loanwords and to explore linguistic motivations responsible for the formation of loanword abbreviations in JE and KE.

When considered in terms of phonology, morphology, and semantics, loanwords can be divided into a variety of types. Some loanwords are fairly faithful to their original pronunciation and meanings as in *tennis* and *ice*. Some are 'false cognates' which have completely different meanings from the original English words, as in *cider* 'soda pop' and *bond* 'glue'. Some are abbreviated or curtailed expressions of the original English words: *terebi* 'television', *super* 'supermarket', *biru* (JE) 'building' and *wa pro* (JE) 'word processor'. Some words are coined or fabricated according to the cognitive perception of the native speakers of Japanese and/or Korean, as in *American coffee* 'black coffee' and *open car* 'convertible'. Among these types of loanwords, this research will focus on abbreviated or curtailed expressions. As is well known, Japanese and Korean are notorious for abbreviating rather long English words into short forms, resulting in loanword abbreviations in JE and KE.

This research will examine abbreviations in JE and KE and classify them into four types. In English morphology, abbreviations are usually classified into the following three categories: (i) initialism/acronyms, (ii) clipping, and (iii) blending (Quirk et al. 1985, O'Grady and Archibald 2004). Abbreviation in language is a universal phenomenon found in the formation and use of words, and thus the processes of abbreviation are also found in the formation of loanwords from English in JE and KE, as shown in (1).

- (1) (i) khonto (condo) <-- condominium,  
aphatu (apa(r)t) <-- apartment (cf. Apt.)  
(ii) eyekhon (aircon) <-- air conditioner  
(iii) limokhon (remocon) <-- remote control  
(iv) aissi (IC) <-- interchange, tissi (DC) <-- discount

In (1), we can see examples of clipping ((1i, ii), blending (1iii), and initialism

(liv) in JE and KE. Bearing this classification in mind, we will examine what morphological rules apply for the formation of abbreviated loanwords in JE and KE. Examination will show that the morphological rules which apply language in general also apply to the formation of abbreviated expressions in JE and KE. In examining examples of abbreviation, we will compare similarities and differences in the formation of loanwords in JE and KE (e.g., *apart* 'apartment' and *super* 'supermarket' for JE and KE, but *pers com* 'personal computer' and *wa(word) pro* 'word processor' for JE only). Based on the examination of types and word formation rules of abbreviations in JE and KE, we will explore linguistic motivations responsible for the formation of abbreviations in JE and KE. In this study, we will take the economy and distinctiveness/ contrastiveness as the most important motivations involved in the formation of abbreviations in JE and KE (Zipf 1935, Haiman 1983, 1985, Croft 1990, Radden and Panther 2004).

In sum, this paper explores linguistic motivations for the formation of abbreviations by examining types of loanwords and linguistic motivations in the formation of diverse types of lexical expressions in JE and KE. Based on the examination of abbreviations in JE and KE, this research proposes that the linguistic motivations of economy and distinctiveness are the most important motivations which govern the formation of abbreviations in JE and KE. This study shows that these cognitive motivations apply not only to the processes of word formation of natural language in general but also to the formation of abbreviations in JE and KE.

## **2. Context of the Research: Abbreviations, Loanwords, and Linguistic Motivations**

In morphology, topics such as inflection, derivation, and compounding have been three major areas of research. However, little attention has been paid to abbreviations, although abbreviations are a topic in morphology (Bauer 1983, Quirk et al. 1985, O'Grady and Archibald 2004, Huddleston and Pullum 2002). In English, abbreviations are usually classified broadly into three types: (i) acronym, (ii) initialism, and (iii) clipping. In addition to these three types, consonantal abbreviations and blending are also treated as types of abbreviations. First, consonantal abbreviations refer to cases in which vowels of the word is deleted but only some 'prominent' consonants remain as in *Mr.*,

*Mrs.*, *km* (<--kilometer), PhD, and so on. Traditionally, commas have been added for the consonantal abbreviations, but nowadays, particularly in British English, commas are often deleted. Second, initialism refers to the cases in which the initial letters of each word in a compound are taken to form an abbreviation. One can find a great number of this type of abbreviations, as shown in ABC, BBC, FBI, FTA, UK, and so on. In this type, you should read each initial letter by their name, and thus you should not read UCLA as [juklə]. Third, acronym refers to a type of abbreviation in which the initial letter of each word in a compound noun forms a new word, and it is pronounced just like a common word, as shown in radar['reida:r], NATO ['neitou], NASA ['næsə]. Fourth, clipping refers to the case in which part of a rather long word is deleted/clipped, as in *Bros.* from *Brothers*, *champ* from *champion*, *Sun.* from *Sunday*, *Jan.* from *January*, and so on. In clipping, the latter part of the word is often deleted, but some other part may also be deleted. Fifth, parts of more than two words are often combined into one, forming blends. For examples, the three words *Belgium*, *the Netherlands*, and *Luxemburg* are combined into *BeneLux*, and *camera recorder* into *camcorder*. As we have seen, in English, five types of abbreviation can be found in shortening rather long words or phrases. Bearing these types in mind, let us consider how loanwords and coined English expressions are abbreviated in Japanese and Korean.

Through contact with English-speaking countries, Korean and Japanese have borrowed and integrated many English words into their language systems. Many words and phrases are used just as in English, but still many of them are 'transformed' according to the phonological and morphological rules of Korean and Japanese. For example, words such as *test*, *disk*, *airport*, *tennis*, *ice*, and so on retain their 'original forms' in representing them in Korean and Japanese. However, in a strict sense, they are not exact representations of the original words. That is, in Korean, the /i/ sound is inserted in words such as *test* [tesiti], *disk* [disiki], and *ice* [aisi], and in Japanese the /u/ sound is inserted, as in *test* [tesuto], *disk* [disuku], and *ice* [aisu] to conform with the Japanese syllable structures. Likewise, many abbreviated words are borrowed and used exactly as in English. For example, in Korean and Japanese words such as *Mr.*, *CIA*, *WHO*, *YMCA*, *DNA*, *radar*, *champ*, and *memo* are used almost exactly the same as in English.

A great number of English words have been borrowed and used as they are

in English. But many of the borrowed are 'transformed' or changed by observing the phonological and morphological rules. In addition, many words have been coined in response to the need of the speakers of Korean and Japanese. Such transformed and coined words are often called 'Konglish' and 'Japlish' words. Furthermore, some Japlish words have been borrowed into Korean and such words become part of Konglish vocabulary. So far, little attention has been paid to formation of Konglish and Japlish words (Kim 2007). In this respect, there's a need to examine Konglish and Japlish words and classify them into some limited types. Among the types, this research will examine types of abbreviations of Konglish and Japlish words in terms of initialism, clipping, blending and acronym.

In discussing abbreviations, it is necessary to examine linguistic motivation which is responsible for the formation of abbreviations. In linguistics, there had been a number of studies of linguistic motivations in the formation, development, changes of words (Zipf 1935, Haiman 1980, 1983, 1985, Croft 1992, among others). In recent years, Radden and Panther (2004, 2005) provide a comprehensive overview of linguistic motivations in terms of the relationship between forms and contents. According to them, contents sometimes determine forms as in the examples of signs, imagic iconicity, many of Chinese characters, onomatopoeic expressions, and so on. On the other hand, abbreviations are examples of where forms determine contents. Among many linguistic motivation, abbreviations are closely related to the motivation of economy. In this respect, there is a need to discuss formation of abbreviations in terms of linguistic motivation.

We have briefly discussed abbreviations in terms of their types and linguistic motivations in the formation. Bearing this in mind, this research will examine types of abbreviations of English loanwords in Japanese and Korean. In doing this research, I used the *Essence Japanese-Korean Dictionary* published by Minjungserim (2001), 2nd edition. The dictionary carries more than 115,000 entries, including not only current Japanese words but also old words, slangs, professional words, and foreign words. Among these, I found about 327 abbreviated English loanwords. The dictionary takes a conservative view in treating words as abbreviations, only entering words which are widely accepted 'standard' words as abbreviations. As is understandable, the standard policy is to transcribe loanwords as exactly as possible to the original words, common people tend to abbreviate rather long

and complex words and phrases as short as possible. In spite of the general tendency, the dictionary carries only 'fixed standard' words, not excluding many instances of words which are currently used in everyday life. In this respect, this research has some limitations in the sense that it does not include abbreviations which are currently used in everyday life.

### 3. Types of Abbreviations of English Words in Japanese and Korean

As we have seen in Section 2, abbreviations in English are classified into five types: (i) consonantal abbreviations, (ii) acronym, (iii) initialism, (iv) clipping, and (v) blending. Based on this classification in mind, let us examine types of abbreviations found in Korean and Japanese.

#### 3.1. Consonantal Abbreviations in Japanese and Korean

Consonantal abbreviations are widely used in Korean and English, being used almost exactly as in English. Borrowed consonantal abbreviations are address terms or measurement units in most cases, as shown in (2).

(2)	English	Korean	Japanese
	Mr.	mistə	misuta-
	cm	sentimetə	senchimeta-
	km	kirometə	kirometa-
	kg	kirogram	kirogramu
	No.	nəmbə	naNba-
	page	peizi	pe-zi-

As shown above, most of the consonantal abbreviations borrowed from English are used almost exactly as in English. Of course, there are some limited changes in pronouncing the words. That is, the final /r/ sound is not pronounced as in British English, and in Japanese, the syllables are transformed into CV(CV) to conform with Japanese syllable structures.

#### 3.2. Acronyms in Korean and Japanese

Acronyms are also found in Korean and Japanese in the case when they are directly borrowed from English. However, the number of acronyms is limited, as in English. Even in English abbreviations in the form of acronym is

limited because they should observe the English syllable structures.

(3) a.	English	Korean	Japanese
	AIDS	eiz i	eizu
	LAN	ræn	ran
	MODEM	modem	modemu
	NAFTA	napta	nahuta
	NASA	nasa	nasa
	NASDAQ	nas i dak	nasudaku
	NATO	nato	nato
	OPEC	opek	opeku
	PROLOG	pi rollog i	puro-ro-gu
	RIMPAC	rimpæk	rimpaku
	ROM	rom	romu
	UNICEF	junisep i	junisepu
	UNESCO	junesko	junesuko
	WASP	waspi	wasupu
b.	laser	leizə	le-za-
	radar/RADAR	reida	re-da-
	scuba	skuba	skuba

As shown in (3), acronyms, just like consonantal abbreviations, borrowed from English are used almost exactly as in English. We can also notice that there are some limited changes in the pronunciation of the acronyms, as discussed above.

### 3.3. Initialism in KE and JE

Initialism is one of the most typical methods of abbreviating long words or phrases. Initialism is prevalent not only in academic writings but also in spoken and written discourse such as television reports and newspapers in everyday life. In Korean and Japanese, a great number of initialisms are directly borrowed from English, and many of them are used almost exactly as in English, as shown in (4).

(4)	English	Korean	Japanese
-----	---------	--------	----------

ABC	eibisi	e-bi-si
CCTV	sisitibi	sisite-bi
EU	iyu	i-yu
GNP	ciempi	zi-enupi
ICBM	aisibiem	aisibiemu
LNG	elenci	eruenzi
MP	empi	emupi
NGO	encio	enzio
OECD	oisidi	oisidi-
PKO	pikeio	pike-o
USA	juesei	yu-esue-

As initialism is one of the most effective ways of abbreviating long words or phrases, it is widely used Japanese English, as shown in (5).

(5) a. Initialism	Japanese	Japanese English
BG	bizi	background, business girl
BS	biesu	bus stop, balance sheet
CATV	si-e-ti-bi	cable TV
CD	si-di-	compact disk, cash dispenser
CF	siehu	commercial film
CM	siemu	commercial message
DK	di-ke-	dining kitchen
DL	di-eru	diesel locomotive
DM	di-emu	direct mail
FA	ehue-	factory automation
FF	ehuehu	front engine, front drive
FR	ehua-ru	front engine, rear drive
HE	eichii-	human engineering
JR	ze-arū	Japan Railways
KK	kabushiki kaisha	Company limited.
LDK	erudi-ke-	living dining and kitchen
LK	eruke-	living kitchen
LL	erueru	language laboratory
LS	eruesu	longshot
MT	emu-tei-	magnetic tape

NG	enuzi-	no good
NHK	enu Eichike-	Nippon Hoso Kyokai
OG	o-zi-	office girl, old girl
OL	o-eru	office lady
OB	o-bi-	old boy
PC	pi-si-	precast concrete
pk	pi-ke-	penalty kick
pt	pi-tei-	physical therapist
SL	esueru	steam locomotive
TB	tei-bi-	Tuberkulose
TPO	teipio-	time, place, occasion
(cf. PB	puraiba-toburando	private brand,
PD	purodyu-sa-	producer)

As shown in (5), Japanese has coined a number of initial words by adopting the method of initialism. In the present data, 57 (i.e., 17.4%) out of the total 327 instances of abbreviations are initialisms. The initial words and the base words illustrated in (5) are not used in English, and thus they are often cited as examples of Japlish vocabulary.

In Korean English, the use of initialism is limited, compared to a rather frequent use of initialism in Japanese English. In Korean, only a limited number of initialisms are found, as shown in (6).

- (6) A/S (<-- After Service) 'after-purchase service, warranty'  
D/C 'Discount' (cf. Direct Current)  
IC 'Interchange' (cf. Integrated circuit)  
CC 'campus couple' (cf. carbon copy)  
OT 'orientation'  
MT 'membership training'  
[cf. PC, TV]  
PB 'private brand'  
PD 'producer'

In Japanese English, some of the initial words cooccur with another nouns. In that case, the initialism functions as a modifying element, as shown in (7).

(7) Initial words	Japanese	Japanese English
G-mark	zi-ma-ku	good design mark
DK group	di-ke- guru-pu	don't know group
D-cock	di-koku	drain cock
EE camera	i-i-kamera	electric eye camera
M size	emusaizu	middle size
QC circle	kyu-si-sa-kuru	quality control circle
SB spot	esubi-spotto	station break spot (ad, news)

As we have seen, in Japanese and Korean, initialisms which are directly borrowed from English are widely used almost exactly as in English. However, Japanese has made a variety of initialisms based on Japanese English, and the number of Japlish initialisms outnumbers Konglish ones.

### 3.4. Clipping in JE and KE

Clipping refers to a process which shortens a polysyllabic word or compound nouns by deleting part of the syllables or components. For example, in English compounds, *phys-ed* came from *physical education*, *poli-sci* from *political science*, *zoo* from *zoological garden*. Likewise in JE and KE, a great number of clipped expressions are found, showing the frequency of 190 (58.1%) out of the total 327 instances of abbreviations. In the Japanese data, we can find a variety of clipped words or phrases, as shown in (8).

(8) clipped words	Japanese	English
dia	daiya	diamond
handkerchi	hankachi, hankechi	handkerchief
infra	inhura	infrastructure
mime	maimu	pantomime
pave	pe-bu[mento]	pavement
perma	pa-ma[nento we-bu]	permanent [wave]
pain	pain[appuru]	pineapple
form	[puratto]ho-mu	platform
pitch	pitchi[ngu]	pitching
posi	pozi[tibu]	positive (film)
pro	puro	production, professional, program, propaganda

regi	rezi[sta-]	register
rehabili	rihabiri	rehabilitation
televi	terebi(zyon)	television
nish	(wa)nisu	varnish
sabo	sabo(ta-zyo)	sabotage

As shown in (8), one or more syllables of polysyllabic English words are clipped, resulting in short forms. Some words such as *sakusu* (sax) from *saxophone*, *pon* (phone) from *telephone*, *maiku* (mic) from *microphone*, *memo* from *memorandum*, *poppu* (pop) from *popular* (music), *purehabu* (prefab) observe the English morphological rules in forming clipped expressions. However, most of the examples illustrated in (8) do not observe the morphological rules of English, resulting in Japlish words.

In Japanese English, part of compound nouns is also deleted, resulting in clipped expressions, as shown in (9).

(9)	clipped words Japanese	(Japanese) English	
a.	ibuningu	ibuningko-to, ibuningudoresu	evening coat, dress
	mataniti-	mataniti- doresu	maternity dress
	maikuro	maikuro basu, maikro firumu	microbus, microfilm
	mini	miniska-to	miniskirt
	missyon	missyon skuru- (mission school)	'Christian school'
	naita-	naitage-mu nighter (game)	night/evening game
	pikku	aisu pikku	ice pick
	randamu	randamu (sampuringu)	random sampling
	rire-	rire-re-su	relay race
	seru	serumo-ta-	cell motor
	saido	saidobure-ki- (side brake)	emergency brake
	su-pa-	su-pa- makettko	supermarket,
			superimpose, superheterodyne
b.	nippa-	uestonippa-	westnipper
	zyoki	diskujzyoki DJ	disk jockey

In (9), in Japanese English, N2 of the compound nouns made of [N1+N2], which is the base of the compound nouns, is frequently clipped, but N1 is

retained as shown in examples in (9a). Only a limited number of compound nouns retain N2 instead of N1, as shown in (9b).

In Korean English, the use of clipped expressions is not that frequent as in Japanese English, but still similar processes of clipping is at work, as in (10).

(10) Clipped words	Korean	English	
a.	anno	ana	'announcer'
	apart	apat i	'apartment' (cf. Apt.)
	ama	ama	'amateur'
	accel	aksel	'accelerator'
	coordi	kodi	'coordinator'
	sign	sain	'signature (autograph)'
	synthe	sindi	'synthesizer'
	classic	clasik	'classical'
	trans	trans i	'transformer'
	porno	por i no	'pornography (--> porn)'
	condo	kondo	'condominium' (<-- a timeshare resort)
	pro	pi ro	'professional'
	mic	maik i	'microphone'
b.	auto	oto	'automatic transmission'
	super	supə	'super-market'
	punc	pnk i	'a punctured/flat [tire]'
	perm	pama	'permanent (wave)' (perm)
	driver	draibə	'screw driver'
	maker	meikə	'famous maker/brand name'
	tele-com	telikom	'tele-communication'
	ero [movie]	ero [mubi]	'erotic movie (soft porn movie)'

As shown in (10), Korean English also has the same process of clipping as found in Japanese English. That is, in (10a), polysyllabic words are clipped into two or three syllable words, abbreviating the long expressions into shorter forms. In (10b), compound nouns are shortened into single words, mostly deleting the base nouns. In (10), words such as 'ama', 'pro', 'classic', 'sign', 'trans', 'mic', 'telecom', 'punc' 'perma' among others were borrowed into Korean from Japanese English, not directly from English. In that respect, these words are also found in Japanese English or Japllish.

### 3.5. Blends in JE and KE

Blends are words which are made from non-morphemic parts of two already existing words, as in *brunch* from *breakfast* and *lunch*, *smog* from *smoke* and *fog*, *aerobicise* from *aerobics* and *exercise* (O'Grady et al. 1996:158). In KE and JE, we can see a number of blends, being made by combining parts of two English words. In particular, Japanese shows a wide variety of blends, as shown in (11). Examination shows that 56 (17.1%) out of the total 327 instances are found In the present data.

(11)	Blends	English Words
a.	ensuto	engine+stop
	hansto	hunger strike
	maikuroke	mic(rophone)+location (JE)
	metaku	meter+taxi
	no-to pasu kon	note(book) personal computer
	omuraisu	omelet+(on) rice (JE)
	re-kido-za-	rake+bulldozer
	tekkusmekkusu	Tex-Mex, Texas+Mexican
	teremetari	television+documentary
	terekura	telephone+club (JE)
	tereshoppu	television shopping
	biniron	vinyl+nylon
	yotteru	yacht+hotel (JE)
b.	hamusando	ham+sandwich
	minchikatsu	mince+cutlet (JE)
	minisu-pa-	mini supermarket
	no-daun	no down payment
	ohuisu-biru	office building
	purahobi-	plastic+hobby (JE)
	poribaketsu	poly(ethylene)+bucket
	resipuro enzin	reciprocating engine
	rokesetto	location+set (JE)
	ruporaita-	reportage +writer
	talentoana	talent announcer (JE)
	ta-minaru depa-to	terminal department store

terebigemu            television game

As shown in (11a), blends in JE are formed from the first part of the modifying noun and the final part of the second (and third) one(s). In (11b), either parts of either the first or second noun is deleted. Some blends are directly borrowed from English, as in the cases of *ekobizinesu* (eco business) from *ecology+business*, *mukku* (mook) from *magazine+book*, *heripo-to* (heliport) from *helicopter+airport*, and *haiteku* (high-tech) from *high + technology*. However, the blends in (11) are created by observing the Japanese morphological rules, resulting in Japlish words.

Korean also has a few blends, as shown in (12). However, the number of blends in Korean is limited, when compared the number with JE blends.

(12) Blends	English Words
otobai	'auto-bicycle (motor cycle)'
bolpen	'ball-point pen'
bihugas	'beef cutlet'
crepas	crayon+pastel' (JE trademark)
elec gita	'electric guitar'
interphone	'intercommunication telephone' (trademark)
masscom	'mass communication'
rimocon	'remote (control)'
remicon	'ready-mixed concrete'
karerais (<--curryrice)	'curry with/on rice'
omurais (<--ome(lette) rice)	'omelette over rice'

(12) illustrates a few examples of blends which are rather widely used in everyday language. However, words such as *karerais*, *omurais*, *bihugas*, *remicon*, *rimocon* and so on came from Japanese English, and they are also found in JE, though the present dictionary does not carry them.

### 3.6 KE Words Borrowed from JE Words

As is well known, Korean borrowed many English words not directly from English but through Japanese. During the Japanese colonial period, Korean borrowed many Japanese English words in the early and mid 20th century. After the normalization of the relationship between Japan and Korea in the

1960s, many JE words, particularly in food names and technology-related terms were introduced through Japanese, rather than directly from English. The examples in (13) illustrate some of the most frequently used words both in Japanese and Korean.

(13)	Abbreviations	JE	KE	English	
(i)	CF	siehu-	siep i	commercial film	
	CM	siemu	siem	commercial message	
	HE	eichii-	eichii-	human engineering	
	NG	enuzi-	enzi	no good	
	PD	purodyu-sa-	p i rodjusə	producer	
(ii) a.	apart	apato	apat i	apartment (cf. Apt.)	
	ama	ama	ama	amateur	
	condo	kondo	kondo	condominium	
	coordi	kodi	kodi	coordinator	
	classic	kurasiku	k i rasik	classical	
	infra	inhura	inp i ra	infrastructure	
	perma	pa-ma	pama	permanent [wave]	
	form	ho-mu	hom	platform	
	pro	puro	p i ro	program, professional	
	televi	terebe	terebe	television	
	nish	nisu	nis i	varnish	
	b.	driver	doraiba-	d i raibə	screw driver'
		mini	mini	mini	miniskirt
punc		pangku	pənk i	a punctured/flat [tire]'	
perm		pama	pama	permanent (wave)' (perm)	
super		su-pa-	supə	super-market	
(iii)	tele-com	terekomu	telekom	tele-communication	
	autobi	otobai	otobai	auto-bicycle (motor cycle)	
	ballpen	borupen	bolpen	ball-point pen	
	beef cut	bihugasu	bihugas i	beef cutlet	
	curryrice	kareraisu	karerais i	curry with/on rice	
	masscom	masukomu	mæs i kom	mass communication	
	rimocon	rimokon	rimokon	remote (control)	
	om(elete) rice	omuraisu	omurais i	omelette over rice	
remicon	remikon	remikon	ready-mixed concrete		

As shown in (13), many abbreviations based on English are shared between Japanese and Korean. For example, in (13a) initial words made in Japanese are directly borrowed, in (13bi) and (13bii) clipped words were also directly borrowed into Korean. Furthermore, as shown in (13iii), blends were also borrowed from JE into KE. The prominent difference between KE and JE is that JE and KE words observe the phonological rules and syllable structures of Japanese and Korean, respectively.

#### 4. Linguistic Motivations and Context of the Use of Abbreviations

So far, we have seen the types of abbreviations in KE and JE. Examination has shown that initialism, clipping, and blending are typical processes of producing abbreviated expressions in English loanwords in Korean and Japanese.

Here, let us first discuss problems of formation of Japlish and Konglish words in abbreviation. As we have seen, there is certain differences between JE and KE words because Korean and Japanese have different phonological inventory and phonological and morphological rules. Such differences can be broadly schematized as in the following:

English Words==> English Phonological/Morphological Rules==>  
 English Abbreviations  
 English Words==> Korean Phonological/Morphological Rules==>KE  
 Abbreviations  
 English Words==> Japanese Phonological/Morphological Rules==>JE  
 Abbreviations

<Figure 1>. Formation of English/KE/JE Abbreviations

As shown in Figure 1, when Japanese and Korean phonological and morphological rules apply to borrowed English words, the abbreviated expressions result in different forms from English words. Because of such differences, English loanwords in Japanese and Korean result in Japlish and Konglish words, respectively. As is well known, Japanese has a small number of phonemes and syllabary but Korean has a much more richer phonological inventory in representing English loanwords.

Second, As has been discussed in Section 2, formation of abbreviations is closely related to the economic motivation. Zipf (1935:29), who first discussed economic motivation in language, claims that "high frequency is the cause of small magnitude." Haiman (1980, 1983, 1985) discussed extensively on economic motivation and iconic motivation, illustrating how such motivations are at work in the formation of words, phrases, and structures. According to Haiman (1980, 1985), linguistic motivation is defined as "a structural resemblance of language to conceived reality." The iconic motivation is at work to make an expression more clearly by making the form bigger and longer, but the economic motivation to make an expression as simple and short as possible, leading to zero or minimal expressions. As has been discussed above, there has been much discussion on linguistic motivations which determines the relationship between form and content in language. When considered in terms of linguistic motivation, abbreviations are a typical example which is closely related to the economic motivation. Bearing this in mind let us examine how the economic motivation applies to the formation of abbreviations in English loanwords in Korean and Japanese.

The economic motivation can be stated like this: "abbreviate as much as possible." In the use of language, expressions tend to be as short as possible. If you are supposed to repeat expressions such as 'acquired immune deficiency syndrome' and 'permanent wave' every time, it would require too much energy and effort for memorizing and pronouncing. Thus, to lessen the burden of memorizing and pronouncing long words or phrases, one try to abbreviate them as short as possible. Thus, short forms such as 'AIDS' and 'perm' are almost always preferred to the long expressions.

If one applies the economic motivation too much, there occurs a problem of confusion and ambiguity. To avoid such a problem, the economy principle should be modified: "abbreviate as much as possible to the extent of avoiding ambiguity". In this respect, words such as 'infrastructure', 'condominium', and 'mass communication' are abbreviated into 'infra', 'condo', and 'mass com', respectively. As another example, in casual Korean speech, 'stainless steel' is frequently abbreviated into 'sten (stain)' contrary to the intended original meaning (stain-less).

Third, although abbreviation is an economic way of referring to an object, event, or state, the use of abbreviation tends to increase opaqueness of the

referent being talked about. In this respect, the use of abbreviation assumes sharedness of the information of the referent with which the abbreviation is associated. When the information about the abbreviation is not sufficient for the addressee to identify the referent, the current speaker should provide enough information about the referent. In this respect, the use of the abbreviation is closely related to the sharedness of the information about the referent being talked about.

## **5. Summary and Conclusions**

So far, we have discussed types of abbreviation in English loanwords in Korean and Japanese in terms of morphology and linguistic motivations. In Korean and Japanese, many borrowed English words are abbreviated, often resulting in Japlish and Konglish words. This research has shown that formation of Konglish and Japlish words in abbreviation results from the application of Japanese and Korean phonological and morphological rules instead of English rules. Because of the differences in phonological inventories and syllable structures, application of the rules results in JE and KE abbreviations.

Second, this research has shown similarities and differences between Korean and English abbreviations. Above all, Japanese has more diverse expressions of abbreviation in initialisms, clipped expressions, and blends. Examination of the present data shows that JE has more abbreviated expressions than in KE. Such a wide use of abbreviations is related to the limited number of phonemes and simple syllable structures (mostly CV(CV)) of Japanese. Korean, on the other hand, has a relatively rich inventory of phonemes and complex syllable structures (CV, CVC, CVCC, etc.), facing fewer problems in representing English words in their original forms.

Third, this study has discussed linguistic motivations responsible for the formation of loanword abbreviations in JE and KE. This research has shown that economic motivation is the principal motivation for use of abbreviations (Zipf 1935, Haiman 1983, 1985, Croft 1990, Radden and Panther 2004). On the contrary, the motivation of distinctiveness/contrastiveness is also at work to decrease the opaqueness resulting from the use of abbreviation.

Fourth, this research has shown that the use of abbreviation assumes sharedness of the information of the referent with which the abbreviation is

associated. When the information about the abbreviation should be sufficient for the use of abbreviation, in establishing common ground for the communication between speakers. In this respect, this study has claimed that the use of the abbreviation is closely related to the sharedness of the information about the referent being talked about.

In sum, this paper has explored types of abbreviations and linguistic motivations for the formation of abbreviations in terms of morphology and linguistic motivations. Based on the examination of abbreviations in JE and KE, this research has shown that initialism, clipping, and blending are the most important morphological processes. Furthermore, this study has proposed that the linguistic motivations of economy and distinctiveness are the most important motivations which govern the formation of abbreviations in JE and KE.

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# Processing Efficiency and Multiple Factors Affecting Case Marking in Korean: A Unified Account

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## Abstract

This paper examines the effects of focus types on case ellipsis in Korean. A number of previous studies have suggested that accusative case markers in Korean and Japanese cannot be dropped when the object they mark is contrastively focused (Masunaga 1988; Yatabe 1999; Ko 2000; D. Lee 2002). Using experimental evidence, we argue against the view that case ellipsis in Korean is sensitive to the distinction between contrastive vs. non-contrastive focus. An alternative analysis is proposed which accounts for the phenomenon of variable case marking in terms of the interaction between the contrastive strength and the discourse accessibility of focused object NPs. By viewing patterns of case ellipsis as the result of balancing between these two forces, such an analysis can correctly predict the gradient pattern of case ellipsis shown by the three types of focused objects tested in the experiment (contrastive replacing focus, contrastive selecting focus and non-contrastive, informational focus), while at the same time offering an explanation for why subtypes of focus exert distinct influences on case ellipsis.

**Keywords:** case marking, case ellipsis, focus types, contrastiveness, accessibility.

## 1. Introduction

Korean has been described as a language in which all subjects and objects are case-marked, though case marking is optional in colloquial speech. An example of ellipsis of case markers is given in (1):

- (1) a. Ecey            Minswu-ka    chinkwu-lul    manna-ss-ta.  
         yesterday    Minsoo-Nom friend-Acc    meet-Pst-Indic  
         ‘Minsoo met his friend yesterday.’

- b. Ecey        Minswu-ka    chinkwu        manna-ss-ta.  
           yesterday Minsoo-Nom friend(-Acc) meet-Pst-Indic  
 ‘Minsoo met his friend yesterday.’

In (1b), the object *chinkwu* ‘friend’ appears without the following accusative case marker *-lul*, which would normally indicate the object of the verb. While (1a) and (1b) are semantically equivalent, i.e., in both cases the actor is *Minswu* and the theme is *chinkwu* ‘friend’, they may differ in contextually determined meanings, pragmatic functions, attitudes of interlocuters.

This paper examines the effects of the focus type of object NPs on the choice between case-marked and case-ellipsed objects in colloquial Korean. In a number of previous studies, the notion of contrastive focus has been claimed to be an important factor affecting case ellipsis in Japanese and Korean (Tsutsui 1984; Masunaga 1988; Ko 2000; D. Lee 2002, among others). For instance, Ko (2000) has suggested that the accusative case marker *-(l)ul* in Korean cannot be dropped when the object it mark is contrastively focused, i.e., when it is interpreted as contrasting with some other object(s) of the same type. More recently, D. Lee (2002) has analyzed the function of particle ellipsis in Japanese as ‘absolute specification’ i.e., referring to an entity without implying the existence of some alternative.

Using evidence from an elicitation experiment, we argue against the view that the naturalness of object case ellipsis in Korean can be explained in terms of the distinction between contrastive and non-contrastive focus. Instead, we show that patterns of object case ellipsis are sensitive to a more fine-grained distinction between focus types. We propose an alternative analysis which accounts for the phenomenon of variable case marking in terms of the interaction between the contrastive strength and the discourse accessibility of focused object NPs.

## 2. Focus, Contrastiveness and Case Ellipsis

Focus can be defined as the portion of the sentence that the speaker assumes is not known to the hearer. Contrastiveness is the state in which there is a set of entities that is mutually known (a contrast set) and one member is chosen from that set to the exclusion of the other members. Contrastive focus represents a subset of the set of contextually or situationally given elements for which the predicate phrase can potentially hold, whereas non-contrastive, informational focus only conveys new, non-presupposed information. These properties of contrastive focus—the availability of a limited set of

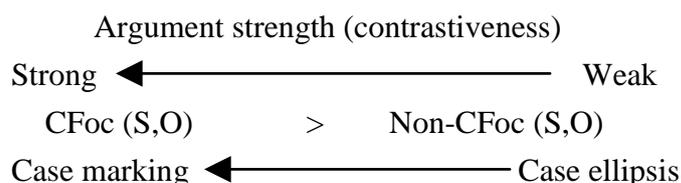
contextually given alternatives and exhaustiveness—contextualize the interpretation of contrastively focused elements and hence make them highly prominent as compared to non-contrastive focus (Choi 1999; Cowles 2003).

In a number of previous studies, the notion of contrastive focus has been claimed to be one of the strongest factors affecting case ellipsis in Japanese and Korean (Tsutsui 1984; Masunaga 1988; Ko 2000; D. Lee 2002, among others). Recently, Lee (2006b) has presented evidence of new factors on case ellipsis in Korean which have been unexplored in previous studies. Her data, drawn from the CallFriend Korean(CFK) corpus (LDC 1996), show that the animacy and definiteness of objects are significantly correlated with the choice of case-marked and unmarked forms of subjects and objects: the relative frequency of unmarked forms over case-marked forms was found to increase with subjects high in animacy and definiteness and objects low in those dimensions, and to decrease with subjects low in animacy and definiteness and objects high in the same dimensions.

Why is it that it is the contrastively focused arguments that tend to resist case ellipsis, and not the ones that are not contrastively focused? In Lee (2006a), we have argued that the effects of focus type and of animacy and definiteness are a reflection of the different functions of case marking. One motivation for case marking the subject or object of a transitive clause is to disambiguate arguments in terms of their function in the clause, especially where these are most likely to be confused (Dixon 1972, 1979; Comrie 1978; van Valin 1992). This function of case marking is known as the ‘distinguishing’ function of case. Another widely attested function of case marking is to mark high-prominent arguments. This function of case marking is referred to as the ‘identifying’ function of case.

De Hoop and Narasimhan (2008) argue that in its identifying function case-marking identifies arguments that are strong or prominent subjects or objects in order to distinguish between more prominent subjects and objects and less prominent ones (CFoc indicates subjects and objects that are contrastively focused, and Non-CFoc the ones that are not contrastively focused):

(2) The identifying function of case



Thus for Korean the identifying function predicts more prominent or stronger focus type, i.e., contrastive focus to be more frequently case-marked than weaker focus type, i.e., non-contrastive focus. Hence the identifying function explains the tendency observed in the experiment that objects left unmarked more frequently when they are low-prominent in the dimension of focus (i.e., non-contrastive focus) than when they are more prominent (i.e., contrastive focus).

Interestingly, the distinguishing function predicts the same pattern of case variation for objects: in the case of objects, the high-prominence ones in animacy and definiteness (e.g. human definite objects) are the ones that are more likely to be confused with subjects and are therefore potential candidates for case-marking on the basis of distinguishability. Thus, overt case should be assigned to objects that are more marked (or more subject-like) and case ellipsis should be more frequently applied to objects that are less prominent and hence are less marked. This prediction is confirmed by the results of our earlier corpus study and experiment reported in Lee (2006b) and Lee (2006a), respectively.

### (3) Distinguishing function

#### a. Argument strength (Animacy/Definiteness)

Strong ←————— Weak  
 Animate, definite S > Inanimate, indefinite S

Case ellipsis ←————— Case marking

#### b. Argument strength (Animacy/Definiteness)

Strong ←————— Weak  
 Animate, definite O > Inanimate, indefinite O

Case marking ←————— Case ellipsis

It must be noted that with respect to *subject* marking, the two explanations make the opposite predictions: the identification function marks the *prominent* or *strong* argument (i.e., contrastive focus), while the distinguishing function marks the argument that is more marked as the grammatical role of subject and hence confusable with objects (i.e., *low-prominence* subjects such as inanimate or indefinite subjects). In this paper, however, we are only concerned with object case ellipsis, leaving the question whether these predictions about subject marking are indeed the case for future research.

Before closing this section, we will discuss an important methodological limitation of our earlier experimental study, which has to do with the design of the experiment. As is well known, there are several different types of contrastive focus (Dik

et al. 1981; Dik 1989), which all assume a contextually or situationally given set of alternatives. But our experiment tested just one subtype of contrastive focus referred to as ‘replacing focus’. This type of contrastive focus explicitly contradicts a stated alternative and is considered the clearest instance of contrastiveness in some pragmatic approaches to contrastiveness (Lambrecht 1994; C. Lee 2007):

- (4) A: Jinmi-ka      computer(-lul)      sa-ss-e.  
      Jinmi-Nom      computer(-Acc)      bought  
      ‘Jinmi bought a computer.’  
      B: Aniya, hywutaephon(-ul)      sa-ss-e.  
      No,      cell phone(-Acc)      bought.  
      ‘No, (she) bought a cell phone.’

The fact that the design of the experiment was not balanced for subtypes of contrastive focus is an important issue because as not all types of contrastive focus may behave in the same way with respect to their formal realization, and hence choice of particular subtype of contrastive focus could have a considerable impact on experimental results.

S. Lee (2006) notes that in certain cases ellipsis of the accusative case marker is favored even though the object it marks is contrastively focused. Consider the following example in (5), taken from Lee (2006a: 333):

- (5) A: Jinmi-ka      computer(-lul)      sa-ss-e,      hywutaephon(-ul)  
      Jinmi-Nom      computer(-Acc)      bought,      cell phone(-Acc)  
      sa-ss-e?  
      bought  
      ‘Did Jinmi buy a computer or a cell phone?’  
      B: computer(-lul) sa-ss-e.  
      ‘(She) bought a computer.’

In B's reply, ‘computer’ is an example of what Dik et al. (1981) refers to as ‘selecting contrastive focus’. Unlike replacing focus, this type of contrastive focus does not involve any explicit contradiction of some other previously stated alternative. As in B's reply in (5), the speaker simply picks out one of the two candidates presented in a disjunctive question uttered by A. What's interesting about the formal expression of selecting focus objects is that they seem to favor case ellipsis over explicit accusative

marking. All Korean speakers we have consulted agree that the version with case-ellipsed selecting focus is more natural than that with the case-marked counterpart, while both versions are grammatically well-formed. One of the goals of the experiment, which will be presented in section 4, will be to examine whether and how two subtypes of contrastive focus (replacing vs. selecting focus) exert distinct influences on variable case marking in Korean.

### **3. Contrastive Strength, Accessibility and Case Ellipsis**

Recall that in its identifying function, case marking identifies strong arguments to distinguish more prominent subjects and objects from less prominent ones. Thus an account of case marking based on argument strength would predict that contrastively focused arguments to be more frequently case-marked than arguments that are not contrastively focused. This account further predicts stronger subtypes of contrastive focus to be more frequently case-marked than weaker ones. Of the two subtypes of contrastive focus tested in this experiment, which one is stronger than the other in terms of contrastiveness? Let us consider main sources of contrastiveness to clarify this question. The most important criteria that have been discussed in the literature in connection with the definition of contrastiveness are listed below:

- (6) a. Membership in a set
  - b. Limited set of alternatives
  - c. Exhaustiveness
  - d. Explicit contradiction of alternatives

The basic requirement for contrastiveness is membership in a set, namely that we can generate a set of alternatives for the focused constituent (Jackendoff 1972; Rooth 1985; Krifka 1993; Vallduví and Vilckuna 1998). Rooth (1985) and Krifka (1993) claim that a focus always evokes a set of alternatives. According to this view there is no contrastive focus to be separated from the ordinary, informational focus. Instead, focus is viewed as uniformly conveying a contrast between the actual element in focus and the potential alternatives. In fact, informational focus may involve membership in a contextually or lexically evoked set, though it does not require the existence of a contrast set. This is illustrated in (7):

(7) A: Did you finish packing what you need?

B: Yes, I packed toothpaste and a hair-drier. But I forgot my toothbrush.

*Toothpaste* and *a hair-drier* can trigger a set of travel items in the context of (7) (due to the previous mention of *packing*), and these items can provide the contrast needed for the focused *toothpaste* and *a hair-drier*.

In many approaches to focus, however, membership in a set is narrowed down to the requirement of a *closed* set. The decisive criterion for contrastiveness is thus, according to Halliday (1967), Chafe (1976) and Rooth (1992), the availability of a limited number of candidates. When the set of possibilities is unlimited (or not contextually restricted), the sentence supplies only new information and fails to be contrastive. Contrastiveness adds the requirement of exhaustiveness (Chafe 1976; Kiss 1998). Thus based on the two decisive criteria for contrastiveness (the limited number of candidates and exhaustiveness), we can define contrastive focus as follows: a contrastively focused constituent refers to alternatives in a contextually limited set where the alternatives are known to the participants of the discourse and identifies one element exclusively out of that set.

A further criterion of contrastiveness is explicit contradiction of some previously stated alternative(s). Halliday (1967) defined contrast to mean something that is contrary to a previously stated or predicted alternative. However, while it is the case that contrastiveness often has this corrective reading as in the case of replacing focus (example (4)), it does not require it, as shown in (5) above.

The criteria of contrastiveness mentioned above lead to the following distinction between foci:

(8) Distinction between foci according to contrastive properties

	Informational focus	Selecting focus	Replacing focus
Membership in a set	✓	✓	✓
Limited set of alternatives	X	✓	✓
Exhaustiveness	X	✓	✓
Explicit contradiction of alternatives	X	X	✓

On the basis of this distinction, we can also derive the following scale of contrastiveness where higher positions correspond to greater contrastive strength:

(9) Scale of contrastive strength:

Replacing focus > Selecting focus > Informational focus

Informational focus is the least clear or weaker instance of contrastiveness because it meets only the most basic requirement for contrastiveness, namely that of membership in a set. In addition to this, selecting focus meets two other criteria for contrastiveness, i.e., the limited number of candidates and exhaustiveness, and replacing focus meets the additional requirement of explicit contradiction of stated alternatives. Thus informational focus can be considered the least clear or weakest instance of contrastiveness, while replacing focus is the strongest instance of contrastiveness having the greatest number of crucial factors of contrastiveness.

The account of case marking based on contrastive strength would predict that of the three subtypes of focused objects, overt case applies most frequently to replacing focus objects and least frequently to informational focus objects, in line with the degree of contrastive strength:

(10) Prediction of contrastive strength:

Overt case-marking  $\longrightarrow$  Case ellipsis  
Replacing focus > Selecting focus > Informational focus

An alternative account of the phenomenon of variable case marking that is conceivable is to focus on the function of *case ellipsis* rather than on the (identifying) function of *case marking*. Why do speakers sometimes omit elements of syntactic structure that are normally obligatory? The short answer to this question is that speakers exploit ellipsis “for reasons of economy or style” (Crystal 1997: 134). The first function, economy of expression is, as the philosopher H.P. Grice observed, one of the fundamental principles underlying how speakers communicate with one another. Speakers strive to be only “as informative as required” and to “avoid unnecessary prolixity” (Grice 1975). From this perspective, ellipsis can be viewed as a mechanism by which speakers achieve more efficient communication (Nariyama 2000). However, ellipsis is not merely a tool for compressing utterances. Speakers often exploit ellipsis in order to convey aspects of the ‘packaging’ of their message. Hawkins (2004) argues that economy of expression is tied to the accessibility or cognitive status of a referent, i.e., the degree of activation of a referent in a mental representation: the more accessible entities are referred to by shorter and more reduced forms.

The accessibility of a referent is affected by three main factors: recency of mention,

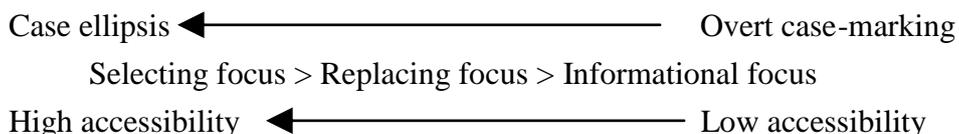
explicit mention, and unity—whether the previous mention of the referent is in the same or previous sentence, or in the same or previous paragraph. Entities that have been recently mentioned are more accessible than those mentioned further back in time (Prince 1981; Ariel 1990). Entities that have been mentioned explicitly are also more accessible than those whose existence is derived by an associative or bridging inference or by a general knowledge frame (Clark and Haviland 1977; Hawkins 1978; Matsui 2000). Entities are more accessible when they are mentioned in the same or previous sentence than when they are not (Arnold 1998; Almor 1999).

Coming back to the problem of the morphosyntactic encoding of focus accessibility, focus is not generally associated with high accessibility of its referent. But it is not the case that the referent of focus is always inaccessible. While focused referents do not consistently encode highly accessible referents, empirical work on the processing of focus shows that both topic and contrastive focus cause an increase in referent accessibility that leads to a preference for pronominal co-reference (Arnold 1998; Almor 1999; Cowles 2003). Cowles (2003) argues that this similarity between topics and contrastive foci with respect to referent accessibility is attributable to their shared property of presupposition of existence. As discussed earlier, in order for a sentence containing a contrastive focus to be felicitous, elements that are within the scope of that focus are presumed to exist prior to the utterance, even when they are not previously given in the discourse. Topics also necessarily presuppose the existence of their referent (Lambrecht 1994). These studies thus provide evidence in favor of the higher accessibility of contrastive focus compared to non-contrastive focus.

Of the two subtypes of contrastive focus tested in the current experiment, selecting focus can be considered most accessible than replacing focus in terms of givenness and unity. The referent of the selecting focus is often explicitly mentioned in a disjunctive question uttered by the previous speaker, whereas replacing focus does not have to take up a previously mentioned referent. Unlike replacing focus, selecting focus does not involve any explicit contradiction of some other previously stated alternative and satisfies the previous speaker's expectation or presupposition that his or her question will be answered with one disjunct (C. Lee 2007), thus leading to more predictable continuation of the discourse. This unity in turn may result in higher activation for the representation of the referent of the selecting focus.

Since more accessible entities are preferentially referred to by shorter or less complex forms, selecting focus objects are expected to be case-ellipsed more frequently than objects that represent other kinds of focus that are less accessible than selecting focus:

(11) Prediction of accessibility:



#### 4. Effects of Contrastive Strength and Accessibility: Experimental Study

##### 4.1. Methods

**Participants:** 98 students from Sungkyunkwan University, ages 20-26, participated in this experiment. The time to complete the experiment was approximately 15-20 minutes. All participants were native speakers of Korean, defined as having learned Korean before age five.

**Procedures:** Each participant was asked to fill in a questionnaire, which contained short conversations between two speakers, providing contexts for the choice of case-marked and case-ellipsed forms of an object. The participants had to choose as spontaneously as possible between the two object forms in the given contexts.

**Conditions and Stimuli:** An example of the stimuli used in the experiment is given below in (12). There were 20 items per condition, 60 items altogether.

(12) Example stimuli

Condition	Stimuli
Contrastive- Replacing focus	A: Jinmi-ka     computer(-lul)   sa-ss-e. Jinmi-Nom   computer(-Acc) bought ‘Jinmi bought a computer.’ B: Aniya, <u>hywutaephon-ul/∅</u> sa-ss-e. No,     cell phone-Acc/∅     bought. ‘No, (she) bought a cell phone.’
Contrastive- Selecting focus	A: Jinmi-ka     computer(-lul)   sa-ss-e,   TV(-lul) Jinmi-Nom   computer(-Acc) bought,   TV(-Acc) sa-ss-e? bought ‘Did Jinmi buy a computer or a TV?’ B: <u>computer-lul/∅</u> sa-ss-e. ‘(She) bought a computer.’

Non-contrastive- Informational focus	A: Ecey        mwuel        sa-ss-e? yesterday what.Acc bought 'What did you buy yesterday?'
	B: hwuka    cwung ilk-u-lyeko <u>chayk-ul/∅</u> sa-ss-e. break during read-to        book-Acc/∅ bought '(I) bought books to read over the break.'

#### 4.2. Results

Figure 1 below shows the relative frequency of case-marked and case- ellipsed objects according to the three types of focus tested. We can see that case-ellipsed forms are most frequent in the selecting focus condition (65%) and least frequent in the replacing focus condition (35%). By contrast, accusative-marked forms are most frequent in the replacing focus condition (65%) and least frequent in the selecting focus condition (35%). These results are significant at the 0.05 level ( $\chi^2=9.66$ ,  $df=2$ ).

(13) Figure 1. Relative frequency of case-marking vs. case ellipsis for three types of focused objects

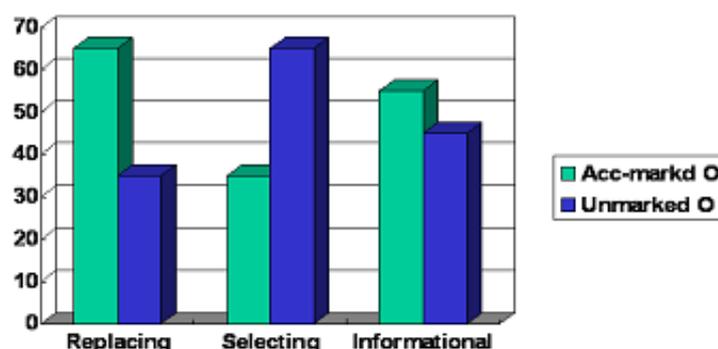
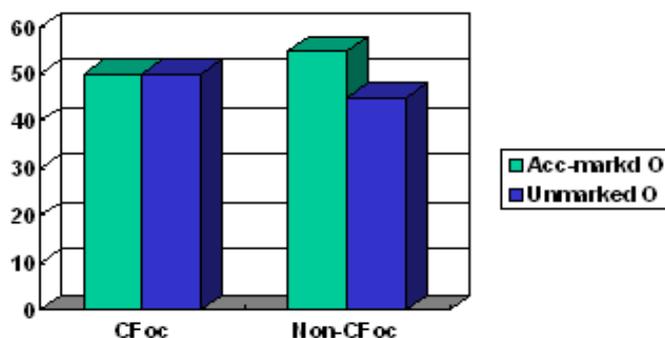


Figure 1 further shows that case-ellipsed forms are more frequent only in the selecting focus condition, while in the other two conditions, accusative-marked forms are more frequent.

When collapsing replacing focus and selecting focus into a single category of contrastive focus and considering how the two object forms are distributed in the two conditions, the following picture emerges. As shown in Figure 2, non-contrastive, informational focus objects show higher rate of overt case marking (55%) than contrastively focused objects (50%). The table further reveals that the rate of case ellipsis for contrastively focused objects (50%) is higher than the rate for informational

focus objects (45%), but the difference is not significant ( $\chi^2=0.5$ ,  $df=2$ ).

(14) Figure 2. Relative frequency of case-marking vs. case ellipsis for contrastively focused objects and informational focus objects



These results show that the dichotomous distinction between contrastive vs. non-contrastive focus is insufficient to account for the gradient pattern of case ellipsis for focused objects. Moreover, the results are not consistent with prior claims regarding the influence of contrastiveness on case ellipsis in Korean, calling into question the categorical generalization offered in previous studies that accusative case markers cannot be dropped when the object they mark is contrastively focused.

### 4.3. Discussion

#### 4.3.1. Accounts based on contrastive strength

As discussed in section 3, according to the account of case marking based on argument strength (e.g., Lee 2006a), the rate of case marking for argument NPs is sensitive to their relative strength in contrastiveness. If this is the case, replacing focus objects should show higher rate of case marking than the other two kinds of focused objects, in line with the degree of contrastive strength: replacing focus > selecting focus > informational focus. The experiment presented in section 4.2 provides support for this account as well as showing some results that it does not predict. Support for this account is found in the highest rate of case marking on replacing focus objects. However, the experiment also showed that informational focus objects are overtly case-marked by the accusative case marker more often than selecting focus objects. This finding is not consistent with the prediction of the account based on contrastive strength and cannot be accounted for in an account that takes into account contrastiveness as a sole factor triggering case marking.

#### 4.3.2. *Accessibility-based accounts*

The highest rate of case ellipsis on selecting focus objects confirms the prediction of an accessibility-based account that rate of case ellipsis is sensitive to the degree of the accessibility of argument NPs. The difference between selecting focus objects and replacing focus objects with respect to the rate of case ellipsis is attributable to the higher accessibility of the referent of selectively focused constituents. While offering a good account of the difference between selecting focus objects and replacing focus objects, the accessibility-based account offers no account of why informational focus objects, which are least accessible among the three subtypes of focused objects tested, show higher rate of case ellipsis than replacing focus objects. This suggests that an account which attempts to explain case variation solely in terms of the accessibility of arguments but does not take their contrastive strength into account would be inadequate.

### **5. The Balance between Form Minimization and Identification of Strong Arguments: A Proposal**

Why should accessibility be such an important factor that results in form minimization. Levinson (2000) and Hawkins (2004) suggest that what underlies form minimization is processing enrichment, that is inferences of various sorts which make use of linguistic or contextual clues. Levinson (2000) discusses an important truth about the exploitation of such clues, namely ‘Inference is cheap’: these inferences take place anyway, and it is inefficient to undertake additional processing of forms and properties when the relevant properties are already inferable contextually or are readily accessible for other reasons. Hawkins (2004) formulates a similar idea as the principle of Minimize Forms (MiF):

- (15) *Minimize Forms* (MiF): The human processor prefers to minimize the formal complexity of each linguistic form F and the number of forms with unique conventionalized property assignments, thereby assigning more properties to fewer forms. These minimizations apply in proportion to the ease with which a given property P can be assigned in processing to a given F. (Hawkins 2004: 38)

The principle of MiF predicts that the processor prefers minimizations in unique form-property pairings. Both formal units and unique property assignments can be minimized by using morphologically simple forms for frequently used elements and for properties that are inferable contextually or through inferences or real-world knowledge.

Pragmatic studies of reference within linguistics and psycholinguistics have identified several factors that facilitate form reductions and processing enrichment. They include (Hawkins 2004: 44-45):

- (16) a. High accessibility for the entities and events in the current discourse
- b. High frequency of property assignments in previous discourse
- c. Default or stereotypic correlation between a property (P1) and a second property P2, permitting P1 to be inferred from P2.
- d. Relevance or enrichment implicatures based on real-world knowledge

Having discussed the general principle of MiF as the ultimate basis of the relevance of accessibility to case ellipsis, we will now address the question of what this principle predicts about the gradient pattern of case ellipsis shown by the three subtypes of focused objects tested. First, let us consider what processing efficiency predicts about the realization of selecting focus. The strong preference of selecting focus for case ellipsis follows naturally from MiF: it is because of the high accessibility of the referent of selecting focus that it has priority for a simpler form, i.e., zero-marking. Although minimizing forms and assigning properties through on-line processing enrichments reduce overall processing effort in many cases, one cannot minimize everything and assign all properties through on-line inference. There has to be a balance in human languages between conventionalized forms and their linguistic properties on the one hand, and on-line inference on the other.

This balance is achieved by the interaction of processing ease and conventionalization or grammaticalization. Hawkins (2004: 41-42) suggests that processing ease and frequency regulate reductions in form, while frequency and preferred expressiveness regulate grammaticalization preferences.

Which properties get priority for unique assignment to forms in the grammar or lexicon is subject to language-specific choices. In the domain of case marking, it is often the case that the semantic proto-typicality and/or discourse prominence of arguments (e.g., topicality or contrastiveness) that have priority for overt case marking (Legendre, Raymond and Smolensky 1993; Næss 2004; de Hoop and Narasimhan 2008). The use of case morphology to mark argument prominence is said to have identificational motivation. As discussed in section 3, replacing focus is the most strongly contrastive focus type. This explains why replacing focus objects show highest rate of overt case marking.

Furthermore, the account of variable case marking proposed here can explain the

role of animacy and definiteness in the formal realization of arguments. As Lee (2006b, 2007, Lee 2008b) has shown, the animacy and definiteness of subjects and objects are significantly correlated with the choice of case-marked and unmarked forms of subjects and objects in the corpus of colloquial Korean and that the case marking patterns for subjects are the mirror image of the patterns for object case marking: the relative frequency of case-ellipsed forms over case-marked forms was found to increase with subjects high in animacy and definiteness and objects low in those dimensions, and to decrease with subjects low in animacy and definiteness and objects high in the same dimensions.

On the basis of these facts, Lee (2008a) argues that animacy/definiteness effects in Korean are distinguishing (between subjects and objects), rather than identificational, and further argues property enrichment based on frequency and the stereotypicality of the associations between properties of an element as the ultimate basis of the distinguishing function of case, following Hawkins (2004): subjects are more frequently high in animacy and definiteness than low in the same dimensions; objects are more frequently have the opposite properties across languages. As a result, these patterns of frequent association between animacy/definiteness and grammatical functions can lead to an inference. For example, low-prominence in animacy and definiteness permits the inference to 'grammatical objecthood', because of its frequent association, and this inference permits zero case-marking by MiF. There is no such inference, however, when an object is high in animacy and definiteness and hence does not match the default correlation between animacy/definiteness and grammatical function. (Zeevat and Jäger 2002; Hawkins 2004). Thus, on this account, the factors of animacy/definiteness and accessibility can be subsumed under a single and simple principle of form minimization, motivated by processing efficiency.

## **6. Conclusions**

We have argued that gradient patterns of case marking and case ellipsis in Korean should be analyzed as a result of balancing between processing efficiency and the need to express argument strength. We have shown that only an approach to case variation that seriously considers both the economy motivation for case ellipsis and the function of case marking is capable of providing a complete view of the effects of focus types on case variation and that in so doing it may also answer the question why subtypes of focus show different preferences for case marking and case ellipsis.

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**On the issue of argument alternation**  
**--with special reference to locative verbs--**

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**Abstract**

This study explores the relation between the lexical semantics of locative verbs and their argument realization. Along with the overview of Pinker's lexical semantics (1989), it proposes the alternatives to his *lexical rules*, assuming the aspectual property as one of syntactically relevant semantic features and children's sensitivity to the distinction of  $\pm$  boundedness (completion / affectedness) as part of innate competence: (1) *Underspecification Hypothesis* for the semantic representation of argument alternation verbs and (2) *Direct linking of aspectual properties to the object position Hypothesis* with emphasis that these aspectual properties directly trigger a linking to the direct object - through the object selection of the two, 'locative' or 'theme' in locative alternations - *without the mediation of lexical rules or thematic hierarchy*.

**key words:** argument alternation, semantic representation of locative verbs, underspecification, aspectual properties, linking rules and thematic hierarchy.

## **1. Problems with locative alternations**

### *1.1. Introduction*

Universal Grammar (UG) can be viewed as part of a theory for explaining Language(L1) acquisition phenomena. An important part of UG in the acquisition of argument structure is to address the interface between semantics and syntax, especially the principled relations between semantic properties of predicators and the surface realization of their arguments. There is a consensus that there are certain aspects of semantics-syntax correspondences which must be driven by underlying principles of UG. One of these principled relations/universal linking rules is a thematic approach

which is based on thematic hierarchy including Universal Theta Assignment Hypothesis (UTAH, Baker 1988).<sup>1</sup>

However, argument structure alternations which seem to violate this universal linking rule of thematic hierarchy have long been identified as a major potential source of acquisition difficulties. Also this raised the problem with the thematic linking principle. The main concern of this study is with two issues related to the acquisition of argument alternation of locative verbs: (1) the problem of linking to the direct object, which violates the universal thematic hierarchy and (2) semantic representation of this alternator / verb. Hence two main goals are on (a) the semantic representation of alternating locative verbs and on (b) how mapping rules work.

### *1.2. Universal Linking theory based on the thematic roles*

In order to capture the observations that in most cases the argument bearing the semantic role of Agent also has the grammatical function of subject, and that the argument bearing semantic role of Theme often has the grammatical function as the direct object of the verb, independent principles are required to establish the links between semantic roles and structurally defined grammatical functions (GFs). And Thematic Hierarchy which determines position of arguments at D structure is proposed to identify principled relations between two.

There are several versions of the Thematic Hierarchy, and that of Larson (1988) is the example used here. Thematic Hierarchy states that theta roles form an ordered list, and that there are rules which link theta roles to positions in syntax. Given the thematic roles a and b, if a > b on the thematic hierarchy, then the element a will be projected at a 'higher' position in phrase structure than the element b, The hierarchy assumed in Larson (1988:382) is as in (1)

#### (1) Thematic Hierarchy.<sup>2</sup>

Agent > Theme > Goal > Obliques (manner, location, time . . .)

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<sup>1</sup> The assumption is that principles of UG correlate thematic structure with syntactic structure in a uniform fashion. See the next page.

<sup>2</sup> There are various versions of thematic hierarchies (Jackendoff 1987, Fillmore 1968). The relevance of this study is limited to the hierarchy between the two, theme and locative/location.

There is another version of thematic approach similar to thematic hierarchy. In order to strengthen the links between thematic relations and syntax, Baker (1988) proposes the Uniformity of Theta Assignment Hypothesis (UTAH), which states that “identical thematic relationships between items are represented by identical structural relationships between those items at D-structure” (Baker 1988:47). Both of these propose a fundamental connection between meaning or thematic relationships and some level of syntactic representation. The approach that utilizes these thematic hierarchies is often called ‘canonical linking rules’, sometimes universal rules in the sense that it can be a device which helps the task of the acquisition of argument structure.

### *1.3. Problems with locative alternations in English*

However, a major sticking problem for the hypothesis, universal linking based on thematic roles has been the existence of seeming counter-examples to any proposed set of linking rules: for example, including ‘double-object dative’ / ‘ground-object locative’ where the argument traditionally analyzed as the ‘theme’ is not expressed as the verb’s first object.

The major concern of this paper is with the issue related with ‘locative alternations’. That is, how certain aspects of verb meanings are realized in syntax.

There have been much researches on the locative alternations (Pinker 1989, Gropen et al. 1991) since part of the problems with these canonical/universal linking rules comes from argument structure alternations, such as locative verb ones which have both ‘locative/location’<sup>3</sup> and ‘theme’ internal argument.

#### *1.3.1. locative verbs in English*

Before going into the main concern, we look over the problems with locative verbs in general briefly, and then deal with the main concern of this paper, problems of argument alternation verbs like *spray* and *load*.

Locative verbs are verbs involving the transfer of some substance or set of object (Theme, content) into a container or onto a surface (locative/goal ground) as illustrated in (2) and (3)

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<sup>3</sup> The terms, locative and location can be used interchangeably but the ‘location’ is usually used to refer to a thematic label.



problem of linking to the direct object, which violates the universal thematic hierarchy and (2) semantic representation of these alternator/verbs.

## 2. Pinker's lexical semantic foundation for argument linking and some problems

Pinker (1989) in his book, the Acquisition of Argument Structure, propose the semantic structure theory of linking and lexical rules for the learnability of locative alternation. According to the semantic structure theory of linking, which is sort of lexicalist view, the linking is predictable from lexical semantics, and in that theory, it is lexical rules that change the semantic structure in order to correspond to the linking. That is, it is necessary to change the semantic structure to be compatible with the structural meaning before the operation of linking rules.

Along with such a proposal that the mechanism by which semantic arguments interface with the syntax(argument projection) is situated *in the lexicon*, or more precisely, in the verbal entries, Pinker makes a distinction of semantic structures between broad-range rules of argument structure, which are universal and inviolate; and narrow-range rules<sup>5</sup> of argument structure, which can be language-specific. This study is concerned with the broad-range rules and their relevance to lexical rules.

### 2.1. Pink's two broad semantic classes and the lexical rules

#### 2.1.1 The two broad semantic classes

Pinker's account of locative verbs is that they fall into two different broad semantic classes, which are as follows (Juff 1996:49) (1) those verbs (like *pour* in (2) above ) that specify *movement* and *manner of movement*, plus properties of the entity(the 'content' verbs or Figure object class). The verbs of this class do *not specify any end state* of the Goal - e.g with *pour*, the thematic core of these verbs are: *X cause Y to go to Z*. (2) those verbs (like *fill* in (3) above) which specify that a surface container or medium undergoes 'a change as a result' of the addition of material to it (the 'container' verb or 'Ground' object class). The verb *fill*, for example, specifies a change

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<sup>5</sup> He proposes these narrow classes of verbs as Constraints on lexical rules that furnish criteria for selecting verbs can solve Baker's paradox in principle. However the details are beyond the scope of this study.

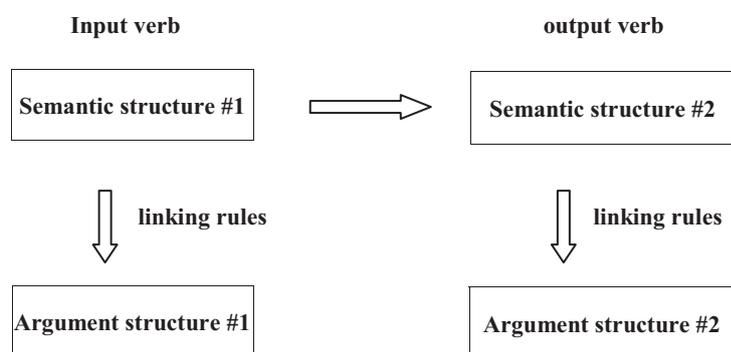
of in the receptacle. The thematic core is described as *X cause Y to go into a state by causing Z to go to Y*.

Pinker suggests that such broad-range rules are indeed part of adult’s competence that is universal linking rule of argument structure. What is worth noting here is the concept of the dichotomy of ‘manner of movement’ verb vs. ‘change of state’ verb in his two broad classes. And it can be seen as parallel with the concept of aspectual properties in event structure ( $\pm$  process vs result state /  $\pm$  telicity, boundedness whatever) and also will be utilized later for an alternative proposal of this study.

### 2.1.2. The Lexical Rules

In Pinker’s model the meaning structures of alternate forms<sup>66)</sup> like *spray/load* will be derived by a ‘lexical rule’ which converts the semantic structure of the content verb to that of a container verb, or container verb to that content verb

**Figure 1** (Pinker 1989:63)



In his view (figure 1), ‘the lexical rule’ acts directly on the verb’s semantic representation, transforming it into a new one. In other words, the new verb has a different meaning from the old one. Semantic structures are mapped onto syntactic argument structures, thanks to linking rules, so when the verb’s meaning changes, its argument structure changes, too, as an automatic consequence according to his universal broad range linking rule. Pinker shows the relations among semantic structures, lexical rules, and linking rules in the following Figure 1.

<sup>66</sup> And, in Pinker’s system a four way classification for locative exists: content [ $\pm$ Alternator] and Container [ $\pm$ Alternator] are presented. Content alternator requires Theme argument, and that verb belongs to the content-oriented verb. Among Pinker’s four way classifications, this study is limited to the issues related to alternators/verbs.

And he provides part of explanations for the predictability of alternation on the basis of the verb meanings like example (6).

- (6) a. spray the plant with water
- b. \*put the plant with water

You can *spray the plant with water* but not *\*put the plant with water*, because “with-locative requires *a specific state change* and *putting* does not specify what it would be (Pinker 1989: 82)”. This explanation could mean that the requirement for the operation of linking rule is the compatibility of verb meanings with structural meanings.

So locative alternation can now be stated simply: It is a rule that takes a verb containing in its semantic structure the core *X causes Y to move into/onto Z* and converts it into a new verb whose semantic structure contains the core *X causes Z to change a state by means of moving Y into/onto it*. Basically such a lexical rule is equivalent to one which change the semantic structures. And then, the operation of two broad range class linking rules like (7) works.

The two broad range class linking rules are summarized in (7)

- (7) a. Manner of movement verbs —> theme-object (structure)
- b. Change of state (result state) verbs —> locative-object (structure)

Pinker (1989) suggests that such broad-range rules are indeed part of adult's competence that is (near) universal linking rule of argument structures and treats alternating verbs as two different words with the same form, that is, polysemy.

In sum, the behavior of locative verbs supports a conception of argument structure alternations as operations that take a verb in one conflation class, serving as the thematic core of one kind of argument structure, and create a new verb, sharing the same root but having an altered semantic representation that places it in a different conflation class serving as the thematic core of a different argument structure (Pinker 1989:81).

However, such an explanation presents a problem for L1 acquisition of semantics-syntax correspondence, the so-called logical problem of language acquisition, which requires a simple model.

## 2.2. *Meaning differences and affected-object-principle*

In locative alternation another frequently discussed concern is with the meaning difference.

### 2.2.1. *Meaning differences*

As mentioned earlier, there are systemic meaning differences in locative alternation along with two Broad Range Rules: For verbs where the items moved in a particular manner, people were more likely to express the moving items (theme) as the object; for verbs where the surface (location) changed state, the location as the object.

Locative verbs are verbs involving the transfer of some substance or set of object (theme/content) into a container or onto a surface (locative/goal). Relevant examples from Pinker (1989: 49) are following.<sup>7</sup>

- (8) a. John *sprayed* paint onto the wall  
b. John *sprayed* the wall with paint.  
(9) a. John *loaded* the truck with hay.  
b. John *loaded* hay onto the truck

Again, there is a meaning difference of *a* and *b*. In the (*a*) sentences the focus is on the 'movement' of the entity denoted by the direct object; in the (*b*) sentences, the focus is on the 'change of state' of the direct object. In addition, the NPs in direct internal argument position (object) in the (*b*) sentences are interpreted as 'wholly affected' (hence sometimes called 'holism') by the action specified by the verb (Gropen et al. 1991a). Here *the wall* and *the truck* in (8*b*) and (9*b*) are understood to be 'completely' sprayed with paint and full of hay, respectively whereas in the (*a*) sentences this is not necessarily so.

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<sup>7</sup> Among Pinker's four way classification, this study is limited to the phenomena of 'pure alternators /verbs' like *spray* and *load*.

### 2.2.2. *The affected-object-principle/linking rules*

There are some studies that this locative alternation is associated with a subtle but consistent semantic difference in terms of ‘affectedness’. In order to capture such an observation that there is a systematic meaning difference in locative alternations, especially affectedness in object position, Gropen et al (1991a) propose the ‘affected-object-principle linking rules which are assumed as universal’ and suggest that these universal linking rules, shared by parent and child would yield the correct syntactic analysis for the child as long as the child could identify which entities counted as ‘affected’.

In addition, “Rappaport and Levin suggest that the holism effect is actually an epiphenomenon of the fact that the verb specifies a ‘change of state’ (Pinker 1989:78)”. Tenny (1994) emphasizes that only the direct arguments can be holistically or completely involved in the event. There is also a study in which they (*load/spray* alternations) do not appear to be characterizable in terms of thematic role labels alone and recommend the use of ‘± affectedness feature’ for this kind of meaning difference of them. But the way to incorporate it with semantic structure of locative verbs is not mentioned.

### 2.3. *Overview and problems with Pinker’s lexical rules*

Some points we have discussed about are as follows.

1. The operation of the lexical rule is the mechanism through which either of two meaning classes is changed to the other meaning class and then universal linking rules with broad range classes are applied automatically.
2. And his lexical rules of changing the meaning structure assume the distinction between the ‘base’ meaning and the ‘derived’ meaning. That is, we can notice that of the two alternates either one belongs to a ‘base’ meaning and the other to a ‘derived’ one through lexical rules. Consequently, we need a burden of distinguishing which is a base verb and which is a derived one.
3. Furthermore, there are studies that alternate verbs of a kind like *spray* and *load* belong to ‘pure’ alternate verbs, which can mean that lexical rules based on the assumption of the distinction of base vs derived ‘can not’ applied (Kim and Kim 2007).

4. Even Two Broad Range Rules which link the two versions of the alternators refer to specific structural properties of the verbs semantic structures, and are thus reminiscent of 'structure-specific' transformations which recent theories of UG has sought to eliminate in favor of more general principles.<sup>8</sup>

5. Furthermore one thing needs to be considered from the language acquisition perspective: The lexical rules proposed by Pinker does not seem to help the task of the acquisition of argument structure of locative verbs because the burden of explaining learnability / argument acquisition seems to be simply transferred to another one of the constraints on the possibility of lexical rule application, which are much complicate knowledge about Narrow Range Classes.<sup>9</sup> It led me to some doubt on Pinker's lexical rule again, since the simpler the model is the better for learnability.

In sum, generalizations are missed with lexical rules used to account for alternation, and therefore the parts of semantic representation relevant to the syntax need to be simpler for explaining the acquisition problem. If this line of arguments is in a right track, reconsideration of the necessity of lexical rules is required to describe and explain locative alternations and their acquisition.

### **3. Developing alternative ideas: What triggers the linking to the direct object?**

Until now, we have considered the universal linking principle and locative alternation on the basis of Pinker's system. The rest of this paper is to pursue the alternative along with the possibility of the elimination of the lexical rule. Before going into the alternative, let's see some assumptions and terms used here. (1) A fundamental assumption is that formal linguistics (UG) has a crucial role to play in describing and explaining aspects of language acquisition.<sup>10</sup> (2) Linking rules are an inherent part of the interface between lexical semantics and syntactic argument structure, and also assumed as one of innate and universal principles which does play an important role in children's acquisition of syntax and semantics of verb. (3) The structure of event/verb

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<sup>8</sup> cf. As mentioned earlier: "so when the verb's meaning changes, its argument structure changes, too, as an automatic consequence according to his universal broad range linking rule". However, the universality of thematic hierarchy seems to be viable for me (Kim and Kim 2007). This issue is beyond the scope.

<sup>9</sup> For narrow range classes which are beyond the scope of this study, refer to Pinker (1989).

<sup>10</sup> Also it assumes Interface levels: at which the grammar interfaces (i.e. connects)with speech and thought systems which lie outside the domain of grammar. Phonetic Form is the level at which the grammar interfaces with articulatory-perceptual (speech) systems, and Semantic representation is the level at which it interfaces with conceptual-intentional (thought) systems.

meaning is assumed: a verb is said to have a structured semantic representation with subevents in recent studies of verb meanings (event structure/decompositional approach). (4) The concept of the dichotomy of 'manner' of movement vs 'change of state'(result state) from his Two Broad Range Rules<sup>11</sup> later will be proposed as parallelism with aspectual classes (process vs result/state). That is, the concept of dichotomy, 'manner' of movement vs 'change of state' shows its close association with aspectual properties. (5) For the term 'aspect', there are studies which show some similarities to the dichotomy (Tobin 1993, Tenny 1994, Hale and Keyser 2002). Tobin (1993)'s idea about aspect as opposed concept of 'process vs result' (distinction) is followed; Tobin in his book (1993) presents verb aspect in English in both lexicon and the grammar, and explain like this:

I think there is a coherent system (or several such systems) in English related to 'aspectuality' which may be found in 'verbs' and other 'parts of speech' representing such system - the subject of this book - is based on the subtle semantic distinction between the opposed concept of 'process and result', which will be viewed as distinctive semantic features (Tobin 1993:4).

Also aspectuality, roughly, refers to the property which makes it possible for a sentence to signal whether or not it pertain to something 'boundedness'(Verkuyl 1993). Tenny(1994) defines aspect as *delimitedness*. "Delimitedness refers to the property of an event's having a distinct, definite and inherent endpoint in time." (Tenny 1994:4). (6) In this question, still a universality of linking rules based on thematic hierarchy is assumed (theme > locative). That is, a 'theme to Object' construction is simple and unmarked in general and the other 'locative to Object' construction is more complicate and marked. This assumption is supported by the children's error with *fill*-type and by cross-linguistic studies by Kim (1999) and by L2 data (Kim and Kim 2007).<sup>12</sup>

### 3.1. Semantic representation of locative alternator/verbs

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<sup>11</sup> His Broad Range Rules could be interpreted that alternation is only possible if the base semantic structure of the verb contains both movement (PATH/MANNER) and change of state(STATE). Any locative verb which alternates must have these two components : PATH/MANNER and STATE. Actually it could be inferred that the logical structure of 'change of state' implies the movement before reaching the result state.

<sup>12</sup> cf. Kim and Kim (2007:456): Markedness Hypothesis of *fill*-type/locative-object construction only.

This study attempts to see the problem of locative alternation as one involving a selection of ‘direct object’ of the two, ‘theme’? or ‘locative’? That is, we can begin with the question : What triggers the linking to direct object? And a related question is what kind of semantic representation is required for argument alternation verbs to be able to describe and explain language acquisition phenomena. The question of the latter is dealt with first.

### *3.1.1. The importance of the lexicon in the linking rules*

In spite of the importance of the lexicon in UG, until recently only a modest amount research has been devoted to the regularities in the lexicon. This has been due partly to the lack of an explicit theory of the lexicon, and partly to the perception that the lexicon is still ‘idiosyncratic’.

Chomsky(1981) also left unanswered the question of how L1 learners know about the subcategorization properties of words, that is, the acquisition of subcategorization properties of words. Also what kind of learning mechanism guides the L1 learners to knowledge of the subcategorial features of a lexical item has been left unclear.

So we must return to the basic question of what the systematic correspondences between syntactic structure and semantic interpretation in the domain of predicate-argument relationships actually are. The solution to that question suggests the need to re-evaluate the status of the *lexicon* within general theories of linking, which are an inherent part of interface between lexical semantics and syntactic argument structure. That is, in order to explain mapping of arguments bearing certain semantic roles to certain grammatical function, linguists have been forced to appeal to the semantics. especially verb semantics including subcategorization of GB, more precisely, the semantic representation of alternators/verbs here. One key subcomponent of UG is the lexicon, since it is there that the meanings that determine syntactic structure are stored.<sup>13</sup> The acquisition of the subcategory requirements of locative verbs in English might provides an interesting case study to illustrate the nature of native speakers’ knowledge of argument structure/the interaction between lexical semantics and syntax.

### *3.1.2. A close association between verb meanings (argument structure) and aspect*

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<sup>13</sup> It also assumes that the acquisition of lexicon may be modular.

There seems to be a close relation between verb meanings and aspect, as can be seen in English verb classifications: states, activities, accomplishments, and achievements. It is well-known that these four classifications of English verbs are based on aspectual properties of Vendler's theory(1967).

Indeed there are many studies which support the close association of aspectual concept and argument linking of verbs also ( Dowty 1991, Tenny 1994, Ramchand 1998). Dowty (1991:588) argues that both *spray* and *load* entails an 'incremental theme' defined, by him, as "an NP that can 'determine the aspect' of the sentence".<sup>14</sup> Tenny (1994) in his book, *Aspectual Roles and the Syntax-Semantics Interface* also shows some general aspectual constraints on the argument structure/linking of verbs. Ramchand's study (1998) also focuses on the role of aspectual semantics in the syntactic realization of arguments. From these, we can draw that aspectual properties are crucial criteria for verb classifications and helpful for understanding the semantic structure of predicates and their argument structure too. Tenny (1994) argues that linking(the interface between semantics of verbs and syntax) are regulated by aspectual properties, delimitedness in particular.

All of these studies bring my attention to recent recurrent concerns with the relationship between the structure of verb meanings (often called event structures) and syntax.

### 3.1.3. *The notion of affectedness and aspect: the aspectual notion of affectedness*

As mentioned earlier, there are some studies which show the close association of the notion of the affectedness with aspect too (Butt and Geuder 1998, Ranchand 1998). Butt and Geuder (1998) states that in fact, the affectedness effect encountered in argument alternation<sup>15</sup> is reminiscent of 'the aspectual notion of affectedness'. They consider *affectedness* reading in causative alternations as arising out of a particular constellation of argument in an argument structure. Besides there are many approaches which explore the interaction between aspectual properties and syntactic argument realization (Tenny 1994, Vurkyul 1993). Ramchand (1998) shows that the feature of 'affectedness' plays an important role in the description of different transitive/causative types in various languages. So it seems to be indisputable that there is a relationship

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<sup>14</sup> The emphasis is mine.

<sup>15</sup> In their study, argument alternation refers to specifically causative one.

between the type of complex event and the nature of the argument projection, and the notion of affectedness is now generally acknowledged to be intimately associated with the aspectual semantics of a clause.

Furthermore, recently within minimalism framework Borer (2008) with her two volumes treats the aspect as the key concept of approaching to the syntax-semantics interface.<sup>16)</sup> Pinker (1989:78) also mentions that “Rappaport and Levin suggest that the holism effect is actually an epiphenomenon of the fact that the verb specifies a *change of state*.”<sup>17)</sup> There is also a study in which they (*load/spray* alternations) do not appear to be characterizable in terms of thematic role labels alone and recommend the use of  $\pm$  *affectedness* feature for this kind of meaning difference, but not details (Gropen et al.1991b).

So if the notions such as 'affectedness' can be reconstructed directly in semantic terms and not via the mediation of thematic roles, and if there is indeed a strong interplay between aspect and the arguments of a predicate, the question then arises : whether the affected meanings come from 'lexical verb meanings' or from 'constructional meanings', that is, from the object position ?

### 3.2. *What triggers the linking to the direct object?*<sup>18)</sup>

Along with these backgrounds which we have discussed through the review of literature and some insights which we get from discussions of Pinker's system, the distinction between manner verbs and change of state verbs in Two Broad Range Classes is, in a sense, synonymous to the aspectual dichotomy, movement(process) vs. result (state of change). And from the criticism of his lexical rules, the following two ideas are proposed: (1) *Underspecification hypothesis* of argument alternation verbs and (2) *direct linking* (of aspectual properties) *to the object position hypothesis*. The semantic representation for the alternating locative verbs is underspecified<sup>19)</sup> with respect to aspectual properties such as  $\pm$  boundedness (completion or affectedness) which is going to be called 'Underspecification hypothesis of argument alternation verbs'. And these aspectual properties are realized through direct linking to the *object*

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<sup>16)</sup> For details, refer to her two volumes(2005) with subtitles : (1) *In name only* (2) *the normal course of events*.

<sup>17)</sup> The emphasis is mine.

<sup>18)</sup> We assume some internal resources contributing to the acquisition as well as primary data (input), such as UG.

<sup>19)</sup> Specification: the set of meaning features used to describe the properties of an item/word.

*position*,<sup>20</sup> which is one of mechanisms for realizing meanings, which can mean *without the mediation of lexical rules or thematic hierarchy*.

And *Aspectual properties* triggers a linking to the direct object, an object selection of the two, *locative* or *theme* in locative alternations. Since we consider the aspectual property as one of syntactically relevant semantic features, and the distinction which children shows the sensitivity to as part of innate competence. This proposal, 'direct linking to object position; hypothesis is plausible.

This proposal is open to various interpretations such as (1) it can mean that aspectual meaning,  $\pm$  boundedness, here the notion of affectedness/ completion, is realized by direct linking to the syntactic object position. (2) The linking is regulated by aspectual properties, especially delimitedness. And (3) without the necessity of Pinker's lexical rule, the operation of linking to the direct object can work.

### 3.3. *Summary and discussions*

This study began with the concern with simply assuming the association of the notion of affectedness to the syntactic position of object, but there were many studies on the close association between argument structures and aspect already. On the basis of some of them this study focused on the followings. Casting doubt on Pinker's requirement of lexical rule application for a new semantic structure before the operation of linking rules, the alternatives to Pinker's system is proposed: (1) elimination of lexical rules and (2) the relationship between affectedness and direct object position, that is, direct linking to Object in the interface. For details and precise formalization, further studies are needed.

The most important points of main ideas which I try to make in this paper are as follows. (1) Argument alternations can be considered as one of mechanisms for expressing *aspectual properties*, here involving  $\pm$  end state/result state which are equivalent to the semantic conflation classes of Pinker's, and hence they can replace Pinker's two broad classes, which showed psychological reality in children (Gropen et al. 1991). (2) Object selection itself without a mediation of lexical rules/ thematic roles can be also one of candidate mechanisms for meaning realization - here again, aspectual

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<sup>20</sup> Actually the selection of Object argument first; and then linking to the position of Object next might be right procedures. But also it might be simultaneous procedures I think.

meanings/features realization. (3) From this a quite interesting result might come that it could provide an explanation/a reason *why* we alternate argument structures, of which the answer can be for expressing different aspectual meanings/features. (4) For the lexical semantics which must describe the polysemy of verbs taking multiple forms, it can also suggest the idea of underspecification with respect to aspectual properties, leaving exact formalizations for this idea lexical semantists' job with some empirical data..

Along with Pustejovsky's guide (1995), this can be summarized with simple questions and answers. Pustejovsky emphasizes the following important questions for lexicon. (1) The question is whether it is possible to identify the semantic discriminants leading to the distinct behavior of the locative alternating verbs. (2) Perhaps even more interesting is how the polysemy of those verbs taking multiple forms can be represented lexically. The answer to (1) might be that a semantic discriminant leading to the distinct behavior of the locative verbs here is aspectual property, and the answer to (2) might be the way of underspecification with respect to aspectual differences. Furthermore, 'why alternate?' The aspectual differences are realized as direct linking to Object position through object selection, and this can be the very reason for alternating argument structures.

In sum, we could provide answers to the following questions:

1. 'What' allows their alternation? Aspectual properties does.
2. 'Why' do we alternate argument structure? In order to realize different meanings of binary nature of aspect ( $\pm$  endstate).
3. 'How' do we alternate argument structure? By direct linking to the object position from the binary concept of aspectuality, not via lexical rules or thematic roles.

#### **4. Advantages and implications for further studies**

One advantage of this idea might be that direct object selection could offer a much simplified theory of locative alternations and their acquisition.

##### *4.1. Advantages*

1. It could offer a simple linking rule for locative alternate verbs keeping a standard linking rule (based on thematic hierarchy) universal still.
2. It could eliminate arbitrary lexical rules for changing the semantic structures
3. It also provides the reason 'why' argument alternations exist.: to express either one of aspectual meanings, movement vs change of state.
4. There is no need to explain 'holism effect' separately
5. The semantic representation of locative verb is established (fixed), which is simple, and flexible/opened and hence without the stage of lexical rule application. That is, the elimination of lexical rules allow us to get a simpler model.
6. It can provide an explanation for the reason why we alternate the argument structure.

#### *4.2. Implications and discussions*

It is extremely difficult to provide an adequate account of the representation and acquisition of the knowledge and intuitions speakers have about semantics-syntax correspondences. There is still disagreement about what the best approach to the problem of linking is.

There is also continuing disagreement among linguists as to whether the phenomena discussed are to be dealt with in the lexicon or syntax, and whether morphology is subject to the same constraints as syntax. Clearly, these long-standing debates will continue, and even though they are central to the problems, can not be resolved here. However, I have tried steer a path through the different approaches and capture both the richness in meaning and the constraints on lexical representations. It is the view of the lexicon as an autonomous model of grammar that gives rise to the general debate of lexical vs. constructional analysis of various linguistic phenomena. While it seems more and more clear from this recent work that 'lexical semantics' as traditionally conceived must be located constructionally, I think it does more than shift the division of labour from *lexicon* to *syntax*. This work highlights in a particularly vivid way the impossibility of making a principled distinction between lexical-internal relations and lexical-external relations. It is no longer clear that we can find linguistically relevant features which always appear together lexeme internally, and with modes of combination which are different from the syntactic one. It suggests that the division between lexicon and syntax is not universally definable.

From the acquisition perspective, children might have the distinction of aspectual properties, for example, the dichotomy of whether it indicate *endstate* or not. They might notice the affectedness effect from the syntactic position, utilizing the linking rules in general and express the concept in English. That might lead them to the acquisition of the argument alternation.

Finally concerning with the status of thematic roles in linguistic theory, it has a positive role in mapping between syntax and semantics since it points to the linguistic distinctions which do have to be made in any theory of mapping between syntax and semantics.

For further studies to be done, a clear characterization of the movement/ process vs. change of state (result state/affectedness) dichotomy is fundamental for the analysis of locative verbs, and the formalization of it might be the job of the lexical semantists to be done.

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# On the Argument Structure of Ditransitive Verbs in Japanese\*

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## Abstract

In this article, ditransitive verbs are argued to project an applicative projection different from those applicative projections discussed by Pylkkänen (2000, 2008). It is shown that the proposed applicative projection provides a dative position that could give rise to underlying accusative-dative order. The presence of this applicative projection is justified by looking at the case-marking patterns of nominalized clauses involving ditransitive idioms. It is further argued that this dative position does not constitute a  $\theta$ -marking domain, so that only idiomatic dative arguments can occur to the right of accusative arguments.

**Keywords:** applicative projection, ditransitive verb, Japanese, dative-V idiom, accusative-V idiom.

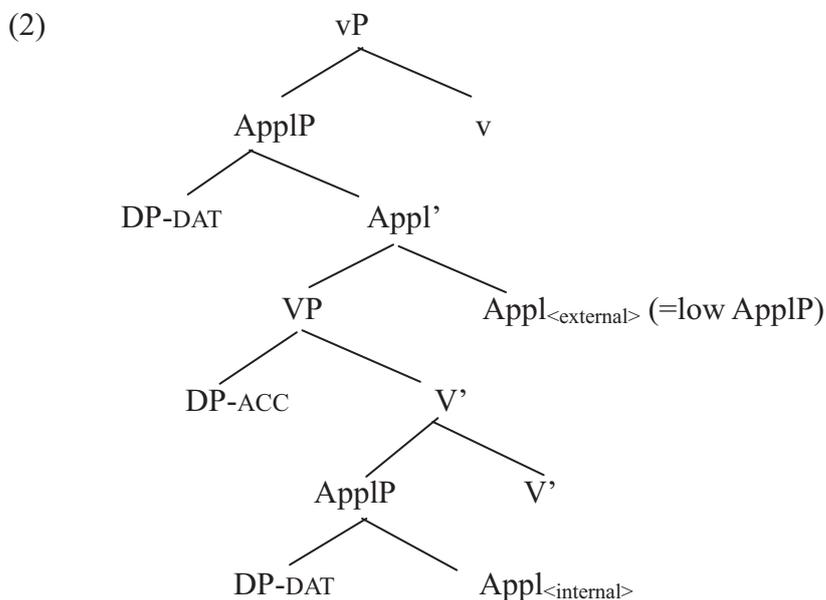
## 1. Introduction

In recent years, a number of researchers (e.g. Marantz 1993, Pylkkänen 2000, 2008, McGinnis 2001) have proposed that a certain type of non-core dative argument should be licensed by an applicative projection. In particular, Pylkkänen (2000, 2008) argues for two types of applicative projections that license dative arguments—the high ApplP, which relates an argument and an event, and the low ApplP, which relates two arguments.

- (1) a. [VoiceP Voice [AppIP DP [AppI' Appl VP ]]] (high Applicative)  
b. [VP V [AppIP DP [AppI' Appl DP ]]] (low Applicative)

Pylkkänen suggests that in Japanese, the dative arguments of ditransitive verbs show the low applicative properties, hence should be licensed in the low ApplP. In this paper, I

suggest the presence of yet another ApplP position that licenses dative arguments—which I refer to as the “internal” ApplP.



According to Pylkkänen (2000, 2008), the low ApplP (which is referred to as the external ApplP in this paper) takes an indirect object as its specifier, and a direct object as its complement.<sup>1</sup> As depicted in (2), we propose that ditransitive verbs have an additional dative position (the internal ApplP) so that they project applicative projections in two different constituent positions.

In Pylkkänen’s system, the base order of ditransitive predicates should, other things being equal, be “dative-accusative”, rather than “accusative-dative”. In this paper, we will show that the internal ApplP allows some dative arguments to be base-generated to the right of direct objects. It is also suggested that ordinary dative arguments cannot occur in the internal ApplP, because this position does not constitute a  $\theta$ -marking domain. The presence of the internal ApplP is empirically justified by looking at the case-marking patterns of nominalized clauses involving dative-V and accusative-V idioms which have the fixed order of two internal arguments.

## 2. Ditransitive Idioms

Let us start by discussing some of the prominent properties of ditransitive idioms discussed by Miyagawa and Tsujioka (2004). The examples in (3) represent dative-V idioms which have the fixed accusative-dative order.

- (3) a. *Taroo-wa omotta koto-o kuti-ni das-u.*  
 Taro-TOP thought thing-ACC mouth-DAT let.out-PRES  
 “Taro says what’s on his mind.”
- b. *Taroo-wa sainoo-o hana-ni kakete-i-ru.*  
 Taro-TOP talent-ACC nose-DAT hanging-be-PRES  
 “Taro always boasts of his talent.”
- c. *Taroo-wa kuruma-o te-ni ire-ta.*  
 Taro-TOP car-ACC hand-DAT put.in-PAST  
 “Taro acquired a car.”
- d. *Taroo-wa itumo zibun-no sippai-o tana-ni age-ru.*  
 Taro-TOP always self-GEN mistake-ACC shelf-DAT raise-PRES  
 “Taro always shuts his eyes to his own mistakes.”

These idioms have the idiomatic sequence of a dative phrase plus verb, and have the fixed order of accusative-dative. Thus, switching the order of arguments results in unacceptability.

- (4) a. ???*Taroo-wa kuti-ni omotta koto-o das-u.*  
 Taro-TOP mouth-DAT thought thing-ACC let.out-PRES
- b. \**Taroo-wa hana-ni sainoo-o kakete-i-ru.*  
 Taro-TOP nose-DAT talent-ACC hanging-be-PRES
- c. \**Taroo-wa te-ni kuruma-o ire-ta.*  
 Taro-TOP hand-DAT car-ACC put.in-PAST
- d. \**Taroo-wa itumo tana-ni zibun-no sippai-o age-ru.*  
 Taro-TOP always shelf-DAT self-GEN mistake-ACC raise-PRES

On the other hand, Miyagawa and Tsujioka observe that Japanese also has ditransitive idioms with the accusative-dative order.

- (5) a. *Taroo-wa hito-no koto-ni kuti-o das-u.*  
 Taro-TOP person-GEN business-DAT mouth-ACC let.out-PRES  
 “Taro cuts in on someone else’s business.”
- b. *Taroo-wa sono-giron-ni hakusya-o kake-ta.*  
 Taro-TOP that-controversy-DAT spur-ACC hang-PAST  
 “Taro added fresh fuel to the controversy.”
- c. *Taroo-wa genkoo-ni te-o ire-ta.*  
 Taro-TOP draft-DAT hand-ACC put.in-PAST  
 ‘Taro revised the draft.’

- d. *Taroo-wa maajan-ni timiti-o age-ta.*  
 Taro-TOP mahjong-DAT blood-ACC raise-PAST  
 “Taro was obsessed with mahjong.”

They are accusative-V idioms, in that the sequence of an accusative phrase and the verb gives rise to an idiomatic meaning. Since the accusative-V idioms have the fixed order of dative-accusative, the two arguments cannot be reversed while retaining the idiomatic meaning, as seen in (6).

- (6) a. \**Taroo-wa kuti-o hito-no koto-ni das-u.*  
 Taro-TOP mouth-ACC person-GEN business-DAT let.out-PRES  
 b. \**Taroo-wa hakusya-o sono-giron-ni kake-ta.*  
 Taro-TOP spur-ACC that-controversy-DAT hang-PAST  
 c. \**Taroo-wa te-o genkoo-ni ire-ta.*  
 Taro-TOP hand-ACC draft-DAT put.in-PAST  
 d. \**Taroo-wa timiti-o maajan-ni age-ta.*  
 Taro-TOP blood-ACC mahjong-DAT raise-PAST

On the provision that rigid idioms are interpretable when reflecting the base ordering of arguments (see Larson 1988, Harley 2002, and others), Miyagawa and Tsujioka (2004) claim that ditransitive verbs can have both the dative-accusative and accusative-dative orders by base-generation. More specifically, they propose that the arguments of ditransitive verbs can be arranged in the following way.

- (7) a. high goal (possessor) .... low goal (locative) .... theme  
 b. high goal (possessor) ....theme ..... low goal (locative)

Notably, they suggest, on the basis of dative-V and accusative-V idioms, that a certain type of dative argument—i.e. low goal (locative)—can be base-generated to the right of an accusative argument.

In effect, the idiom facts show that dative arguments could be generated in the position following accusative ones, but in this paper, we argue that the facts of dative-V idioms point to the different conclusion that an applicative projection that could yield the accusative-dative order via base-generation can only be filled by an idiomatic argument.

To begin with, observe one notable property of the dative-V and accusative-V idioms that is not discussed by Miyagawa and Tsujioka. This has to do with the fact that a particle can be optionally inserted into an idiom sequence, as seen in (8).

- (8) a. *Taroo-wa ittan kuruma-o te-ni(-wa) ire-ta.*  
 Taro-TOP once car-ACC hand-DAT-TOP put.in-PAST  
 ‘Taro once acquired a car.’
- b. *Taroo-wa mada genko-ni te-o/te-mo irete-i-na-i.*  
 Taro-TOP yet draft-DAT hand-ACC/hand-also putting.in-be-NEG-PRES  
 ‘Taro has not (also) had the draft revised yet.’

In contrast, completely frozen idioms—i.e. lexicalized idioms—do not allow the optional occurrence of a particle, as seen in (9) (see Kishimoto 2005, 2006).

- (9) *nuka-ni(\*-mo) kugi* (bran-DAT-also nail) ‘of no use’,  
*noren-ni(\*-wa) udeosi* (shop.curtain-DAT-TOP arm.push) ‘useless’,  
*hi-ni(\*-wa) abura-o sosogu* (fire-DAT-TOP oil-ACC pour) ‘make ... worse’,  
*ude-ni(-\*mo) yori-o kakeru* (arm-DAT-also twist-ACC hang) ‘do skillfully’,  
*tume-ni(\*-wa) hi-o tomosu* (nai-DAT-TOP fire-ACC light) ‘live a poor and  
 miserable life’

The data show that the dative-V and accusative-V idioms are ‘constructional idioms’, which are interpreted with reference to particular syntactic frames.

With this fact in mind, let us discuss the question of whether an applicative projection can give rise to base-generated accusative-dative order. To answer this question, we will look at nominalized clauses formed by the nominalizer *kata*. In the case of accusative-V idioms, all the arguments in the nominalized clause are marked with genitive case.

- (10) *genkoo-e-no/\*-ni te-no ire-kata*  
 draft-to-GEN/-DAT hand-GEN put.in-way  
 ‘the way of revising a draft’

In the nominal clause, dative marking *ni* must be changed to *e-no* ‘to-GEN’, which contains genitive marking. When the dative argument is marked with verbal dative case, unacceptability results. This is naturally expected, since in Japanese, arguments appearing in nominalized clauses are generally marked with genitive case, regardless of their grammatical relations. Interestingly, however, when dative-V idioms are nominalized, the dative arguments retain their verbal marking.

- (11) *kuruma-no te-ni/\*-e-no ire-kata*  
 car-GEN hand-DAT/-to-GEN put.in-way  
 ‘the way of acquiring a car’

As seen in (11), the dative arguments of dative-V idioms must retain their verbal dative marking even under nominalization, and that if nominal marking is assigned instead, unacceptability results. The facts suggest that the dative phrases in dative-V and accusative-V idioms occupy distinct syntactic positions.

Pylkkänen (2000, 2008) posits two types of applicative projection that are claimed to host certain non-core indirect objects. The high ApplP relates an argument and an event. The low ApplP relates two arguments, and specifies a possessive relation. According to Pylkkänen, the dative argument of Japanese gapless adversity passive like (12a) represents a case involving the high ApplP. The low ApplP is associated with a possessor argument in ditransitive constructions like (12b).

- (12) a. *Taroo-ga ame-ni hur-are-ta.*  
 Taro-NOM rain-DAT fall-PASS-PAST  
 ‘Taro got rained on.’ (High Applicative)
- b. *Taroo-ga kodomo-ni hon-o atae-ta.*  
 Taro-NOM child-DAT book-ACC give-PAST  
 ‘Taro gave children sweets.’ (Low Applicative)

When these examples are nominalized, the following patterns emerge.

- (13) a. *Taroo-no ame-no/\*-ni hur-are-kata*  
 Taro-GEN rain-GEN/-DAT fall-PASS-way  
 ‘The way of Taro’s getting rained on’
- b. *Taroo-no kodomo-e-no/\*-ni hon-no atae-kata*  
 Taro-NOM child-to-GEN/-DAT book-GEN give-way  
 ‘The way of Taro’s giving children sweets.’

In both nominalized clauses, the erstwhile dative argument receives nominal marking, which crucially differs from the verbal dative marking assigned to the dative arguments of dative-V idioms. It can be concluded then that the dative argument in the dative-V idiom occupies a dative position that differs from those dative phrases associated with Pylkkänen’s high and low applicatives.

Note that the retention of dative case in the nominalized clause is not due to the fact that the dative argument forms part of an idiom. Japanese has “dative-accusative-V” idioms, where both internal arguments constitute part of idioms.

- (14) a. *Taroo-wa kusai mono-ni huta-o si-na-i.*  
 Taro-TOP sinky thing-DAT lid-ACC do-NEG-PRES  
 ‘Taro does not cover up unfavorable things.’

- b. \**Taroo-wa huta-o kusai mono-ni si-na-i.*  
 Taro-TOP lid-ACC stinky thing-DAT do-NEG-PRES

As shown in (14), the idiom has underlying dative-accusative-V order, since the switching of the two internal arguments results in unacceptability. With this idiom, particles can be optionally inserted into the idiom constituents, as shown in (15).

- (15) a. *Taroo-wa kusai mono-ni-wa huta-o si-na-i (rasii).*  
 Taro-TOP stinky thing-DAT-TOP lid-ACC do-NEG-PRES seem  
 ‘(It seems that) Taro does not cover up unfavorable things.’
- b. *Taroo-wa kusai mono-ni huta-mo si-na-i (rasii).*  
 Taro-TOP stinky thing-DAT lid-also do-NEG-PRES seem  
 ‘(It seems that) Taro also does not cover up unfavorable things.’

This shows that the idiom belongs to the type of constructional idiom, just like dative-V and accusative-V idioms. If (16a) is nominalized, verbal dative marking is not retained.

- (16) *kusai mono-e-no/\*-ni huta-no si-kata*  
 stinky thing-to-GEN/-DAT lid-GEN do-way  
 ‘the way of covering up unfavorable things’

The fact indicates that only the idiomatic dative expression of a dative-V idiom can occupy a position—i.e. the internal AppIP—where verbal marking is assigned even under *kata*-nominalization, and further, that dative arguments positioned higher than direct objects are located in structural positions where nominal marking is allocated.

That some arguments receive verbal marking in nominalized clauses is not surprising if there is a verbal head that licenses verbal marking. In fact, the example in (17) shows that in the *kata*-nominalization, the lower verb is not turned into a nominal.

- (17) *sensei-(ni-totte)-no ronbun-no o-kaki-ni-nari-kata*  
 teacher-for-GEN paper-GEN write-SUBJ.HON-way  
 ‘the teacher’s way of writing a paper’

In (17), *kaku* ‘write’ receives verbal honorific marking *o-...ni-naru*. This fact indicates that *kaku* is construed as belonging to the verb class, retaining its original categorical classification even under nominalization. The claim regarding the categorical status of the verb embedded under *kata* ‘way’ gains further plausibility from the fact that some deverbal nominals take adverbial forms morphologically, as in (18).

- (18) *sensei-no hanasi*

teacher-GEN talk  
 ‘the teacher’s talk’.

Importantly, this type of expression does not count as a verb categorically. Hence, it is not possible to add the verbal honorific marker *o-...ni-naru*, and for the purpose of subject honorification, the nominal honorific marker *o-* must be used, as seen in (19).

(19) *sensei-no o-hanasi/\*o-hanasi-ni-nari*  
 teacher-GEN NOML.HON-talk/talk-VERBL.HON  
 ‘the teacher’s talk’

It is now easy to see that the *kake*-nominal at issue contains a verbal head that licenses verbal marking, despite the fact that it is a nominalized expression. It is plausible to state that in the nominalized clause at issue, verbal marking is licensed by a verbal head with [+V] located in V in the underlying constituent structure, while others—located outside the c-command domain of the verbal head—is licensed by the nominal head *niku-sa* or *yasu-sa* with [+N], as illustrated in (20).

(20) [... DP-GEN ...DP/PP-e-GEN ...DP-GEN .. [VP [AppIP DP-DAT ] V ] -kata ]  
 └──────────────────────────────────┘ └──────────┘ [+V] [+N]  
 nominal marking verbal marking

In any event, the important point is that under *kata*-nominalization, dative arguments are assigned either nominal or verbal marking depending on where they are base-generated. The dative argument in the internal AppIP, which follows the accusative argument, is located in a position for its verbal marking to be licensed by a verbal head V in a nominalized clause. Since the higher arguments do not reside in the domain where licensing by V is possible, they receive nominal marking.

### 3. The structural position of ordinary dative arguments

Let us now turn to the discussion of where ordinary datives are located. In this section, we suggest that non-idiomatic arguments are invariably generated to the left of accusative arguments. Let us consider what happens if the examples in (21), which involves the ditransitive verbs *ataeru* ‘give’ and *okuru* ‘send’, are nominalized.

(21) a. *Taroo-wa kodomo-ni okasi-o atae-ta.*  
 Taro-TOP child-DAT sweets-ACC give-PAST

‘Taro gave the children sweets.’

- b. *Taroo-ga Tokyo-ni nimotu-o okut-ta.*  
Taro-NOM Tokyo-DAT package-ACC send-PAST  
‘Taro sent a package to Tokyo.’

If the clause (21a) is nominalized, the goal argument must receive nominal marking.

- (22) a. *kodomo-e-no/\*-ni okasi-no atae-kata*  
child-to-GEN/-DAT sweets-GEN give-way  
‘the way giving the children sweets’  
b. *okasi-no kodomo-e-no/\*-ni atae-kata*  
sweets-GEN child-to-GEN/-DAT give-way

The same holds true for the dative argument of *okuru* ‘send’ in (21b). In fact, as shown in (23), it receives nominal marking rather than verbal marking when the verb *okuru* ‘send’ is nominalized in combination with *kata*.

- (23) a. *Tokyo-e-no/\*-ni nimotu-no okuri-kata*  
Tokyo-to-GEN/-DAT package-GEN send-way  
‘the way of send a package to Tokyo’  
b. *nimotu-no Tokyo-e-no/\*-ni okuri-kata*  
package-GEN Tokyo-to-GEN/-DAT send-way

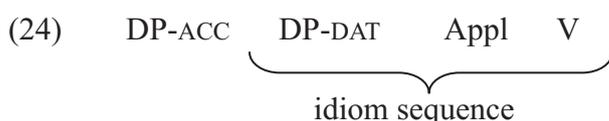
According to Miyagawa and Tsujioka, the dative-marked locative argument of *okuru* could be base-generated to the right of the accusative argument. However, the morphological facts in (23) show, contrary to their claim, that the ordinary goal argument cannot be generated to the right of the accusative. This shows that the locative argument (low goal) cannot be equated with the dative argument of dative-V idioms, since their case marking patterns diverge in the nominalized clauses.

In essence, the dative argument following the accusative argument can bear verbal dative marking even under nominalization. This type of dative argument must occupy the internal ApplP. The dative argument of ordinary ditransitive verbs, on the other hand, must be positioned above accusative arguments, because they are assigned nominal marking in nominalized clauses. This shows that the internal ApplP is not available for ordinary dative arguments, hence can be filled only by idiomatic dative arguments.

#### 4. The Non-thematic Nature of Internal ApplP

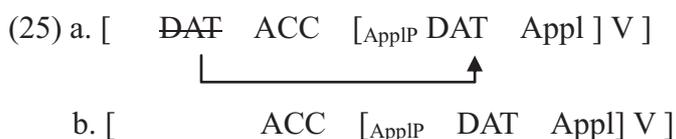
The morphological facts of nominalized clauses formed from ditransitive verbs suggest that the dative argument serving as part of a dative-V idiom should fill the internal ApplP located below VP. By contrast, ordinary datives are base-generated to the left of accusatives. The property that the internal ApplP can host only idiomatic datives follows straightforwardly if it does not constitute a  $\theta$ -marking domain. Given the provision that arguments are not generated below direct objects cross-linguistically, we can now provide an answer to the question of why only idiomatic dative arguments can occupy this position.

According to Chomsky (1981), idioms are interpreted via an idiom rule (without recourse to  $\theta$ -role assignment). Since the idiom string of a dative phrase plus verb in dative-V idioms can be viewed as taking an ordinary accusative argument, it is plausible to state that the dative-V sequence is rendered as some sort of idiomatic complex predicate via idiom formation.



Given this analysis, an ordinary dative argument—which needs a  $\theta$ -role for its appropriate interpretation—cannot be positioned in ApplP. From this, it falls out that the internal ApplP can accommodate only an idiomatic dative argument which is interpretable without being assigned a  $\theta$ -role.

Turning now to question of how the idiomatic dative comes to occupy the internal ApplP, two possible analyses come to mind. One is to generate the dative in the ordinary dative position and is moved into the ApplP via incorporation. The other is to base-generate it in its pre-verbal position (without movement).



At first sight, it looks as though the first movement view is reasonable in view of the fact that the idiomatic dative argument of a dative-V idiom does not allow modifications by adjectives or other expressions, as illustrated in (26).

- (26) \**John-wa kuruma-o {gotugotu-no te-ni/migi-te-ni} ire-ta.*  
 John-TOP car-ACC rough-GEN hand-DAT/right.hand-DAT put.in-PAST  
 ‘John let a car {in the rough hand/in the right hand}.’

One might argue that this property derives from the nature of movement involved in the

derivation of the accusative-dative order. As discussed by Baker (1988), incorporation involves head movement. If the idiomatic datives of dative-V idioms involve incorporation, we would expect that no phrasal expression appears as the dative expression.

Nevertheless, we suggest that the base-generation analysis is favored over the movement analysis. There are two major reasons for this. One is that the property noted in (26) is not exclusively observed in cases where incorporation takes place. Rather, this is just one of the common properties observed idioms, as exemplified in (27) (see Miyaji 1999 and others).

- (27) \**John-ga genkoo-ni {gotugotu-no te-o/migi-te-o} ire-ta.*  
 John-NOM draft-DAT rough-GEN hand-ACC/right.hand-ACC put.in-PAST  
 ‘John put his rough/right hand on a draft.’

Furthermore, if the idiomatic expression were incorporated into the verb, we would not expect particles to intervene between the idiomatic sequences.

- (28) a. *John-wa kuruma-o te-ni-wa ire-ta.*  
 John-TOP car-ACC hand-DAT-TOP put.in-PAST  
 ‘John acquired a car.’  
 b. *John-wa genkoo-ni te-wa ire-ta.*  
 John-TOP draft-DAT hand-TOP put.in-PAST  
 ‘John revised a draft.’

The facts regarding the insertion of particles suggest that the dative expression stands independently of the verb syntactically. If so, it is not plausible to adopt an incorporation analysis for dative-V idioms.

Still, it might be argued that movement is involved in the derivation of dative-V idioms, on the assumption that the dative argument is moved into the internal ApplP. There is good reason to believe that the idiomatic dative does not undergo movement, however. One piece of crucial empirical evidence pointing to the adequacy of the base-generation view can be obtained by looking at the selectional restrictions of ditransitive verbs. Broadly speaking, ditransitive verbs take only one dative-marked argument. Thus, it is generally the case that two dative expressions are not possible in a single clause (cf. Miyagawa and Tsujioka 2004), as illustrated by the verb *ireru* ‘put in’.

- (29) a. \**John-ga tyuushyazyoo-ni syako-ni kuruma-o ire-ta.*  
 John-NOM parking.lot-DAT garage-DAT car-ACC put.in-PAST  
 ‘John parked his car in the garage in the parking lot.’

- b. *John-ga tyuushyazyoo-no syako-ni kuruma-o ire-ta.*  
 John-NOM parking.lot-GEN garage-DAT car-ACC put.in-PAST  
 ‘John parked his car in the garage in the parking lot.’

Interestingly, however, the same verb *ireru* can sometimes have two different dative arguments if one of the dative arguments is used as part of an idiomatic expression.

- (30) *John-ga sensei-ni kore-o goran-ni ire-ta.*  
 John-NOM teacher-DAT this-ACC look-DAT put.in-PAST  
 ‘John showed this to the teacher.’

The sequence *go-ran-ni ireru* ‘show’ is highly idiomatic, but it can be readily confirmed that the idiom belongs to the type of dative-V idioms. As with other dative-V idioms, this idiom allows a particle to attach to the right of the dative expression.

- (31) *John-ga sensei-ni kore-o goran-ni-wa ire-ta.*  
 John-NOM teacher-DAT this-ACC look-DAT-TOP put.in-PAST  
 ‘John showed this to the teacher.’

It is true that many idiomatic expressions do not allow double dative configurations, as they often retain original locatives senses, but the existence of an example like (31), where double datives are allowed in a single clause, would be expected only if the datives are inserted in their positions by way of base-generation.<sup>ii</sup>

Furthermore, we can easily confirm that the idiomatic argument resides in the internal AppIP, while the first one is generated to the left of the accusative argument by looking at the nominalized clause in (32).

- (32) *Sensei-e-no kore-no goran-ni ire-kata*  
 teacher-to-GEN this-GEN look-DAT put.in-way  
 ‘the teacher’s way of showing this to the teacher’

The example in (32) illustrate that the two dative arguments can appear if they occupy in distinct structural positions. This fact would come as a surprise if the idiomatic dative arguments of dative-V idioms are first base-generated in the ordinary dative positions and then moved to the internal AppIP.

## 5. Conclusion

In the light of the morphological facts regarding the nominalized clauses formed

from ditransitive idioms, it has been argued that ditransitive verbs provide at least two distinct syntactic positions for dative arguments, i.e. the internal and external ApplP's. It has also been argued that the base-generation of dative arguments in the internal ApplP is confined to idiomatic dative arguments, due to the fact that this dative position does not constitute a  $\theta$ -marking domain, and that ordinary goals (i.e. high and low goals) can only be base-generated to the left of accusative arguments.

## Notes

\*This is a written version of the paper presented at 18<sup>th</sup> International Congress of Linguists held at Korea University, July 21-26, 2008. I am grateful to the audience for comments and suggestions. I am solely responsible for any errors and inadequacies.

<sup>i</sup> There are a number of different proposals on the argument structures of Japanese ditransitive verbs (see Hoji 1985, Miyagawa 1997, Kishimoto 2001, 2008, Takano 1998, Miyagawa and Tsujioka 2004, and others). In this paper, we follow Pylkkänen's (2000, 2008) proposal on applicative projections, and assume without any further justification that non-core dative arguments are licensed by applicative projections.

<sup>ii</sup> This does not mean that double datives are allowed in all dative-V idioms. See Kishimoto (2008) for a partial list of idioms allowing for double datives.

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# La tautologie et la notion subjective de “désirabilité”

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## **Abstract**

This paper attempts to demonstrate the role of subjectivity in the French tautology “X is X”. This construction, that contains no information value, aims rather to express subjectivity. The notion of subjectivity, according to our definition, is not a component in a lexical sense, but it should be understood as a judgement of the speaker that underlies the language. Regarding subjectivity, this paper discusses three factors : “desirability”, “factuality” and “aspiration”. These three types of subjectivity can be related to three kinds of thought mechanisms conceived by Ch. Bally : fact judgement, value judgement and volition.

**Keyword:** subjectivité, jugement, désirabilité, factualité, souhait

## **1. subjectivité**

Depuis quelques années, nous nous occupons de phénomènes de subjectivité dans le langage, notion qui trouve son origine dans les travaux de Bréal (1976), linguiste français, ou de Tokieda, linguiste japonais, par exemple et qui, au bout d’un intervalle de 100 ans, attire maintenant l’intérêt des linguistes, en particulier celui des cognitivistes. Jusqu’à présent, nous avons traité, dans cette optique, des expressions françaises “encore moins”, “plus ou moins”, “même”, “qui plus est”, “au moins” etc. et celles des locutions japonaises comparables (Abé 2003, 2004, 2006, 2007a, 2007b, 2008 etc.).

Pour ce qui est de la subjectivité, les chercheurs s’intéressent principalement à la notion de factualité par le biais d’études sur la modalité. Par exemple, la

grammaticalisation de la modalité déontique vers la factualité de l'auxiliaire « devoir », etc. Mais nous aimerions signaler, à titre d'hypothèse, l'existence de deux autres formes de subjectivité : la désirabilité et le souhait.

C'est Akatsuka (1997, etc.) qui a la première introduit cette notion de désirabilité dans l'analyse de la construction conditionnelle. Selon elle, si la protase est considérée comme désirable par le locuteur, l'apodose l'est également; si la première est indésirable, la dernière l'est également.

Mais il n'est pas sans intérêt de noter que Bally (1965) avait déjà fait mention, bien que brièvement, de ces trois formes de subjectivité : factualité, désirabilité et souhait, comme on le voit dans (1).

- (1) La phrase est la forme la plus simple possible de la communication d'une pensée. / Penser, c'est réagir à une représentation en la constatant, en l'appréciant ou en la désirant. / C'est donc juger qu'une chose est ou n'est pas, ou estimer qu'elle est désirable ou indésirable, ou enfin désirer qu'elle soit ou ne soit pas. On *croit* qu'il pleut ou *on ne le croit pas*, ou on en *doute*, on se *réjouit* qu'il pleuve ou on le *regrette*, on *souhaite* qu'il pleuve ou qu'il ne pleuve pas. / Dans le premier cas, on énonce un jugement de fait, dans le second un jugement de valeur, dans le troisième une volition. / La première opération relève de l'entendement, la deuxième du sentiment, la troisième de la volonté, qui a son aboutissement dans l'action, aboutissement qui est une des fonctions du langage tout en le dépassant. / La pensée ne se ramène donc pas à la représentation pure et simple, en l'absence de toute participation active d'un sujet pensant. (Bally 1965: 35)

Nous pensons, avec Bally, que le mécanisme linguistique ne se ramène pas seulement à la transmission d'informations, mais qu'il est toujours revêtu du jugement du locuteur. Les informations transmises sont appuyées et enveloppées par la subjectivité. Celle-ci, bien que latente dans la plupart des cas, apparaît parfois à la surface et intervient positivement dans l'interprétation sémantique de l'expression ou de la phrase.

Etant donné qu'il s'agit d'un mécanisme sous-tendant le système grammatical et lexical, la subjectivité opère, pour ainsi dire, d'une manière intercatégorielle. Voyons (2) – (7).

- (2) Il *doit* être malade. [« factualité », auxiliaire]

- (3) *Probablement* il est malade. [« factuelité », adverbe de phrase]
- (4) Il parle l'anglais et, *qui plus est*, l'espagnol. (« A *qui plus est* B » signifie « A a une certaine désirabilité, mais il existe *plus* de désirabilité dans B ») [« désirabilité », marqueur de comparatif]
- (5) Paul n'est pas très intelligent, *seulement* (≠ mais) il est travailleur. (« A. *Seulement* B » signifie « A n'est pas désirable, mais il existe *seulement* une désirabilité B ») [« désirabilité », adverbe de phrase ou conjonction]
- (6) Si tu ne peux pas me prêter de l'argent, pourrais-tu me donner *au moins* quelque conseil? (« *au moins* A » signifie « je désire *au minimum* qu'il se réalise A ») [« souhait », marqueur de superlatif]
- (7) (A quelqu'un qui le sait bien) Un plagiat, c'est un crime. (= Vous ne devez pas le faire) [« souhait », truisme]

## 2. tautologie "X est X"

Il est évident que la construction du type "X est X", par exemple "un chat est un chat", qu'est la tautologie, n'arrive pas à apporter la moindre information, puisqu'elle ne fait que répéter le même nom X. Mais alors pourquoi existe-t-elle? On peut s'étonner également que ses fonctions soient bien comparables entre le français, l'anglais et le japonais.

Nous sommes d'avis que le sémantisme de la tautologie du type "X est X", ainsi que celui de la phrase contradictoire "X n'est pas X", sa contrepartie, n'est réductible ni au contexte, ni au mécanisme intérieur de la construction elle-même, mais à la subjectivité. A la différence de la phrase attributive normale qui transmet, sous forme de "X est Y", une information Y à propos de X, la tautologie est une forme privée d'information. "X est X", formellement une phrase, n'est qu'un cadre vide d'information, pour ainsi dire. Mais celui-ci peut devenir le moyen approprié à l'expression de la subjectivité, d'autant plus qu'il est dépourvu d'information. Et la tautologie nous intéresse dans la mesure où elle met à l'oeuvre les trois subjectivités ci-dessus.

Dans la détermination du sens de la tautologie, le contexte, ainsi que la situation de locution, peut intervenir bien sûr, mais seulement de manière à rendre plus explicite

de quelle subjectivité il s'agit , au cas où il existerait quelque ambiguïté d'interprétation.

### 3. analyses précédentes

Nous pouvons énumérer plusieurs approches précédentes. Dans le cadre de la pragmatique radicale, Grice (1975) et Levinson (1983), par exemple, font appel à la notion d'implication dans la conversation, tandis que Wierzbicka (1987) et Schapira (2000, 2005), formulent des explications du point de vue de la sémantique radicale. On peut dire qu'il s'agit des deux types d'analyse, pour ainsi dire, classiques. Et parmi les études récentes, ce qui me semble avoir le plus de portée explicative est l'approche inspirée par la sémantique du prototype (Sakahara 1992, 2002 et Fujita 1988, 1990, 1993), et celle de la théorie de l'argumentation (Okubo 2002, 2003).

Or, la construction "X est X" elle-même n'étant pas du tout homogène, elle peut se classer en plusieurs types, parmi lesquels nous aimerions nous limiter, dans cette communication, à ces trois types : rehomogénéisation, sous-catégorisation et obligation, qui sont représentées respectivement par (8), (9) et (10).

(8) [sous-catégorisation] Une maison est une maison *seulement si elle a plus de six chambres.*

(9) [rehomogénéisation] *Même s'il n'attrape pas de souris,* un chat est un chat.

(10) [obligation] Cette loi a été passée d'une manière forcée. Mais *une loi est une loi.*

Si la tautologie se trouve accompagnée d'une condition de limitation, comme "seulement si ..." dans (8), on a presque automatiquement l'interprétation "sous-catégorisation". Dans le cas de "la rehomogénéisation", on trouve en principe une expression concessive, comme "même si ..." dans (9). Pour ce qui est du type "obligation", X implique, dans son sens lexical, un devoir, une demande à la réalisation, comme l'indique le mot "loi" dans (10).

Selon Sakahara et Fujita, le type "sous-catégorisation" crée, à l'intérieur de la catégorie X, une sous-catégorie "vrai X", par l'introduction d'un certain trait. Ainsi, dans (8), on constitue, dans la catégorie "maison", une sous-catégorie "vraie maison" qui seule remplit la condition "avoir plus de six chambres".

Pour ce qui est du type “rehomogénéisation”, il a pour fonction de rehomogénéiser la catégorie X qui risquait d’être hétérogénéisée par l’introduction d’un certain trait. Ainsi, d’après Sakahara et Fujita, (9) tiendrait à énoncer que, malgré l’existence d’une différence entre les chats qui “attrapent des souris” et ceux qui “n’en attrapent pas”, la catégorie “chat” est bien homogène. En d’autres termes, il n’existe pas là de variation de degré d’appartenance à la catégorie “chat”, celle-ci étant bien homogène.

Or, s’inspirant de la théorie de l’argumentation de Ducrot et de Carel qui rend compte des phénomènes linguistiques avec des notions de conclusion, explicite ou implicite, et d’argument pour cette conclusion, Okubo suppose que la tautologie du type “rehomogénéisation” fonctionne comme argument pour une certaine conclusion. Par exemple, dans (9), le fait qu’“un chat n’attrape pas de souris” peut constituer un argument en faveur de la conclusion provisoire “on ne doit pas l’élever”, mais la tautologie “un chat est un chat” signifiant “malgré tout il s’agit d’un chat comme les autres” constitue un argument plus fort qui s’oriente vers la conclusion finale “on doit l’élever”.

A la différence des deux types ci-dessus, le type “obligation” semble n’avoir pas attiré assez d’intérêt des chercheurs. Il n’a pas été considéré comme un type bien différent des autres. Et, selon Okubo, il peut s’analyser tout comme (9). L’argument “cette loi a été passée d’une manière forcée” risquerait d’introduire la conclusion provisoire “on n’a pas à la suivre”. Mais, au contraire, l’autre argument, plus fort, “une loi est une loi”, signifiant “malgré tout il s’agit d’une loi comme les autres” amène à la conclusion finale “nous devons nous conformer à cette loi ».

Ces deux approches nous intéressent, principalement par le fait qu’elles font appel à des instruments théoriques assez proches des différentes formes de subjectivité. Mais nous avons l’impression que le concept du degré d’appartenance à la catégorie et celui de l’“argument-conclusion” donnent une image trop concrète de la subjectivité. Nous pensons que celle-ci fonctionne plutôt à l’état pur dans cette construction.

#### **4. sous-catégorisation**

Nous aimerions d’abord signaler que la sous-catégorie, censée être constituée

dans ce type, doit être considérée avant tout comme désirable pour le locuteur, comme le montre la différence de grammaticalité entre (11) et (12).

(11) Une maison est une maison seulement si elle a plus de six chambres.

(12) \* Une maison est une maison seulement si elle a moins de trois chambres.

Mais le trait habituellement négatif peut être pris comme désirable par certains locuteurs. Ainsi (13) indique que l'ajout d'un contexte approprié peut sauver la phrase insolite.

(13) Ma maison est très petite. J'y suis bien habitué. Et j'aime bien les petites maisons. o.k. Pour moi une maison est une maison seulement si elle a moins de trois chambres.

Comparons (14) et (15). Bien que (14) soit naturelle, la deuxième phrase de (15) est déplacée. On voit, dans (15), que la désirabilité accordée à la sous-catégorie constituée dans la première phrase est niée aussitôt après. C'est ce point qui rend insolite la relation entre les deux phrases.

(14) Un jardin est un jardin seulement s'il est plein d'arbres.

(15) Pour moi un jardin est un jardin seulement s'il est plein d'arbres. # Mais j'aime plutôt les jardins sans arbre.

Il est à noter, d'autre part, que le trait qui circonscrit la sous-catégorie peut être très vague. Il peut être par exemple une simple indication temporelle, comme on le voit dans (16). Or, dans (17), le rapport entre les deux phrases est peu naturel. Cela est dû au fait que la désirabilité accordée à la sous-catégorie est niée aussitôt dans la deuxième phrase, tout comme dans (15).

(16) Il y a trente ans un homme était un homme. J'aime les hommes d'autrefois.

(17) Il y a trente ans un homme était un homme. # Je n'aime pas les hommes d'autrefois.

Dans (16), on n'a plus affaire à aucun trait inhérent aux membres de la sous-catégorie. Mais, tout de même, cette sous-catégorie peut bien se constituer et dès qu'elle se constitue, elle s'interprète comme désirable.

Tout nous amène à croire que ce qui est le plus pertinent dans ce type de tautologie c'est la désirabilité, jugement subjectif du locuteur, plutôt que "vrai X" dont parlent les sémanticiens du prototype. J'aimerais donc proposer, à propos de cette tautologie, une paraphrase (18).

(18) Je ne constate une désirabilité qu'à une certaine sous-catégorie de X.

Ce qui est intéressant, c'est qu'une phrase contradictoire comme (19) peut être paraphrasée par (20). Cela indique que ce type de phrase contradictoire concerne la partie expulsée de la sous-catégorie, c'est-à-dire la partie non désirable de X.

(19) La bière sans alcool n'est pas la bière.

(20) A la bière sans alcool, je n'accorde pas la désirabilité normalement attendue de la bière.

Il est à ajouter que, en japonais, ce type de tautologie n'est pas tellement naturel, sinon tout à fait impossible, comme l'indique (21). Cela est dû peut-être au fait qu'il existe une construction équivalente sans sujet, c'est-à-dire plus succincte, comme on le voit dans (22). Or si la phrase est mise au passé, le sujet étant obligatoire, elle redevient naturelle comme dans (23).

(21) ? roku (six) heya (chambre) ijô (plus de) aru (il y a) toki (si) dake (seulement),  
ie (maison) ha (marqueur de nominatif) ie (maison) da (être). (= 11)

(22) roku (six) heya (chambre) ijô (plus de) aru (il y a) toki (si) dake (seulement),  
ie (maison) da (être). (= 11)

(23) san-jyuu (trente) nen (an) mae (il y a), otoko (homme) ha (marqueur de  
nominatif) otoko (homme) datta (être, passé). (= 16)

## 5. rehomogénéisation

On peut remarquer que dans ce cas de la rehomogénéisation également, la désirabilité intervient, mais d'une autre manière. Car, à la différence du cas précédent où une hétérogénéité de désirabilité se constitue à l'intérieur de la catégorie, ici la désirabilité assume plutôt le rôle de rehomogénéiser la catégorie, qui risquait d'être hétérogène. L'opération est donc inverse.

Par exemple, dans (24), "être laid" peut causer une hétérogénéité dans la catégorie "chat" : il existe des chats désirables et indésirables. Mais la tautologie "un chat est un chat" vise ici à dire qu'il ne se trouve pas de différence de désirabilité entre les chats.

(24) Même s'il est laid, un chat est un chat.

On constate donc que cette interprétation de la tautologie est due en principe à un trait qui risquerait d'introduire une différence de désirabilité dans la catégorie donnée. Ainsi comparons (25) et (26). Dans (25), le trait "petit" pouvant causer une différence

de désirabilité entre jardins, le locuteur la nie finalement avec la tautologie. En ce qui concerne (26) où le jardin est déjà bien grand, le locuteur n'a aucune raison d'insister sur l'homogénéité du jardin en général.

(25) Dans notre petit jardin, nous pouvons cultiver des légumes. Un jardin est un jardin.

(26) Dans notre grand jardin, nous pouvons cultiver des légumes. # Un jardin est un jardin.

Nous pouvons donc penser que ce type de tautologie énonce que le degré de désirabilité ne change pas à travers toute la catégorie. Dans (24) et (25), “laid” et “petit” respectivement risquent d'indiquer qu'il existe des membres non désirables. Mais on vise à nier, au moyen de la tautologie, l'existence de l'hétérogénéité de désirabilité.

On peut concevoir bien sûr des cas où la catégorie en principe indésirable risque d'être hétérogène. Dans (27) et (28) par exemple, on a d'abord des facteurs signalant la possibilité de l'existence de membres désirables : “gentil” et “bon pour la santé”, mais la tautologie finalement récupère l'indésirabilité unitaire de la catégorie.

(27) Il a l'air gentil. Mais il faut faire attention. Un criminel est un criminel.

(28) (Nous ne supportons pas l'alcool) On m'a dit que ce vin est très bon pour la santé. Mais il faut faire attention. Du vin, c'est du vin.

Ce qui est intéressant, c'est que la même phrase tautologique peut concerner soit la désirabilité soit l'indésirabilité de la catégorie. Voyons (29) - (31).

(29) Même s'il s'agit d'un seul jour, un jeûne est un jeûne.

(30) Même s'il s'agit d'un seul jour, un jeûne est un jeûne. C'est bon pour la santé.

(31) Même s'il s'agit d'un seul jour, un jeûne est un jeûne. Ce sera dur pour moi.

La même catégorie “jeûne” est considérée comme désirable dans (30), comme indésirable dans (31). On peut avoir une de ces deux interprétations avec l'aide du contexte : “ bon pour la santé ” ou “dur”. C'est pour cela que (29), sans contexte, manque un peu de stabilité.

Il est à remarquer que, dans ce type de tautologie également, le trait qui risque d'introduire une hétérogénéité peut être vague, comme on le voit dans (32) et (33).

(32) A : Les étudiants aujourd'hui ne sont pas ce qu'ils étaient il y a trente ans. Je suis très mécontent d'eux. – B : Les étudiants sont les étudiants, aujourd'hui comme il y a trente ans.

(33) (Le père gronde son fils qui est l'ami d'un voleur) Fils : Un ami est un ami ! –

Père : Un voleur est un voleur !

Dans (32) et (33), il n'est plus question de trait concret. Ce qui est seulement clair, c'est que les jugements sont tout à fait contraires entre les interlocuteurs. L'un défend la désirabilité, l'autre l'indésirabilité.

Tout nous amène à formuler, pour ce type de tautologie, la paraphrase (34).

(34) A propos de la catégorie X, on risque de constater une différence de degré de désirabilité à première vue, mais en fait, bien au contraire, pour moi ce degré reste le même au travers de la catégorie X.

Or on a une phrase contradictoire comme dans (35), qui peut être paraphrasée par (36). On peut donc la considérer comme la négation de la tautologie du type-rehomogénéisation. Mais il se constate une différence : la phrase contradictoire de ce type fait référence à un individu, alors que la tautologie concerne la catégorie prise en bloc.

(35) (A propos d'un robot doté d'une intelligence comparable à celle de l'homme)  
Ce robot n'est plus un robot.

(36) A ce robot, je n'admets pas la même désirabilité qu'aux autres membres de la catégorie, car il a bien plus de désirabilité que les autres.

Il faut ajouter finalement que, dans ce même type de tautologie, l'on peut avoir affaire à la factualité plutôt qu'à la désirabilité. Ainsi dans (37) et (38), il est difficilement imaginable qu'il s'agisse de désirabilité. Ici on insiste sur l'existence même de la catégorie X qui aurait pu se partager en plusieurs sous-catégories.

(37) Quant à la montre, il y en a plusieurs sortes : montre-calendrier, montre digitale, montre de plongée, montre de poche etc. Mais une montre est une montre. Tout sert à mesurer le temps.

(38) Le livre de grammaire enregistre divers emplois d'imparfait. Mais il faut distinguer significations et signifié. Pour moi structuraliste, l'imparfait est l'imparfait. Sa valeur est unique et constante.

Dans ces cas également, on vise à insister sur l'homogénéité de la catégorie X, mais il ne s'agit plus de celle de la désirabilité, mais de celle de la factualité. A cette sous-classe du type-rehomogénéisation, nous proposons donc la paraphrase (39).

(39) Les frontières notionnelles de la catégorie X risquent d'être vagues, mais en fait, bien au contraire, pour moi cette catégorie X existe bien en tant que telle.

## 6. obligation

Le troisième type de tautologie que j'aimerais mentionner, c'est celui qui demande à l'interlocuteur ou au locuteur lui-même de faire quelque chose, par exemple : respecter le règlement, tenir une promesse, remplir un devoir digne de son statut. Voyons (40) – (43). Ce type fonctionne non plus comme un jugement à l'intérieur du locuteur mais au niveau intersubjectif, à la différence des deux types précédents. Nous aimerions donc présenter ici la paraphrase (43).

(40) Même avec un écolier, une promesse est une promesse.

(41) Il faut beaucoup travailler. Un étudiant est un étudiant.

(42) Tu me donneras un peu d'argent. Un ami est un ami.

(43) Je vous demande vivement de réaliser X comme il faut.

Cela nous amène à penser qu'ici c'est le souhait, subjectivité du troisième type, qui intervient ici.

Il est utile d'ajouter que ce type, bien que fréquent en japonais également, montre une curieuse différence : par exemple, la traduction littérale en japonais de (41) et (42) est un peu déplacée, sinon tout à fait inacceptable. Nous avons l'impression que, en japonais, le lexème acceptable est beaucoup plus restreint : loi, promesse, règle etc. qui supposent tous, d'une manière incontestable, leur respect. Point mystérieux pour le moment, mais il nous est permis de penser que ce fait peut être lié à l'absence de l'article en japonais.

## 7. conclusion

Nous sommes d'avis que la tautologie, ainsi que la phrase contradictoire, sont des cadres vides d'information, mais qui ont pour fonction d'exprimer la subjectivité. Cette étude sur la tautologie nous fait entrevoir un tant soit peu que si la factualité a toujours intéressé les linguistes par le biais d'études sur la modalité, la désirabilité et le souhait sont de la même importance.

Or on a d'autres types de tautologie, parmi lesquels le type de « la séparation de deux catégories », où deux tautologies se juxtaposent comme dans (44), et celui de « refus de la réponse » comme dans (45), sont assez courants non seulement en français

mais en japonais. Il nous faudrait rendre compte de tous les phénomènes concernant la tautologie, y compris ces types.

(44) Un étudiant est un étudiant, un professeur est un professeur. Il faut bien garder les distances.

(45) Enfant : « Papa, qu'est-ce que c'est, une personne juridique ? » – Père : « Une personne juridique, c'est une personne juridique ».

Nous avons devant nous divers phénomènes qui attendent d'être expliqués par l'hypothèse de trois formes de subjectivité.

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# No Movement Analysis of Scrambling

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## Abstract

It is well known that it is crucial that the alleged scrambling in Korean and Japanese, etc. lacks the motivation or driving force for the movement of constituents. The Case theory, EPP and Focus Feature, etc. that are put forth to cope with this problem do not support the movement of the scrambled constituent. The radical LF-reconstruction or the LF-lowering raises serious questions about the movement at S-structure or at LF, due to the infelicitous results that the movement brings about. Thus it is reasonable to claim that the word order of the surface structure should be seen as given, and the semantic interpretation should be done to the given structure.

For this purpose, this paper takes much of the syntactic analysis in terms of the Lexicalist Case Hypothesis (LCH) that says that as far as syntactic case is concerned, the case should be defined on the basis of lexical information given in the lexicon, and the Hypothesis of Variable Medial Projection (=HVMP) that says that the number of medial projections should be matched with the number of arguments of a predicate. On this syntactic analysis, the putative scrambled constituent should be analyzed as syntactic remnant, not given any syntactic function to. According to Ubiquitous Topic Hypothesis (=UTH), the syntactic remnant is to be given a syntactic topic function. The putative scrambled constituent can be called 'word order topic'.

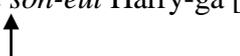
**Keywords:** Word Order Topic, The Hypothesis of Variable Medial Projection, Ubiquitous Topic Hypothesis, Case Lexicalist Hypothesis, LF Reconstruction, LF Lowering.

## 1. Goal

This paper intends to make clear the real nature of scrambling and semantic effects of seemingly scrambling in Korean. In general, the scrambling has been taken to be the operation to rearrange the order of constituents placed at given positions in a sentence. However, from the start, scrambling runs into unexpected difficulties. One is concerned with the basic word order. In Minimalist framework (Chomsky, 1995, etc.), the basic

order of the constituents in a sentence is not fixed or not in a stable state, because the internal merge can be applied even to the structure not full fledged. The order of constituents is largely dependent on factors like Head parameter and/or Linear Correspondence Axiom by Kayne (1994), and the like. The other is concerned with ‘Last Resort.’ Obviously it is not clear what it is the motive or driving force for a constituent to scramble to other position.

The current dichotomy in the approaches to the problem of scrambling seems to be that between the movement approach and the base generation (or non-movement) approach<sup>1</sup>. The former sees that a variety of word orders are the results of movements, whereas the latter sees that they are not the results of movements, but are given as such (Cf. Bayer and Kornfilt 1994, Kiss 1994, Neeleman 1994, Y.-S. Kim 1997, Bošković & Takahashi 1998, Cho and Kim 2000, 2001; Bošković 2004, etc.). Consider the following:<sup>2</sup>

- (1) a. Harry-ga *Mary-eui son-eul* jab-ass-da.<sup>3</sup>  
           NK      GK hand-AK hold-PST-DF  
           ‘Harry held Mary’s hand.’  
   b. *Mary-eui son-eul* Harry-ga jab-ass-da. (Scrambled version of (1a))  
           GK hand-AK      NK hold-PST-DF  
           ‘Mary’s hand, Harry held.’<sup>4</sup>  
   c. *Mary-eui son-eul* Harry-ga [t] jab-ass-da. (Derivation from (1a) to (1b))
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The example (1a) exhibits the normal, basic, and/or canonical word order of the typical transitive sentence in Korean. In (1b), it seems that the object of (1a) moves to

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<sup>1</sup> As to the previous approaches to scrambling, confer to Kiss (1994), where the first branch is divided into the position that sees the scrambling as syntactic phenomenon and the one that sees it as stylistic phenomenon. The latter position is divided into the view that sees the scrambled structure is base-generated and the one that sees it derived by adjunction. The “base-generated” positions are also divided into the position that sees the base as flat and the one that sees it as hierarchical.

<sup>2</sup> In Korean annotations, NK stands for Nominative Case Marker, GK Genitive Case Marker, AK Accusative Case Marker, TK Target Case Marker that comprises Dative Case and Goal or Directive Case, LK Locative Case Marker, SK Source Case Marker, H Modal Particle including the so-called Topic Marker *eun/neun*, PRS Present Tense Marker, PST Past Tense Marker, RPF Respect Prefinal Ending, DF Declarative Final Ending, QF Interrogative Final Ending, CF Connective Final Ending, AF Adnominal Final Ending and CFP Connective Final Ending Phrase.

<sup>3</sup> This paper adopts Korean Official Romanization System for Korean data.

<sup>4</sup> The English annotations in this paper reflect the author’s point of view on scrambling.

the sentence initial position. The movement approach to scrambling (or ‘derivationalist’ hypothesis) sees that the structure of (1b) is derived from the canonical structure like (1a) by way of a movement as shown by arrow in (1c). As to the A or A-bar distinction of the landing site of scrambling, various proposals are put forth, depending on the grammatical theories and versions (Cf. Saito 1985, 1992; Hoji 1985, Webelhuth 1989, Mahajan 1990, Tada 1993, Yoshimura 1992).

In contrast, the base generation (or non-movement) approach to scrambling sees that the structure of (1b) is not derived from the structure like (1a). Instead, as postulated in Y.-S. Kim (1997), Bošković & Takahashi (1998), Cho and Kim (2000, 2001) and Bošković (2004) etc. LF lowering was proposed. The putative scrambled constituent is lowered into its  $\Theta$ -role position, so that its  $\Theta$ -role is checked. Granted that LF lowering can be motivated for the  $\Theta$ -role checking, there still remains a question about how the putative scrambled structure is to be generated.<sup>5</sup>

In this paper it is claimed that there is no such thing as scrambling in Korean, as far as a variety of surface syntactic structures are analyzed in terms of the Hypothesis of Variable Medial Projections (HVMP) and Case Lexicalist Hypothesis (CLH) (Cf. Im 2000, 2007, Im and Lee 2002, etc.). Only there are word order variations as given, which look like seemingly scrambling or rearrangement of constituents. If so, naturally there arises a question about how can be explained the multiple word order variations in surface structures. The answer is not so difficult: The alleged scrambled constituent is given at that position. The semantic and/or pragmatic function of the putative scrambled constituent is that of topic, which is called ‘word order topic’ in this paper.

## 2. Movement Approach and Lack of Motivation

As is well known, the principle that works in the syntactic derivation is the so-called “last resort”. Without any motivation, a constituent should not be moved from one place to another. If (1b) is derived from (1a), the constituent *Mary-eui son-eul* ‘Mary’s hand-AK’ should have motivation to move. If not, the move is not legitimate.?

The Case theory does not work here, because the object is fully equipped with the accusative case marker *eul/reul*. Contra Y.-S. Lee (1994) and Jo (1997) etc., it is obvious that there is no reason for a constituent with a proper Case to move to get the Case, as indicated in Bošković & Takahashi (1998). There is no empty place to be filled by an object NP at sentence initial position, either. Even the bare object NP in situ does not have any reason to move to that position, because that position is not a place where the problem of Case is resolved. Miyagawa (1991) proposed Case solution to scrambling by assigning the abstract case of accusative to the scrambled trace and by seeing that the accusative is realized at the moved position. Y.-S. Lee (1993, 1994) claimed that the complex category ‘I+V’ formed by V raising could assign both the accusative and the nominative Case. However these are nothing but a mere stipulation. Thus, let’s present

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<sup>5</sup> As to the counter-attack done to LF lowering theory, see Bailyn (2001) and Miyagawa (2006), M.-K. Lee (2006), etc.

the consequence as follows:

(2) Scrambling and Case Theory

Case theory does not work for scrambling.

Purely formal feature like [+EPP] happened to be postulated in the category of T (tense) of TP (Cf. Miyagawa 2001 for Japanese data), or  $\nu$  or T as in Jung (2002) to attract the object to Spec of TP or Spec of  $\nu$ P, or to check off the relevant uninterpretable feature. However, [+EPP] feature is originally related with subject. If that feature is assigned to T or  $\nu$  for object scrambling, the inherent property of [+EPP] must be distorted and perverse. If [+EPP] feature of T or  $\nu$  is checked off by an object or a WH-phrase, then T or  $\nu$  intrinsically has nothing to do with a subject. This is undesirable. And once checked off, the [+EPP] feature cannot work any further. However, it is obvious that there must be scrambling related with the dative, locative and/or instrumental constituent, etc. other than the accusative one. Consider the following:

- (3) a. Harry-ga Mary-ege seonmul-eul ju-eoss-da.  
NK TK gift-AK give-PST-DF  
'Harry gave Mary a gift.'
- b. *Mary-ege* Harry-ga seonmul-eul ju-eoss-da.  
TK NK gift-AK give-PST-DF  
'[literally] \*Harry gave a gift, speaking of Mary.'
- c. *Mary-ege seonmul-eul* Harry-ga ju-eoss-da.  
TK gift-AK NK give-PST-DF  
'Harry gave Mary a gift, speaking of Mary and a gift.'
- d. *Seonmul-eul Mary-ege* Harry-ga ju-eoss-da.  
gift-AK TK NK give-PST-DF  
'Harry gave Mary a gift, speaking of a gift and Mary.'

The example (3a) shows the canonical word order of the verb *ju-* 'give': Dative precedes accusative. In (3b), the dative occupies sentence initial position. If the [+EPP] feature must work for scrambling as in Jung (2002), Boeckx (2004), and H.-Y. Kim (2005) etc., (3b) is derived by [+EPP]. However, once the [+EPP] feature was used up for the scrambling of dative, there remains nothing to be used for other scramblings. But as shown in (3c), the accusative moves in addition to the dative. (3d) which the accusative scrambles across the dative is also problematic for the [+EPP] hypothesis for the same reason. It is evident that Kitagawa (1990), Miyagawa (1991) and Y.-S. Lee (1994) etc. have no ways to deal with these complexities.

The setting up of the feature like [+EPP] also raises the problem of 'look ahead', as in the case of [+Focus] movement approach that will be shortly touched. Thus we can say that:

(4) Scrambling and [+EPP] Hypothesis

EPP hypothesis does not work for scrambling.

The focalist approach to scrambling as in Miyagawa (1997), Choi (1999), M.-K. Lee (2006), Lee and Cho (2003), etc. postulates a feature like [+focus] or a Focus projection i.e. FocP above TP to attract an object. Jung (2002) and Yang and Kim (2005) suggest the INT-move for the topic or focus effect. But crucial questions are raised about the motivation for setting up the arbitrary feature like [+focus] or [+topic] and for setting up the arbitrary projection like FocP. It should be pointed out that the feature like [+focus] or [+topic] also raises 'look ahead' problem, because setting up such features could be thought to be an anticipatory measure for later applications. The same can be said to the focus approach as posited in Lee and Cho (2004) and to the INT-move or the like as stipulated in Jung (2002) and Yang & Kim (2005).

Furthermore, it is obvious that the focus approach is not based on the real data. Consider the following:

- (5) a. Speaker A: Harry-ga Mary-ege *mueos-eul* ju-eoss-ni?  
NK TK what-AK give-PST-QF  
'What did Harry give to Mary?'
- b. Speaker A: *Mueos-eul* Harry-ga Mary-ege ju-eoss-ni?  
what-AK NK TK give-PST-QF  
'What did Harry give to Mary?'
- c. Speaker B: *Chaek-eul* Harry-ga Mary-ege ju-eoss-da.  
book-AK NK TK give-PST-DF  
'A book, Harry gave to Mary.'
- d. Speaker B: Harry-ga Mary-ege *Chaek-eul* ju-eoss-da.  
NK TK book-AK give-PST-DF  
'Harry gave a book to Mary.'
- (6) a. Speaker A: *Chaek-eul* Harry-ga *nugu-ege* ju-eoss-nunja?  
book-AK NK who-TK give-PST-QF  
'The book, to whom did Harry give?'
- b. Speaker A: *Chaeg-eul* Harry-ga *Mary-ege* ju-eoss-da.  
book-AK NK TK give-PST-DF  
'The book, Harry gave to Mary.'

(5a) is a question about the WH-phrase *mueos-eul* 'what-AK'. If WH-word is a focus, then the constituent *mueos-eul* 'what-AK' in (5a) must be a focus. Yet, the constituent *mueos-eul* 'what-AK' still is in situ. This means that the scrambling has nothing to do with WH-focus. Is this unmarked focus in the sense of M.-K. Lee (2006)? It is not certain whether or not WH-phrase is a focus. The real is that WH-phrase is a constituent to be asked for information. If scrambling were focus-driven, then the WH-phrase in (5b) should have moved to get the focus status. But this is not the case, because the WH-phrase is already focus in situ according to the WH-focus hypothesis.

(5d) is a neutral answer to the question of (5a). But (5c) also is a possible answer to (5a) with some emphasis on *chaeg* ‘book’. This means that scrambling cannot be seen as a focus-driven movement, because the answer to the WH-word can be given to the WH-word in situ.

Now consider (6a) and (6b). (6a) is a question about the WH-phrase *nugu-ege* ‘who-TK’. Here again if WH-phrase is a focus, then the constituent *nugu-ege* ‘who-TK’ must be a focus. Nevertheless, the constituent *nugu-ege* ‘who-TK’ does not move to the sentence initial position. If WH-phrase and the alleged scrambled object are foci, then what is the real focus in (6a)? Both are foci? It is conceded that in (6b) *Mary-ege* ‘Mary-TK’ is a focus, because it is newly introduced into the discourse. Then what is the information status of the alleged scrambled object at the sentence initial position? The alleged scrambled object and the element of new information that occurs in the answer, are they both foci? At least not both are foci. It is evident that the alleged scrambled object is not a focus as new information. Let’s present this as follows:

(7) Scrambling and Focus Hypothesis

Focus hypothesis does not work for scrambling.

What about the [+topic] hypothesis for providing the driving force for scrambling? This paper considers the putative scrambled phrase a kind of topic, but not involved in movement, contra Bailyn (2001) and Park (2007), etc.<sup>6</sup>

#### 4. Against Movement Approach to Scrambling

It is already proposed that scrambling is not movement, in Bayer & Kornfilt (1994), Kiss (1994), Neeleman (1994), Y.-S. Kim (1997), Bošković & Takahashi (1998), Cho and Kim (2000, 2001), and Bošković (2004), etc. largely based on the scope phenomenon, anaphor binding fact, superiority condition, idiom interpretation, and parasitic gap resolution, etc. Though some evidences are convincing, the grammatical judgments on the relevant examples are too subtle to be established. Some phenomena are not found in Korean, since Korean has nothing to do with the syntactic WH-movement and superiority condition, etc. As to Korean, let’s consider following evidences for non-movement approach to scrambling.

First, it should be pointed out that the position from which the alleged scrambled constituent is considered to be extracted could be filled with some resumptive lexical elements.

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<sup>6</sup> Song (2004) sees that the constituent *chaeg-eul* in the example *Mary-ga chaeg-eul na-ege ju-eoss-da* ‘Mary, a book, gave to me.’ functions as a topic and that the constituent *na-ege* ‘to me’ as a focus. This paper in part agrees with Song’s (2004) interpretation, but it is different from Song (2004) in seeing that the constituent *Chaeg-eul* is a topic *relative to* the rest of the sentence. The rest of the sentence is qualified as a comment *relative to* the topic. Information status of a constituent is determined with regard to discourse syntactic contexts.

- (8) a. *Chaeg-eul* Suzie-ga  $e_i$  silheoha-n-da.<sup>7</sup>  
 book AK NK dislike-PRS-DF  
 ‘The book, Suzie dislikes.’
- b. *Chaeg-eul* Suzie-ga *gugeos jachae-reul* silheoha-n-da.  
 book AK NK it self-AK dislike-PRS-DF  
 ‘The book, Suzie dislikes it itself.’
- c. *Chaeg-eul* Suzie-ga *geu eotteon geos-do* silheoha-n-da.  
 book AK NK that which one even dislike-PRS-DF  
 ‘The book, Suzie dislikes anything like that.’

As indicated related with (1c), the derivationalist sees that in (8a) there is a gap between the subject and the predicate. If once a trace always a trace,<sup>8</sup> the gap cannot be filled with other lexical materials. But as shown in (8b) and (8c), the gap can be filled with other materials, like *it itself*, *anything like that*, etc. It cannot be said that scrambling involves movement, since there is no trace in (8b, c) from which the putative scrambled phrase is extracted. It is not the case that after scrambling the referring lexical elements are inserted. Thus we can say that:

(9) Scrambling and Resumptive Lexical Elements

The putative scrambled gap can be filled with other heavy lexical materials. This means that scrambling is not movement.

Second, some reciprocal facts support non-movement approach to scrambling. It is not without apparent counterexamples.<sup>9</sup> Consider the following:

- (10) a. *Seoro-reul* [Mary-wa Suzie]-ga  $e_i$  bipanha-yeoss-da.  
 each other AK and NK criticize-PST-DF  
 ‘Mary and Suzie criticized each other, speaking of each other.’
- b. [Mary-wa Suzie]-ga *seoro-reul* bipanha-yeoss-da  
 and NK each other-AK criticize-PST-DF  
 ‘Mary and Suzie criticized each other.’

To avoid complications, let’s assume that the Korean reciprocal *seoro* ‘each other’ is an anaphor, which has its antecedent within governing category in terms of Binding Theory (A) of Chomsky (1981). In movement approach, (10a) and (10b) are assumed to have the same meaning. At movement approach, the reciprocal in (10a) is reconstructed into the position indicated by  $e_i$  in (10a). Though LF structure of (10a) is not distinct from that of (10b), it has been unnoticed that (10a) is not so good as (10b).

<sup>7</sup> In (8a), the symbol  $e$  stands for an empty category, not a trace. Derivationalists see this as a trace left by movement.

<sup>8</sup> It happens that some defending traces are erased in Chomsky (1982) etc. But the examples of (8a-c) have nothing to do with the defending trace.

<sup>9</sup> This indicates such examples as (10a). Confer the discussion related with (10a).

Notwithstanding, (10a) and (10b) are taken to support the movement approach by derivationalists. However, counterexamples are found against the movement approach, as given in Y.-S. Kim (1997).

- (11) a. Harry-ga [Mary-wa Suzie]-reul seoro-ege  $e_i$  sogaeaha-yeoss-da  
 NK and AK each other-TK introduce-PST-DF  
 ‘Harry introduced Mary and Suzie to each other.’  
 b. ?\*Harry-ga seoro-ege [Mary-wa Suzie]-reul sogaeaha-yeoss-da  
 NK each other-TK and AK introduce-PST-DF  
 ‘\*Harry introduced to each other Mary and Suzie.’

Distinct from (11a), (11b) is infelicitous. In (11b), the reciprocal *seoro* ‘each other’ does not have the antecedent in its governing category. By contrast, (11a) is felicitous, in which the accusative antecedent precedes the dative reciprocal. This means that in (11a) the reciprocal is bound in its governing category. If in (11a) the accusative antecedent *Mary-wa Suzie-reul* ‘Mary and Suzie-AK’ were extracted from canonical object position, and if the anaphor interpretation should be done at LF reconstructed structure, then the proper interpretation on the reciprocal could not be obtained. In (11a), the antecedent of the reciprocal is not the reconstructed object in the position  $e_i$ , but the putative scrambled object in front of the reciprocal. Now we can say that:

(12) Scrambling and Construal of Reciprocals

Some reciprocal facts support the non-movement approach to scrambling.

Third, some reflexive facts support the non-movement approach to scrambling. To begin with, consider the following examples that seem to support movement.

- (13) a. *Jagi<sub>i</sub>-reul* Mary<sub>i</sub> -ga  $e_i$  bipanha-yeoss-da  
 self AK NK criticize-PST-DF  
 ‘Mary criticized herself, speaking of Mary.’  
 b. Mary<sub>i</sub> -ga *jagi<sub>i</sub> -reul* bipanha-yeoss-da  
 NK self AK criticize-PST-DF  
 ‘Mary criticized herself.’

(13a) and (13b) are both felicitous, seemingly satisfying movement approach. According to that approach, in (13a) the reflexive *jagi* ‘self’ should be interpreted at LF reconstructed structure. Derivationalists claim that the meanings of (13a) and (13b) are not different. However, it has been unnoticed that (13a) is not so good as (13b). When other lexical materials intervene between the preceding reflexive and the following coreferential NP, the reversed order like (13a) becomes still worse,

- (13’) a. ??*Jagi<sub>i</sub> -reul* manheun saramdeul ap-eseo Mary<sub>i</sub>-ga  $e_i$  bipanha-yeoss- da.  
 self AK many people front-LK NK criticize-PST--DF

- ‘[literally] \*Herself, Mary criticized in front of many people.’  
 b. ??*Jagi<sub>i</sub> -reul* Suzie-ga jamdeun sai-e Mary<sub>i</sub> -ga *e<sub>i</sub>* bipanha-yeoss-da.  
 self AK NK asleep while-LK NK criticize-PST-DF  
 ‘[literally] \*Herself, Mary criticized while Younghi is sleeping.’

(13’a, b) are not good at the coreferential interpretations of the reflexives *jagi* ‘self’ with the subjects *Mary*. If the putative scrambled reflexives should be construed at LF reconstructed structures, it is unthinkable why such infelicities happen to arise. More serious are the examples (14a, b), which seem felicitous, but whose reflexives seem to be not bound within governing categories at LF reconstructed structures.

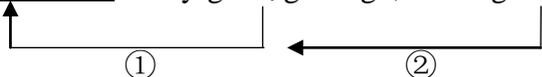
- (14) a. ?*Mary-eui geurim-reul* byeok-eseo *jagi-ga e<sub>i</sub>* tte-eoss-da.  
 GK picture-AK wall-SK self-NK take off--PST-DF  
 ‘[literally] ?Mary’s picture, she herself took it off from the wall.’  
 b. ?*Mary-eui geurim-reul jagi-ga e<sub>i</sub>* silheoha-n-da  
 GK picture-AK self-NK dislike-PRS-DF  
 ‘[literally] ?Mary’s picture, she herself dislikes it.’

(14a) and (14b) exhibit the alleged scrambled structures of the objects *Mary-eui geurim-reul* ‘Mary’s picture-AK’. It should be noted that (14a) and (14b) are not totally infelicitous, though not perfectly grammatical. If the reflexives in (14a) and (14b) must be construed at LF reconstructed structure, the proper interpretations could not be obtained. It is recognized that the reflexives in (14a, b) should be construed at the given surface structures. Thus we can say that:

(15) Scrambling and Reflexive Interpretation.

Some reflexive facts support the non-movement approach to scrambling

Fourth, it is undeniable that the fact that conjoined sentences may share one and the same putative scrambled constituent as shown in (16a) undermines viability of the movement approach to scrambling.

- (16) a. *Mary-eui geurim-reul* Harry-ga *e<sub>i</sub>* geuri-go, Suzie-ga *e<sub>i</sub>* pal-ass-da.  
 GK picture-AK NK draw-CF NK sell-PST-DF  
 ‘Mary’s picture, Harry painted and Younghi sold.’  
 b. *Mary-eui geurim-reul* Harry-ga *e<sub>i</sub>* geuri-go, Suzie-ga *e<sub>i</sub>* pal-ass-da.  


In (16a), the first and the second conjunct share the putative scrambled constituent *Mary-eui geurim-eul* ‘Mary’s picture-AK’. If the shared constituent *Mary-eui geurim-eul* ‘Mary’s picture-AK’ in (16a) is moved both from the first conjunct and from the second one to the sentence initial position, it is natural to say that ① and ② moves in

the fashion of arrow marked in (16b) are not possible. Some tricky movement like Across the Board (ATB) might be proposed to resolve this difficulty. But it is nothing but a makeshift. Now we can sum this as follows:

(17) Scrambling and Shared Constituents

The fact related with shared constituents in conjoined structure support the non-movement approach to scrambling

Fifth, the constituent that has no rigid canonical position like topic or adverbials as in (18) must undermine the validity of the movement approach.

- (18) a. *Mary-reul* Harry-ga son-eul jab-ass-da.  
           H          NK hand-AK hold-PST-DF  
           ‘As for Mary, Harry held her hands.’  
 b. Harry-ga *Mary-reul* son-eul jab-ass-da.  
           NK          H hand-AK hold-PST-DF  
           ‘As for Mary, Harry held her hands.’  
 c. Harry-ga  $e_i$  son-eul jab-ass-da, *Mary-reul*.  
           NK hand-AK hold-PST-DF H  
           ‘Harry held Mary’s hands, speaking of Mary.’

In (18a), the sentence initial *reul*-constituent *Mary-reul* is considered *reul*-topic in Im (1987, 2006, 2007), etc. We don’t know where the *reul*-topic comes from. The most plausible position for the original *reul*-topic might be that before *son-eul* ‘hand-AK’ as in (18b). However, it lacks necessity for the *reul*-topic to be placed there. Usually it is believed that topic occurs in sentence initial position. However, this is nothing but a fixed idea, because there are many kinds of topic in Korean, which seem to have no rigid canonical positions. In (18c), should the tail or afterthought *Mary-reul* be assumed to come from the  $e_i$  marked position? It is not.

Sentence adverbials are on a par with the marked topic constituents in that they also have no rigid canonical positions.

- (19) a. Mary-ga na-ege *eoje* seonmul-eul ju-eoss-da  
           NK me-TK yesterday gift-AK give-PST-DF  
           ‘Mary gave me a gift yesterday.’  
 b. Mary-ga *eoje* na-ege seonmul-eul ju-eoss-da  
           NK yesterday me-TK gift-AK give-PST-DF  
           ‘Mary gave me a gift yesterday.’  
 c. *Eoje* Mary-ga na-ege seonmul-eul ju-eoss-da  
           yesterday NK me-TK gift-AK give-PST-DF  
           ‘Yesterday, Mary gave me a gift.’

(19a-c) exhibit a variety of positions for time adverbial *eoje* ‘yesterday’ to occur.

It occurs sentence medially as in (19a, b) as well as sentence initially as in (19c). Time adverbials can be said free constituents. It can occur anywhere between major constituents. Derivationalists might set up a canonical position for time adverbials to occur. But where is it? Maybe it might be sentence initial position, because the time is related with the proposition as a whole. Even though it is agreed that the typical position for time adverbials is sentence initial, other occurrences of time adverbials cannot be derived from that position.

The situation becomes more complicated when other sentence adverbials are introduced into.

- (20) a. *Dahaenghi* Mary-ga na-ege *eoje* seonmul-eul ju-eoss-da  
 fortunately NK me-TK yesterday gift-AK give-PST-DF  
 ‘Fortunately, Mary gave me a gift yesterday.’  
 b. Mary-ga *dahaenghi* *eoje* na-ege seonmul-eul ju-eoss-da  
 NK fortunately yesterday me-TK gift-AK give-PST-DF  
 ‘[literally] Mary gave me a gift fortunately yesterday.’  
 c. *Eoje* Mary-ga na-ege *dahaenghi* seonmul-eul ju-eoss-da  
 yesterday NK me-TK fortunately gift-AK give-PST-DF  
 ‘[literally] Yesterday Mary gave me fortunately a gift.’

(20a-c) have the modal adverbial *dahaenghi* ‘fortunately’ in addition to the time adverbial. Ordinarily, modal adverbs are considered sentential adverbials, so that it is posited sentence initially. Then the modal adverbial and time adverbial compete on the sentence initial position. There is no resolution for this conflict, because sentence initial position is restricted to only one. In this case, how can we say that other occurrences of adverbials are derived from sentence initial position? Perhaps some stipulation might be put forth. But it is evident that it is not so significant. Thus we can say that:

(21) Scrambling and Free Constituents

Free constituents like topics and adverbials, etc. for which no rigid canonical positions are posited, weaken the movement approach to scrambling.

Sixth, LF reconstruction that the movement approach often postulates for semantic interpretation makes void the semantic effects brought about by putative scrambling. When reconstructed into its extracted position, the scrambled element loses its semantic effects completely. It is undeniable that the putative scrambled constituent has its own function. One example to show the wrong result of LF reconstruction is the idiom chunk.

- (22) a. Geu gage-ga pari-reul nalli-n-da  
 that store NK fly-AK make fly-PRS-DF  
 ‘[literally] That store makes flies fly.  
 ‘[paraphrase] That store’s business is slack.’  
 b. \*Pari-reul<sub>i</sub> geu gage-ga e<sub>i</sub> nalli-n-da

fly-AK that store-NK make fly-PRS-DF

Clearly, (22b) is odd, due to the damage from the putative scrambling. However, if the undoing reconstruction at LF assumed in the movement approach comes to restore idiom effect, then (22b) should be perfect. But this is not true. Thus we can say that:

(23) Scrambling and Idiom Chunk

The damage done to idiom chunk by scrambling and restored by LF reconstruction gives damage to the movement and reconstruction approach.

Seventh, if the putative scrambled constituents do have semantic effects not prepared in the underlying structure, then the putative scrambling violates the principle of ‘meaning preserving’ of transformation. On the other hand, if scrambling applies in PF as a stylistic rule, then it should be permitted that PF rule is sensitive to meaning changing. However, it is wrong to take the position that PF rule could change the meaning arbitrarily.

Eighth, scope facts with regard to quantification undermine the merit of the movement approach.

- (24) a. Modeun namhaksaeng-i eotteon yeohahsaeng-eul joaha-n-da.  
 every boy student-NK some girl student-AK like-PRS-DF  
 ‘Every boy student likes one girl student.’ [ $\forall > \exists$ ,  $\exists > \forall$ ] (for Korean)
- b. Eotteon yeohahsaeng-eul modeun namhaksaeng-i  $e_i$  joaha-n-da.  
 some girl student-AK every boy student-NK like-PRS-DF  
 ‘One girl student, every boy student likes.’ [ $\exists > \forall$ ,  $\forall > \exists$ ] (for Korean)

In (24a), both wide and narrow scope readings on existential quantifier are available on a par. On the other hand, in (24b) the wide scope reading on existential quantifier is more available than the narrow one, though not excluding the latter.<sup>10</sup> LF reconstruction will make void these subtle differences. Let’s present this as follows:

(25) Scrambling and Scope Interaction between Quantifiers

The fact that LF reconstruction nullifies the subtle superior effects of the preceding quantifier over the following one undermines the movement and

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<sup>10</sup> It is noted that scope phenomenon interacts with various semantic and pragmatic factors. The predicate *joaha*- ‘to like’ in (24b) makes it easy to read the scope of existential quantifier narrowly over the universal quantifier. As for the predicate *geuriweoha*- ‘to miss’, the narrow scope reading is more available than the wide one as in the example below (b). It is because the act of *geuriweoha*- ‘miss’ is more personal or private than that of *joaha*- ‘like’

- (a) Modeun namhaksaeng-i han yeohahsaeng-eul geuriweoha-n-da.  
 every boy student-NK one girl student-AK miss-PRS-DF  
 ‘Every boy student misses one girl student.’ [ $\forall > \exists$ ,  $\exists > \forall$ ] (for Korean)
- (b) Han yeohahsaeng-eul modeun namhaksaeng-i  $e_i$  geuriweoha-n-da.  
 one girl student-AK every boy student-NK miss-PRS-DF  
 ‘One girl student, every boy student misses.’ [ $\exists > \forall$ ,  $\forall > \exists$ ] (for Korean)

reconstruction approach.

Ninth and the last, scope facts relative to modal particle (or delimiter) *man* ‘only’ threaten the existence of scrambling as movement.

- (26) a. Mary-ga na-(ege)-*man* seonmul-eul ju-eoss-da  
NK me-(to)-only gift-AK give-PST-DF  
‘[literally] Mary, only to me, gave a gift.’  
b. Mary-ga seonmul-eul na-(ege)-*man* ju-eoss-da  
NK gift-AK me-(to)-only give-PST-DF  
‘Mary gave a gift only to me.’  
c. Na-(ege)-*man* Mary-ga seonmul-eul ju-eoss-da  
me-(to)-only NK gift-AK give-PST-DF  
‘Only to me, Mary gave a gift.’

The influence of the modal particle *man* ‘only’ in (26a) ranges over the scope from the constituent *na-(ege)-man* ‘only to me’ to *ju-eoss-da* ‘gave’. So (26a) means that Mary ‘didn’t give a gift’ to others except me. By contrast, in (26b) the scope ranges over only two constituents, i.e. *na-(ege)-man* ‘only to me’ and *ju-eoss-da* ‘gave’. Thus (26b) means that a gift, Mary ‘didn’t give’ to others except me. On the other hand, in (26c) the scope of the particle *man* ‘only’ ranges over the entire sentence. Thus (26c) means that it is not the case that ‘Mary gave a gift to others’ except me. It is obvious that there are subtle and important meaning differences among (26a-c). If LF reconstruction returns the modal particle phrase to its original position, these semantic differences among (26a-c) disappear. Thus we can say (27):

(27) Scrambling and Scope Interpretation of Modal Particle *man* ‘only’

The fact that LF reconstruction nullifies the scope distinctions with respect to the modal particle *man* ‘only’ crucially weakens the movement and reconstruction approach.

In sum, though superficially some facts regarding reflexives and reciprocals might seem to support movement approach to scrambling, it is obvious that movement approach must run into counterexamples that are not to be so easily coped with.. It is evident that the movement approach has fatal weakness and that it cannot be supported empirically as well as theoretically.

## 5. Syntactic Analysis and Remnant Constituent

Basically, this paper claims that syntactic analysis should be based on the lexical information given in the lexicon, which could be called the ‘Lexicalist Case Hypothesis’ (LCH, Cf. Im 2006). Let’s present this as follows:

(28) Case Lexicalist Hypothesis (CLH)

As far as syntactic Cases are concerned, they should be defined on the bases of the lexical information given in the lexicon.

Let's assume the simple lexical information of the verb *jab-* 'hold' as follows:

(29) Some Lexical Information of *jab-*

- a. POS (Part Of Speech): V
- b. Argument Information: <NKP, AKP, \_ >
- c. Semantic Information: 'hold'

(29a) shows the part-of-speech (POS) information of *jab-* 'hold'. The word *jab-* is a verb in Korean. (29b) shows the argument information of the verb *jab-*. According to (29b), the verb *jab-* is two-place predicate. It is typical transitive verb. (29c) shows the semantic information of the verb *jab-* 'hold'.

The information contained in the angled bracket in (29b) indicates that the verb *jab-* 'hold' takes AKP (=Accusative Case Phrase) and NKP (=Nominative Case Phrase) as its regular arguments to make a VP (in terms of VP-internal Subject Hypothesis) category. Consider how the syntactic structure of (1a, b) repeated as (30a, b) can be analyzed.

- (30) a. Harry-ga *Mary-eui son-eul* jab-ass-da.  
NK GK hand-AK hold-PAST-DF  
'Harry held Mary's hand.'
- b. *Mary-eui son-eul<sub>i</sub>* Harry-ga *e<sub>i</sub>* jab-ass-da.  
GK hand-AK NK hold-PST-DF  
'Mary's hands, Harry held.'

Before carrying out a full syntactic analysis of a sentence, it is necessary to carry out morphological analyses and partial syntactic analyses of the target phrases and elements given in the sentence. In (30a), the constituent *Mary-eui* 'Mary-GK' is analyzed into GKP (Genitive Case Phrase), *Mary-eui son* 'Mary's hand' into NP, *Mary-eui son-eul* 'Mary's hands-AK' into AKP, *Harry* into NP, *Harry-ga* into NKP, the element *-ass-* into PF (Prefinal Ending [denoting tense]), and *-da* into DF (Declarative Final ending) by reference to the lexical information given in the lexicon and to some partial rules of combinations. This is a very simple picture of morphological and partial syntactic analyses. The full details of analyses are more complex (Cf. Im & Lee 2002).

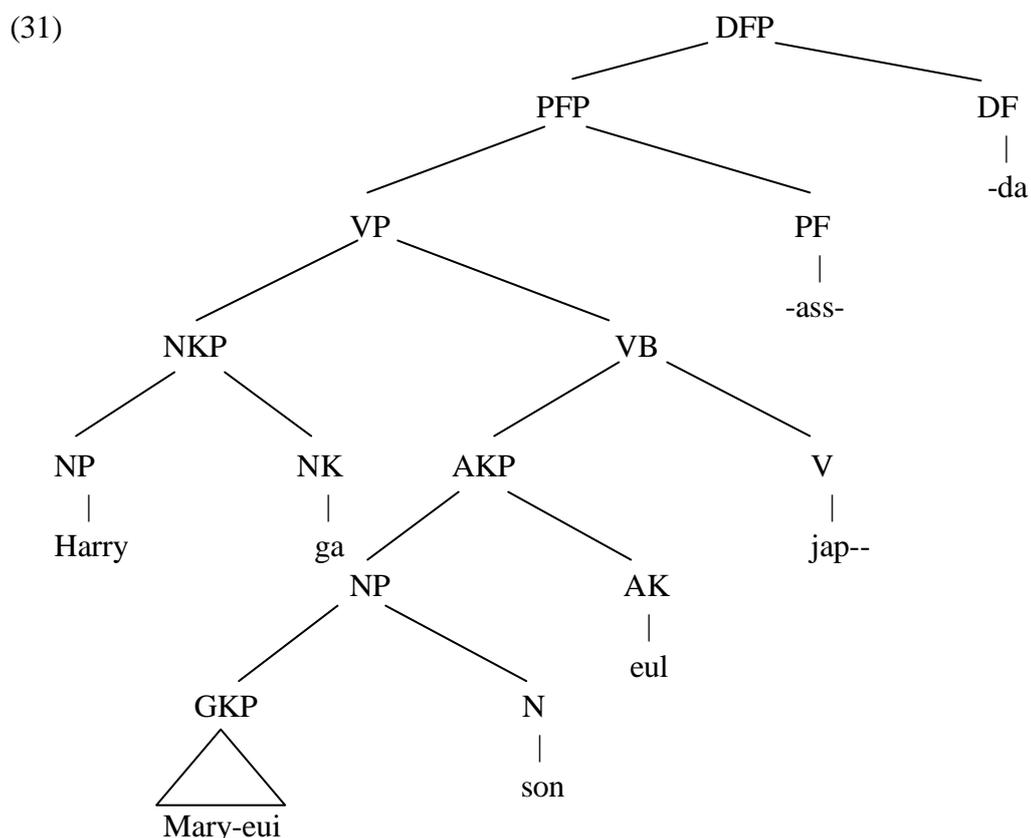
Now (30a) is amenable to syntactic analysis under the HVMP (Hypothesis of Variable Medial Projection)<sup>11</sup> which correlates the number of argument(s) of a head with

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<sup>11</sup> According to the HVMP, syntactic analysis for structure building proceeds by setting up bar projections as many as the number of argument(s) of a verb, based on the lexical information given as in (29b). On this principle, two-place predicate has two bar levels: one is V-bar (=VB) and the other V double bar (=VBB, in this case, this is maximal, hence VP). The "double object construction," or three-place predicate has three bar levels; one is V-bar (=VB), a second V double

the number of medial projection(s). By the HVMP, we can apply the lexical information to the syntactic analysis. One of the important principles that works here is the ‘Principle of Strict Correspondence’ which indicates that the target constituent can be analyzed as such, only when the order and contents coincide with the information given in the argument information in the lexicon.

Keeping these principles in mind, we can analyze (30a) in a proper and principled way. In the first place, the verb *jab-* ‘to hold’ takes an AKP *Mary-eui son-eul* to make VB (V’), since AKP in (29b) is the first argument from the right to be combined with the head. And then the VB in turn takes an NKP *Harry-ga* to make VP (VBB, this is maximal, hence VP), since NKP is next to AKP from the right. The element *-ass-* ‘past tense marker’ analyzed as PF takes VP to make PFP (Prefinal Ending Phrase, this is usually called TP). And then DF *-da* takes PFP to make DFP (Declarative Final Ending Phrase, or this is usually called CP). The tree diagram (31) above reflects the results of the syntactic analyses just described.



In contrast, (30b) is distinct from (30a) in that the putative scrambled constituent is positioned sentence initially and the canonical object position is vacant. In this case, the syntactic analysis based on the HVMP cannot proceed in the same fashion as in (30a). The object cannot be properly analyzed, because it is not in its canonical position. The verb

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bar (=VBB), and a third V triple bar (=VBBB, in this case, this is maximal, hence VP). The principle is very simple and easy. Cf. Im (2006, 2007).

*jap-* ‘hold’ takes nothing to project VB (V'). In this case, the verb *jap-* cannot take the sentence initial AKP to make VB projection, due to the Principle of Strict Correspondence. The sentence initial AKP in (30b) is not the proper argument of the predicate *jap-* ‘hold’, so the verb V projects to VB without taking AKP. It occurs at the sentence initial position for the purpose of discourse strategy.

The VB (30b) in turn takes NKP *Harry-ga* to make VP in terms of the HVMP. The next step is to cope with the putative scrambled constituent. The point is that the sentence initial AKP in (30b) is not analyzed with the information given in the lexicon in (29b), due to the Principle of the Strict Correspondence. The argument information given in (29b) with respect to AKP is exhausted to analyze the empty argument given next to the verbal head in (30b). That is to say, (29b) no longer has the information with which to analyze the sentence initial constituent with *eul/reul*. We cannot help but say that the first constituent *Mary-eui son-eul* ‘Mary’s hand-AK’ in (30b) is a remnant which is left unanalyzed in the syntactic analysis in terms of the HVMP. This can be called ‘syntactic remnant’. Let’s present this as follows:

(32) Syntactic Remnant

The constituent that does not occur at canonical position and cannot be analyzed properly in terms of ‘Strict Correspondence Principle’ is called syntactic remnant.

In this paper, it is claimed that the syntactic remnant should be analyzed as a ‘syntactic topic’, because the remnant should be settled syntactically at any rate. It is unthinkable for a constituent in a sentence to remain not endowed any syntactic function. The most appropriate function to be given to the syntactic remnant is that of syntactic topic. This may be called ‘word order topic,’ due to the relatedness of topic with word order. Let’s present this as follows:

(33) Syntactic Remnant and Word Order Topic

The Syntactic Remnant of syntactic analysis to which no proper syntactic function can be given, which has no other salient feature except word order is to be characterized as ‘word order topic’.

(33) is a statement which presupposes that there are many kinds of topic in Korean at least. Usually, it is assumed that only the *eun/neun* phrase at sentence initial position is to be qualified as a topic in Korean. However this is nothing but a fixed idea, because the discourse-pragmatic *aboutness* relation does massively hold between a preceding constituent and the following one in a sentence or in a discourse, even between a thing and the calling of it, or even between a thing and the response to it, etc. This extends to the effect that any major constituent in a sentence can be a discourse-pragmatic topic. The relevant principle may be called ‘Ubiquitous Topic Hypothesis’,<sup>12</sup> which is summarized

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<sup>12</sup> For the justification of Ubiquitous Topic Hypothesis, see Im (2006, 2007) and Im & Lee (2002), etc.

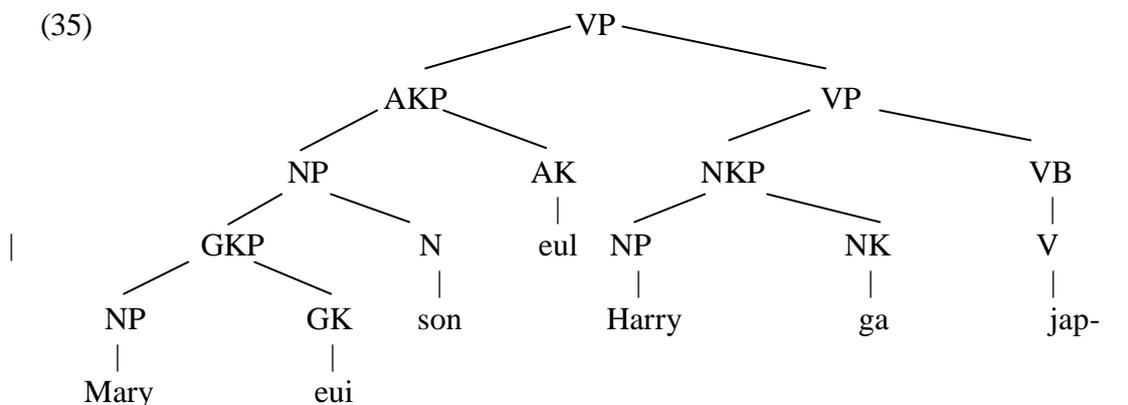
as follows:

(34) Ubiquitous Topic Hypothesis (UTH)

Strictly speaking, any major constituent can be a topic in a sentence. Here “major constituent” refers to semantically and/or pragmatically important constituents in a sentence or a discourse.

In terms of (34), the syntactic remnant can be characterized as a syntactic topic, because the sentence initial AKP is talked about in the rest of the sentence. By the UTH of (34), all of the constituents of a sentence may be called discourse-pragmatic topic. It is often said that a subject is an unmarked topic (Cf. Lambrecht (1994) among others). But this is not so significant from the point of view of syntactic analysis. Major constituents in a sentence already have the splendid syntactic function just like a subject, an object, etc. However, when (34) applies to syntactic remnants, the situation becomes totally different. Functionally naked constituent makes a stately syntactic constituent. It is inevitable to apply UTH to the syntax of Korean, Japanese and the like, because in these languages syntactic remnants are too often encountered.

From these considerations, we can get the following tree diagram (35) for (30b). (35) shows only VP structure.



In (35), the putative scrambled constituent AKP occurs at VP adjunction structure. The structure is on a par with those of other marked topics in Korean, like *eun/neun* topic, *i/ga* topic, *eul/reul* topic, etc. The shared constituency of the putative scrambled element like (16a) supports the postulation of adjunction structure. The sentence initial AKP is not a simple AKP, but a topicalized AKP.

## 6. Evidences for Word Order Topic

Some empirical evidences like the following can be found to support topichood of the putative scrambled constituents.

First, it should be noted that the ‘paraphrase’ relation by topic introducing

expressions presumably supports the topic-comment articulation in the putative scrambled structure. Consider the following:

- (36) a. *Mary-ege<sub>i</sub>(ro malha-myeon)* Harry-ga *e<sub>i</sub>* seonmul-eul ju-ass-da.  
           TK (speaking of)                  NK          gift-AK give-PAST-DF  
           ‘Speaking of Mary, Harry gave a gift.’
- b. *Seonmul-eul<sub>i</sub>(ro malha-myeon)* Harry-ga *Mary-ege e<sub>i</sub>* ju-ass-da.  
           gift-AK (speaking of)                  NK          TK          give-PAST-DF  
           ‘Speaking of a gift, Harry gave to Mary.’
- c. *Harry-ga seonmul-eul<sub>i</sub>(ro malha-myeon)* *Mary-ege e<sub>i</sub>* ju-ass-da.  
           NK          gift-AK (speaking of)                  TK          give-PAST-DF  
           ‘Harry gave to Mary, speaking of a gift.’

(36a) is an example that the dative constituent (Target Case in this paper) is allegedly scrambled to the sentence initial position. The expression in the bracket of (36a) shows that the sentence initially scrambled *Mary-ege* ‘Mary-TK’ can be paraphrased with *Mary-ro malhamyeon* ‘speaking of Mary’ i.e. the topic-introducing expression in the sense of Lambrecht (1984). The same can be said to (36b). The sentence initially scrambled constituent *seonmul-eul* ‘a gift-AK’ can be paraphrased with *seonmul-ro malhamyeon* ‘speaking of a gift’. Nearly the same can be said to (36c). In (36c), the object is allegedly scrambled before the dative. It is also paraphrased with *seonmul-ro malhamyeon* ‘speaking of a gift’. Someone might well say that the paraphrase relation cannot prove anything. However, it is undeniable that it provides some clue to the real nature of the scrambling. It is significant to the discourse-syntactic status of the allegedly scrambled constituent that every scrambled constituent could be paraphrased with topic-introducing expression. Now we can state the paraphrase relation as follows:

˘ (37) Paraphrase Relation with Topic-Introducing Expression

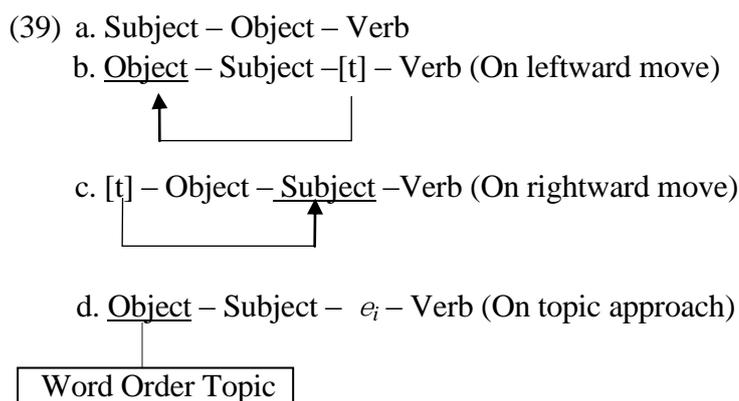
That the allegedly scrambled constituent in a sentence can be paraphrased with topic-introducing expressions says that the scrambled constituent has the status of syntactic topic.

According to (37), in (36a) the putative scrambled TKP given first is a word order topic, and the rest of (36a) can be qualified as a comment. In (36b) the putative scrambled AKP in the sentence initial position also is a word order topic, and in (36c) the AKP put in front of TKP also is a word order topic with respect to the rest of the sentence. This can be summarized as follows:

(38) Evidence 1 for Word Order Topic

As usual, the putative scrambled constituent shows the paraphrase relation with topic-introducing expressions. This means that the alleged scrambled constituent in a sentence gets the status of syntactic topic.

Second, this paper's approach just sketched as in (35), which sees the putative scrambled constituent as a word order topic (henceforth, 'topic approach') can perfectly catch the non-directionality of topic structure. At movement approach, scrambling is always leftward move as in (39b). The movement is always leftward in the generative approach. However there is no theory-external reason to see the scrambling as the leftward move. Even the rightward move could describe the whole picture of scrambling, positing some arbitrary feature on the right side. The movement can be shown symbolically as in (39b, c) below.



(39a) shows canonical basic word order for transitive structure in Korean. (39b) schematically shows the leftward move as assumed in the movement approach. However the same structure as (39b) can be resulted from the rightward movement, which is shown in (39c). The surface effect is not distinct from each other in both movements except the trace position. However, in the topic approach as shown in (39d), this kind of directionality conflict of movement does not arise. In (39d), the object in sentence initial position is nothing but a word order topic in our term. Is it moved from the canonical object position? Such question does not arise in (39d). Only the given surface structure is the object of syntactic analysis. Thus it can be said that the word order topic approach is superior to the movement approaches in coping with the arbitrary directionality problems. Let's present this as follows:

(40) Evidence 2 for Word Order Topic

Since the topic approach to scrambling has no directionality problem, it is superior to the movement approaches.

Third, the word order topic is on a par with the particle topic like *eun/neun* topic, *i/ga* topic and *eul/reul* topic, in Korean, in not occurring in the discourse initial sentence as in (41a).

- (41) a. \*Yesnal yesnal goryeojjeog-e *gonju-reul<sub>i</sub>* han imgeumnim-i  $e_i$  sarangha-  
 once upon a time-LK princess-AK one king-NK love-  
 yeoss-seupni-da.

PST-RPF-DF

‘\*Once upon a time, a princess, a king loved.’

- b. Yesnal yesnal goryeojjeog-e han imgeumnim-i gonju-reul sarangha-  
once upon a time-LK one king-NK princess-AK love-  
yeoss-seupni-da.

PST-RPF-DF

‘Once upon a time, a king loved a princess.’

- c. \*Yesnal yesnal goryeojjeog-e han imgeumnim-i gonju-*neun* sarangha-  
once upon a time-LK one king-NK princess-H love-  
yeoss-seupni-da.

PST-RPF-DF

‘\*Once upon a time, a king loved her, speaking of a princess.’

(41b) is a typical example of the discourse initial sentence, the function of which could be said in large to introduce brand-new entities into a discourse. It is agreed that the brand new entity does not occur as a marked topic, and it is obvious that (41a) is not felicitous. This means that the putative scrambled constituent performs a function of word order topic. (41c) is also infelicitous, with the *eun/neun* topic relative to the object. In this respect, the word order topic is on a par with *eun/neun* topic in the basic aspect of the topic.<sup>13</sup> Thus we can say that:

(42) Evidence 3 for Word Order Topic

The fact that the putative scrambled constituent does not occur in discourse initial sentences, on a par with particle topic, supports the word order topic.

Fourth, the putative scrambled constituent can hardly be used in on-the-spot description of an event as in (43).

- (43) a. ??As! *Kkoch-eul<sub>i</sub>* Mary-ga *e<sub>i</sub>* tta-ass-da

ala flower-AK NK pick-PST-DF

‘Look! Flower, Mary picked.’

- b. \*Eomeona! *Eolgul-eul<sub>i</sub>* Mary-ga *e<sub>i</sub>* ssis-eoss-da.

oh face-AK NK wash-PST-DF

‘[literally] \*Oh dear! Speaking of the face, Mary washed.’

(43a) and (43b) are not felicitous. That is due to the conflict between the exclamation and the putative scrambling. Exclamation is suitable to represent the on-the-spot description of an event,<sup>14</sup> whereas the putative scrambled constituent represents the marked topic that presupposes some previous situation. Thus we can say that:

<sup>13</sup> Here the basic aspect of the topic refers to the presentational aspect of topic. Cf. Im (2007).

<sup>14</sup> The ‘on-the-spot description of an event’ might be similar to the *thematic judgement* introduced in Kuroda (1972). But the former is more immediate response to the event than the latter.

(44) Evidence 4 for Word Order Topic

The fact that the putative scrambled constituent does not occur in the on-the-spot description of an event supports the word order topic.

Fifth, by the same token, the putative scrambled constituent can hardly be used in a new announcement of an event or a fact, and in a first declaration of laws or regulations and the like.

- (45) a. ??*ilban sangdaeseong wollli-reul*<sub>i</sub> Ainshutain-i 1916 nyeon-e *e*<sub>i</sub> balpyoha-  
the general relativity principle-AK Einstein-NK year-LK present-  
-yeoss-da (as a first announcement of the fact)  
-PST-DF

‘The Principle of the General Relativity, Einstein presented in 1916.

- b. ??*gingeupjochi 9ho-reul*<sub>i</sub>, neo-neun *e*<sub>i</sub> eogyeoss-eumeuro, chepoha-  
Emergency Measure 9-AK you H violate because arrest-  
n-da  
PRS-DF

‘[literally]\*Emergency Measure 9, because you violate, you are under arrest.’

Both (45a) and (45b) are not felicitous as a first announcement of an event. This is due to the indefiniteness of the putatively scrambled object in (45a, b). The firstly announced entity should be in its own syntactic position. Only in that case, the intended meaning involved in the newly introduced entities can be communicated. Otherwise, the purport of the intention of the speaker might be distorted. Thus we can say that:

(46) Evidence 5 for Word Order Topic

The fact that the putative scrambled constituent does not occur in a first announcement of an event supports the word order topic.

Sixth, the putative scrambled constituent can hardly be used in a sentence involved in describing an entity that has a consciousness problem, especially in introducing contexts. Consider the following:

- (47) a. *Jamja-neu-n ai-ga mom-eul duicheogi-n-da*  
sleep-PRS-AF child-NK body-AK twist and turn-PRS-DF

‘The sleeping child twists and turns its body.’

- b. \**Mom-eul Jamja-neu-n ai-ga e<sub>i</sub> duicheogi-n-da*. (in introducing contexts)  
body-AK sleep-PRS-AF child-NK twist and turn-PRS-DF

‘The sleeping child twists and turns its body.’

- (48) a. *Bihaenggi-ga bakui-reul naery-eoss-da*.  
airplane-NK wheel-AK lower-PST-DF

- ‘The airplane lowered the wheel.’  
 b. \**Bakui-reul<sub>i</sub> bihaenggi-ga e<sub>i</sub> naery-eoss-da.* (in introducing contexts)  
 wheel-AK airplane-NK lower-PST-DF  
 ‘The wheel, the airplane lowered.’

The example (47a) without the putative scrambling has nothing infelicitous. However, (47b) shows infelicity. This is due to the consciousness constraint working in the discourse initial sentence, which prohibits scrambling of the constituent like the entity *jamjaneun ai* ‘the sleeping child’ that cannot be seen to have consciousness. The same can be said to (48b), since it is agreed that an airplane has no consciousness. What is the reason of this fact? As to the unconscious entity, its action or motion is not related with the consciousness, so the body parts or the related things involved in action is not salient independently. That body parts or the related things involved in action is given the special attention of the speaker means that the entity does have a consciousness, especially in introducing contexts. But if they are definite, the consciousness constraint disappears, because the body parts or the related things involved action is afore-mentioned, i.e. having the experience to be the target of a consciousness once. This means that the alleged scrambled constituent shares the topichood with other particle topics. Now we can say that:

(49) Evidence 6 for Word Order Topic

The fact that the putative scrambled constituent has Consciousness Constraint supports the word order topic.

Seventh, as explicated in (35) and hinted with respect to (16), the shared constituent not only supports the postulation of adjunction structure, but lends the support for the word order topic syntactically. The shared constituent should be posited at VP or PFP (Prefinal Ending Phrase, usually IP) adjunction position, so that the resulting structure is equivalent to topic-comment structure. Let’s present this as follows:

(50) Evidence 7 for Word Order Topic

The shared constituent lends the support for the word order topic syntactically.

Though the proof of the topichood of the putative scrambled constituent is sufficient, the word order topic is a very weak topic, in contradistinction with the particle topics, etc., because it does not have a strong marking for topic except the mere trait appearing in the order of constituents.

## 6. Conclusion

As is well known, various hypotheses has been put forth concerning the motivation of the so-called scrambling. However, it is evident that Case theory, EPP feature, and

Focus Feature, etc. does not support the movement of the putative scrambled constituent. The radical LF-reconstruction or the LF-lowering raises serious questions about the movement at S-structure or at LF, due to the infelicitous results that the operations bring about.

Thus it is reasonable to claim that the word order of the surface structure should be seen as given, and the semantic interpretation should be done to the given structure. To do this, it is necessary to analyze the syntactic structure as given. Or it will lose the subtle differences between the original structure and the alleged scrambled structure.

For this purpose, this paper takes much of the syntactic analysis in terms of the Lexicalist Case Hypothesis (LCH) that says that as far as syntactic case is concerned, the case should be defined on the basis of lexical information given in the lexicon, and the Hypothesis of Variable Medial Projection (HVMP) that says that the number of medial projections should be matched with the number of arguments of a predicate. On this syntactic analysis, the putative scrambled constituent should be analyzed as syntactic remnant, not given any syntactic function to. The Ubiquitous Topic Hypothesis (=UTH) applied, the syntactic remnant could be given a syntactic topic function. The putative scrambled constituent can be called 'word order topic'.

The facts that the word order topic cannot be used in a discourse-introducing sentence, nor in on-the-spot descriptions of events, nor in a sentence announcing a brand-new news, etc. suggest that the scrambled constituents have the definiteness effects, one of the important and remarkable features of the marked topics in Korean.

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# The effects of vowel quality on stress placement of English nonsense words

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## Abstract

This paper examines the effect of vowel quality, especially [a], on stress placement for English nonsense words. To that end, an experiment with 7 nonsense English words with the vowel [a] was conducted with 102 Korean college students. The result shows that stress is given on the second syllable when the words have [a] on the second syllable while stress is assigned on the first syllable if [a] is on the first syllable. Consequently, we can conclude that [a] affects the decision of stress placement by Korean learners of English when they encounter unknown words.

**Keywords:** English stress, vowel quality, Korean learners, nonsense words

## 1. Introduction: two previous experiments

This paper examines the effect of vowel quality, especially [a], on stress placement for English nonsense words. For that purpose, a small scaled experiment was conducted. Before introducing the experiment, it is necessary to introduce two other experiments, which were carried out previously (Kim 2002; Kim2006).

Traditionally stress is thought not to be stored in the lexicon but derived by stress rules which are internalized in native speakers' mind. According to the rules *Canada* has regular stress while *banana* has irregular stress since stress is assigned to the penultimate syllable when it is heavy as in *agenda* and *tomato*. Otherwise, antepenultimate syllables get stress as in *Canada* and *America*.

But it has been thrown into doubt that native speakers would really feel *banana* irregular. In other words, would native speakers assign stress on the first syllable when they are given new, strange words with the same syllable configuration as *Canada* and *banana*?

To find out the answer to the question, an experiment was conducted with native speakers, who were 16 college students, U of Michigan, Ann Arbor (Kim 2002). They were given nonsense words like *conamo*, *timona* and *spumad* and asked to mark the syllable they would prefer to stress. The result was surprising. Almost 60% of the college students put stress on the second syllable. That is, they prefer *banana* to *Canada*, which is not accordance with the stress rules believed to be internalized in native speakers' minds.

(1) Stress of nonsense nouns by native speakers

Test Words	Americans(Kim 2002)	
	Sss	sSs
Conamo	6	7
Timona	7	9
Spumado	4	11
Borica	4	9
Pecido	3	11
Stugany	9	5
Gelico	5	8
Limana	3	11
Tenarow	5	9
Cadoma	2	12
Pimedo	5	10
Padory	5	9
Whiloda	4	7
합계(%)	31.5	59.9

There was only one word which does not follow the stress pattern of *banana*. That is *Stugany*. It was *STUgany* not *stuGAny*. Stressed syllables are marked with capital letters. To find out why *stugany* behaves differently from other words, Collins Cobuild dictionary is consulted. It was found that there are 30 words beginning with *stu*. Interestingly, all of them have stress on the first syllable, *STU-*. Thus, we can ascribe the first syllable stress on *Stugany* to analogy to existing words.

After the experiment with native speakers of English, a question arises: how Koreans learning English as a foreign language would stress the same nonsense words. The reason to come to the question is that Koreans are not native speakers and thus they do not have the internalized stress rule in their minds and also their native language,

Korean, does not have stress at all. If they have Korean stress rules, it is possible they could apply the Korean rules when they encounter new words which they do not know the stress of.

So, another experiment was designed with 23 Korean college students (Kim2006). The result is given here.

(2) Stress of nonsense English nouns by Koreans

Test Words	Koreans(Kim2006)	
	S s s	s S s
Conamo	3	17
Timona	10	10
Spumado	7	10
Borica	5	10
Pecido	9	10
Stugany	12	4
Gelico	13	7
Limana	4	13
Tenarow	1	16
Cadoma	12	8
Pimedo	5	14
Padory	12	5
Whiloda	4	15
합계(%)	27.3	86.9

Koreans' response was very similar to that of native speakers as can be seen above. 86% percent of the students chose stress pattern of *banana*. And again *Stugany* has stress on the first syllable as was with native speakers. There are three more words with stress on the first syllable: *gelico*, *cadoma* and *padory*. Putting aside *gelico*, *cadoma* and *padory* seem to have something in common. Both of the words have the vowel [a] in the first syllable. Thus, it was temporarily concluded that Koreans have tendency to stress the syllable with [a] when there is [a] in the words. There are 6 words with [a] in them: *Cadoma*, *Padory*, *Conamo*, *Spumado*, *Limana*, *Tenarow*. All of them have stress on the [a] syllable.

## 2. Current Experiment

Eventually we arrive at the purpose of the current research: it is to test the hypothesis that it is the vowel [a] which attracts stress. More concisely, the current study is to see if the vowel [a] has influence on the Korean learner's decision of stress location of unknown English words.

For the experiment 6 nonsense words were used. All of them were words used in the previous experiments. Only the vowels were switched around. For example, previous *Conamo* and *Padory* were changed into *Canomo* and *Podary*. The test words are *Podary*, *Codama*, *Canomo*, *Tanerow*, *Spamudo*, *Staguny*, and *Lamina*. Subjects were 102 college students taking Introduction to Phonetics or Introduction to Linguistics. They were asked to choose stress pattern they would use for given nonsense words. Responses from students who have been taught about English stress rules are not included. The result is given (3) and (4).

### (3) Words with [a] in the second syllable

	Sss	sSs	total
Codama	14	88 (86%)	102
Podary	50	52 (51%)	102
Total	64	140 (69%)	204

### (4) Words with [a] in the second syllable

	Sss	sSs	Total
Tanerow	61 (60%)	41	102
Canomo	70 (69%)	32	102
Spamudo	82 (80%)	20	102
Staguny	80 (78%)	22	102
Lamina	35 (34%)	67	102
Total	328 (64.5%)	182	510

The result clearly shows that when the words have [a] on the second syllable, stress is given on the second syllable. If [a] is on the first syllable, stress is assigned on the first syllable. Consequently, we can conclude that [a] affects the decision of stress placement by Korean learners of English when they encounter unknown words.

### 3. Discussion

To find out why it should be [a], let's consider the phonetic features of [a]. [a] is the lowest vowel in English with the great jaw opening. The low vowel is the most sonorous (Ladefoged 2001). And according to researchers sonorous sounds are perceived as prominent and prominent sounds attract stress (Hayes 1995). In addition, according to Rice (1996), low vowels are longest monophthongs phonetically and are not only longer than the other short vowel but also even longer than long vowels. These long vowels have been reported to be fully stressed than high vowels and in some languages, which do not have long vowels, syllables with a low vowel take priority of attracting stress counting as heavy (Greenberg and Hichcock 2001; Ahn 2003).

Let us consider English words with penultimate stress. When the penultimate syllables contain the vowel [a] there is only one consonant between the vowels as in (5) but when the penultimate vowel is not [a] there is geminate as in (6).

(5) Alabama, banana, cadaver, Gestapo, errata

(6) Achilles, antenna, dilemma, committee, gorilla, spaghetti

The next question to ask is why non native speakers are influenced by phonetic features of vowels. It may be that they do not have internalized stress rules for native language and that they do not master the stress rules of the target language, either, yet. However, they know there must be one stress per word in English.

### 4. Conclusion

Further, following questions could be pursued. First, a similar experiment with words with [a] in both the first and the second syllables would be carried out. Secondly, it would be investigated whether there is a hierarchy in degree to attract stress among vowels other than [a]. If so, further research could examine whether the vowel hierarchy accords with the sonority hierarchy. Finally, it may be checked whether more proficient learners are freer from the effect of phonetic features of vowels.

Finally, it would be good to point out the limitations of this research. This paper has not provided an explanation for words without [a] but stressed on the first syllable like *GElico* and words with [a] on the first syllable but stressed on the second syllable like *LaMIa*. To make stronger the claim that [a] attracts stress, statistical analysis

seems to be needed.

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# On the Nature of the Dative Case in Korean Dative Experiencer Constructions

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## Abstract

Most previous studies on Korean psych-predicates have treated the dative case in Dative Experiencer Constructions (DECs) as inherent case, which means that it is not assigned systematically by the syntactic or semantic structures of the predicate but determined by a certain thematic role, which is experiencer in this case. Contrary to these studies, the goal of this paper is to show that the dative in DECs is not inherent or quirky case but semantic structural case. That is, I argue, under the framework of Conceptual Semantics, that the dative case is predictable from the lexical conceptual structure of the psych-adjectives that constitute DECs.

**Keywords:** dative, dative experiencer construction, psych-predicates, Conceptual Semantics, Case-mapping in Tiers

## 1. Introduction

Most previous studies on Korean psych-predicates have treated the dative case in Dative Experiencer Constructions (DECs) as inherent case, which means that it is not assigned systematically by the syntactic or semantic structures of the predicate but determined by a certain thematic role, which is experiencer in this case.<sup>1</sup> Contrary to these studies, the goal of this paper is to show that the dative in DECs is not inherent or quirky<sup>2</sup> case but

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<sup>1</sup> The notion of inherent case is usually contrasted by the notion of (syntactic) structural case as in Chomskyan tradition:

Inherent Case (Chomsky 1981: 171)

Structural Case in general is dissociated from theta-role; it is a structural property of a formal configuration. Inherent Case is presumably closely linked to theta-role.

<sup>2</sup> By the term ‘quirky’, I mean “there is no regularity to be captured: the case assignment is truly exceptional to the system and no syntactic or semantic regularities can be detected” (Butt

semantic structural case. That is, I argue that the dative case is predictable from the lexical conceptual structure of the psych-adjectives that constitute DECs.

In doing so, first, I will briefly introduce Korean DECs and the problems of the previous studies which see dative as inherently given by experiencer in section 2. In sections 3 and 4, I will look into Korean DECs in more detail regarding their case marking patterns and some other related characteristics, which would be the basis for understanding the nature of the dative case more thoroughly. Especially in section 4, I will show that a corpus study done using the World Wide Web empirically supports the most important characteristic that I suggested in section 3, which is polysemous nature of psych-adjectives in DECs. After that, in section 5, I propose the semantic structures of the psych-adjectives of DECs, which are the key to the understanding of the nature of the dative case and the characteristics of the construction discussed in section 3 and 4. The framework used for the formalizing the semantic structures of the psych-predicates is Jackendoff's (1983, 1990, 2002, 2007) Conceptual Semantics. Then, in section 6, based on the semantic structures (conceptual structures) of the psych-predicates, I will show how the dative case is predicted by the semantic structures of the psych-adjectives, using the semantic case-mapping in tiers, a linking theory, first proposed by J S Jun (2003), which is based on Conceptual Semantics. Lastly, section 7 concludes the paper.

## 2. Previous Studies on the Nature of Dative in DECs

Like many South Asian and Indo-European languages, Korean is known to have dative experiencer constructions. Two example sentences are shown in (1). Here, notice that the word order is not strict. The experiencer argument can either precede the stimulus argument or follow the stimulus as shown in (1a) and (1b).

- (1) a. na-eykey Yumi-ka mwusepta/cilwuhata.  
I-DAT Yumi-NOM scary/boring  
'Yumi is scary/boring to me.'
- b. i yenghwa-ka na-eykey mwusepta/cilwuhata.  
this movie-NOM I-DAT scary/boring  
'This movie is boring to me.'

As many researchers have argued with other languages, majority of Korean

linguists from various theoretical backgrounds (e.g. Y-J Kim 1990, Gerdtts & Youn 2001, S-G Lee 2007, S Nam 2007), except for some Role and Reference Grammarians (e.g. B-s Yang 1994, K-s Park 1995, J-H Han 1999), have argued without any empirical evidence that the dative case in DEC's is inherently or lexically assigned to experiencer which is the thematic role required by the psych-predicate.<sup>3</sup>

However, two kinds of empirical facts show that the dative in DEC's is not inherent for two reasons. First, dative does not guarantee the thematic role of the argument to which it is assigned. For example, as J S Jun (2003a, b) has argued, Korean dative can be assigned to arguments with various kinds of thematic roles such as recipient, destination, point in time, age, proportion, reference, source, cause, and agent in passive.<sup>4</sup>

The second reason is that the thematic role, i.e., experiencer, does not necessarily take dative case. Some two place psych-predicates like *cohta* 'like' and *silhta* 'hate' do not go along with dative experiencer (2a). And more importantly, all the one-place psych-adjectives cannot take dative for their experiencer arguments (2b,c).

- (2) a. ??na-eykey ttalki-ka cohta/silhta<sup>5</sup>.  
 I-DAT strawberry-NOM like/dislike  
 'I like/dislike strawberries.'
- b. \*na-eykey oylopta/collita/holkapwunhata ...  
 I-DAT lonely/sleepy/light-hearted  
 'I am lonely/sleepy/light-hearted.'
- c. ne cikum kipwun-i etteni?  
 you now feeling-NOM how  
 'How do you feel now?'
- na-(\*eykey/nun/??ka<sup>6</sup>) sulphe/mwusewe/kippe  
 I-DAT/TOP/NOM sad/scared/pleased

<sup>3</sup> This is mainly because only nominative and accusative cases are thought of as (syntactic) structural cases in many theoretical frameworks.

<sup>4</sup> See J S Jun (2003b) for the example sentences in which dative-marked NPs are used for various kinds of thematic roles.

<sup>5</sup> In fact, DEC's with the psych-adjective *silhta* 'hate' is treated as grammatical in Nam (2007) and S-J Ko (2004). However, I follow H-K Yoo (1998) and Y-J Kim (1990) who treats them as ungrammatical. Moreover, most native Korean speakers that I consulted with said the sentences were ungrammatical.

<sup>6</sup> The reason why the nominative case *-ka* on the experiencer argument makes the sentence sound strange seems the matter of pragmatics not of syntax or semantics. That is, the pragmatic information that the nominative carries causes conflicts with the question. Explaining the exact mechanism regarding this phenomenon is beyond the scope of this paper.

‘I am sad/scared/pleased.’

Since all these facts strongly show that the dative case is not inherent case assigned to experiencer arguments, now we should determine its status between quirky and (either syntactically or semantically) structural. And we should first look into the possibility of its being structural case because if it turns out that the dative case is not structurally determined, we can automatically conclude that it is truly quirky, which means that in this case the dative in DEC's shows “random lawlessness” (Butt 2006: 125).

### 3. Characteristics of Korean DEC's

Now, I will introduce some important characteristics of Korean DEC's, many of which have been left unexplained by most previous studies. These characteristics must be captured and explained by a proper case theory, because, first, many of the characteristics are about case patterns of DEC's and secondly, as I will show below, all of the characteristics are closely related to the nature of the dative case.

The first characteristic is that if it is a DEC it must have a stimulus argument. That is, one-place psych-adjectives, which take only experiencer arguments but not stimulus arguments (cf. (2b)), can never be used as DEC's.

(3) nay-ka    oylopta/collita/simsimhata...  
I-NOM    lonely/sleepy/bored  
‘I am lonely/sleepy/bored.’

On the other hand, if the experiencer argument is assigned nominative, the sentences become grammatical as shown in (3).

Second, the stimulus arguments in DEC's must be marked nominative.<sup>7</sup> This means that some psych-predicates that take non-nominative cases for their stimulus arguments cannot constitute DEC's. For example, as shown in (4), the predicate

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<sup>7</sup> In fact, the stimulus argument also can take the topic marker -(n)un. Korean psych predicate constructions are most natural when either the experiencer or the stimulus argument takes the topic marker. This is related to the semantic nature of the psych predicates. That is, predicates that we are concerned with in here “all involve stative predicates which ‘sound’ most natural when they contain a topic nominal rather than a nominal with basic nominative ... or dative” (Shibatani 2001: 309). However, I exclude the topic marker from the discussion, because its existence or not has little to do with distinguishing DEC's from any other psych-predicate constructions.

*sepsephata* ‘disappointed’ takes dative for its stimulus arguments and it can never take dative experiencer.

- (4) na-\*eykey ne-eykey sepsephata.  
I-DAT you-DAT disappointed  
‘I am disappointed at you.’

Third, unlike non-DECs, DECs allow their experiencer arguments to take nominative case instead of dative. That is, dative-nominative alternation of experiencer is always possible in DECs (5).

- (5) na-eykey/ka Yumi-ka mwusepta/cilwuhata.  
I-DAT/NOM Yumi-NOM scary/boring  
‘Yumi is scary/boring to me.’

In fact, this nominative-dative alternation of experiencer has been one of the core issues dealt with by many previous studies on Korean psych-predicates, but most of them, particularly Chosmkyan syntacticians who have tried to account for the phenomenon purely syntactically, could not explain when and why the case alternation should occur if it occurs.<sup>8</sup> However, within the Conceptual Semantics approach taken here, the ‘when’ and ‘why’ questions are answered naturally, as will be shown below.

The last characteristic of Korean DECs, which is the key to the understanding of the characteristics introduced so far as well as the nature of dative case, is that the psych-adjectives that constitute DECs are polysemous between the meaning of an objective property of an entity and one’s psychological state.

Although the polysemous nature of some (but not all) psych-adjectives in Korean have been mentioned and analyzed by some researchers (in particular by semanticists rather than syntacticians), there are few who have noticed this characteristic has something to do with the case phenomena. That is, the fact that only DECs, among many kinds of psych-predicate constructions, can have polysemous psych-predicates have been captured by few studies.<sup>9</sup>

Let us look at some evidence for the polysemous nature of some psych-predicates.

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<sup>8</sup> For more on the problems of the previous studies on the dative-nominative alternation of Korean psych-adjective constructions, see I Kim (2008).

<sup>9</sup> One exceptional case is S Nam (2007) who tries to explain the dative-nominative alternation of experiencer with respect to the polysemy of the psych-adjectives, which is done under the framework of the Generative Lexicon Theory.

The first evidence comes from the fact that some psych-adjectives can take either animate or inanimate nominative-marked arguments as their subject. This is strange if the adjective has only one meaning of referring to one's psychological state, because inanimate entities cannot have any psychological state. For example, we can see by (6) that what is known as a psych-adjective *kipputa* 'pleased' is acceptable only when it takes an animate nominative-marked argument.

- (6) a. *nay-ka/nun* (*kipputa/mwusepta*).  
 I-NOM/TOP pleased/scared  
 'I am pleased.'
- b. *ku inhyeng-i/un* (#*kipputa/mwusepta*).  
 the doll-NOM/TOP pleased/scary  
 'The doll is pleased.'

On the other hand, another psych-adjective *mwusepta* 'scared, scary' can be used with both an animate and an inanimate nominative/topic-marked NP. This indicates that *mwusepta* 'scared, scary' is somewhat different from *kipputa* 'pleased' and the difference is that *mwusepta* 'scared, scary', unlike *kipputa* 'pleased', can refer not only to one's psychological state but also to an objective property of an entity. We can see this by the fact that the natural interpretation of (6b) with the predicate *mwusepta* is only 'The doll is scary' but not 'The doll is scared'.

The second evidence comes from the possibility of psych-adjectives' being able to modify the following NP. To be more specific, what is important is the fact that some psych-adjectives can be used to modify an inanimate NP and represent the property but not the psychological state of the modified NP. For example, (7a) is clearly different from (7b) in that the adjective *cilwuhata* 'boring/bored' can both represent the properties of the inanimate NPs and the psychological states of the animate NPs that they modify, while *kipputa* 'pleased/happy' can only modify the psychological states of the animate NPs.

- (7) a. *cilwuhan* *pulloku/kkwum/yenghwa/Jane/Tom/tongsayng* ...  
 boring *blog/dream/movie/Jane/Tom/brother* ...  
 'boring *blog/dream/movie*'
- b. *kippun* #*pulloku/#kkwum/#yenghwa/Jane/Tom/ tongsayng*...  
 happy *blog/dream/movie/Jane/Tom/brother* ...  
 'happy #*blog/#dream/#movie/Jane/Tom/brother* '

Some might argue that *kipputa* ‘pleased’ can be thought of also as a polysemous adjective in the sense that it can modify the inanimate NPs like *nal* ‘day’ and *sosik* ‘news’ as in *kippun nal* ‘happy day’ and *kippun sosik* ‘happy news’. However, it is different from other typical polysemous adjectives since it does not pass the first criterion. That is, although *kipputa* can modify the NPs *nal* ‘day’ and *sosik* ‘news’ it cannot be used as a predicate with the same NPs as in (8).

- (8) *ku nal/sosik-i kipputa.*  
 the day/news-NOM happy  
 #‘The day/news is happy.’  
 ‘(I am) happy with the day/news.’

As shown in (8), the sentence is unacceptable with the adjective’s referring to the property of *ku nal* ‘the day’ or *ku sosik* ‘the news’. But it is much more natural if the experiencer argument *na* ‘I’ is thought to be ellipsed and the predicate refers to the psychological state of the experiencer. This shows that *kipputa* ‘pleased’ refers to the psychological state of the abbreviated experiencer rather than the objective property of the modified NPs like *nal* ‘day’ and *sosik* ‘news’.

One thing to note is that still to some people *kippun* in *kippun sosik* ‘happy news’ or *kippun nal* ‘happy day’ nevertheless can be thought of as referring to the property of *sosik* ‘news’ or *nal* ‘day’ intuitively. And I attribute this characteristic, as H-K Yoo (1998) also noticed, to the semantic change the adjective is going through. That is, *kipputa* ‘pleased’ originally meant only one’s psychological state but its meaning is becoming ambiguous between ‘pleased’ and ‘pleasing’ at least when it modifies the NP *sosik* ‘news’ or *nal* ‘day’ as time goes by. In fact, this kind of semantic change, whether from psychological state to property or from property to psychological state, is often found cross-linguistically. For example, the English word *sad* is not only used as referring to one’s psychological state but also as referring to the property of an entity in sentences like *This book is sad*.

Lastly, we can see that some psych-predicates are polysemous by looking at how some English words that refer to an objective property or psychological state are translated into Korean. For example, Korean does not have two different words for *bored* and *boring*, but one adjective *cilwuhata* represents both meanings. Many other English word pairs such as *interesting/interested*, *scary/scared* show the same pattern. This strongly shows that some Korean psych-adjectives are polysemous between the

two meanings.

Since it is clear that some psych-adjectives are polysemous between the meaning of an objective property of an entity and one's psychological state, in what follows, I will show that only the meaning of the predicate that allows a DEC is polysemous between the two meanings, while the psych-predicate that does not allow dative experiencer is monosemous with the meaning of one's psychological state.

#### 4. A Corpus Study

Regarding the last characteristic of the DEC, there must be some evidence that shows that only polysemous psych-adjectives are used for making DECs. And according to a small corpus study conducted using the World Wide Web, it is really the case.<sup>10</sup>

I randomly picked out 21 psych-adjectives and they were divided into two groups, i.e., polysemous vs. monosemous predicates, according to the criteria introduced in section 3. And I got 13 monosemous and 8 polysemous psych-adjectives as shown in (9).

(9) a. 13 Monosemous (pure) Psych-Adjectives:

*silhta* 'dislike', *kipputa* 'pleased/happy', *tamtamhata* 'light-hearted',  
*soksanghata* 'distressed/annoyed', *sepsephata* 'sorry/feel regretful',  
*twulyepta* 'afraid', *anthakkapta* 'sorry/pitiful', *holkapwunhata*  
'unencumbered', *pwukkulepta* 'shy/coy'. *changphihata* 'humiliated',  
*koylopta* 'painful/feel painful', *hayngpokhata* 'happy', *kwunkumhata*  
'wonder'

b. 8 Polysemous Psych-Adjectives:

*cilwuhata* 'bored/boring', *mwusepta* 'horrible/horrified', *caymissta*  
'fun/feel fun', *selphuta* 'sad/feel sad', *cikyepa* 'tiresome/tedious',  
*akkapta* 'precious/regrettable', *elyepta* 'difficult/feel difficult', *himtult*  
'painful/feel painful'

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<sup>10</sup> The reason why I used the World Wide Web as the corpus is that DECs and nominative experiencer constructions (NECs) without topic marker –(n)un on stimulus arguments is marginally acceptable and very uncommon. These two facts can be, as Barddal (2006) has already argued, a strong motivation for using the World Wide Web as a corpus.

"Recent research on corpora has shown that the World Wide Web can be regarded as a representative language corpus, despite the fact that it is both unbalanced and uncontrolled for. ... the Web is in fact the best corpus to use when searching for low-frequency marginally-acceptable data, and that the gigantic size of the Web compensates for the fact that it is both unbalanced and uncontrolled for." (Barddal 2006: 67)

I looked at the first 200 sentences for each predicates that I found through the web. Interestingly, I found at least one DEC in the second group but did not found any DEC in the first group except for *tamtamhata* ‘light-hearted’, *twulyepta* ‘afraid’, *changphihata* ‘humiliated’, *koylopta* ‘painful/feel painful’. And according to an additional corpus study done with the four exceptional predicates, it turned out that they also have some property-like characteristics.<sup>11</sup> For example, all the four predicates were found to be used in modifying inanimate NPs, which means they are, in at least some people’s mental lexicon, stored as polysemous rather than as monosemous. Therefore, the result strongly supports that only polysemous psych-adjectives allow DECs and dative case is assigned when the predicate is used with the meaning of property but not with the meaning of one’s psychological state.

In the following sections, I will show that it is the objective property meaning of the polysemous psych-adjectives that causes the experiencer argument to take the dative case. Moreover, I will show the two meanings of the polysemous psych-adjectives can not only explain the dative-marking of experiencer but also naturally explain the rest of the characteristics of DECs introduced in section 3.

## 5. Semantic Structures of Polysemous Psych-Adjectives

In formalizing the two different meanings of the polysemous psych-adjectives, I adopt the conceptual structures of psych-predicates proposed by Jackendoff (2007). According to him, adjectives that refers to an property of an entity such as *interesting*, *boring*, etc. are called evaluative predicates, and evaluative predicates can represent either subjective or objective evaluation depending on the existence of a specific evaluator in the sentence. Thus, his subjective evaluation roughly equals to the notion of one’s psychological state and his objective evaluation equals to the notion of an objective property of an entity.<sup>12</sup> Jackendoff provides conceptual structures of both objective and subjective evaluations as shown in (10).

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<sup>11</sup> See the appendix for some of the example sentences in the corpus.

<sup>12</sup> Although the subjective evaluation and one’s psychological state is the same in terms of propositional meaning, their conceptual structures are different, which will be shown below.

(10) Objectification and Subjectification (Jackendoff 2007: 240)

Y BE [Property  $\lambda z$  [X BE [F<sup>13</sup> (z)]]]  $\Leftrightarrow$  default

(e.g. Y is interesting to X)

Y BE [Property  $\lambda z$  [YA BE [F (z)]]]

(e.g. Y is interesting)

(where Y is the entity being evaluated, X is the experiencer, and YA is the generic perceiver)

Here, Jackendoff (2007) proposes the mechanism that accounts for how evaluative predicates are sometimes used as subjective evaluation and sometimes as objective evaluation. If a specific evaluator is introduced by *to X* form then the construction becomes subjective evaluation whereas the construction is used as objective evaluation with no specific evaluator, which, according to Jackendoff, is a default construction.<sup>14</sup>

Although I basically agree with his understanding of objectification and subjectification, I disagree with Jackendoff's (2007) idea that the objective evaluation has the generic perceiver in its conceptual structure. (cf. Lasersohn 2005). Instead, I argue that the conceptual structure of objective evaluation should be the same as that of ordinary properties like *big*, *small*, *blue*, and *yellow*. And I propose a different conceptual structure for the objective evaluation like the following:

(11) Conceptual Structure of objective evaluation/property

Y BE [Property INTEREST]

(e.g. Y is interesting)

(But I should say that whichever is used, it doesn't affect my analysis regarding the nature of the dative case in DEC's.)

Another point on which I differ from him is the conceptual structures of subjective evaluation and one's pure psychological state. Jackendoff originally distinguishes evaluative adjectives (e.g. *interesting/boring/...*) from psych-adjectives (*interested/bored/...*) on the level of the thematic tier as in (12), but later he argues that the distinction on the level of the macrorole tier is enough as in (13).

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<sup>13</sup> F refers to FEELING and INTEREST should take the place of F in this case.

<sup>14</sup> Jackendoff's positing objective evaluation as the default meaning of adjectives such as interesting and boring goes well along with my positing those predicates basically represent objective properties of an entity.

- (12) a. Frank is amazing to Sam.  
 FRANK BE [ $\lambda z$  [SAM BE [AMAZED (z)]]]  
 SAM EXP FRANK
- b. Sam is amazed at Frank.  
 SAM BE [AMAZED (FRANK)]  
 SAM EXP FRANK
- (13) a. Frank is amazing to Sam.  
 SAM BE [AMAZED (FRANK)]  
 SAM EXP FRANK
- b. Sam is amazed at Frank.  
 SAM BE [AMAZED (FRANK)]  
 SAM EXP FRANK

(Jackendoff 2007: 237)

First, in (12a), Jackendoff paraphrases the sentence as ‘Frank is such that Sam is amazed at’ and proposes FRANK BE [ $\lambda z$  [SAM BE [AMAZED (z)]]] as the thematic tier, in which the notation  $\lambda z$  can be read informally as ‘such that’ and the bound variable  $z$  that serves as argument of AMAZED can be read as the resumptive pronoun ‘him’.

Although this lambda abstraction very well captures the meaning of evaluation and the semantic difference between psychological state and evaluation, he does not give any detailed semantic analysis of one’s psychological states such as *interested*, *bored*, *scared*, etc. Instead, he just uses the state function BE and the words themselves (cf. (12b) and (13b)) for representing the conceptual structures of the words, which causes the circulation problem and thus cannot be the satisfying semantic (or conceptual) representation of the words.

Moreover, as shown in (13), he argues that (12a) and (13a) are “logically equivalent” and the prominence of stimulus in (12a) can be captured on the level of the macrorole tier by underlining a more prominent argument. This means that “EXP, unlike AFF, does not inherently determine which macrorole is linked to subject position. Rather, each EXP verb must individually mark its subject” (Jackendoff 2007: 235). In other words, when it comes to evaluative or psychological adjectives, children have to learn predicate by predicate which argument is more prominent and thus realized as a syntactic subject.

The psychological predicates expressing EXP, on this view, are genuine

counterexamples to the linking universals, and children do have to learn them one by one. Fortunately, they are learnable, given that children actually hear the relevant sentences that show them the right order of arguments. So in terms of learning, the position proposed here isn't too problematic. (Jackendoff 2007: 213)

I do not agree with his idea that attributes the syntactic difference to idiosyncratic nature of predicates, and propose a systematic account for the syntactic difference caused by different LCSs in section 6.

Now, I propose three conceptual structures: first, the conceptual structure of objective evaluation. Second, the conceptual structure of subjective evaluation, and last, the conceptual structure of one's pure psychological state.

(14) Conceptual Structure of Objective Evaluation

(e.g. X is boring.)

thematic tier: X BE [<sub>Property</sub> BOREDOM]

macrorole tier: EXP X

(15) Conceptual Structure of Subjective Evaluation

(e.g. X is boring to Y.)

thematic tier: X BE [<sub>Property</sub> λz [Y FEEL [BOREDOM (z)]]]

macrorole tier: Y EXP X

(16) Conceptual Structure of Psychological State

(e.g. X is bored (with Y).)

thematic tier: X FEEL [<sub>Property</sub> BOREDOM <(Y)>]

macrorole tier: X EXP (Y)

Here, I will not go into any detail about the macrorole tier. It will suffice to say that the postulation of macrorole tier is very useful in capturing semantic difference between some predicates and the function EXP here takes experiencer argument at its left and stimulus argument at its right. For example, the arguments marked with red color show that Y is the experiencer in the sentence *X is boring to Y*, but X is the experiencer in the sentence *X is bored with Y*. And as mentioned above, objective evaluation is given by default and the sentence is interpreted as subjective evaluation only when an adjunct, which is a PP in English, is added to the sentence.

## 6. Semantic Case-Mapping in Tiers

Given these conceptual structures, now I can account for the dative and nominative cases each of which is assigned to the experiencer and the stimulus. In doing so, I use the linking theory called semantic case-mapping in tiers, first proposed by J S Jun (2003a).

The linking theory consists of a thematic hierarchy and some linking principles. First, the thematic hierarchy is the same as what Jackendoff (1990) proposed, but it needs to be modified a little because the action tier has been changed into macrorole tier by adding a new function EXP after the thematic hierarchy was first introduced. Since the function EXP, unlike the function AFF, does not show which of its argument is more prominent, that is, since we cannot determine which argument is more prominent between experiencer and stimulus, it is reasonable to ignore the EXP function when we consider a thematic hierarchy. That is why I added a condition that says “only when the function is AFF”.

### (17) Thematic hierarchy (a revised version)

Order the A-marked arguments in the macrorole tier from left to right (only when the function is AFF), followed by the A-marked arguments in the main conceptual structure clause of the thematic tier, from least embedded to most deeply embedded.

The linking principles are shown in (18). First, lexical or inherent cases are linked to the argument. Then, nominative is assigned to the leftmost A-marked constituent in the thematic hierarchy. After that, accusative is assigned to the second A-marked constituent. And finally, dative is assigned by default to any remaining constituents. When we apply these principles to the conceptual structures proposed above, we get the following result.

### (18) Semantic case-mapping in tiers (J S Jun 2003)

- A. Lexical case, whether thematic or truly quirky, is linked to appropriate semantic entities prior to structural case-mapping in tiers.
- B. Structural case-mapping:
  - a. Order the A-marked constituents in the verb's LCS according to the thematic hierarchy, followed by any optional arguments/obliques.
  - b. NOM is assigned to the leftmost (or highest) A-marked constituent.
  - c. ACC is assigned to the second highest A-marked constituent.

- d. DAT is assigned by default to any remaining constituents that do not get either NOM/ACC or lexical case.

All the characteristics of DECAs mentioned above are clearly captured by conceptual structures ((14)-(16)) and the linking principles in (18). First, the fact that Korean DECAs always have nominative-marked stimulus is captured by the interaction of the conceptual structure (15) and the linking principles (18), particularly (18B-b). And the fact that DECAs can always show the case alternation phenomenon is captured by the second (15) and the third conceptual structures (16). That is, polysemous psych-adjectives have both (15) and (16) as their conceptual structures and whether the experiencer argument is assigned nominative or dative is determined by which conceptual structure the predicate takes; if the predicate takes (15) as its semantic structure, the experiencer argument gets dative case by the linking principle (18B-d), but if the predicate takes (16) as its semantic structure, experiencer gets nominative by the linking principle (18B-b). Finally, the last characteristic that the psych-predicates in DECAs are polysemous is captured by the fact that experiencer can take dative case only when the meaning of the psych-adjective is a property but not the psychological state. If the predicate is monosemous and refers only to one's psychological state, then the possible conceptual structure is only the third one (16), and there is no possibility for the monosemous psych-predicate to have dative experiencer, which can only be realized in the conceptual structure of subjective evaluation.

My analysis is better than the previous analyses that consider dative as inherent case without any special reason, because in addition to the dative case itself, I can explain all the unique characteristics of Korean DECAs systematically. That is, why dative experiencer constructions must have stimulus arguments, why those stimulus arguments must be marked nominative, why the dative case marked on experiencer arguments can always alternate with nominative case, and why the psych-adjectives in dative experiencer constructions are always polysemous between the meaning of an objective property and pure psychological state.

## **7. Conclusion**

I have shown in this paper that looking into the lexical semantics of Korean psych-adjectives is the key to answering the ultimate question of what the nature of the dative case in DECAs is. By analyzing the polysemous nature of some psych-adjectives, I have

shown that experiencer can get DAT only when the predicate is polysemous and refers to the property of stimulus not the psychological state of experiencer.

Although I do not deny the existence of truly inherent or quirky cases, I believe many cases that have been thought of as quirky or lexically inherent are in fact not like that at all and can be explained systematically, especially when we look into the conceptual structures of the predicates.

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## Appendix: Polysemous Psych-Adjectives that take Dative Experiencers

<cilwuhata 'boring/bored'>

1. 어느 날은 불교대학 강의가 너무 어렵고 지루해 계속 졸았고, 졸다가 문득 주위를 둘러보니 저처럼 졸고 있는 사람만 보였습니다. 그런데 나누기 때 다른 도반들의 얘기를 들어 보면 '귀절귀절 뿔속까지 와닿고, 세상에서 제일 재미있는 강의'였다는 것입니다. 나에게 지루했기 때문에 내 눈에는 나처럼 지루해하는 사람만 눈에 들어왔구나...하는 생각이 들었습니다.  
([http://www.jungto.org/vod/vod2\\_03.html?sm=v&p\\_no=4&b\\_no=34421&page=1](http://www.jungto.org/vod/vod2_03.html?sm=v&p_no=4&b_no=34421&page=1))
2. 삶은 나에게 지루하며 아무런 의미도 목적도 없다. 그때부터 난 예수에 의존하게 됐다.  
([http://gene.kias.re.kr/~newton/wiki/moin.cgi/\\_ba\\_ce\\_c8\\_b0\\_c0\\_c7\\_ba\\_b9\\_c0\\_bd](http://gene.kias.re.kr/~newton/wiki/moin.cgi/_ba_ce_c8_b0_c0_c7_ba_b9_c0_bd))

<mwusepta 'scary/scared'>

1. 장애인에게 병원은 '더' 무섭다  
([http://www.ildaro.com/sub\\_read.html?uid=4005&section=sc5](http://www.ildaro.com/sub_read.html?uid=4005&section=sc5))
2. 그러나 여덟 살의 토마에게 세상은 특히 밤길은 너무나 무섭기만 하다.  
([http://www.kmdb.or.kr/movie/md\\_basic.asp?nation=K&p\\_dataid=04691](http://www.kmdb.or.kr/movie/md_basic.asp?nation=K&p_dataid=04691))

<caymissta 'interesting/interested'>

1. 윈도우 XP 홈 및 프로 에디션 사용자들 모두에게 재밌고 유용하면서 시간을 절약할 수 있는 사항을 자세히 수록하고 있어 아직 파워 유저가 아니라고 하더라도 이 책을 참고하면 윈도우 XP를 자유자재로 다룰 수 있게 될 것이다.  
(<http://www.hanb.co.kr/look.php?isbn=0-596-00511-3>)
2. 그저 그것이 세계 재미있기 때문입니다.  
([http://book.naver.com/bookdb/book\\_detail.php?bid=2610787&menu=dview&dencr t=CdQFSSE9B4bzkRmQRm05MzBTdEt5MHJJZjlqeG5YV11YWGN3eVNBZitSd mFoK1oyL0trMGw0SHFhK3k1c3ZxRA==&query=%C1%A6%B0%D4%20%C0%E7%B9%CC%C0%D6%B1%E2%20%B6%A7%B9%AE%C0%D4%B4%CF%B4%D9&term=%C1%A6%B0%D](http://book.naver.com/bookdb/book_detail.php?bid=2610787&menu=dview&dencr t=CdQFSSE9B4bzkRmQRm05MzBTdEt5MHJJZjlqeG5YV11YWGN3eVNBZitSd mFoK1oyL0trMGw0SHFhK3k1c3ZxRA==&query=%C1%A6%B0%D4%20%C0%E7%B9%CC%C0%D6%B1%E2%20%B6%A7%B9%AE%C0%D4%B4%CF%B4%D9&term=%C1%A6%B0%D))

<sulphuta 'sad/evoking sadness'>

1. 지금은 그저 내 자신에게 슬플 뿐이다.. 언제나 가지고 다니기로 했는데.. 정말 정말 내 자신에게 슬프다. 다시는 이런 일이 없도록 하고 싶다.  
(<http://junindiary.blog.shinobi.jp/Date/20070613/>)

<cikeypta 'boring/bored'>

1. 운영진의 표준말과 각뚝한 인사와 표현등은 네티즌에게 너무 식상하고 지겹다.  
(<http://www.gaesung2000.co.kr/board/bbs.php3?table=b2b&query=view&l=11&p=2&category=&sort=PID...>)

<akkapta 'precious/regrettable'>

1. 무엇이 너에게 아깝겠니?  
([http://www.moazine.com/magazine/list.asp?listtype=volume&subtype=viewDetail&magazineid=54&v\\_id=3185](http://www.moazine.com/magazine/list.asp?listtype=volume&subtype=viewDetail&magazineid=54&v_id=3185))
2. 사랑하는 자에게 무엇이 아깝겠습니까?  
([http://pnk.godpeople.com/?GO=data&proc=view&kcode=KD&bmode=b&seq\\_no=23993](http://pnk.godpeople.com/?GO=data&proc=view&kcode=KD&bmode=b&seq_no=23993))

<twulyepta 'horrible/horrified'>

1. FTA가 된다 해도 방어력이 강한 일본 특유의 내수 시장은 한국인에게 두렵다.  
([http://enjoyjapan.naver.com/tbbs/read.php?board\\_id=ttalk&nid=1006119](http://enjoyjapan.naver.com/tbbs/read.php?board_id=ttalk&nid=1006119))
2. 그래선지 낯선 누군가로부터 오는 메일이 그녀에게 두렵거나 심한 거부감을 일으키진 않았다.  
([http://216.93.177.108/~ahro/www/read.cgi?board=yasul&y\\_number=212&nnew=1](http://216.93.177.108/~ahro/www/read.cgi?board=yasul&y_number=212&nnew=1))
3. 잦은 소변으로 고통받는 사람에게 요즘처럼 추운 날씨는 더욱 두렵다.  
(<http://www.etimes.net/service/etoday/ShellView.asp?LinkID=6226&ArticleID=2008021103180900156>)

<changphihata 'humiliated/humiliating'>

1. 아직도 나에게 영어 발음은 창피하다  
(<http://jojojo.egloos.com/1042139>)

<koylopta 'painful/feel painful'>

1. 병사에게 정작 괴로운 것은 전투가 아니라, 전투 직전의 초조한 시간이듯이, PD에게도 취재 그 자체보다는 취재를 준비하는 시간이 더 괴롭다.  
(<http://koreada.com/jboard/?p=detail&code=poet&id=8&page=8>)
2. 흉터는 우리들 몸에 상처나 수술로 인하여 필수적으로 생기게되나 모든사람에게 괴롭고 고통을 줄 뿐아니라 흉터가 심하면 우리몸의 변형을 초래할 수있기에 성형외과의사들은 오래전부터 이러한 흉터와 싸워왔다고 해도 과언이 아니며, ...  
(<http://www.hadoctor.co.kr/clinic/smell2.htm>)
3. 북한이 이번 외무성 성명으로 국제사회를 협박하는 것 자체가 지금 수준의 경제체제는

김정일 정권에게 아직도 덜 괴롭다는 의미다.

(<http://dailian.dailynk.com/read.php?opt=sub&num=29266&cataId=nk01400>)

4. 이 뉴스를 보았을 때 떠오른 또다른 생각은 남자가 '지루'일 때와 '조루'일 때, 어떤 게 더 여성에게 괴로운가 하는 것이었다.

(<http://pariscom.info/76>)

# Dialectal variations on the syllable-final nasal merger in Taiwan Mandarin

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## Abstract

This study looked at the dialectal variations of syllable-final nasal merger in Taiwan Mandarin. Twenty-two native speakers, half from the northern dialect, and half from the southern dialect, participated in a reading experiment, which included *zhuyin*-, syllable-, and sentence-reading. Results showed that the northern speakers had two merging rules, /in/ → [iŋ] and /əŋ/ → [ən], while the southerners had an additional third merger, /iŋ/ → [in]. Northerners preferred /in/ → [iŋ] over /əŋ/ → [ən], while southerners had about equal preference for both rules. The /iŋ/ → [in] merger, however, was the most dispreferred. In general, northerners had higher merger rates than southerners, and sentence-reading encouraged the more merger application than the other two conditions.

**Keywords:** nasal merger, dialectal variation, Taiwan Mandarin, sound change.

## 1. Introduction

Mandarin allows two syllable-final nasals, /n/ and /ŋ/. Both can occur with the five vowels in the system, /i/, /ə/, /a/, /u/, and /y/, but only VN sequences containing the former three result in monophthongal realizations of the vowel for both nasals (Duanmu 2002). Previous studies showed that there is a tendency for the two nasals to be neutralized after these vowels in Taiwan Mandarin, but researchers disagree upon its direction, robustness, and cause.

Kubler (1985), Tse (1992), Yueh (1992), and Yang (2007) claimed that /iŋ/ and /əŋ/ tend to be realized as [in] and [ən], respectively, as shown in (1), but /aŋ/ remains relatively stable. Yang found the merging process to be almost complete [96% for /iŋ/; 95% for /əŋ/], while Tse argued that the mergers were just at their burgeoning stage [22% for /iŋ/; 23% for /əŋ/]. Yueh's speakers were somewhere between those in Yang and Tse [40% for /iŋ/; 64% for /əŋ/], and variation in location, gender, and age did not

show much difference. Possible causes for such a discrepancy might be twofold. One is the time difference among the three studies. The mergers might indeed have been at a relatively early stage in 1992, but have gradually matured within a time span of 15 years. The other possibility might be methodology. Yang asked subjects to participate in a riddle-guessing game in which targets were embedded in the answers to the riddles, while Tse and Yueh requested speakers to read target syllables in a number of contexts. Different styles might have thus been elicited, resulting in inconsistencies between the two studies.

(1) /ŋ/ → [n] / {i, ə} \_\_\_\_

Kubler (1985) attributed the cause of the mergers to the influence of Min, a powerful substrate language in Taiwan, in which 73–88% of the population are ethnically Min, and thus almost all people have at least some passive knowledge of the language (Chen 1979; Chen 1989; Huang 1993). This view is further supported by Yang's (2007) finding that the mergers were not consistently found in Mandarin in China, in which Min speakers only accounted for less than 4% of the total population (Zhang 1989; Zhu 2002). On the other hand, Tse (1992) and Yueh (1992) claimed that this neutralization is an innovation favored by the younger generation. Therefore, it could not have been due to a negative transfer from Min since most of the younger generation acquired Mandarin as (one of) their first language(s) and both Mandarin monolingual and Mandarin-Min bilingual speakers showed a similar trend. Instead, the rules are motivated by frontness assimilation, as both /i/ and /ə/, as well as /n/, are produced in the front half of the vocal tract.

Ing (1985) had a different observation. Instead of merging [ŋ] with [n], speakers seem to merge the two nasals reciprocally. /in/, /ən/, and /an/ tend to be realized as [iŋ], [əŋ], and [aŋ], respectively, while /iŋ/, /əŋ/, and /aŋ/ tend to be realized as [in], [ən], and [an], respectively, as shown in (2) and (3). Similar to Kubler (1985), Ing also claimed that the mergers are due to influences of Min and various other non-standard Mandarin varieties.

(2) /n/ → [ŋ] / {i, ə, a} \_\_\_\_

(3) /ŋ/ → [n] / {i, ə, a} \_\_\_\_

Chen (1991a; 1991b), Lin (2002), and Hsu (Hsu 2006; Hsu & Tse 2007) provided the third view. They found the nasal mergers to occur only with /i/ and /ə/, and

only in /in/ and /əŋ/ sequences. /in/ tends to be realized as [iŋ], and /əŋ/ tends to be realized as [əŋ], as shown in (4) and (5), respectively. No mergers occur for sequences involving /a/. Chen (1991a) found the rates to be vowel-dependent, with /in/ → [iŋ] being the leading merger across age groups, while Hsu claimed that /əŋ/ → [əŋ] is the leading merger instead, especially in the old group (Figure 1). In general, Chen's subjects were more likely to apply the mergers than those of Hsu. It is difficult to attribute the discrepancy to simple methodological differences. Both Chen and Hsu employed a reading task for elicitation, with the former using word lists and the latter using sentences. If there should be any differences, one would expect to find sentence-reading to be a more encouraging task for application of mergers instead. Time difference is also a far-fetched possibility. Results from comparable groups, matched by birth year (Hsu's 1951-60 vs. Chen's 1951-62) or by age (Hsu's 1951-60 vs. Chen's 1938-49; Hsu's 1981-90 vs. Chen's 1965-68), are incongruent with each other. The other possibility might be speakers' backgrounds. Although both studies recruited subjects from the Taipei area, Hsu included only people who were native to Taipei, while Chen's speakers were university faculty and staff members, college students, and high school English teachers, forming a rather heterogeneous group.

(4) /n/ → [ŋ] / i \_\_\_\_

(5) /ŋ/ → [n] / ə \_\_\_\_

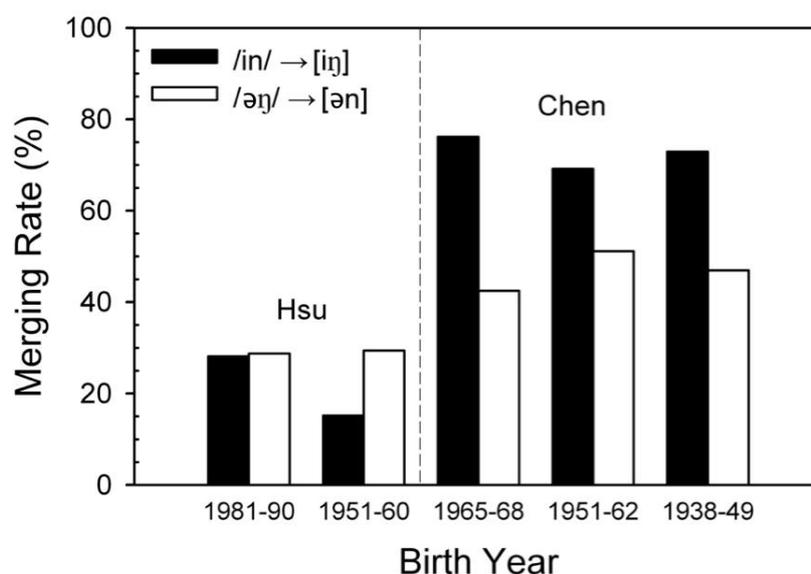


Figure 1: Merging rates in Chen (1991a) and Hsu (2006). Hsu's 1951-60 subjects are comparable to Chen's 1951-62 subjects in birth year, and to Chen's 1938-49 subjects in age. Hsu's 1981-90 subjects are comparable to Chen's 1965-68 in age.

The mergers are fairly consistent across genders and language backgrounds (Hsu 2006; Hsu & Tse 2007). Both Min and non-Min speakers show the same pattern, regardless of age groups to which they belong. Females show higher rates than males, although the trend is statistically insignificant [27% vs. 16% for /in/; 31% vs. 27% for /əŋ/].

Chen (1991b) surmised that the fluidity between [n] and [ŋ] might have a historical root. Several /iŋ/ sequences in modern Mandarin are originally pronounced as /in/ (e.g., *qingjia* ‘in-laws’), and /ən/ sequences are originally pronounced as /əŋ/ in Middle Chinese (e.g., *zhenjie* ‘chaste’). That the two mergers are also found in Singapore Mandarin, whose substrate languages have a much wider spectrum than those of the Taiwan variety, also support this view (Chen 1986; Chen 1991b). In other words, Taiwan Mandarin speakers are essentially reliving the diachronic merger rule synchronically. On the other hand, Lin (2002) proposed that a synchronic phonological process of [αhigh] assimilation is at work, characterizing [ŋ] and [i] as both [+high], and [n] and [ə] as both [–high]. Table 1 is a summary of the nasal mergers observed in the previous studies.

Table 1: A summary of the nasal mergers.

Studies	Preceding vowels		
	/i/	/ə/	/a/
Kubler (1985)			
Tse (1992)			
Yueh (1992)	/ŋ/ → [n]	/ŋ/ → [n]	no merger
Yang (2007)			
Chen (1991a; 1991b)			
Lin (2002)			
Hsu (2006)	/n/ → [ŋ]	/ŋ/ → [n]	no merger
Hsu & Tse (2007)			
Ing (1985)	/n/ → [ŋ]	/n/ → [ŋ]	/n/ → [ŋ]
	/ŋ/ → [n]	/ŋ/ → [n]	/ŋ/ → [n]

## 2. Specific aims

The above contradictory observations do not seem to be easily reconcilable. Ing (1985) is the most different, proposing reciprocal merging after the three vowels. The two remaining camps agree on the merging direction after /ə/, but disagree on the direction after /i/. One possibility might lie in dialectal variations, as these studies recruited subjects from different populations. Lin (2002) and Hsu (Hsu 2006; Hsu & Tse 2007) studied only native Taipei residents, Yueh (1992) studied native Taipei and Tainan (a southwestern city) residents, while Chen (1991a; 1991b), Tse (1992) and Yang (2007) studied speakers who were affiliated with universities, *i.e.*, students, staff members, or faculty members, whose language backgrounds can be heterogeneous. Kubler (1985) and Ing (1985) focused mainly on L2 Mandarin speakers whose L1 is Min. Therefore, the first aim of the study is to investigate whether dialectal variations can resolve the incongruence in merging directions.

Even though no dialectal differences were found in Yueh (1992), there are at least two reasons why Taipei and non-Taipei speakers might potentially be different. First of all, although most speakers in Taiwan are Mandarin-Min bilinguals (Huang 1993), the official language Mandarin is used more often in Taipei than any other areas in Taiwan (Ang 1997), as it is the political, economic, and cultural center of the country. Taipei also has the largest Mainlander population, who mainly uses Mandarin, compared to any other places in the country (Yang 2004). Of the nearly 3 million Mainlanders in Taiwan, about 20% of them are Taipei residents, constituting 22% of the city population. As a result, Mandarin-Min bilinguals in Taipei tend to use Min less frequently than Mandarin, and are oftentimes less fluent as well (Huang & Fon 2008). Secondly, the two main dialects of Min in Taiwan, Zhang and Quan, are unevenly distributed. Quan speakers mainly reside in Taipei and the west central coastal strip, while Zhang speakers are dominant in the west central non-coastal areas (Ang 2004). Speakers in the southwestern part of Taiwan predominantly speak a variety of Min that is a more balanced mixture of Zhang and Quan, although the former is still more influential than the latter (Ang 2005; Li 2007). Table 2 shows the allowable VN sequences relevant to this study in the three Min dialects. All three dialects allow /in/, /an/ and /aŋ/, and disallow /ən/. Quan permits /iŋ/ but not /əŋ/, while Zhang and Mix permit /əŋ/ but not /iŋ/. If the application of the merger is to a large extent determined by the influence from Min (Ing 1985; Kubler 1985), then differences in language composition between Taipei and non-Taipei areas would predict a split in nasal merger applications among speakers.

Table 2: A summary of allowable VN sequences in Quan, Zhang, and Mix dialects of Min.

	Quan			Zhang/Mix		
	/i/	/ə/	/a/	/i/	/ə/	/a/
/n/	/in/	—	/an/	/in/	—	/an/
/ŋ/	/iŋ/	—	/aŋ/	—	/əŋ/	/aŋ/

Besides merging directions, previous studies also disagree on merging rates. Take the most widely agreed upon Rule (5) for example, merging rates are about 17–31% (Tse 1992; Yueh 1992) for minimal pairs, 42% for isolated syllables (Yueh 1992), 28–46% for words (Chen 1991a; Tse 1992; Yueh 1992), 29% for sentences (Hsu 2006), 38% for passages (Yueh 1992), 30% for tongue twisters (Yueh 1992), and 95% for riddle guessing (Yang 2007). It is possible that the mergers are still in a volatile state, and the disparate results might actually reflect their different facets, depending on how self-conscious the speakers were towards their own pronunciations. Therefore, the second aim of the study is to determine how robust the rules are, and whether the merging process is fully phonologized. If the mergers are robust and the merging process is close to complete, as suggested by Yang (2007) for Rule (1), and Chen (1991a) for Rule (4), then one should be able to find merging patterns to be relatively stable across different contexts, and little or no context effects should be found. On the other hand, if the mergers are unstable and are still in progress, as indicated by Tse (1992) and Yueh (1992) for Rule (1), Hsu (2006) for Rule (4), and Chen (1991a) and Hsu (2006) for Rule (4), then one should be able to find a large context effect. Application rates should be much higher in contexts in which speakers are less aware of their pronunciation.

Previous studies also disagree upon the cause for the mergers. Some argued that it is due to a negative transfer from the substrate language Min (Ing 1985; Kubler 1985), others claimed that the merger is an innovation due to assimilation (Lin 2002; Tse 1992; Yueh 1992), and still others believed that it is a recurring trend from the past (Chen 1986; Chen 1991b). Therefore, the third aim of the study is to look into possible causes for the merger. Although it is difficult to verify the third proposal based on empirical data, it is possible to tease apart the first two causes based on differential sensitivities to the pronunciation norm between males and females (MacLagan et al. 1999; Trudgill 2000). If the nasal merger is indeed caused by a negative transfer from Min and is thus somewhat stigmatized, then one should be able to find educated females less willing to

apply the merger than educated males. On the other hand, if the merger is an assimilation-based innovation by young speakers, then gender differences should be mitigated or even reversed, with educated females being more likely to apply the merger than educated males.

### 3. Method

#### 3.1. Subjects

Twenty-two native speakers of Taiwan Mandarin, 13 female and 9 male, participated in this study. Half of them were from Taipei, constituting the northern group, and half of them were from southeastern Taiwan, constituting the southern group. All speakers were university students and college graduates. Their ages ranged from 19 to 27, with an average of 21.36 years of age ( $SD = 2.66$ ). Both groups stayed in the respective areas for approximately 20.64 years ( $SD = 2.87$ ), and the southern group had only stayed in Taipei for less than six months. All speakers were Mandarin-Min bilinguals and had acquired both languages as their L1. The northern group speaks a variety of Min that is closer to the Quan dialect, while the southern group uses a variety that is closer to the Mix dialect. They were asked to self-rate their Min proficiency on a Likert scale of 1 to 5. The northerners had an average of 3.09, while the southerners had an average of 4.27. Table 3 shows the relevant summary statistics of the two groups.

Table 3: Summary statistics regarding the two groups of subjects. Numbers in parentheses indicate standard deviation.

	Northern	Southern	Statistics
Age	21.82 (2.18)	20.91 (3.11)	$t(20) = .79$ , ns.
Years in the area	20.91 (2.59)	20.36 (3.23)	$t(20) = .44$ , ns.
Years in Taipei	20.91 (2.59)	0.45 (0.15)	$t(10.07) = 26.18$ , $p < .0001^*$
Min proficiency	3.09 (1.22)	4.27 (1.01)	$t(20) = -2.47$ , $p < .05$

\*Levene's test for equality of variances showed that the assumption for equal variances was violated. Therefore, the  $df$  was adjusted accordingly.

#### 3.2. Stimuli

Twelve minimal pairs of /n/- and /ŋ/-ending syllables were used as stimuli, including four /in/-/iŋ/ pairs (e.g., *xin* ‘heart’ vs. *xing* ‘star’), four /ən/-/əŋ/ pairs (e.g., *shen* ‘body’ vs. *sheng* ‘to give birth’), and four /an/-/aŋ/ pairs (e.g., *fan* ‘to flip’ vs. *fang* ‘square’). Syllables were presented in two forms, Chinese characters and *zhuyin* symbols, a local phonetic system taught in elementary schools to facilitate character pronunciation. In addition, syllables were embedded in carrier sentences written in Chinese characters, and were placed in sentence-final positions to avoid anticipatory coarticulation on the nasals. The last words of the carrier sentences were also carefully chosen so that they contained no other nasal-ending syllables except for the target stimuli. An example is given in (6). Additional 48 non-nasal-ending syllables and 72 sentences in which the last words contained no nasal-ending syllables were also included as fillers. In total, 4 (syllables) × 2 (nasals) × 3 (vowels) × 3 (conditions: *zhuyin*, character, sentence) = 72 stimuli and 48 (filler syllables) + 72 (filler sentences) = 120 fillers were included in the study.

- (6) *xin* ‘heart’  
*Wang laoshi feichang you aixin.*  
 Wang teacher very have loving-heart  
 Mr. Wang is very kind-hearted.

### 3.3. Equipment

Recordings were done using a SONY PCM-M1 Digital Audio Recorder with Maxell R-64 DA 60 min DAT tapes and a SHURE SM10A head-mounted microphone.

### 3.4. Procedure

Subjects were recorded in a quiet room. They were presented with stimuli printed on index cards and were asked to read them in a natural fashion. The stimuli were blocked by condition and each session contained an additional fourth block of a pronunciation check (see below). Subjects were allowed to rest between blocks if necessary. For the reading tasks, the order of presentation within each block and the order of the blocks were randomized for each subject. The pronunciation check was always the last block. The check was a paper-and-pencil test consisting of 36 multiple-choice questions, including 24 target syllables and 12 non-nasal-ending fillers printed in Chinese characters in a semi-randomized order. For each syllable, subjects were required to

circle the dictionary pronunciation of the character, represented by the *zhuyin* symbols, from four available choices. The check was to ensure that subjects knew the underlying pronunciation of the stimuli, as most Chinese characters are not very transparent in this regard. After the recording, subjects were asked to fill out a questionnaire regarding their language backgrounds. An average session lasted about 20 min. Subjects were paid for their effort.

#### 4. Results

Table 4 shows the number of nasal mergers with regards to the preceding three vowels. It is clear from the table that merging rates were not evenly distributed. There was only one instance of /an/ → [aŋ], two of /ən/ → [əŋ], and none of /aŋ/ → [an], implying that nasals were fairly stable in these positions. Most of the mergers occurred with /in/ and /əŋ/ and a few occurred with /iŋ/. However, the distribution of the three was fairly different, as shown in

Table 5. For /in/ sequences, all northerners showed instances of merging, while only seven southerners did [ $\chi^2(1) = 2.75, p = .097$ ]. Two males and two females did not show any sign of this merger. On the other hand, for /əŋ/ sequences, all except for two northerners, one male and one female, and one southern female showed instances of merging, indicating this rule is prevalent among both groups of speakers [ $\chi^2(1) = 0, ns.$ ]. As for /iŋ/ sequences, except for one, all instances occurred in southerners, and only seven southern speakers showed instances of merging [ $\chi^2(1) = 4.91, p < .05$ ]. The four southerners who did not show any sign of this merger were all female. All southern males showed signs of this merger. The following analyses on merging rates focused on only these sequences and only on speakers that showed evidence of the mergers.

Table 4: Nasal mergers regarding the three preceding vowels.

Merging direction	Preceding vowels			Total
	/i/	/ə/	/a/	
/n/ → [ŋ]	159	2	1	162
/ŋ/ → [n]	25	144	0	169
Total	44	146	1	331

Table 5: Number of subjects applying the merging rules.

Group	Merging rules			<i>N</i>
	/in/ → [iŋ]	/iŋ/ → [in]	/əŋ/ → [ən]	
Northerners	11	1	9	11
Southerners	7	7	10	11
Total	18	8	19	22

The first merging rule examined is /in/ → [iŋ]. As shown in Figure 2, there was a marked contrast between northerners and southerners, and between males and females. For northerners, their merging rates were fairly high (80–90%) regardless of gender and condition (Figure 2a). For southerners, the overall merging rates were lower, and there was a gender split (Figure 2b). Females were more like their northern counterparts showing high merging rates (60–70%) across conditions, while male merging rates were only comparable in the sentence condition (62%). In *zhuyin* and character conditions, the merging rates were relatively low (25%). Different presentation conditions did influence merging rates, but except for southern males, the influence was relatively minor. For northerners and southern females, the differences were usually within 5–10%. However, for southern males, there was a big increase of close to 40% from *zhuyin* and character conditions to the sentence condition.

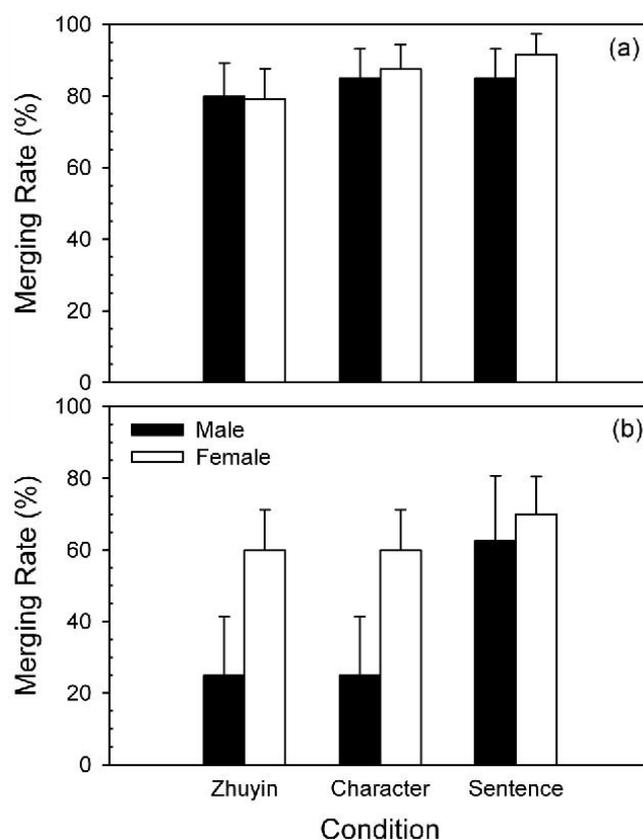


Figure 2: Average merging rates of /in/ → [iŋ] in (a) northerners and (b) southerners. Error bars represent standard error.

The second merger examined is /əŋ/ → [ən]. As shown in Figure 3, there was again a large difference between northerners and southerners, and between males and females. For northerners and southern males, merging rates for *zhuyin* and character conditions were comparable, around 55–75%, but southern females showed very low merging rates of only about 20–25%. For the sentence condition, there was a strong group difference. Northerners showed almost complete merging (95–100%), while southerners only merged around 65–75% of the time, regardless of gender. The influence of presentation conditions was dependent on Group and Gender. For southern males, the difference was fairly minor, around 7%. For others, the increase from *zhuyin* and character conditions to the sentence condition was as large as 20–40%.

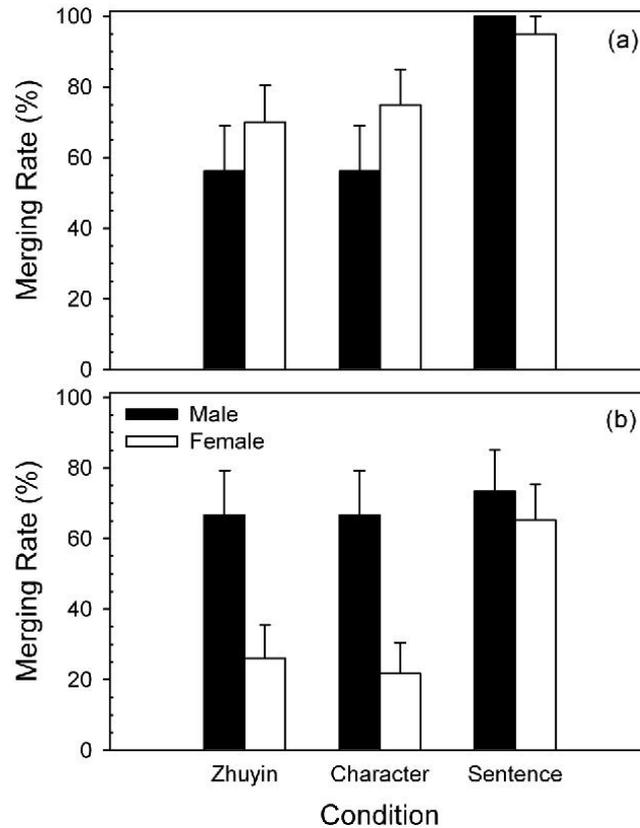


Figure 3: Merging rates of /əŋ/ → [ən] in (a) northerners and (b) southerners. Error bars represent standard error.

The third merger examined is /iŋ/ → [in]. Since there was only one instance in the northern group showing this merger, the following analyses included only southerners. As shown in Figure 4, the overall merging rates were fairly low, compared to the other mergers. There was a gender difference regarding the presentation conditions. For male speakers, the merging rates hovered around 35–45%, regardless of conditions. On the other hand, female speakers tended to have lower merging rates in non-sentence conditions (0–20%), and higher rates in the sentence condition (45%). Merging rates in the sentence condition were more comparable between the two genders. However, a logistic regression with Gender and Condition as predictors showed that both main effects and interaction effects were not significant.

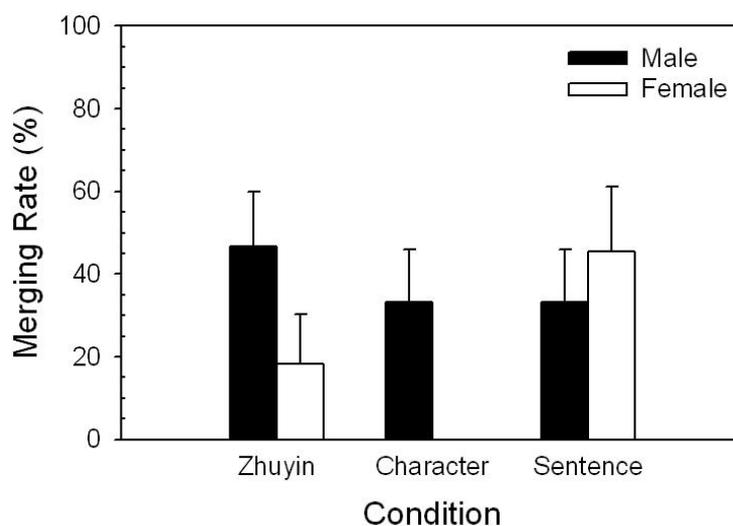


Figure 4: Merging rates of /iŋ/ → [in] in southern speakers. Error bars represent standard error.

## 5. Discussion

Three mergers were found in this study, /in/ → [iŋ], /əŋ/ → [ən], and /iŋ/ → [in]. No consistent merger involving /ən/, /an/, or /aŋ/ was found. This was congruent with the mergers proposed by most of the findings in previous studies (Chen 1991a; 1991b; Hsu 2006; Hsu & Tse 2007; Ing 1985; Kubler 1985; Lin 2002; Tse 1992; Yang 2007; Yueh 1992).

There was indeed a split between Taipei and non-Taipei speakers, contrary to Yueh's (1992) findings. Northerners only had /in/ → [iŋ] and /əŋ/ → [ən], while southerners had all three mergers. Based on merging rates and number of subjects who had the rule, the /in/ → [iŋ] merger seemed to be very robust in northerners. All speakers showed evidence of applying this rule and not much variation was found, as the merging rates were fairly high regardless of presentation contexts (*zhuyin*: 80%; *character*: 86%; *sentence*: 89%). In fact, of the 11 northerners, only three produced non-merging tokens. None only merged in the sentence condition. This was consistent with most of the previous studies that also looked at Taipei speakers (Hsu 2006; Hsu & Tse 2007; Lin 2002). However, the merging rates in this study were not comparable with Hsu's (2006) 28%.

In other words, the merger is likely to be sensitive to style differences. In formal genres, the merger is optional and the application rate is fairly low, as in Hsu (Hsu 2006;

Hsu & Tse 2007). However, in more colloquial genres, it has probably already been phonologized as a stable and standard rule, and its status has become essentially obligatory, as shown in this study.

That gender only exerted minor effects, with females showing slightly higher merging rates than males (85% vs. 92%) corresponds well with Hsu (2006). This implies that the rule is probably considered to be fairly neutral, and thus females were taking the lead, making negative transfer from Min an unlikely cause (MacLagan et al. 1999; Trudgill 2000). Besides, since the Quan dialect of Min allows both /in/ and /iŋ/ sequences (Table 2), merging the former with the latter is not well motivated from a transfer perspective. Instead, the origin of the rule is probably a [+high] assimilation with the preceding vowel, as was suggested by Lin (2002).

On the other hand, southerners did not show as much support for this rule, and much variation was observed. Of the 11 speakers, there were four that did not show any evidence of applying the merger, and for those who did, only two consistently merged regardless of conditions. Two speakers applied it only in the sentence condition. Although it could still be regarded as a common rule, the application rates were much lower than those of northerners (*zhuyin*: 50%; character: 50%; sentence: 68%).

The discrepancy between male and female merging rates was also much larger in the south, with females being again higher than males (63% vs. 38%), implying that this is probably regarded as a prestigious rule by the southerners, and females were trying to mainstream themselves to the pronunciation norm by taking the lead (MacLagan et al. 1999; Trudgill 2000). In other words, similar to the northern group, the cause of the merger is not likely to be negative transfer. Besides, the fact that the Mix dialect of Min allow /in/ but not /iŋ/ sequences would also make this an ill-motivated transfer. Instead, a [+high] assimilation with the preceding vowel should be the cause (Lin 2002), as in the northern group. However, since only Quan but not Mix allows /iŋ/ sequences, Min might have indeed somewhat contributed to the differential merging rates between the north and the south by providing an extra source of support for this merger to occur in the northern group, resulting in more stable application of the rule, while at the same time creating a counteracting force in the southern group, resulting in lower merging rates, and fewer people adopting the merger.

The differential effects of presentation conditions on male and female speakers were also intriguing. The overall pattern for female speakers was more like their northern counterparts. Only slight differences across conditions were found. On the other hand, male speakers showed high merging rates only in the sentence condition. This suggests that the rule is more stable and is probably also more phonologized in

female than in male speakers. Most male speakers tend to treat this merger as optional and would apply it frequently only in connected speech, which is also an indicator of its assimilatory origin.

Based on merging rates and the degree of prevalence of the merger, one suspects that the /in/ → [iŋ] rule probably originated from the north as a result of [+high] assimilation and was gradually spread to the south. As Taipei Mandarin is considered to be the standard variety, the rule is not regarded as stigmatized. Therefore, female speakers in both groups boldly took the lead and became more fervent in supporting the merger than their male counterparts. It is surmised that the rule should be able to gain its popularity among the southern speakers, especially males, given enough time.

The second merger, /əŋ/ → [ən], also seemed to be very robust in the north, although compared to /in/ → [iŋ], it was slightly less popular. Two speakers did not show any sign of this merger, and of the nine that did, only five consistently merged regardless of presentation conditions. One showed merging only in the sentence condition. Merging rates were lower than those of the /in/ → [iŋ] merger in the non-sentence conditions, but somewhat higher in the sentence condition (*zhuyin*: 64%; character: 67%; sentence: 97%). This is congruent with the relative merging rate differences in Hsu's (2006) sentence-reading results (/in/ → [iŋ]: 28%; /əŋ/ → [ən]: 29%). However, the absolute rates in this study were much higher than those in Yueh (1992) (syllable: 45%) and Hsu (2006), and were more comparable to those in Yang's (2007) study (riddle: 95%).

Therefore, the /əŋ/ → [ən] merger is probably an optional rule that is sensitive to style differences. Merging rates in formal contexts are fairly low, but are higher in more colloquial genres. Unlike /in/ → [iŋ], it is not a very stable merger across different presentation conditions. Merging rates for the sentence condition were about twice as high as those for *zhuyin* and character conditions, implying that the rule, though prevalent, is not yet completely phonologized.

Similar to /in/ → [iŋ], gender also exerted only minor influences on the /əŋ/ → [ən] merger. Females had higher merging rates in *zhuyin* and character conditions, but males were higher in the sentence condition [*zhuyin*: 56% vs. 70%; character: 56% vs. 75%; sentence: 100% vs. 95%]. This was in general comparable to the results in Yueh (1992) and Hsu (2006), implying that the rule is likely to be fairly neutral, and female speakers were taking the lead. The fact that merging rates were slightly higher for male instead in the sentence condition might be due to a ceiling effect, since the merging process was close to absolute. The pattern thus indicates that negative transfer from Min is an unlikely cause. That the Quan dialect of Min disallows both /ən/ and /əŋ/

sequences also supports this view. Instead, the rule is probably motivated by a [+front] assimilation, as proposed by Yueh (1992) and Tse (1992), or a [-high] assimilation, as proposed by Lin (2002).

For southerners, this rule was also fairly popular. Ten out of eleven showed evidence of having this merger. However, only two consistently merged regardless of conditions. Three speakers applied this rule only in the sentence condition. Merging rates were slightly lower than those for /in/ → [iŋ] in the non-sentence conditions, but were about the same in the sentence condition (*zhuyin*: 42%; character: 39%, sentence: 68%). Overall, merging rates were also much lower than those in the north and were comparable to those in Yueh (1992) (syllable: 38%).

Similar to the pattern in /in/ → [iŋ], there was a large gender difference in southerners' merging rates, but the direction was the exact opposite, with males being higher than females (69% vs. 38%), implying that the rule is probably deemed as a stigmatized one by southerners, and females were avoiding it (MacLagan et al. 1999; Trudgill 2000). However, negative transfer from Min is an unlikely cause, since the Mix dialect allows /əŋ/ but not /ən/, making the rule ill-motivated. Instead, the rule might have the same assimilatory root as in the north, be it [+front] (Tse 1992; Yueh 1992) or [-high] (Lin 2002), but somehow it does not share the same neutral social attitude. Nevertheless, since the Mix dialect allows /əŋ/ but Quan does not, Min might have contributed somewhat to the differential merging rates between the north and the south by creating a counteracting force in the south, resulting in lower merging rates.

As with /in/ → [iŋ], there was also a differential effect of presentation conditions on the two genders, but the pattern was reversed. Males showed a more stable merger regardless, while females showed a larger condition effect, with merging rates being much higher in the sentence condition. This suggests that the rule is probably more stable and more phonologized in male than in female speakers. Most female speakers tend to only apply this optional rule frequently in connected speech.

Compared with /in/ → [iŋ], more people are applying /əŋ/ → [ən], suggesting that the latter probably has a longer history than the former, congruent with Hsu and Tse's (2007) claim. The rule is likely to have a northern origin, as merging rates were much higher in the north than the south. This hypothesis is consistent with the small gender differences in the north, but inconsistent with the large gender differences in the south. Southern females are shying from applying the rule in non-sentence conditions, which should have not been the case if the rule was originally from a standard dialect area. One would have predicted a pattern similar to /in/ → [iŋ] instead. The geographical split in speakers' attitude towards the rule seems to imply that other factors specific to the

south might be influencing southerners' percept.

The third merger, /iŋ/ → [in], only seemed to exist in the south, contrary to Yueh's (1992) findings. Of the 11 southern speakers, there were four that did not show any evidence of applying the rule, and for those who did, none of them consistently merged regardless of conditions. Two speakers applied it only in the sentence condition. Although the rule could be regarded as a common one based on number of speakers that had the merger, the application rates were fairly low compared to the first two rules (*zhuyin*: 35%; character: 19%; sentence: 38%). The rates were quite comparable to those in Yueh (1992) and Tse (1992) (syllable: 19–26%; word: 28–33%; paragraph: 36%), but were in strong contrast with Yang's (2007) data (95%), reflecting its sensitivity to style variations.

The gender differences in /iŋ/ → [in] were like those for /əŋ/ → [ən]. Female speakers were much less likely to merge than males in non-sentence conditions (40% *vs.* 9%), but were more comparable with males in the sentence condition (33% *vs.* 45%). Although the pattern was statistically insignificant, it implies that the rule is probably stigmatized, and females were avoiding it when they were more aware of their pronunciation (MacLagan et al. 1999; Trudgill 2000). Since the Mix dialect of Min allows /in/ and disallows /iŋ/, it is likely that the rule is due to negative transfer from Min, and is thus less preferred, as was suggested by Kubler (1985) and Ing (1985). That the Quan dialect allows both /iŋ/ and /in/ sequences also explains why this rule is not well motivated and thus not popular in the north. [+front] assimilation (Tse 1992; Yueh 1992) is not an attractive explanation since it could not explain why northern speakers are precluded from the rule.

Compared with /əŋ/ → [ən], the merging rates of /iŋ/ → [in] were much lower. One possibility might be that the latter is a newer rule, and is therefore still in its burgeoning stage, as was suggested by Tse (1992). However, this is inconsistent with its negative transfer origin since the influence of Min on Mandarin could be dated as far back as 1945, when the large influx of Chinese immigrants started (Huang 1993). Instead, one suspects that the lower merging rates of the rule is due to its highly marked status, and thus it is less preferred in read speech.

## 5. Conclusion

In this study, one looked at northern and southern speakers regarding their merging patterns, and found dialectal variations not only in the type of rules adopted,

but also in the application rates for the same mergers. One suspects this might be related to speakers' differential attitudes towards the rules, in addition to the different points of origin, which will merit further studies.

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# **A Discourse Analysis of Language Scaffolding: In a Cross-age Tutoring Program**

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## **Abstract**

This study analyzes a discourse of cross-age tutoring for oral language development as well as literacy for reading in English with English as a second language (ESL) and native English-speaking (NES) in school-age learners. The theoretical framework is based on a sociocultural view of learning, particularly the hypothesized the zone of proximal development (ZPD) (Vygotsky, 1978), on the concept of scaffolding (Bruner, 1983; Wood, Bruner, & Ross, 1976). Halliday's (1994) systematic functional approach is hired in the linguistic analysis of the tutoring discourse. The finding shows that typical features of topical, interpersonal, and textual themes in similar or different patterns between two groups to learn beyond their original ability and knowledge by language scaffoldings of questioning, confirming, clarifying, modeling, and negotiating.

**Keywords:** language scaffolding, cross-age tutoring, the Zone of Proximal Development, Functional Linguistic Approach

## **1. Introduction**

The growing numbers of students who speak English as a second language are faced with the challenge of academic achievements on standardized assessments in school systems due to limited language proficiency and lack of content knowledge. Especially vocabulary in reading comprehension of content subjects is identified as general concerns for English language learners (Stoller & Grabe, 1995; Schmitt & Meara, 1997; Ordonez, Carlo, Snow & McLaughlin, 2002; Birch, 2007). Many ESL and EFL students, including native English speaking students withlow literacy are frustrated to read stories, articles, or books that are too difficult for them and this problems might cause tardiness of independent reading and they are left behind for a quite long period.

The research questions posed in this study are (1) How do we motivate these

students to read with more interests and attention? (2) Which strategy and instruction can facilitate students to read effectively?" From this inquiry, I analyze two discourses in the cross-age reading programs between high school tutors and elementary tutees in ESOL and mainstream classroom to explore how they interact with each other in reading comprehension and vocabulary acquisition in terms of the language scaffolding in English. The concept of language scaffolding and the Zone of Proximal Development (ZPD) are considered to explore benefits from the instruction of cross-age tutoring, using the tool of Systemic Functional Linguistics (SFL).

## **2. Theoretical background**

### *2.1. Language Scaffolding and ZPD*

The metaphor of scaffolding is a popular and useful idea in psychology and education to emphasize the importance of tutoring which means learners are considered as a building and they actively construct themselves to move forward (Berk & Winsler, 1995). This metaphor tells us meaningful idea that children are actively engaged in learning by social interactions with other people who are more knowledgeable and competent in collaborative activities. Scaffolding allows learners to expand their knowledge beyond their levels. Vygotsky's (1978) concept of the Zone of Proximal Development (ZPD) is associated with the meaning of scaffolding in terms of two different levels of learning by collaborative learning instruction: the actual development of learning by learner themselves and the potential development under guidance or collaboration with more capable peers. From the perspective of second language acquisition, the concept of ZPD can be defined as the difference between the L2 learner's developmental level as determined by independent language use, and the higher level of potential development as determined by how language is used in collaboration with a more capable interlocutor (Ohta, 1995). Therefore, cross-age tutoring is able to activate these two different levels of development in language learning effectively from active interactions between tutors and tutees.

This study mainly focuses on the language scaffolding in the discourses of cross-age tutoring in terms of how the tutors support and scaffold the tutees to acquire new vocabulary and to comprehend reading passages by producing appropriate interlocution. Additionally this study explores how and why the tutees of English language learner respond to the scaffoldings, using their native language and English dynamically.

## 2.2. *Cross-age Tutoring*

Cross-age reading programs are used as a promising way of helping students improve their reading ability in instructional contexts. Although the focus of cross-age tutoring program is the development of students' literacy, according to the literature review by Cohen, Kulik & Kilik (1982), both tutors and tutees gain positive attitudes toward reading and development of social skills as well as improvement of reading comprehension from cross-age tutoring projects. More recent studies also show the effectiveness of such programs in the same domains such as reading ability, motivation for reading, and interpersonal skills (Marios, 2000; Thrope & Wood, 2000; Kalkowski, 2001; McCabe & Millar, 2003).

Although many studies have shown the gains for both tutees and tutors, there has been little research on language scaffolding and L1 uses in such programs. Therefore, this research of language scaffolding between the tutors and the tutees is able to give meaningful insight into cross-age tutoring in English language acquisition by comparing two different language groups of cross-age pairs – one is Korean-Korean pair and the other is native-native speakers of English.

## 2.3. *Understanding of Thematic Analysis in Functional Linguistic Approach*

In general, theme is the starting point of a clause which provides familiar information from previous text or presumed understood in functional grammar. The remained part of a clause is a rheme which modifies and develops themes, providing unfamiliar or new information (Halliday & Matthiessens, 2004). Writer and speakers must consider what their readers and listeners are likely to expect at any given point, and then use the thematic content of their messages to influence these expectancies. A few ESL/EFL students probably tend to fail to provide this expectation chain and to communicate clearly with their audience in their speaking and writing (Thompson, 1985). There are three main types of themes in functional grammar– Topical (experiential), and textual theme to organize a text and communicate effectively (Halliday & Matthiessens, 2004). Topical themes generally refer to constituents of human experiences such as participants itself (generally considered as a subject or a thing in a subject position), the participants with a process (generally considered as a verb), or any circumstantial factors (generally considered as a prepositional phrase) such as time, manner or cause (Halliday & Matthiessens, 2004). Other elements in the clause preceding topical themes are either interpersonal or textual in function, playing no part

in the experiential meaning of the clause (Halliday & Matthiessens, 2004). The categories of interpersonal themes generally include modal or comment adjunct, vocative, or finite verbal operator. In textual themes, there are various types of continuatives, conjunctions, and relatives.

In the analysis, I consider each clause independently in a sentence and all themes in the position of proceeding process in a clause separately investigated in terms of the functions in the discourse. I mainly examine how the tutors (Native English Speaker: NES) construe themes in a clause by means of topical, interpersonal, and textual themes. The purpose of L1 use by the tutee of English language learner (ELL) is also analyzed when and why L1 is used in the context and interpreted with a view of vocabulary acquisition across languages.

### **3. Methodology**

#### *3.1. Sample of data*

The discourses of data analysis come from cross-age tutoring projects conducted over a four-year period in K-12 classrooms across the state of Florida. The pairs of tutoring consist of high school student tutors and elementary and kindergartener tutees. In the samples of this study, the first pair of a tutor and a tutee has the same language background of Korean and show different level of English language proficiency. In the second group of tutoring, both the tutor and the tutee are native English speakers, but the tutee is in emergent reading stage. It means the tutoring sessions were videotaped for 20 minutes and transcribed in English, including their first language. Each pair reads a book and then talks about the story, characters and new vocabulary in the middle and at the end of reading. Although the nature of cross-age tutoring is described as collaboration and interaction, the tutor mainly leads the session and the tutee responds to the questions about the story or new vocabulary with very simple words due to limited oral proficiency or lack of vocabulary knowledge in English for English language learners. Because of this reason, the tutors' utterances are mainly analyzed.

#### *3.2. Attention to institutional context*

The given sample data were analyzed by the Systemic Functional Linguistics approach. In the analysis, the thematic analysis is employed as an analytic tool to show the variations of linguistic choices and patterns in a clause level. After analyzing each

clause, each type of themes is categorized into conceptual terms of language scaffolding from coding such as modeling, engaging, encouraging, checking, affirming, paraphrasing, repeating, etc. Separately, the purpose of L1 use by the tutee of English language learners is also analyzed in terms of when and why L1 is used in the context and interpreted with a view of meta-cognition across languages in vocabulary acquisition.

#### 4. Findings

The findings from this study would represent the similarities and differences in the thematic structures between the two discourses. The similar features of spoken instruction genre might emerge from the overall interpretation of the analysis, and then more detailed interpretation would present the differences in terms of the frequency and linguistic variation of each type of themes between two pairs. 113 clauses are taken from the first group of English language learners and 161 clauses are taken from the second group of native English speakers. Each clause has at least one topical theme in that, but, sometimes, multiple topical themes are presented as follows: *in this picture* (experiential: E), *where (E) is the crowd?*; *what (E) does (textual: T) this (E) say?*; *when (E) the bird (E) picked up?*; regardless of grammatically correct or not.

##### 4.1. Frequency of topical, interpersonal, and textual themes

As regards similarities in both discourses, more interpersonal themes and fewer textual themes are used than written texts due to the features of spoken genres <Table 1>. Both writers construed their spoken text with instructional expressions by asking questions, explaining some process, encouraging the tutee to describe their thoughts which are teacher-like ways with various types of themes. However, the characteristics of formal spoken discourses are shown more evidently from the ELL tutor's speech. He used more formalized expression rather than natural spoken and daily like description.

	ELL	NES
Total of clauses used	(113)	(161)
Topical Experiential: E	55%	67%
Interpersonal: IN	19%	20%
Textual: T	25%	13%

Total of Themes	(100%)	(100%)
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Table 1. Frequency of topical, interpersonal, and textual themes used by ELL and NES

(1) ELL

- a. Can (T) you (E) remember that some people who make some very good pieces very expensive something?
- b. We (E) finished the Curious George here and then (T), uhm, (T) I (E)'ll (IN) give you some more questions about it.

(2) NES

- a. So, (T) what (E) are you guys thinking what's gonna happen in the story?
- b. So, (T) tell me what happen.
- c. You guys (E) are playing games are being involved teamwork?

As we see above, both speakers also used spoken-like conjunctions to make a connection logically in their mind among each clause and sentences such as 'so,' 'and,' and 'then.' These seem to be used habitually to think internally rather than build textual cohesion which is defined as a typical function of conjunctions.

Topical (Experiential)(55%)	Interrogative	What
	Demonstrative	This or that
	Pronoun	You, he, we, I, they, it
	Circumstance	in this picture, with this picture
	Descriptive	The picture, this picture,
	New vocabulary	opposite, masterpiece, crowd,
Interpersonal (19%)	Modal	can, may, will
	Comment adjunct	just
	Finite verbal operator	do, does, didn't, did, don't, have
	Imperative	let's
	Vocative	0
Textual (25%)	Continuative	next time, then
	Conjunction	so, and, yeah, here, that, oh, if, but, right here, um.
	Relative	Who

Table 2. The frequency of three types of themes used by ELL

Topical(Experiential) (67%)	Interrogative	What, When, Which, Where, How
	Demonstrative	This or that, there
	Pronoun	You, you guys, he, We, I, they, it, all
	Circumstance	in the story
	Descriptive	That idea, introduction, the bird, everyone, someone, everything, the stone, Anasi
	New vocabulary	
Interpersonal (20%)	Modal	Can/can't/couldn't, might be, will/will not/would, should, had better, are gonna/ are not gonna
	Comment adjunct	just, just like, like, really
	Finite verbal operator	do,does,didn't,did,don't,have/haven't/has
	Imperative	let's
	Vocative	Cole
Textual (13%)	Continuative	Then,After,after that, one day, tomorrow, now
	Conjunction	so,and,yeah,well,oh, but, all right, huh.
	Relative	0

Table 3. The frequency of three types of themes used by NES

The variations in each type of themes show how the speakers differently thematized their spoken structures.

#### 4.2 *The variations of topical themes*

Topical themes generally refer constituents of human experiences of participants, circumstances, and processes (Halliday & Matthiessens, 2004). Topical themes are divided into two types of themes: (1) marked and (2) unmarked. Unmarked topical themes are prominent elements in a clause which are generally considered subjects in traditional grammar, and marked topical themes are standing-out or marked alternatives such as prepositional phrases which might not serve a subject in the clause (Halliday &

Matthiessens, 2004).

Interrogative clause of 'what is ----?' marked 22% among 114 topical themes in ELL's speech. This is probably used to check unknown vocabulary for tutees, including do, does, and did of finite verbal operators (although they are classified into interpersonal themes in functional grammar) in order to make questions or checking the tutee's understandings.

### (3) ELL

- a. What (E) is it?
- b. What crowd (E) is?
- c. What (E) is the word?
- d. What (E) does (T) this (E) say?

The tutor focuses more on vocabulary instruction of unknown words, making the tutee pay attention to them by asking the tutee to describe the meaning of words. In fact, among topical themes, new vocabulary words such as opposite, masterpiece, and crowd are repeated several times in a topical theme positions and explained by the tutor with pictures and writings repeatedly. It corresponds with the result of unknown words in thematic positions. In the discourse of NES, there is no unmarked topical theme in theme position. On the contrary, the tutor of native English speaker presented more various types of interrogatives of wh-question.

### (4) NES

- a. Where (E)'s the father now?
- b. What (E) are you thinking about this book so far?
- c. Which one (E) do (IN) you (E) want,
- d. What (E) happened?
- e. Yeah,(T) how (E) did (IN) he (E) fall?

The utterances by the native English tutor seem to be more various and more focus on the understanding of the story itself rather than just ask the meaning of a word. It can be generalized that ELLs put more emphasis on vocabulary acquisition rather than reading comprehension itself and NESs focus more on reading comprehension because they do not have as many difficulties in understanding the meaning of vocabulary in reading. This tendency might be proved in future study to compare their differences between English language learners and native English speakers.

In addition, demonstratives of this and that are frequently presented to refer some previous words in the book or to talk about the meaning of words by looking and pointing pictures or words. By using descriptive circumstance of prepositional phrase such as 'in the picture,' 'with the picture,' and 'in the story', the tutor scaffolds the tutee's understanding new vocabulary and the story.

The high frequency of you probably is related to asking questions about the tutee's thinking and understanding such as, 'Do you think,' 'Do you know,' and 'Do you remember?' in ELL's speech. However, in the discourse of NES, the tutor used 'you guys' frequently.

(5) NES

- a. You guys, (E) do (IN) you (E) like this book?
- b. You guys, (E) do (IN) remember the end of the story?

#### 4.3 Knowledge checking and engaging in interpersonal themes

Interpersonal themes generally express a speaker's commitment or reaction to a situation by using adverbs and a speaker's angle or validity by using modals (Whittaker, 1995). In these two discourses, *just* is mainly used as a reactionary adverb.

(6) NES

- a. Just like (IN) in the story (E) do teamwork.
- b. Just (IN) draw a picture in this box.

(7) ELL

- a. Just (T) one word (E) we (E) can (IN) use in one sentence.

Compared to different genre of written discourse, the interactional dialogic genre generally shows high frequency of interpersonal themes. Along with frequency of interrogative of *wh-* and pronoun *you* or 'you guys', in the analysis of interpersonal theme, absolutely modal of *can* marked 42% among whole interpersonal themes in the ELL's speech. In both mood of interrogatives and declaratives *can* is used to check or engage the tutee's knowledge of previously learned vocabulary, replacing *do* to make a question. Furthermore, using the modal of *can* definitely shows engagement of the tutees in the tutoring session as an active thinker.

(8) T : Can (In) you (E) remember that some people who make some very good pieces

very expensive something?

T : What (E) is this? [points at the word]

B : close

T : No. Can (IN) you (E) remember? Crowd?

What (E) are these [points at people in the book]

B : people

T : Yeah, people. Many people (E) and (T) so (T)

what (E) is crowd?

While the tutor of ELLs mainly used *can* as a modal, the tutor of NES presented more various type of modals such as *might be*, *will/will not/would*, (12%), *should*, *had better*, and *are gonna/are not gonna* (13%).

(9) NES

- a. We (E) are gonna (IN) do now....
- b. We (E) are not gonna (IN) do just let you see it.
- c. We (E)'re gonna (IN) do a little bit a drawing.
- d. Well, (T) we (E) are gonna (IN) have to go.

(10) ELL

- a. Next time (T) we (E) are writing about a story.

The native speaker used 'are gonna' with pronoun *we* and the imperatives 'lets' function as a linguistic tool for making the tutees and the tutors are engaged with the context and introduce next processes, including the tutors themselves.

(11) ELL

- a. And so lets (IN) write story. Story, then, title. Writing like a story with title something Ok and so [xxx] February 4 [interrupted by teacher].
- b. So lets (IN) write one word Ok let's (IN) start [xxx] just one word we can use in one sentence.

(12) NES

- a. Let's (IN) start of the beginning, all right?
- b. We (E)'re gonna (IN) do a little bit a drawing.

#### 4.4 Han Logical connection of discourse by using textual themes

As might be expected, in informal spoken discourses, textual themes are less frequent than in written discourses. Textual themes generally function to help listeners or speakers to follow the flow of speech. In these discourses, the speakers commonly used great number of conjunctions such as 'so' and 'and' or both together (62% versus 46%). Their function in the discourses for the speakers to think and arrange their thought, giving signals of continuation of logical flow to the tutees.

(13) NES

- a. Now, (T) we' (E) re gonna (IN) do three steps. So (T), if (T) you (E) were poor at throwing ropes, it (E) could not (IN) be safe to save people. But (T) someone (E) can (IN) help you.

(14) ELL

- a. So (T) just (IN) think about it. Master (E) is something very highest or people they make a piece.
- b. I (E) bring candy for you before. And so (T) what (E) does(T) it(E) taste like?

One more interesting finding in the analysis of textual themes is probably the use of 'yeah' as a starting point to give some affirmation. Both tutors affirmed the tutees by using 'yeah' when the tutees said correct answers or understood clearly.

(15) NES

- a. Yeah, (T) what (E) are you thinking?
- b. Yeah, (T) what (E) happen?
- c. Yeah, (T) how (E) did (IN) he (E) fall?

(16) ELL : Yeah, (T) you (E) can (I) put rush and so peppermint

- a. Yeah, (T) they (E) like him.
- b. Yeah, (T) that (E)'s right.

#### *4.5 Negotiation and modification of the meaning*

As I mention, ELLs in cross-age tutoring program seem to focus more vocabulary learning rather than comprehending the story itself. In the process of negotiation and modification of the meaning of a word, the tutors tried to build the concepts of a word by giving examples from their prior experience and knowledge, and modifying the meaning to make the tutees engaged in the context.

(17) ELL

- a. [xxx] here is you with a kind of plum here and you are the customer. The customer is used money. The customer orders [pointing at drawing] he comes [xxx] and that's you the customer and [xxx] give some more money. So...
- b. So what is a masterpiece? Can you remember? Masterpiece. Oh masterpiece is [draws] can remember [xxx] picture? Do you know the Mona Lisa? So the Mona Lisa is a drawing and [draws] this picture is a masterpiece. Can you remember that some people who make some very good pieces very expensive something?
- c. If you make or break something in your house glasses or something like that, your mom gets very angry and makes a punishment. That is a scold, can you remember? Give me a comparison rushing. Do you know what is rushing?

(18) NES

- a. When you work together everyone is different. You can make safe. You can help people and save people by putting what you can do well all together. Understand? So if you were poor at throwing ropes, it could not be safe to save people. But someone can help you. That's a kind of teamwork.
- b. It's wonderful. You guys are doing teamwork? You guys are playing games are being involved teamwork? You guys play soccer, or.

According to the study about negotiation in interactional tasks of second language acquisition by Foster & Ohta (2005), learners tend to co-construct meanings in interactional tasks to clarify, comprehend, and confirm by active assistance and initial self-repair of own utterances. In the discourses, the tutors and tutees build common context to understand the meaning of new concept by giving and taking descriptive utterances to make sure their understanding.

In particular, the use of L1 by the tutee in the moments of new vocabulary acquisition in the discourse of ELLs shows how L1 literacy could facilitate learning new vocabulary in L2 as a resource for vocabulary acquisition from the deliberate process of interactions by sharing and negotiating.

- (19) T: Yeah, you can put rush and so peppermint  
 B: Peppermint?  
 T: you don't know?  
 B: No  
 T: Can you remember what is mint is?  
 B: No, no.  
 T: [looks through book] Is it at page 74? Where is those peppermint here  
 [shows picture] have you tasted before?  
 B: No  
 T: I bring candy for you before? And so what does it taste like.  
 B: 박하 (peppermint)  
 T: You are right it taste cool.
- (20) T: The crowd. Can you know what crowd is? In this picture where is the crowd? Crowd in this picture.  
 B: Oh, 양보하다 (yield).  
 T: No,  
 B: 처음보는데.... (I've never seen that.)  
 T: You may see it in the picture.  
 T: What is this? [points at the word]  
 B: cl..ose, close.  
 T: No. Can you remember? Crowd? What are these [points at people in the book]  
 B: people  
 T: Yeah, people. Many people and so what is crowd?

The tutee of English language learner tended to use L1 to clarify the meaning of new vocabulary and to confirm his response by repeating, including self-correction of his own utterances by thinking alone.

## 5. Limitation

In this study, thematic structures are used to analyze the utterances of the tutors mainly. As a unit of analysis, clause structures are considered but there are many utterances which are not analyzed because of the incomplete structures. In the following example, the tutor and the tutee are interacting with each other by using short expressions which are not complete clause. In the process of the interaction, the tutee

shows his knowledge by modeling and demonstrating the motion to show his understanding and finally they get to the point of common knowledge. As this analysis mainly relies on the clause structure, many meaningful nonverbal and simple verbal responses are ignored unconsciously.

(21) B: Mmmmm (murmuring) George was getting hungry! Suddenly there was a...

T: [xxx]

B: Tapping

T: Yeah tapping. Not [a] sound, [ae] sound.

B: Tapping

T: Do you know what is tapping?

B: [demonstrates] Knock.

T: [taps on desk]

In addition, although the cognitive approach to cross-age tutoring has been aimed by using the concept of the Zone of Proximal Development, there were not objective results from the qualitative data of thematic analysis. In future studies, the quantitative approach to the effect of language scaffolding with plans of concrete and systematic instruction in cross-age tutoring might give more validity.

## 5. Conclusion

This study tried to explore how language scaffolding functions in reading comprehension and vocabulary acquisition in a cross-age tutoring program. From the thematic analysis of Systemic Functional Linguistics, we are acknowledged some similarities and differences between two different language groups –English language learners and native English speakers, focusing on the tutors' utterances in the tutoring sessions. The finding shows that typical features of spoken discourses in school which means topical themes are used to draw instructional dialogic interaction between tutors and tutees by means of various types of topical themes – interrogatives, demonstratives, pronouns, and descriptive themes in clauses. However, two different language groups show different linguistic choices in terms of variation of clause structures and grammatical properties of topical themes.

Interpersonal themes represent speakers' angle and encouragement for listeners to check and engage prior knowledge with current learning by employing modals and different types of mood with finite verb operators such as 'do,

does, did' and 'let's.' Textual themes function in the discourses as a logical connector for both tutors and tutees, mainly using 'so' and 'and' as a signal of flow of thinking. In the process of clarifying, comprehending, and confirming meanings in the discourses, the negotiation and modification are developed by giving and taking in English and their native language to build common knowledge context.

Several previous studies have focused more on sociocultural aspects of cross-age tutoring considerably. In this study, main focus was on the cognitive approach to the instruction program and comparison between two different language groups. As Foster & Ohta (2005) mentioned, two approaches have different strengths and weaknesses between sociocultural and cognitive approaches by using qualitative and quantitative methods. This study showed the richness of interaction by providing language scaffolding in cross-age tutoring programs as well as variations of linguistic choices between two different language groups.

In conclusion, I would like to go back to the research questions: (1) How do the language scaffoldings function to acquire new vocabulary and to comprehend reading in cross-age tutoring? The children develop their learning beyond their original ability through the interactions of cross-age tutoring by language scaffoldings. (2) How does the tutee respond to the scaffoldings, using his native language and English dynamically? L1 use functions to give clear understanding and build common knowledge context by endeavor of questioning, confirming, clarifying, modeling, and negotiating effectively. Finally, this implicates that literacy instruction should be intensively focused on L2 development, while also providing students access to the acquisition of literacy skills in their native language which may play an important role in the development of biliteracy.

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# **Discovering in Which Mode of Language Production Korean Speakers Show More Native-Like English Proficiency: Speech or Writing?**

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## **Abstract**

This research is designed to compare the distribution of linguistic features in the spoken and written English of Korean and British university students, and to assess the native-like English proficiency of Korean learners. Forty-two Korean and British students undertook the same spoken and written tasks involving descriptive narratives. Approximately 32,000 words of English data were subsequently examined in terms of the frequency of 45 key linguistic features (as identified by Biber, 1988) using the *Oxford WordSmith Tools* 4.0 software and also by manual investigation. The findings showed that the Korean students' written English proficiency was more native-like than their spoken English proficiency. It was also found that, to a certain extent, the Korean learners tended to write as the native English speakers spoke.

**Keywords:** spoken English, written English, Korean EFL learners, linguistic features

## **1. Background**

For about a century, a series of studies have been undertaken into the relationship between speaking and writing based on the notion that they are basically different modes of expression of linguistic meaning (Akinaso, 1982; Sperling, 1996). Early studies between the 1960s and the 1980s had a range of sometimes inconsistent findings in terms of the occurrences of certain linguistic features in speech and writing. One of major findings was that written text is characterised by complex sentence structures and compact information, while spoken discourse is exemplified by simpler constructions and less dense information (e.g. Blass & Siegman, 1975; Horowitz & Newman, 1964; O'Donnell, 1974; Preston & Gardner, 1967). However, these views were challenged by Halliday's hypothesis (1979, 1985, 2002) concerning the different types of complexity

in spoken and written language. He asserted that speaking is syntactically complex, while writing is lexically complex. This view was partly supported by the studies of Poole and Field (1976) and Beaman (1984). More recent studies have shown that the linguistic characteristics of speech and writing often overlap in ways that reflect their text types, styles, production processes, purposes or communicative contexts. Still, it is also generally agreed that each mode of language is characterised and differentiated to a certain degree (Biber, 1988; Hughes, 1996; McCarthy, 2001).

The relationship between spoken and written English has contributed to developmental models of speech and writing. Studies on the interactive development of the speech and writing of both adult (e.g. Cayer & Sacks, 1979) and young (e.g. Hidi & Hildyard, 1983; Hildyard & Hidi, 1985; Kantor & Rubin, 1981; Kroll, 1981) native English speakers; and Vann's model (1981) for learners of English as a foreign language (EFL) all claim that 'initial' language learners are less able to differentiate their speech from their writing. It is mainly because their writing skills are not yet as developed as their spoken ones so their speech drives their writing. According to the language developmental models, language learners assimilate, differentiate and appropriately integrate spoken and written language as they improve their language skills (Kantor & Rubin, 1981; Kroll, 1981; Vann, 1981). In terms of pedagogic viewpoint, Tribble (1996) asserts that it is necessary to understand the differences between speech and writing in order to become a good writer (p. 16). From a broader sense, McCarthy (2001) states that "understanding these differences is a useful step on the road to better organisation of skill-based language teaching, offering a window into the immense variety of discourse-types that exist in our complex societies" (p. 94).

The differences between spoken and written English can be also considered from the perspective of *native-like selection*. According to Pawley and Syder (1983, p. 191), *native-like selection* is the ability of native speakers to convey their meaning by selecting an expression that is not only grammatical but also natural and idiomatic to native speakers' ears. This is not a matter of syntactic rules alone, nor of the complexity of the text, since even grammatically correct sentences can be non-native-like or highly marked (or typologically less frequent). The notion of native-like selection is usually applied to the choice of individual linguistic items or expressions. Still, it can be used as a metaphor to explain using linguistic features in the appropriate mode of language. There may be no clear boundary between native-like and non-native-like mode choice between speech and writing. However, just as not all possible utterances of English are actually suitable for use, not all of them are as appropriate for frequent use in speech as in writing (or vice versa) in an English-speaking community (Lewis, 1997).

Given these notions, productive language proficiency essentially involves the ability not only to speak and write but also to use and differentiate the two modes appropriately. It means that second or foreign language learners need to develop a certain degree of mode awareness between speech and writing for achieving ‘native-like’ spoken and written proficiency in their target language. From this perspective, there is a need to undertake a study comparing the two modes to assess the productive English proficiency of Korean EFL learners and their pedagogic implications for language teaching should be modified accordingly.

## **2. Aims of the Research**

On the basis of the above notions, this research aimed to compare the distribution of linguistic features in the spoken and written English of Korean and British university students and to measure native-like mode selection of the Korean EFL learners. The specific purposes of this research were:

1. To compare the spoken and written English abilities of the Korean and the British university students with respect to the occurrences of 45 linguistic features;
2. To examine the extent to which Korean EFL learners are able to differentiate appropriately between spoken and written English, as native English speakers do.

## **3. Data Collection**

### *3.1. Data Collection*

In order to develop the corpus for this study, four tasks were chosen from the spoken tasks of Sookmyung Women’s University-Multimedia Assisted Test of English (SMU-MATE, hereafter MATE). MATE is a selection of spoken and written English tests developed and administered by Koreans. MATE aims to have test-takers produce English samples in a variety of subject areas, which can be used to represent their overall English (van Vlack, 2002a). MATE tasks cover different levels of difficulty in using English. The MATE speaking test comprises eight tasks taking 25 minutes. The test-takers begin with relatively simple tasks such as requesting some basic autobiographical information (e.g. phone number, job, or free time activities). The test then moves on to more difficult tasks such as asking for a description of a picture, the

interpretation of information or an opinion. On the other hand, the MATE writing test consists of three tasks and participants [are allowed](#) 37 minutes to complete [it](#). As with spoken tasks, they are linearly arranged from the easiest to the most difficult.

Part of MATE was used in this research because firstly MATE has been acknowledged and authorised by the Korean MOE as one of the successful standardized spoken and written tests of English developed by Koreans for Korean EFL learners (SMU-MATE, 2008). Secondly, MATE is appropriate for Korean EFL learners, since it provides familiar contexts to them with the use of English in Korean society. This may help to avoid the possible tension that would be caused by the students having to perform the tasks in English. Thirdly, MATE tasks make it possible to collect language samples containing different levels of difficulty of English because they are arranged according to levels of difficulty across a wide scope of subject matter (van Vlack, 2002a).

Among the MATE spoken tasks, the easiest task along with the three most difficult tasks were excluded. Accordingly, only four speaking tasks of relatively modest difficulty were chosen for data collection. The tasks used for the data collection were arranged to increase in level of difficulty and each task contained at least one picture to prompt a descriptive narrative. The key directions for each task were as follows (see Appendix I for one task including a picture):

Task 1. Describe the girl in the picture;

Task 2. Describe the daily routine of a drama writer according to the six given pictures;

Task 3. Describe the event based on the six given pictures;

Task 4. Explain the graph.

The text type of the data to be collected was purely descriptive narrative. Narrative is a non-reciprocal and commonly used text type when someone recounts an anecdote to someone else (Beaman, 1984; Brown & Yule, 1983). Since this text type occurs in both speech and writing, it provides linguistically comparable spoken and written data. Thus, it has been often used in previous studies comparing the two modes of language (e.g. Beaman, 1984; Redeker, 1984; Tannen, 1982). Narrative, thus, is ideal to investigate the spoken and written English in an in-depth analysis in this research.

### *3.2. Participants*

In this research, 42 Korean and British university students were participated. For

the Korean participants, 21 students at Sookmyung Women's University in Seoul, Korea were chosen through undertaking the speaking test of MATE and the survey about their English language learning history. As a result, they were considered to be representative of Korean female university students with the average English ability and educational background.<sup>1</sup> They were aged between 20 and 22, and were studying different arts or science subjects at undergraduate level. At the time of data collection, they were in their third- or fourth-year in university.<sup>2</sup>

The British participants were chosen to be equivalent to the Koreans in terms of age and educational background. Twenty-one British female university students participated in this research and, at the time of data collection, they were in their second year of undergraduate study at the University of Manchester, UK.<sup>3</sup> They were aged between 20 and 22 years old and were also studying a range of arts and science subjects. For the British participants, no pre-assessment of their speech or writing was carried out.

### *3.3. Procedures for Collecting Data*

The selected tasks were carried out twice by the participants for gathering spoken and written data. They conducted the tasks first for speaking and later for writing, with a three-week interval between the two sessions. The same tasks were used twice to ensure the spoken and written English data would be linguistically comparable. In addition, the interval was applied to minimise the possible influence about writing caused by the familiarity on the tasks.

The time allocations to complete the tasks followed those given in the MATE test. Thus, the same thinking time (ranging 15 – 20 seconds) and response time (ranging 60 – 80 seconds) of the MATE speaking tasks was applied to the speaking in this research (see van Vlack, 2002a). On the other hand, when the tasks were used again for writing, the participants were given 40 minutes altogether to carry out the four tasks. This time limit was allocated because the moderate level MATE writing tasks are designed to be completed in 10 minutes each (see van Vlack, 2002b). As in the MATE writing test, the participants had to use their own judgment to allocate the given 40 minutes among the four tasks.

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<sup>1</sup> The 21 Korean participants were chosen for they attained the level of 'Moderate High'. The statistics show that a total of 42.7% Korean MATE takers were at this level as of May 2004 (SMU-MATE, 2004). The participants had experienced about 10-year-old English language education from primary to tertiary education in Korea and had never studied abroad.

<sup>2</sup> University in Korea usually consists of eight semesters in four years (or four semesters in two years of vocational college).

<sup>3</sup> Most British university education consists of six semesters in three years.

## 4. Data Analysis

### 4.1. Linguistic Features Analysed in the Research

The selection of linguistic features for this research drew on Biber's study of 67 linguistic features (1988). From among these, the most appropriate 45 linguistic features for investigating the data in this research were selected. The features consist of grammatical classes (e.g. nouns, pronouns and adverbs), syntactic features (e.g. relative clauses, adverbial clauses and complement clauses) and lexical-grammatical features (e.g. modals, hedges and negations). They included all items where occurrences: (a) could be accurately identified within the data of both native and non-native English speakers; and (b) were not heavily constrained by the tasks used in this research (see Table 1).

TABLE 1  
Linguistic Features Analysed in this Research

45 Linguistic Features	
A. Lexical Features	1. <u>Standardised</u> Type/Token Ratio 2. Mean Word Length
B. Demonstratives	
C. Pronouns and Pro-verb <i>do</i>	1. Impersonal Pronoun <i>it</i> 2. Demonstrative Pronouns 3. Indefinite Pronouns 4. Pro-verb <i>do</i>
D. Nominal Forms	1. Nominalisations 2. Gerunds
E. Adjectives	1. Attributive Adjectives 2. Predicative Adjectives
F. Adverbs	
G. Specialised Adverb Classes	1. Downtoners 2. Hedges 3. Amplifiers 4. Emphatics
H. Stative Forms	1. <i>Be</i> as a Main Verb 2. Existential <i>there</i>

I. Perfect Aspect	
J. Passives	1. Agentless Passives 2. <i>By</i> -passives
K. Modal Auxiliary Verbs	1. Possibility Modals 2. Necessity Modals 3. Predictive Modals
L. <i>To</i> -infinitives	
M. Subordinations: Complementation	1. <i>That</i> Complements 2. WH-clause Complements
N. Subordinations: Relatives	1. <i>That</i> Relative Clauses 2. WH-relative Clauses 3. Pied-piping Relative Clauses 4. Sentence Relatives
O. Subordinations: Participial Forms	1. Present/Past Participial Clauses 2. Present/Past Participial WHIZ Deletion Relatives
P. Subordinations: Adverbial Clauses	1. Causative Adverbial Subordinator 2. Concessive Adverbial Subordinators 3. Conditional Adverbial Subordinator 4. Time Adverbial Subordinators 5. Other Adverbial Subordinators
Q. Prepositional Phrases	
R. Conjuncts	
S. Coordination: <i>and</i>	1. Phrasal Coordination 2. Independent Clause Coordination
T. Negation	1. Synthetic Negation 2. Analytic Negation
U. Discourse Particles	

#### 4.2. Frequency Counting and Analysis Methods

The participants' speech was transcribed and their written texts were typed up, producing analysable spoken discourses and written texts. In these procedures, no alteration was made to correct errors, misspelled words, repetitions or inappropriate expressions made by the participants. The transcripts of the speech of the 21 Korean and the 21 British participants were merged into a single text file respectively. The 21

written scripts of each group of participants were also merged. As a result, four analysable spoken and written corpora were created and composed of 32,291 words in total, as Table 2 shows.

TABLE 2  
Number of Words in the Spoken and Written Data

Data of Korean Students		Data of British Students	
Speech	6,430	Speech	8,047
Writing	7,116	Writing	10,698
Total	13,546	Total	18,745
Total: 32,291 words			

The number of words in the spoken and written English of Korean and British participants varied. For this reason, in this study, the analysis of the frequencies of linguistic features was undertaken through a proportional approach. Indeed, a frequency index per 1,000 words was used for this study (cf. Beaman, 1984; Biber, 1988). The frequency index was calculated by dividing the actual number of occurrences of a linguistic feature by the total number of words in each text and multiplying by 1,000.

For counting the occurrences of the linguistic features analysed in the data, this research employed a combination of computational analysis and manual investigation, using the *Oxford WordSmith Tools 4.0* software. For each linguistic feature, comparative analyses were carried out in terms of the modes of language and of the English of the two groups of participants, in association with the linguistic functions of the features within the text.

## 5. Distribution of Linguistic Features

The distribution of 45 linguistic features revealed diverse and complicated results concerning the mode distribution of the linguistic features in the speech and writing of the Korean and the British participants. The overall distribution of the features is summarised here.

Firstly, overall, most of the linguistic features analysed occurred more frequently in the English of the British students than in that of the Korean students. Indeed, the native English speakers used 35 linguistic features more often than the Korean learners

did. There were, however, nine linguistic features which were used more frequently by the Korean students than the British students as follows (See Appendix II for the occurrences of the features):

Demonstratives, Predicative Adjectives, Amplifiers, <i>be</i> as a Main Verb, Conditional Adverbial Subordinators, Conjuncts, Phrasal Coordination, Independent Clause Coordination, Discourse Particles
--

For example, demonstratives occurred approximately twice as often in the speech and writing of the Korean learners as in that of the British students

Secondly, 24 of the linguistic features analysed showed the same mode distribution between speech and writing in the English of the Korean and the British students. Nineteen linguistic features, on the other hand, showed contrasting mode distribution between the speech and writing of the Korean and the British students as follows (See Appendix III for the occurrences of the features):

Features Favoured More in KS than in KW and Favoured More in BW than in BS
Demonstrative Pronouns, Downtoners, Amplifiers, Necessity Modals, Conditional Adverbial Subordinators
Features Favoured More in KW than in KS and Favoured More in BS than in BW
Impersonal Pronoun <i>it</i> , Indefinite Pronouns, Pro-verb <i>do</i> , Gerunds, Predicative Adjectives, Hedges, Emphatics, <i>Be</i> as a Main Verb, Existential <i>there</i> , Possibility Modals, WH-clause Complements, Causative Adverbial Subordinators, Phrasal Coordination, Analytic Negation

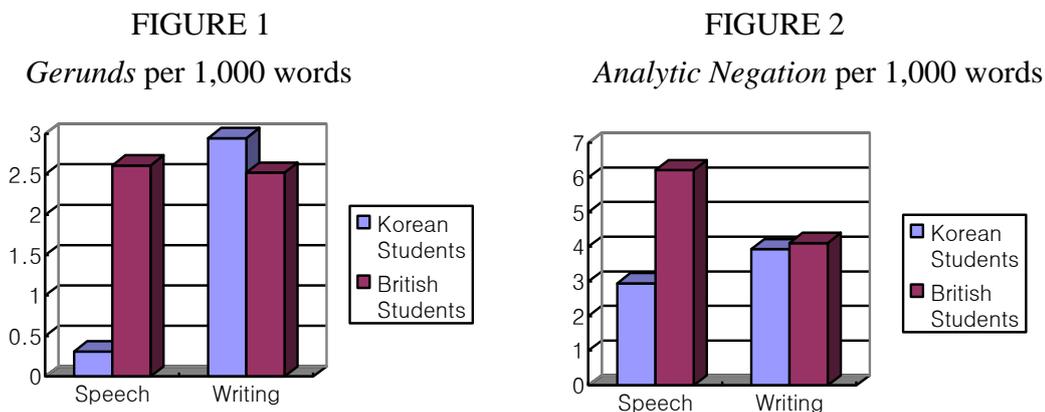
*Note.* KS stands for the speech of the Korean participants; KW for the writing of the Korean participants; BS for the speech of the British participants; and BW for the writing of the British participants.

For example, impersonal pronoun *it* occurred more often in the writing than in the speech of the Korean participants, whereas this feature appeared more often in the speech than in the writing of the British participants.

## 6. Conclusions

The distribution of linguistic features was explored from a broader and more

explanatory perspective. This allowed for two over-arching conclusions to be drawn. Firstly, the Korean students' written English was more native-like than their spoken English. The distributions of gerunds and analytic negation, shown in Figures 1 and 2, provide evidence of this.



This finding indicates that the Korean students had more difficulty in speaking than in writing English. Interestingly, the Korean university students' better English proficiency in writing than in speech does not mirror the existing language developmental models for native English speakers in childhood (e.g. Kantor & Rubin, 1981; Kroll, 1981) and even Vann's model (1981) which is designed specifically for EFL learners. Vann states that as the learners' English abilities improve, they write with great care to avoid errors, but speak comparatively fluently. In this regard, the English ability of the Korean students in this study reveals a contrasting developmental relation between speech and writing, since they were better in written English than in speech.

Secondly, to a certain degree, the Korean students wrote as the British students spoke. This is exemplified by the distributions of hedges and possibility modals in the data, as shown in Figures 3 and 4. Approximately 75% of the difference in the mode distribution of such features between the two groups of participants is explained by the fact that the Korean students overused the features in their writing. In other words, the Korean participants used these items as features of writing, while the British participants used them as features of speech.

FIGURE 3

*Hedges per 1,000 words*

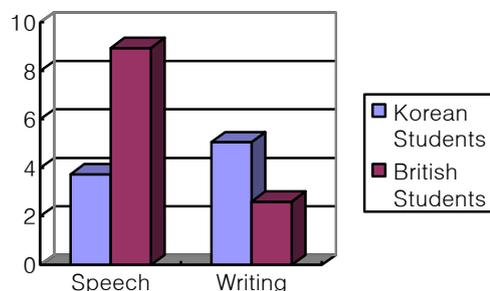
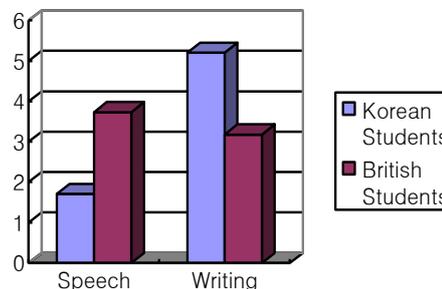


FIGURE 4

*Possibility Modals per 1,000 words*



This is probably because the differentiation of the language modes of the Korean learners was more prone to be driven by their writing than by their speech and, as shown earlier, the Korean learners had better English proficiency in writing than in speech. Therefore, when they confused their language mode selection, they wrote as the British students would speak, rather than speaking as their British counterparts would write.

## 7. Closing Remarks

It has been shown that the characteristics of the English of the Korean learners indicate that their abilities are more advanced in writing than in speech. In addition, the Korean learners struggle to develop native-like mode selection between speech and writing in English. Based on these findings, brief suggestions are made to improve the English proficiency of Korean learners within a classroom ELT context in Korea. Firstly, it is recommended that English grammar and vocabulary should be taught by integration into communicative spoken and written activities, so the learners will have more opportunities to productively (rather than receptively) use the linguistic features in English. Secondly, it could be suggested that teachers should use authentic and up-to-date spoken and written English materials in class in order to increase the students' exposure to the current English.

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## Appendixes

### Appendix I: One of the Four Tasks Used in Collecting Spoken Data in this Study

#### TASK 3. Describe an Event

Your friend Mary said that people in the Western part of the US were sometimes affected by a shortage of electricity. That reminds you of an accident which happened at your office. Please [describe](#) what happened based on the pictures below. (20 sec/60 sec)

(20 second pause)



*Prompt: "What happened at Mary's office?"*

(60 seconds)

## Appendix II: The Occurrences of the Linguistic Features in Conflicting Mode Distribution between the English of Korean and British Participants

### A. Features Favoured More in KS than in KW and Favoured More in BW than in BS (per 1,000 words)

Linguistic Features	Korean		British	
	Speaking	Writing	Speaking	Writing
Demonstrative pronouns	5.44	2.53	3.85	4.86
Downtoners	0.78	0.70	1.49	2.70
Amplifiers	6.69	4.49	1.87	2.71
Necessity modals	0.31	0	0.37	1.03
Conditional adverbial subordinator	0.47	0.28	0	0.19

### B. Features Favoured More in KW than in KS and Favoured More in BS than in BW (per 1,000 words)

Linguistic Features	Korean		British	
	Speaking	Writing	Speaking	Writing
Impersonal pronoun <i>it</i>	5.90	6.18	9.07	5.70
Indefinite pronouns	1.87	2.11	5.22	2.34
Pro-verb <i>do</i>	0.47	1.26	2.98	1.40
Gerunds	0.31	2.95	2.61	2.34
Predicative adjectives	20.68	21.50	14.04	13.46
Hedges	3.74	5.06	8.95	2.61
Emphatics	1.56	2.66	7.08	2.98
<i>be</i> as a main verb	34.37	34.71	30.07	24.40
Existential <i>there</i>	0.93	1.26	3.85	2.15
Possibility modals	1.71	5.20	3.73	3.18
WH-clause complements	0.16	0.28	2.11	1.20
Causative adverbial subordinator	1.09	1.97	2.73	1.03
<i>and</i> phrasal coordination	14.93	18.97	15.16	14.49
Analytic negation	2.95	3.93	6.21	4.11

**Appendix III: The Occurrences of the Linguistic Features Used More Often by Korean Students than British Students**

Linguistic Features	Korean		British	
	Speaking	Writing	Speaking	Writing
Demonstratives	2.33	5.76	1.12	3.64
Predicative adjectives	20.68	21.50	14.04	13.46
Amplifiers	6.69	4.49	1.87	2.71
<i>be</i> as a main verb	34.37	34.71	30.07	24.40
Conditional adverbial subordinator	0.47	0.28	0	0.19
Conjuncts	24.12	18.41	21.25	10.48
<i>and</i> phrasal coordination	14.93	18.97	15.16	14.49
<i>and</i> independent clause coordination	64.07	19.96	54.80	18.13
Discourse particles	3.58	0.42	1.99	0.09

# Discourse Dependency and Intervention Effects

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## Abstract

This paper investigates cancellation of intervention effects (IE) in Korean without recourse to scrambling. Scrambling has been long considered as the only way to cancel IE, since Beck (1996)'s work. It is observed, however, that a D(iscourse)-linked *wh-in-situ* also has the same effect as scrambling. Along this line of reasoning, this paper explores a possibility that scrambling can be understood as an instance of D-linking, given the assumption that a scrambled *wh-in-situ* is associated with an existence of presupposition which is the characterization of D-linking.

**Keywords:** intervention effects, scrambling, D-linking, presupposition, negative *wh*-questions

## 1. Introduction

This paper investigates cancellation of intervention effects (IE) in Korean by a D-linked *wh-in-situ*. By common consent, scrambling of a *wh-in-situ* phrase over an intervener has been considered as the only way to circumvent the ungrammaticality of sentences induced by intervention effects (Beck 1996, Beck and Kim 1997, *inter alia*). It is observed, however, that there is another way to circumvent intervention effects without recourse to scrambling, and D-linking property of *wh-in-situ*, in particular the association with an existence of presupposition carried by D-linking, appears to be responsible for the cancellation of IE without scrambling. It follows then that there is a possibility that scrambling can be alternatively understood as an instance of D-linking, and the main goal of this paper is to explore the possibility that the cancellation of intervention effects can be uniformly understood in terms of parallelism between scrambling and D-linking following Erteschik-Shir (1997) offering an account of negative *wh*-questions, which corresponds to the configuration of intervention effects.

## 1.1 Issues

There are certain configurations in Korean and Japanese as well as other languages where a *wh*-in-situ cannot be preceded by a certain type of expression, such as NPIs, and focus-bearing elements as illustrated in (1-2):

### (1) Korean

- a. \***Amwuto** *mwues-ul ilk-ci anh-ass-ni?*  
anyone what-Acc read-Comp Neg-Past-Q  
'What did no one read?'
- b. ??**John-man**<sub>i</sub> *nwu-ka t<sub>i</sub> manna-ss-ni?*  
John-only who-Nom meet-Past-Q  
'Who met only John?'

### (2) a. Japanese

- \***Taroo-sika** *nani-o kawa-nakat-ta no?*  
Taro-only what-Acc buy-Neg-Past Q  
'What did only Taro buy?' (Takahashi 1990)

### b. Hindi

- ??**Koi nahiiN** *kyaa paRhaa*  
anyone not what read-Perf.M  
'What did no one read?' (Beck 1996a, ba)

### c. Turkish

- \***Kimse kimi görmedi?**  
anyone who-Acc see-Neg-Past?  
'Whom did nobody see?' (Beck 1996a, ba)

The examples in (1-2) have been described as exhibiting *intervention effects*, given the assumption that there is a group of expressions preventing an interpretation of a *wh*-in-situ (Beck 1996, Beck and Kim 1997, Y. Choi 2007, Hagstrom 1998, Hoji 1985, A. Kim 2006, S. Kim 2002, Ko 2005, Miyagawa 2002, Szabolcsi 2006, Tomioka 2007, inter alia). Interestingly, it has been observed that the sentences in (1-2) become grammatical when a *wh*-in-situ is scrambled over the NSI as in examples (3-4):

(3) Korean

- a. *Mwues-ul<sub>i</sub> amwuto t<sub>i</sub> ilk-ci anh-ass-ni?*
- b. *Nwu-ka John-man manna-ss-ni?*

(4) a. Japanese

*Nani-o<sub>i</sub> Taroo-sika t<sub>i</sub> kawa-nakat-ta no?*

b. Hindi

*Kyaa<sub>i</sub> koi nahiiN t<sub>i</sub> paRhaa?*

c. Turkish

*Kimi<sub>i</sub> kimse t<sub>i</sub> görmedi?*

The fact that scrambling of a *wh*-in-situ is obligatory to avoid the ungrammaticality of a sentence induced by intervention effects has drawn lots of attention, since scrambling in Korean and Japanese is optional. For this reason, the leading idea of intervention effects, mainly proposed by Beck (1996), has claimed that intervention effects are constraints on LF movement of a *wh*-in-situ (also Hagstrom 1998, Hoji 1985, A. Kim 2006, Ko 2005, Miyagawa 2002, Szabolcsi 2006, Takahashi 1990). In the line of Beck (1996) (also Beck and Kim 1997), intervention effects have been considered as a violation of LF movement constraints where scope-bearing elements prevent a *wh*-in-situ from moving to SpCP at LF. Beck proposes two LF licensing conditions as in (5), and (6-7) illustrate intervention effects and the cancellation of intervention effects by scrambling respectively:

(5) a. Quantifier Induced Barrier (QUIB)

The first node that dominates a quantifier, its restriction, and its nuclear scope is a Quantifier Induced Barrier (QUIB)

b. Minimal Quantifier Structure Constraint (MQSC)

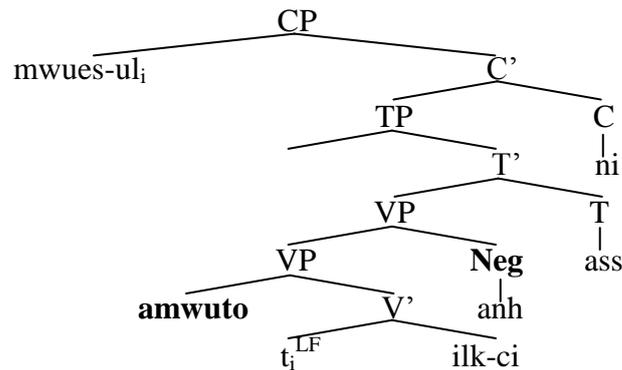
If an LF trace  $\beta$  is dominated by a QUIB  $\alpha$ , then the binder of  $\beta$  must also be dominated by  $\alpha$ . (Beck 1996:39)

(6) a. \**Amwuto mwues-ul ilk-ci anh-ass-ni?*

anyone what-Acc read-Comp Neg-Past-Q

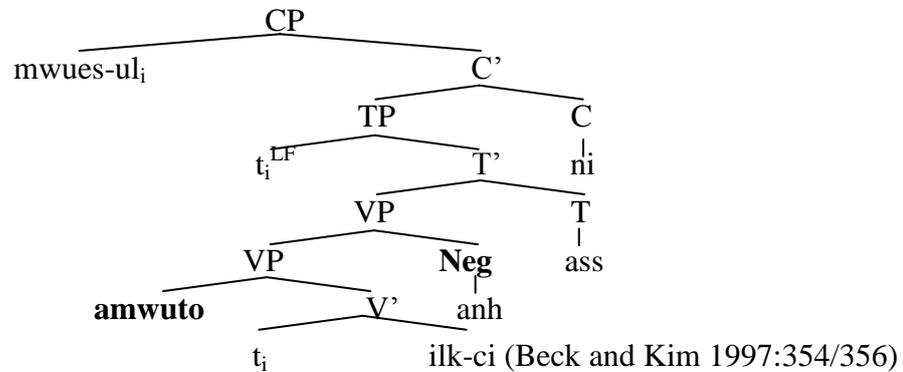
‘What did no one read?’

b.



- (7) a. Mwues-ul amwuto ilk-ci anh-ass-ni?  
 what-Acc anyone read-Comp Neg-Past-Q

b.



However, the quantificational approach faces the major problem that not all scope-bearing elements induce intervention effects. To resolve this problem, several approaches have been lined up to answer to the question of how to define the natural class of problematic interveners, and the question of how scrambling of a *wh*-in-situ salvages the grammaticality in terms of non-movement based approach. On one hand, Beck (2006) and S. Kim (2002) propose that interveners should be construed as focus-bearing elements. On another hand, Tomioka (2007) claims that intervention effects are the result of ill-formed information structure.

## 2. D-linking

Although each theoretical approach to intervention effects has its own issues, one thing remains certain in every approach that scrambling of a *wh*-in-situ over a problematic intervener has been considered as the only way to save the grammaticality of the sentence. For example, under the LF movement approach, scrambling is not supposed to be subject to the LF constraints given in (5-6), since scrambling is overt movement, not

LF movement. However, it appears that scrambling is not the only way to cancel intervention effects. Consider the following example:

- (8) a. \***Amwuto** *mwues-ul* ilk-ci        **anh-ass-ni?**  
 anyone    what-Acc   read-Comp   Neg-Past-Q  
 ‘What did no one read?’
- b. *Ulysses, Dubliners, Finnegans Wake-cwung,*  
*Ulysses, Dubliners, Finnegans Wake-among,*  
**amwuto** *mwues-ul* ilk-ci        **anh-ass-ni?**  
 anyone    what-Acc   read-Comp   Neg-Past-Q  
 ‘Among *Ulysses, Dubliners* and *Finnegans Wake*, what did no one read?’

The wh-phrase in (8b) occurs in an intervening position for licensing of the subject NSI, but the sentence still comes out grammatical without recourse to scrambling of the wh-in-situ, which is in contrast to (8a). The contrast between (8a) and (8b) lies in whether a relevant discourse is provided to limit the range of possible answers to the wh-in-situ phrase *mwues-ul*. As a result, the wh-in-situ in (8b) is associated with an existence of presupposition provided by the previous discourse *Ulysses, Dubliners, Finnegans Wake-cwung*. In contrast to (8b), the wh-in-situ in (8a) is not necessarily associated with an existence of presupposition, and the result comes out ungrammatical.

The existence of presupposition associated with a wh-phrase can be characterized as the “characterization of D-linking” (Pesetsky 1987, 2000). Pesetsky (1987) argues that the role of D-linking is to limit the range of possible answers, so discourse participants can draw a felicitous answer to the question from the set established in the discourse. This is what we exactly observe in (8b).

The presuppositionality of a D-linked wh-phrase is also evaluated in example (9):

- (9) (*John is looking at empty dishes all eaten by his younger brother and saying....*)
- a. **Nay-ka** **mwues-ul** mek-eya-hal-ci        molu-keyss-e.  
 I-Nom    what-Acc    eat-should-do-Comp   not.know-Decl  
 ‘I don’t know what I should eat.’
- b. \***Nay-ka** **enu umsik-ul** mek-eya-hal-ci        molu-kess-e.  
 I-Nom    which food-Acc    eat-should-do-Comp   not.know-Decl  
 ‘I don’t know which food I should eat.’ (inspired by von Stechow 1998)

*Which*-phrase is considered as D-linked inherently unlike other *wh*-phrases. The ungrammaticality of (9b) is caused by the fact that the *wh*-in-situ *enu umsik-ul* ‘which food’ cannot be properly D-linked, because the previous discourse in (9b) allegedly denies the presupposition associated with ‘which food’. There is no problem in (9a), however, because *mwues-ul* ‘what’ in (9a) is not necessarily D-linked.

It is not difficult to find D-linked contexts where intervention effects disappear without scrambling of a *wh*-in-situ. First of all, when a sentence ends with the Q-morpheme *-nuntey* instead of *-ni*, intervention effects do not show up:

- (10) a. \***Amwuto** *nwukwu-lul* manna-ci anh-ass-**ni**?  
 anyone who-Acc meet-Comp Neg-Past-Q  
 ‘Who didn’t meet anyone?’  
 b. **Amwuto** *nwukwu-lul* manna-ci anh-ass-**nuntey**?  
 anyone who-Acc meet-Comp Neg-Past-Q  
 ‘Who didn’t meet anyone?’

The Q-morpheme *-nuntey* only selects a *wh*-interrogative reading of a *wh*-word in Korean (Jang 2001), unlike another Q-morpheme *-ni* which can select either an indefinite or a *wh*-interrogative reading of a *wh*-word in Korean:

- (11) a. John-i chayk-ul ilk-ess-**ni**?  
 John-Nom book-Acc read-Past-Q  
 ‘Did John read a book?’  
 b. \*John-i chayk-ul ilk-ess-**nuntey**?

Interestingly, the Q-morpheme *-nuntey* forces a *wh*-in-situ to have a D-linked interpretation, whereas *-ni* does not necessarily have. The D-linking property of *-nuntey* is evidenced by the fact that a *wh*-word cannot appear in discourse-initial position when marked by *-nuntey*:

- (12) Q: a. John-i mwues-ul ilk-ess-**ni**?  
 John-Nom what-Acc read-Past-Q  
 ‘What did John read?’  
 b. \*John-i mwues-ul ilk-ess-**nuntey**? (discourse-initial)

Since the *-nuntey* marked wh-phrase cannot appear in a discourse-initial position, it is supposed that *-nuntey* gives rise to some sort of existence presupposition associated with the wh-in-situ, which accords with the main characterization of D-linking.

Second, a topic-marked wh-in-situ does not trigger intervention effects, although it appears at the intervening position. Given the assumption that topics are discourse-familiar, a topic-marked wh-phrase is definitely D-linked:

- (13) a. \***Amwuto** *nwukwu-lul* manna-ci **anh**-ass-ni?  
           anyone    who-Acc    meet-Comp   Neg-Past-Q  
       b. **Amwuto** *nwukwu-nun* manna-ci **anh**-ass-ni?  
           anyone    who-Top    meet-Comp   Neg-Past-Q  
           ‘Who did no one meet?’

Third, *which*-phrase, which is generally considered to be D-linked, also cancels intervention effects without recourse to scrambling:

- (14) **Amwuto** *enu mwuncey-lul* pwul-ci **anh**-ass-ni?  
           anyone    which question-Acc   solve-Comp   Neg-Past-Q  
           ‘Which question did nobody solve?’

From this, it seems obvious that there are two ways to circumvent intervention effects, one by scrambling and the other by D-linking. According to Pesetsky (1987), D-linked wh-phrases are not supposed to undergo LF movement, so cancellation of intervention effects by D-linking might not pose a problem for the movement-based approach, in particular based on LF wh-movement. This is because the LF movement-based approach could postulate that intervention effects are supposed to target only non-D-linked wh-in-situ phrases. However, when we juxtapose a property of a scrambled wh-in-situ with that of a D-linked wh-phrase, it appears that there is a parallelism between them. This strongly suggests that scrambling can be alternately construed as an instance of D-linking, and therefore cancellation of intervention effects by scrambling of a wh-in-situ is uniformly analyzed as the effort to circumvent intervention effects by D-linking.

Boeckx and Grohmann (2004) discuss parallel behaviors between scrambling and D-linking. They point to the parallel behaviors of D-linked wh-phrases and scrambled elements (in particular, long-scrambled elements in Japanese) with respect to the Superiority Condition, discourse effects, semantic vacuity, insensitive to island effects,

and clitic doubling. Some of properties, which both D-linked wh-phrases and scrambled elements seem to share, are also found in Korean. First, neither D-linked wh-phrases or scrambled elements obey the Superiority Condition:

- (15) a. **Nwukwu-eykey<sub>i</sub> mwues-ul<sub>j</sub>** John-i t<sub>i</sub> [Mary-ka t<sub>j</sub>  
 who-Dat what-Acc John-Nom Mary-Nom  
 ilk-ess-ta-ko] malhay-ss-ni?  
 read-Past-Decl-Comp say-Past-Q  
 ‘Who did John tell that Mary read what?’
- b. \***Mwues-ul<sub>j</sub> nwukwu-eykey<sub>i</sub>** John-i t<sub>i</sub> [Mary-ka t<sub>j</sub> ilk-ess-ta-ko]  
 mal-hayss-ni?
- (16) a. **Enu-haksayng-eykey<sub>i</sub> enu-chayk-ul<sub>j</sub>** John-i t<sub>i</sub> [Mary-ka t<sub>j</sub>  
 which-student-Dat which-book-Acc John-Nom Mary-Nom  
 ilk-ess-ta-ko] malhay-ss-ni?  
 read-Past-Decl-Comp say-Past-Q  
 ‘Which student did John tell that Mary read which book?’
- b. ?**Enu-chayk-ul<sub>j</sub> enu-haksayng-eykey<sub>i</sub>** John-i t<sub>i</sub> [Mary-ka t<sub>j</sub>  
 ilk-ess-ta-ko] mal-hayss-ni?

As in (15-16), the non-D-linked wh-phrases *mwues-ul* ‘who’ and *nwukwu-lul* ‘what’ are sensitive to the Superiority Condition, whereas the D-linked *enu haksayng* ‘which student’ and *enu chayk* ‘which book’ are not. The same pattern is observed in scrambled elements as follows:

- (17) a. **John-eykey<sub>i</sub> ku chayk-ul<sub>j</sub>** Bill-i t<sub>i</sub> [Mary-ka t<sub>j</sub>  
 John-Acc that book-Acc Bill-Nom Mary-Nom  
 ilk-ess-ta-ko] malhay-ss-ta.  
 read-Past-Decl-Comp say-Past-Decl  
 ‘Bill told John that Mary read that book.’
- b. **Ku-chayk-ul<sub>j</sub> John-eykey<sub>i</sub>** Bill-i t<sub>i</sub> [Mary-ka t<sub>j</sub> ilk-ess-ta-ko]  
 malha-ss-ta.

Second, interpretations of both D-linked wh-phrases and scrambled elements depend on previously established discourse. It is generally accepted that *which*-phrases generally construed as D-linked cannot easily appear in an “out-of-blue” context:

(18) John bought something expensive yesterday.

a. **What** did he buy?

b. #**Which** car did he buy? (Boeckx and Grohmann 2004)

(19) John-i ecey nwukwu-lul manna-ss-e.

John-Nom yesterday who-Acc meet-Past-Decl\

‘John met somebody yesterday.’

a. **Nwukwu**-lul manna-ss-ni?

who-Acc meet-Past-Q

‘Who did he meet?’

b. ??**Enu haksayng**-ul manna-ss-ni?

which student-Acc meet-Past-Q

‘Which student did he meet?’

This is because *which*-phrases require discourse-dependent interpretations compared with other *wh*-phrases such as ‘what’ in (18).

Third, Boeckx and Grohmann (2004) point out that movement of D-linked *wh*-phrases and scramble elements are semantically vacuous, and thus both *wh*-phrases and scrambled elements must be interpreted in their original position. Concerning D-linked *wh*-phrases, Rullman and Beck (1998) argue that *which*-phrases must be interpreted in base position, so that *which*-phrases in SpCP in surface syntax must undergo reconstruction into its original position. This is because the presupposition associated with *which*-phrases is projected from the *which*-phrase’s base position. One of the main pieces of evidence for the reconstruction of *which*-phrases is that Karttunen’s theory of question (1977) cannot explain the *de dicto* reading of *which*-phrases as Groenendijk and Stokhof (1982) point out:

(20) a. Which students called?

b. Karttunen (1977)

$\lambda w \lambda p \exists x [\text{student}(w)(x) \ \& \ p(w) \ \& \ p = \lambda w' [\text{called}(w')(x)]]$

c. {John called, Mary called}

As in (20c), the information that John and Mary are students is not a part of the propositions. However, there is a case that a speaker must be aware of that John and Mary are students, which is the *de dicto* reading of the *which*-phrase. To resolve this, Rullmann and Beck put *which*-phrases within the translation of the question as given in (21):

(21) Rullman and Beck (1998)

- a.  $\lambda w \exists x [p(w) \ \& \ p = \lambda w' [\text{student}(w')(x) \ \& \ \text{called}(w')(x)]]$
- b. {John is a student who called, Mary is a student who called}

Like D-linked wh-phrases, scrambled elements undergo reconstruction too. As shown below, the scrambled universal quantifier NP *enu chaykina* does not have a wide scope with respect to the existential quantifier *nwukwunka*:

(22) *Enu chaykina*<sub>i</sub>    **nwukwunka**    Mary-ga    t<sub>i</sub>    ilk-ess-ta-ko  
every book    somebody    Mary-Nom    read-Past-Decl-Comp  
malhay-ss-ta  
say-Past-Decl

- a. For some x, x is a person, x thinks that for every y, y is a book, Mary read y.
- b. ??For every y, y is a book, there is some x, x is a person, such that x think that Mary read y.

The lack of the wide scope reading of the universal quantifier in (22b) shows that the scope of the scrambled element is confined within its original position, and the scrambled element is supposed to undergo reconstruction.

To this point, this section has discussed the parallel behaviors between scrambled elements and D-linked wh-phrases, providing convincing evidence as to the idea that scrambling can instantiate a D-linking process. The next section will explore the possibility of what kind of a principled account can capture a parallelism between scrambling and D-linking in a consistent manner in terms of the nature of negative wh-questions discussed in Erteschik-Shir (1997).

### 3. Possibilities

Given that the configuration of intervention effects corresponds to the one in which a wh-phrase is questioned over a NPI associated with negation, I propose here that the cancellation of intervention effects by D-linking can be manifested within the correlation between discourse properties of negation and that of a wh-phrase based on a focus-structure analysis given by Erteschik-Shir (1997). Erteschik-Shir (1997) discusses how a focus structure analysis captures several discourse phenomena. Her main theoretical mechanism is based on the concepts of topic and focus to explain how information structure of a sentence can be understood within the correlation between these two pri-

mitive notions. Although there is a substantial amount of literatures on discourse analyses on the basis of focus-structure, the discussion here focuses on Erteschik-Shir (1997)'s analysis of negation and wh-questions to show how her analysis can uniformly capture the cancellation of intervention effects by scrambling and D-linking.

Let us first discuss the discourse properties of negation. Erteschik-Shir (1997) discusses that the function of negation is to eliminate one of the members of a restrictive set. Consider example (23):

$$(23) \text{ John didn't [eat } \left( \left\{ \begin{array}{l} [\text{the PIZZA}]_{\text{FOC}} \\ \text{delicacy}_1 \\ \text{delicacy} \end{array} \right\} \right)_{\text{TOP}} ]_{\text{FOC}} \text{ (Erteschik-Shir 1997:102)}$$

In example (23), the restrictive set is constructed along the contextually determined discourse. The focused NP *pizza* in (23) is construed as one of the members in the restrictive set composed of implicit subordinate topics including *delicacy* as in (23). Since the focused NP *pizza* is associated with negation, it is removed from the restrictive set by the function of negation, which is to eliminate one of the members of a restrictive set.

From this, let us return to intervention effects, in particular involving NPIs:

(24) a. \***Amwuto** *mwues-ul* *ilk-ci* **anh-ass-ni?** (non-D-linking)  
 anyone what-Acc read-Comp Neg-Past-Q  
 ‘What did no one read?’

b. *Ulysses, Dubliners, Finnegans Wake-cwung,*  
*Ulysses, Dubliners, Finnegans Wake-among,*  
**amwuto** *mwues-ul* *ilk-ci* **anh-ass-ni?**  
 anyone what-Acc read-Comp Neg-Past-Q  
 ‘Among *Ulysses, Dubliners* and *Finnegans Wake*, what did no one read?’

Concerning the configuration of intervention effects, where a wh-in-situ is questioned over a NPI, a NPI is also supposed to introduce a set of restrictive contexts along the contextually determined dimension, since the interpretation of NPI depends on the appearance of negation. It follows then that when a wh-phrase is questioned over a NPI just like (24a), which corresponds to the configuration of intervention effect, it is expected that only D-linked wh-phrase, which is associated with the existence of presupposition, can provide such kind of a restrictive set. Erteschik-Shir proposes that D-

linked wh-phrases have a subordinate structure in which a NP associated with *which* is introduced as the topic which is contextually constructed as given in (25):

- (25) a. *who* (non-D-linked): [who]<sub>FOC</sub>  
 b. *which student* (D-linked): [[which]<sub>FOC</sub> [student]<sub>TOP</sub>]<sub>TOP</sub>

In her analysis, a *which*-phrase known to be D-linked consists of a subordinate f-structure, where the *which* part is construed as a focus and the NP ‘student’ associated with *which* provides a contextually determined set of ‘students’. This is in contrast with non-D-linked wh-phrases such as *who* as in (25a), which does not necessarily have a subordinate f-structure. Based on this, it becomes clear why D-linked wh-phrases circumvent intervention effects without scrambling of a wh-in-situ. Since D-linked wh-phrases are able to provide a restrictive set which is contextually determined, it is possible for a NPI associated with negation to eliminate one of the members from the restrictive set. However, non-D-linked wh-phrases do not necessarily introduce the restrictive set for partitioning by negation, and intervention effects emerge.

Along the same line of reasoning, why a scrambled wh-phrase saves the grammaticality of sentences nicely falls out. Consider example (26) where intervention effects are obviated by scrambling of a wh-in-situ over a NPI:

- (26) *Mwues-ul<sub>i</sub> amwuto t<sub>i</sub> ilk-ci anh-ass-ni?*  
 what-Acc anyone read-Comp Neg-Past-Decl  
 ‘What did no one read?’

When a wh-in-situ is fronted by scrambling, the fronted position is guaranteed for being interpreted as the topic of a sentence. Given the assumption that the nature of topic is associated with presupposition, a scrambled wh-phrase is also supposed to provide the restrictive set for partitioning, just like D-linked wh-phrases. This is why the grammaticality of a sentence is salvaged by scrambling of a wh-in-situ.

#### 4. Conclusion

This paper has examined the possibility that the cancellation of intervention effects by scrambling can be construed as an instance of D-linking process. This line of reasoning has been evidenced by the fact that a D-linked wh-phrase also cancels intervention effects without scrambling, which has been construed as the only way to cancel

intervention effects. If the current assumption is on the right track, a slew of studies claiming that scrambling is a purely optional movement operation, so scrambling is semantically vacuous (Saito 1989) seem to be in question. However, the discussion about scrambling is beyond the scope of discussion here, so I will leave it for the future research.

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# **Analysis of Linguistic Expressions for motion events in English, German and Korean**

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This work is a linguistic analysis of motion events in English, German and Korean with a focus on the analysis of two different languages, German and Korean. Two main points will be covered. First, the typological status of the Korean language from the view point of Cognitive Linguistics will be determined. Second, the issue of what type of German expressions could be candidates for the expressions of motion will be examined. Until now, the German expressions that include both prefix (=prefix verb) and particle (=particle verb) are known to be semantically equivalent. In this work, I will argue that the semantics of the two words are different, although their function in a certain context is the same. The Particle verb in German can have a prepositional argument, which denotes the “Path” according to Talmy (1996). However, this is not obligatory or explicitly presented. This paper examines the interesting theoretical question of how the semantics of German particle verbs are interpreted in context. Another issue is whether Korean can fit into Talmy’s typological categories as the motion expressions in Korean show great variation and are therefore too difficult to assign to one of the categories. As far as the typological classification of German is concerned, it cannot be treated as a *satellite* language as before, because of the productive use of the particle verb as a new stem whose function is not restricted to express “Manner” but extends to “Path” in the sense of Talmy. The results can be taken as the establishment of objects in the expression of motion events in languages, so that the analysis may help further contrastive inquiry in this field in English, German and Korean.

**Keywords:** typology, particle verb, expressions of motion, *satellite*, verb-framed languages

## **1. Previous works in Talmy’s frame: contrastive Korean and English**

There have been many attempts in linguistics to provide a typology of languages, Schlegel, Humboldt, Greenberg. Talmy’s typology and Slobin’s research on *manner* salience have been a recent source of interest to researchers investigating interactions between language and thought. However, questions have been raised about the accuracy of these attempts.

I would like to talk about three points related to the accuracy of current linguistic typologies of language: First, I introduce previous works using Talmy’s frame, especially the contrastive analysis of Korean and English. Second, Lexicalization of Motion Events in Korean is discussed, and finally Prefix verbs vs. Particle verbs in

German are analysed.

I would like to talk about three points: First, I introduce previous works using Talmy's frame, especially the contrastive analysis of Korean and English. Second, Lexicalization of Motion Events in Korean is discussed, and finally Prefix verbs vs. Particle verbs in German are analysed.

While studying Talmy's framework, it came to my attention that Korean may not work according to Talmy's typological categories because the motion expressions in Korean are too diverse and therefore too difficult to assign to one of the categories. Talmy's framework also does not work with German.

Talmy (1991, 2000) has argued that probably all languages of the world can be categorized in terms of verb-framing or satellite-framing. The group of verb-framed languages includes all-Romance languages, Semitic languages (e.g. Arabic and Hebrew), Japanese and many others. Satellite-framed languages besides English and German are all Indo-European languages (apart from the Romance languages), Finno-Ugric languages and Chinese.

According to Talmy, a (dynamic) motion event has four basic components:

*Motion*: Presence of motion.

*Figure*: The moving object.

*Ground*: The reference-point object with respect to which the Figure moves.

*Path*: The course followed by the Figure with respect to the Ground.

As Loucks and Pederson said, these components seem intuitively essential in describing any act of motion.

Let me explain with examples supplied by Ungerer and Schmid concerning the analysis of motion event with their examples.

(1) *E. The boy went **out** of the yard.*

(2) *G. Der Junge ging aus dem Hof **hinaus**.*

“The boy went from the yard **out**.”

(3) *Fr. Le garçon **sortit** de la cour.*

“The boy **exited** from the yard.”

(4) *Sp. El chico **salió** del patio.*

“The boy **exited** from the yard.”

These examples show two things. First, English express the *Path* by means of a particle, and French incorporates the *Path* in the verb meaning. Second, it is evident that German runs parallel to English and Spanish parallel to French. In German the *Path* is expressed in a verbal particle (here separated from the complex verb *hinausgehen* and moved to clause-final position), and this is similar to the English particle. In Spanish, on the other hand, the *Path* is incorporated in the verb just like in French.

To give you an idea of how straightforward the difference between French and Spanish on the one hand and English and German on the other hand is, a comparison is presented in Table I to show you the major verbs expressing motion.

Table I. *Motion* and *Path* in major verbs of motion in French, Spanish, English and German

French	Spanish	English	German
entrer sortir ascendre descendre traverser	entrar salir Subir (ascender) Bajar (descender) traspasar	go in (enter) go out (exit) go up (ascend) go down (descend) go over (cross, traverse)	hineingehen hinausgehen hinaufgehen hinuntergehen hinübergehen

For English this is notably true of the combinations with the verb *go*, which is of Germanic origin and belongs to the core vocabulary. As the verbs in parentheses show, the English verbs of Latin origin are also available, but they belong to more formal stylistic level and are therefore less frequent.

Turning to the expression of *Manner* in the description of motion events, the four languages pair off exactly in the same way. To show this, I will again first give an example of a whole sentence as rendered in the four languages, where this time the linguistic elements denoting the *Manner* component are highlighted:

(5) E. *The boy **rode** out of the yard.*

(6) G. *Der Junge **ritt** aus dem Hof hinaus.*

“The boy rode from the yard out.”

(7) Fr. *Le garçon sortit **à cheval** de la cour.*

“The boy exited **on horse** from the yard.”

(8) *Sp. El chico salió a caballo del patio.*

“The boy exited **on horse** from the yard.”

In English and German the *Manner* of the movement is incorporated in the verb, while in French and Spanish the *Manner* is added as a separate adverbial.

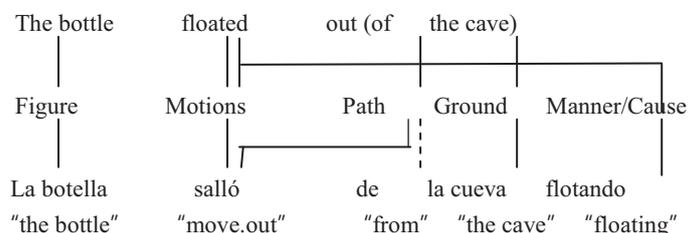
Table II. Expression of *Motion*, *Manner* and *Path* in verbs of motion in English, German, French and Spanish

English	German	French	Spanish
(a) <i>Motion + Manner</i>			
walk ride drive	(zu Fuß) gehen reiten fahren	aller à pied aller à cheval aller en vitute	ir a pie montar caballo (ir a caballo) Ir en coche (conducir)
(b) <i>Motion+ Manner+Path</i>			
walk into drive into ride into fly into crawl into cimb into	hineingehen hineingahren hineinreiten hineinfliegen hineinkriechen hineinklettern	entrer en marchant entrer en voiture entrer à cheval entrer en volant entrer en rampant entrer en grimpant	entrar (caminando) entrar conduciendo el coche entrar a caballo entrar volando entrar arrastrándose entrar escalando

While *Manner* is an optional element, a component of the co-event in Talmy’s terminology that can remain unexpressed, *Path* is one of the central elements of the framing motion event. One way of expressing the framing function of *Path* is through the verb, as in French *entrer* and Spanish *entrar*. In view of this, French and Spanish can be called verb-framed languages (Talmy 1991: 481, cf. 2000: 117, 221). Conversely, *Path* can be rendered by a particle, as in English *go into*, or by a verbal particle, as in German *hineingehen*. To capture the common function of these last two elements, they have been subsumed in one grammatical category by Talmy, labelled *satellites*. Hence, English and German can be called satellite-framed languages. Table III is a slightly simplified version of a diagram Talmy uses to summarize his results.

Table III. Typology of Motion Events: Expression of *Path* and *Manner* in motion events in English and Spanish (based on Talmy 1991, cf. 2000: 49ff.)

**English: satellite-framed**



**Spanish: verb-framed**

So far, I have roughly tried to explain Talmy’s framework, so that I could apply it to Korean examples for further discussion. Now, I would like to introduce the work of Choi and Bowermann (1991) , who analyzed Korean with Talmys framework. By providing many examples, Choi and Bowermann argued that Korean presents a mixed picture. In transitive clauses for caused motion, Korean conflates *Motion* with *Path*, like Spanish. But in intransitive clauses for spontaneous motion, Korean encodes *Motion*, *Path* and (optionally) *Manner* or *Cause* with separate constituents, a pattern not described by Talmy.

To explain motion events in Korean, let me begin with Choi and Bowerman (1991: 88) in more in detail.

- (9) *John-I pang-ey (ttwui-e) tul- e o- ass- ta*  
 J.- Subj room-LOC (run-CONN) enter-CONN come-PST-DECL  
 [Figure] [Ground] ([Manner]) [Path] [Motion+Deixis]  
 “John came in(to) the room (running).”

- SUBJ-Subject marker
- OBJ-Object marker
- LOC- Locative marker
- CONN- Connection suffix
- PST – Past tense marker
- DECL – Declarative ending
- CAUS – Causative suffix

In this example, *John* is the *Figure*, and *Pang* (room) is the *Ground*. The locative suffix – *ey* (to, at) on *Pang* indicates only that *Pang* represents the goal or location of the event specified by the verb. The fact that John changed his location is specified by

the rightmost verb, *o-* (come). John's *Path* with respect to the Ground is specified by the verb *:tul-* (enter). John's *Manner* of motion is specified by *ttwui-* (run).

Choi and Bowerman thought that *Manner* in Korean, *ttwui*, is expressed as a type of event as you can see in example 9. However, I think that it is neither a verb nor a auxiliary verb, but an adverb, which can be easily verified by adding the suffix *-se*: *ttwui-e-se*. The suffix *-se* has the function "to transfer original verb to an adverb." This would be a further criteria that would be used to decide whether it is a compound verb or not. In contrast to Korean, *Motion* in English is characteristically conflated with *Manner* or *Cause*, and *Path* is expressed separately by prepositions or particles (Talmy 1985).

The combination [Motion+Manner] in English, for example, is found in

- (10) *The rock **slid/rolled/bounced** down (the hill).*
- (11) *John **walked/skipped/ran** into the room.*
- (12) *John **slid/rolled/bounced** the keg into the storeroom.*

The combination [Motion+Cause] is seen in

- (13) *The wind **blew** the napkin off the table.*
- (14) *John **pushed/threw/kicked** the keg into the storeroom.*

The combination [Motion+Deixis] is also found in English, as in

- (15) *John **came/went** into the room and John **took/brought** the keg into the storeroom.*

As these clauses illustrate, English uses the same verb connotations in both intransitive clauses expressing spontaneous motions and transitive clauses expressing motions caused by an agent. In addition, it marks *Path* in the same way in clauses of both types, using prepositions and particles like *in (to)*, *out (of)*, *on (to)*, *off*, *up*, *down*, and *away*.

In English, it is often obligatory to spell out *Path* rather completely, even when it can be readily inferred from context. If we heard,

- (16) *John threw his key **to** his desk/ **to** his drawer.*

we could reasonably suppose that the keys ended up *on* the desk or *in* the drawer. Still, according to Choi und Bowerman, these clauses sound odd: *on* and *in* are needed. Even when it is grammatical to specify *Path* less completely, fuller information is often given, especially in everyday speech; compare 17 with 18.

(17) *John took his keys **from** his desk/ **from** the drawer (a bit formal or bookish)*

(18) *John took his keys **off** his desk/**out** of the drawer (completely colloquial).*

In Korean, in contrast, a *Path* verb can often be omitted if a transitive verb expressing the Cause of the motion is supplied. According to Choi and Bowerman (1991: 94), this can be redundant to Korean speakers.

(19) *John-I yelswey-lul chayksang-ey tency-ess-ta.*  
 John-SUBJ key-OBJ desk-LOC throw-PST-DECL

“John threw keys **to** desk.”

(20) *John-I yelswey-lul chayksang-ey tency-e noh- ass- ta.*  
 John-SUBJ key-OBJ desk-LOC throw-CONN put-on-PST-DECL

Furthermore, Choi and Bowerman find example (20) very unnatural, but I think it is quite normal. And I think, it should be interpreted as redundant in true sense, that is, it could be omitted, but it could also stay. This brings a very theoretically interesting point, that is, it should be named “pleonastic,” which express a similar construction with the same reason, i.e. a pleonastic prepositional phrase, which I would like to explain more in detail by analyzing German. The principle is the same, even if the two languages are radically different.

To summarize, English uses the same verb conflation patterns in both intransitive clauses expressing spontaneous motion and transitive clauses expressing caused motion, and it encodes *Path* separately with the same *Path* markers (particles and prepositions) whether the clause is transitive or intransitive. Korean, in contrast, uses different

lexicalization pattern for spontaneous motion and caused motion, and most of its *Path* markers (verbs) in the two cases are distinct.

I have tried to explain the difference between Korean and English in the critical point of view by dealing with the previous work of Choi and Bowerman, which is also based on Talmy's Framework. Let me summarize it with Table IV.

Table IV. Comparison of English and Korean conflation patterns for motion events

English		Korean		
Spontaneous motion				
Verb [Motion + Manner] [Motion + Cause] [Motion + Deixis]	Particle [Path]	Verb [Manner]	Verb [Path]	Verb [Motion + Deixis]
Caused Motion				
Verb [Motion + Manner]	Particle [Path]	Verb [Cause]	Verb [Motion + Path + Deixis]	

To classify these differences, Talmy (1991, 2000) has developed a typology, that is, a verb-framed language: *Path* expressed by the main verb in a clause vs. Satellite-framed languages where *Path* is expressed by an element associated with the verb. We can easily find the usefulness of this classification by the translation between German and French clauses, in which the aspectual meanings are expressed by different word classes. We can see it in (21).

- (21) (a) *Der Vogel flog herein*  
*l'oiseau entra en volant*
- (b) *Er hinkte davon*  
*il s'éloigna en boitant (d'un pas boitant, de son pas boitant etc.)*

Working within Talmy's framework, Slobin (1996) also addressed this exact issue in a comparative study of translations of English-language novels into Spanish and vice versa. As Ungerer and Schmid,

by looking at the cross-linguistic differences from the cognitive perspective of the event-frame in which they are embedded, the difficulties faced by translators become more transparent. Thus, what seems to be at stake is not just a random collection of *untranslatable* verbs, but completely different mapping systems of cognitive frame components onto linguistic elements. (Ungerer & Schmid 2006: 235)

In Table IV, we can see that English matches well with Talmy's frame, that is, English can be classified as a satellite-framed languages in the typology. However, Korean cannot be consistently classified into any class of Talmy's typology. According to Choi and Bowerman, Korean presents a somewhat less obvious picture. In transitive clauses for caused motion, it conflates *Motion* with *Path*, like Spanish. However, in intransitive clauses for spontaneous motion, it encodes *Motion*, *Path* and *Cause* with separate constituents, which is a pattern not described by Talmy. In other words, Choi and Bowerman suggested a few Korean examples that may not work under Talmy's frame. In addition to that suggestion, I would like to add more reasons to argue that Talmy's Framework is not appropriate for classification of Korean in typology.

## 2. Lexicalization of Motion Events in Korean

With Talmy's framework, I start with Korean examples of a single verb, which express motion in various basic components:

(22) [Motion+ Deixis]: *kata* (go), *ota* (come)

[Motion+PATH]: *oleta* (ascend), *naylita* (descend), *kenneta* (go over), *tolta* (turn around)

[Motion+MANNER]: *kita* (creep), *ketta* (go on foot), *ttuita* (run or jump), *tallita* (dash), *nalta* (fly), *heyumchita* (swim)

In Korean, motion events rarely occur with single verbs, but are more likely to occur with a compound verb. Concerning the classification of verbal phrases, I have in a recent paper (Lee 2007b: 282) classified three groups of phrases.



perspective of “caused motion,” the combination shows too much variation. Because of this variation of Korean, I conclude that Korean does not belong to any classification Talmy has created.

### 3. Prefix verb vs. Particle verb in German

We have seen that the *Manner* of the movement is incorporated in the verb in German in contrast to Spanish or French, in which *Path* is incorporated.

- (25) a. Gr. *gehen, laufen, rennen, hinken, schleichen, hüpfen, bummeln, staksen*  
(*go (on foot), run, dash, limp, creep, jump, stroll, stalk*)  
b. Sp. *Entrar (enter), salir (exit), subir (ascend)*  
c. Fr. *Entrer (enter), sortir (exit), moter, descendre, avancer, reculer*

Let me illustrate with examples in which a simple verb and a verb with prefix (=prefix verb) and verb with particle (=Particle verb) are expressed in a clause. For German examples, I borrow some examples from Olsen (1996: 314).

- (26) a. *Er fährt seinen Jeep durch das überschwemmte Gelände.*  
“He passed in his Jeep through the overflowed region.”  
b. *Er durchfährt das überschwemmte Gelände mit seinem Jeep.*  
“He passed through the overflowed region in his Jeep.”  
c. *Er fährt seinen Jeep durch.*  
“He passed through in his Jeep.”

Motion events include conceptually the initial and the end place (=P-relation), functions most prepositions have when they are used as adverbials in the form of a prepositional phrase. Initial is usually the position of the object represented.

In (26)b and (26)c, incorporation of the P-relation to semantic of motion verb combines *Manner* and *Path*. However, the result of this operation is different according to type of verb. In (26)b, the object of preposition is found in the direct object with the effect of focusing on the aspect of *Path* and consequently weakening the aspect of

*Manner*. When “das überschwemmte Gelände” is used as a direct object, it gains an additional function that was not available when used as an object of the preposition. When the internal argument of the P-relation lies in the scope of P-predication, it is escalated to be the object of prefix verb and consequently lies in scope of verbs of *Manner*. This demands a change of view, that is, the stretch is treated as a homogeneous and closed section. When we illustrate it, it looks something like this:

Table VI. Object of prefix verb: scope of *Manner* verbs



In the illustration in Table VI, a circle indicates a region, which seems to be a unit. For the building of prefix verb this representation of P-relation is typical. That is, the inner argument of P-relation is raised the direct object of prefix verb.

- (27) a. *Er spritzt Wasser auf Passanten.*  
 “He sprays water on a passenger.  
 ➤ *Er bespritzt Passanten mit Wasser.*  
 “He sprinkles a passenger with water.”
- b. *Er streut Zucker über den Kuchen.*  
 “He powders sugar on the cakes.”  
 ➤ *Er überstretu den Kuchen mit Zucker.*  
 “He powders cakes with sugar.”
- c. *Sie zieht eine goldenen Faden durch die Handarbeit.*  
 “She interweaves a golden string with her hands.”  
 ➤ *Sie durchziehen die Handarbeit mit einem goldenen Faden.*  
 “She interweaves handwork with a golden string.”
- d. *Er fliegt seine Maschine unter das feindliche Radarsystem.*  
 “He flies the plane under the radar system.”  
 ➤ *Er unterfliegt mit seiner Maschine das feindliche Radarsystem.*  
 “He underflies the radar system with the plane.”

The Particle verb in German also has virtually or implicitly the prepositional argument. However, this is not obligatory or explicitly presented like (26c). Olsen (1996: 309) has already described this in formal semantic terms based on the notation of Wunderlich (1993) with another example *auflegen* (put on). She distinguished between the function of *auf* as prefix and the function of particle.

- (28) a. auf: [-v, -n,  $\alpha$ dir]  $\lambda v \lambda u [\{\alpha \text{ BECOME}\}(\text{LOC}(u, \text{AUF}^*[v]))]$   
 b. auf: [-v, -n, +Part]  $\lambda u \exists v [\{\alpha \text{ BECOME}\}(\text{LOC}(u, \text{AUF}^*[v]))]$

Contrary to (26b), the particle verb retains the grammatical relation, but changes the relation between direct object and P-relation. Particle verb presupposes that the region of *durchfahren* is known, so that *Manner* is more focused than *Path*. That is, with application of existential binding of inner argument, the *Manner* is automatically more focused.

Concerning the difference between prefix and particle, Stiebels and Wunderlich (1994: 953) said:

There is only one specific function of particles that is not available for prefixes. Since particles are taken from the set of prepositions or adverbs, they can saturate one of the verb's arguments in certain instances, in particular a PP argument.

It seems that they give emphasis to the parallel semantic equivalence, when they are used in text. However, P-relation is not saturated in particle verb, but *unterdrückt* (oppressed) (Olsen 1996: 311).

Consequently P-relation in particle verb is often not expressed, as we can see in the following (29), in which P-relation is symbolized with bracket.

- (29) a. *Sie bauen einen Seitenflügel an (das Hauptgebäude).*  
 "She is going to build a side panel right next to (the center building)."  
 b. *Sie schrieb die Formeln auf (einen Zettel).*

- “ She wrote down (a formula).”
- c. *Sie leiten den Verkehr um (die Stadt).*  
 “They detour traffic (the city).”
- d. *Er fuhr seinen Jeep durch (das überschwemmte Gelände).*  
 “ He passed by his Jeep through (the overflowed region).”
- e. *Wir fahren mit der Fähre über (den Fluß).*  
 “We take a ferry across (the river).”

I have tried to explain until now, that Particle verbs express P-relation that is not obligatory. That is, it is optional. P-relation can be expressed, or left to context as in example (30).

- (30) *Sie legt eine Folie auf.* (for example: *auf den Projektor/den Kopierer/...*)  
 “She puts a transparency on.” (for example: on the project/ the copier)

This delivers to us a very interesting theoretical question: How can the Lexeme and the Context interact in Text or in producing Text by speaking? I have addressed this problem recently (Lee 2007a). I have observed the different functions of preposition, on one hand when it denotes static location like 31 and on the other hand when it denotes dynamic change of location as in 32.

- (31) *Die Verkehrspolizistin steht **auf** der Strasse.*  
 “The (female) traffic police stands on the street.”
- (32) *Peter schob den LKW **in** die Garage.*  
 “Peter parks the truck in the garage.”

According these different functions, I describe two semantic representations of (31) and (32) in (33)a and (33)b.

- (33) a. Präp.[dir]  $\lambda w \lambda v$  [LOC(v, PRäP\*(w))]  
 b. Präp.[+dir]  $\lambda w \lambda v$  [BECOME(LOC(v, PRäP\*(w)))]

BECOME means the change of location like 28. There are two types of location: when intransitive motion verb is used like (34a), and transitive motion verb is used, like (35b).

- (34) a. *Manfred eilte in die Tagesbar.*  
 “Manfred rushes into the bar.”  
 b. *Peter schob den LKW in die Garage.*  
 “ Peter parks the truck in the garage.”
- (35) a. SF:  $\lambda P\lambda x[\text{EIL}(x) \ \& \ \text{MOVE}(x) \ \& \ P(x)]$   
 b. SF:  $\lambda P\lambda y\lambda x\lambda s[s\text{INST}[\text{SCHIEB}(x,y) \ \& \ \text{MOVE}(y)\ \& \ P(y)]]$

In (35b), INST is two arguments predicate. That connect proposition and variable of situation. Variable is determined according to modus in clause and tempus. See Bierwisch (1989) for details.

The semantic representations of preposition in (34a,b) are same and can be represented as (33b). However, particle verb, which does not denote one concrete argument, cannot express one argument of P-Relation, so semantic representation of the particle is shown in (36).

- (36) Part.[+dir]  $\lambda v [\text{BECOME}(\text{LOC}(v, \text{PR}\ddot{a}\text{P}^*(u))]$

In this sense, I agree with Stiebel when he argued that semantic representation of particle verb include as a substitute of one inner argument *ungebundene Parameter* (not linked) (1996: 88). This could be determined in context according to the Levelt model on SF based conceptual structure (=CS). To summarize, the semantic representation of a Particle is different from that of preposition, in other words, the prefix in prefix verb is compositional and a particle of the particle verb is a sort of application.

The function of a particle is different not only from a preposition, but also from the function of an adverb in a clause. Let’s see the following example. I translate German to English literally.

- (37) *Er läuft durch den Wald durch.*

“He runs through through the forest.”

(38) a. *Er ist durch den Wald [durchgelaufen].*

“He has run through through the forest.”

b. *Er ist [durch den Wald durch] gelaufen.*

“He has run through the forest through.”

When we transform clause (37) into perfect tense, we get two clauses like (38a) and (38b). In (38a), the verb *durchlaufen* is as particle verb and contrary, in (38b), a simple verb with a complex argument. Therefore, (37) is understood as ambiguous.

PP in (39), in which a particle is used, functions as a modifier of particle verb *durchlaufen* (run through). Contrary to This, PP in (40), in which *durch* functions as adverb, functions as a complement to the simple verb *laufen*.

(39) *Er ist [pp durch den Wald] durchgelaufen.* PP= Modifier to *durchlaufen*

(40) *Er ist [pp durch den Wald durch] gelaufen.* PP= complement to *laufen*

With this criterion, we can choose the particle verb as a candidate, which could express *Path* in the motion of event. The same criterion is adapted already in the describing of the Motion event in Korean, that is, when the component of motion is the form of adverb expressed, we exclude this expression.

Preposition, adverb and particle are based on very similar relations to each other. The question, whether *durchlaufen* exists as a unit or a complex construction of two units, i.e. *durch* and *laufen* after grammatical operation of joining together, is a sort of fundamental question concerning the organization of grammar. Even if the meanings of clause (38a) and (38b) as a whole are semantically equivalent, when they are used in text, I think, the particle verb *durchlaufen* is a new independent Lexeme, which is not related to the base verb *laufen*. Its semantic form I have above shown.

I have tried until now to explain that the function of prefix, adverb and particle are different. However, are they also different, when Particle verb is used with PP, even if PP is not necessary? This is *plenatische direktionale* (pleonastic directional) in the sense of Olsen (1996).

- (41) a. *Sie legte eine Folie **auf den Projektor auf**.*  
 “She puts a transparent foil on the projector.”
- b. *Sie schüttet das Wasser **aus dem Eimer aus**.*  
 “She empties the water from the bucket.”
- c. *In Brot wird noch ein /b/ **vor die Lautfolge** /rot/ vorgeschaltet.*  
 “In (german word) Brot a /b/ is proceeding before the sound sequence of /rot/.”
- d. *Sie setzen nachts unbemerkt **über den Sund von Schweden über**.*  
 “She crosses over nights unnoticed across the Sund of Sweden.”  
 (= “She crosses the board of the Sund of Sweden overnight in secret.”)

Verbs like *legen*, *schütten*, *schalgen*, *setzen*, *drängen* etc. are verbs of motion or verbs of caused motion that denote *Manner*.

We have seen in (29) already, that Particle verb *unterdrückt* (oppressed) the P-relation. In other words, the development of Particle verb has its origin in oppressing the inner argument. Despite this function, we can ask questions like “why is the pleonastic directional introduced and expressed again.” The function of pleonastic directional is a sort of compensation. To be specific, use of pleonastic-directional compensates the weakening of the *Path* which is derived from using the particle verb, especially when the meaning of *Manner* is not suitable to the context.

In this regard, I agree with Olsen (1996: 327): “Das Deutsche ist [...] keine echte Modus-Sprache” (When I translate literally, “German is not a real candidate for a *Manner-language*”)

#### 4. Conclusion and Discussion

The motion event in Korean is so diverse, that it is not appropriate to classify Korean using the Typology of Talmy (1996). German is also not captured in Typology of Talmy, for a different reason than in Korean: particle verb is recently very often used and according to its function, it has the status of new stem. Its function is not restricted to express *Manner* but extends to *Path*, so it cannot be classified as a satellite language

in the sense of Talmy's typology.

When I consider these facts, I think, I can foretell three directions for typological research. First, we can extend the ways of doing typological research by modifying Talmy's framework, for the reason that *satellite* in Talmy's work is too restricted, as Matsumoto (2007) has recently asserted. He thinks that *Path* can be encoded by a nonsister of a verb. In this way, we may be able to solve the problem superficially. For example, we can embrace as a candidate of *Path* denoting expressions, the prepositional phrase in Korean and German, which is named by Olsen *pleonastische Direktionale* (=pleonastic directional)(cf. Olsen 1996). However, when if we pursue it this way, there is one problem, that is, it is difficult to differentiate between a preposition and a Particle in each case, especially concerning German because they can have the same function in a certain context.

Second, we can approve the possibility of particular languages (in plural form), "Technique of individual language" in the sense of Coseriu that can be represented as an abstract Form, that embrace the expression in context, as we demonstrate in semantic representation in describing German. However, we would not be able to solve the problem completely using this approach. For example, divergence comes out in German, that is, German cannot be easily classified. It is difficult to decide whether it belongs to verb-framed languages or satellite-framed languages.

Two ways above presuppose anyway, that Talmy's framework could nevertheless exist, despite its theoretical weakness. However, with Talmy's framework Korean cannot be classified to any Group, neither verb-framed languages nor satellite-framed languages. We can consequently regard Korean as an exceptional case. However, I think, it is not a satisfactory solution.

Third, we could search for another way to investigate so that we do not regard Talmy's framework as the starting point of research anymore, because in Korean, due to the diversity of Motion expressions, cannot be classified in the two ways above. We can only determine the tendency of any language from the point of view of typology. In other words, we cannot determine a language as a unit of any particular classification because language and its configuration change with time. Thus, the change of meaning of Lexeme demands not only a synchronic but also a diachronic point of view. Therefore, we need an alternative approach; that is, we need more abstract type of

typology that can include the dynamics of languages. In other words, in typological research, we need to work on establishing a new “type of type” to which Coseriu (1988) gives the name “Typus.”

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# Hierarchy-based Interpretation of Tense in Japanese Complex Sentences

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## Abstract

The interpretation of tenses in Japanese complex sentences involves the tense markings of both matrix and subordinate predicates, Aktionsarten of the predicate, and the hierarchical level to which the subordinate clause belongs. While this is a complicated enough task, a problem still remains of why the tense interpretation is affected by Minami's (1974) four-level sentential hierarchy, as many other linguistic phenomena are. This paper addresses these questions. We show that the behaviour of tenses result from general mechanisms invoked during a semantic evaluation, specifically from local vs. broad opening of bindings and from restrictions on what bindings are licensed to be open.

## 1 Introduction

This paper presents a unified account of a significant set of linguistic data involving tense in Japanese complex sentences which seemingly must undergo complicated interpretations. We start with the observation that the behaviour of this kind of tense reflects the hierarchical structure of Japanese sentences posited by Minami (1974) which is associated with heterogeneous linguistic facts including scopes of modalities, focus, topic/subject coreference, etc. This makes the complex tenses a part of regularities which are found throughout the Japanese syntax. Using Scope Control Theory (Butler 2007), a semantic system that facilitates fine-grained management of scopes, we give an explanation of the linguistic data, arguing that the tense interactions are brought about by placement restrictions and a semantics with operator-variable dependencies.

## 2 The Minami Hierarchy

Subordinate clauses in Japanese sentences have been observed by Minami (1974) to behave differently in relation to whether various constituents can occur within them. A subject is not included in the type of subordinate clause with the most strict limitations labeled 'Level A':

- (1) Tarō **ga** [uwagi wo nui]<sub>A</sub> de hangā ni kake-ta.  
 NAME NOM jacket ACC undress SCC hanger LOC hang PAST  
 ‘Taro took off his jacket and hung it on a hanger.’

A certain group of auxiliary verbs and adverbials are not allowed in this kind of subordinate clause, either. For example, the negative (*nai*), past (*ta*), polite (*masu*), and tentative/voluntative (*ō/darō*) auxiliaries and tense and place adverbs are illicit, whereas the causative and passive auxiliaries (*(sa)seru/(ra)reru*) can occur in this group of subordinate clauses.

In another type of subordinate clause, those labeled ‘Level B’, a subject may appear:

- (2) [**Tarō ga** uwagi wo nugu]<sub>B</sub> to Haruko ga hangā ni kake-ta.  
 NAME NOM jacket ACC undress SCC NAME NOM hanger LOC hang PAST  
 ‘Taro took off his jacket and Haruko hung it on a hanger.’

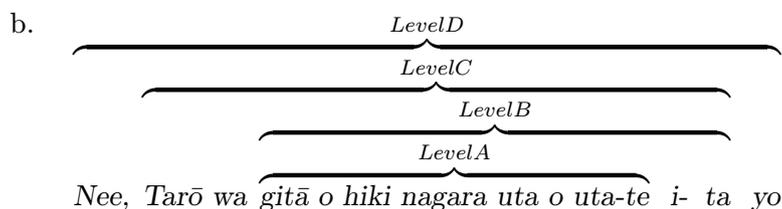
Those constituents that were not allowed in Level A subordinate clauses, the negative, past, polite, and tentative/voluntative auxiliaries and tense and place adverbs are appropriate if embedded in this kind of subordinate clause.

Lastly, Level C subordinate clauses can contain constituents that are ungrammatical within a Level B subordinate clause, a topic for instance.

- (3) [**Haruko wa** Itaria e it-ta]<sub>C</sub> ga, Akiko wa Supein e it-ta.  
 NAME TOP Italy GOAL go PAST ADVS NAME TOP Spain GOAL go PAST  
 ‘Although Haruko went to Italy, Akiko went to Spain.’

Minami extends his idea from syntax of subordinate clauses to the general structure of the Japanese sentence. According to him, levels A, B, C, and D, with D being the outermost level equivalent to a complete sentence, constitute a layered structure, with the outer levels enclosing the inner levels. Sentence (4a) is analysed into four hierarchical levels as shown in (4b).

- (4) a. Nee, Tarō ga gitā wo hiki nagara uta wo utat-te i- ta  
 ADDR NAME NOM guitar ACC play SIML song ACC sing PROG PST  
 yo.  
 MDLP  
 ‘I will tell you, Taro was singing a song, playing the guitar.’



It is known that heterogeneous linguistic facts such as topic/subject coreference and focus in complex sentences are involved with this hierarchy.

### 3 Tense in Complex Sentences

The interpretation of tense in Japanese subordinate clauses is determined by (i) tense marking of the subordinate predicate, (ii) Minami’s hierarchical level the

subordinate clause belongs to, (iii) tense marking of the matrix predicate, and (iv) Aktionsarten (dynamic vs. stative) of the predicates.

In the Level A subordinate clause, the predicate is always without tense marking. Its tense is interpreted to be identical with that of the matrix predicate.

- (5) Tarō ga [shimbun o yomi]<sub>A</sub> **nagara** gohan o taberu.  
 NAME NOM newspaper ACC read SUCC meal ACC eat-NPST  
 ‘Taro will eat reading the newspaper.’  
 ( $E_s = E_m$ ,  $n < E_m$ )

In the following,  $n$ ,  $E_m$ ,  $E_s$  stand for the utterance time and the eventuality times of the matrix and subordinate clause.  $=$ ,  $<$ , and  $\subseteq$  indicate temporal equality, linear order, and inclusion.

In Level B subordinate clauses, the predicate is tense-marked either by the presence of a past auxiliary verb *ta* or its absence. Its temporal information is interpreted, depending on

- (i) the subordinate predicate tense marking,
- (ii) the matrix predicate tense marking, and
- (iii) the subordinate predicate Aktionsarten (dynamic vs. stative).

When the matrix predicate is with the past tense marker *ta*, the eventuality time of the subordinate clause is interpreted in relation to that of the matrix clause. In (6a), the eventuality time of the embedded dynamic predicate *sotsugō-suru* (graduate-NONPAST) is later than that of the matrix predicate *ryokō-shi-ta* (travel-PAST). Note that the sentence provides no explicit information about whether the former is earlier than the utterance time (i.e., past) or later (i.e., future). In (6b), the eventuality time of the subordinate predicate *sotsugyō-shi-ta* (graduate-PAST) precedes that of the matrix predicate.

- (6) a. [Haruko ga sotsugyō-suru]<sub>B</sub> **node** issho-ni ryokō-shi-ta.  
 NAME NOM graduate-NPST CAUS together travel PST  
 ‘Because Haruko is/was going to graduate, I made a trip with her.’ ( $E_m < n$ ,  $E_m < E_s$ )
- b. [Haruko ga sotsugyō-shi-ta]<sub>B</sub> **node** issho-ni ryokō-shi-ta.  
 NAME NOM graduate PST CAUS together travel PST  
 ‘Because Haruko had graduated, I made a trip with her.’  
 ( $E_s < E_m < n$ )

If the subordinate predicate is stative and is without past tense marking as in (7a), its eventuality time is construed as being simultaneous with that of the matrix predicate. To put it more formally, the former includes the latter. If the subordinate predicate is *ta* marked as in (7b), its eventuality time is earlier than that of the matrix predicate as in (6b) with the dynamic subordinate predicate.

- (7) a. [Haruko ga yasun-de iru]<sub>B</sub> **node** denwa-shi-ta.  
 NAME NOM take time off PROG-NPST CAUS call PST  
 ‘Because Haruko was absent, I called her.’  
 ( $E_m \subseteq E_s$ ,  $E_m < n$ )

Table 1: Tense in subordinate clause with past matrix sentence

	Dynamic	Stative
non- <i>ta</i> (non-past)	$E_m < E_s$	$E_m \subseteq E_s$
<i>ta</i> (past)	$E_s < E_m$	

- b. [Haruko ga *yasun-de* *i-* *ta*]<sub>B</sub> **node** *denwa-shi- ta*.  
 NAME NOM take time off PROG PST CAUS call PST  
 ‘Because Haruko had been absent, I called her.’  
 ( $E_s < E_m < n$ )

Table 1 summarises the temporal relationships between the eventuality times of the matrix and subordinate clauses and the utterance time, in case the latter is marked by *ta*.

By contrast, when the matrix predicate is not marked by *ta*, the tense of the subordinate clause is interpreted in relation to the utterance time. The eventuality time of the subordinate non-past dynamic predicate *sotsugyō-suru* (graduate-NONPAST) as in (8a) is later than the utterance time. In other words, it is to happen in the future. If the subordinate predicate is *ta*-marked, its eventuality time is earlier than the utterance time: it stands in the past.

- (8) a. [Haruko ga *sotsugyō-suru*]<sub>B</sub> **node** *issho-ni ryokō-suru*.  
 NAME NOM graduate-NPST CAUS together travel-NPST  
 ‘Because Haruko is going to graduate, I will make a trip with her.’ ( $n < E_m, n < E_s$ )
- b. [Haruko ga *sotsugyō-shi- ta*]<sub>B</sub> **node** *issho-ni ryokō-suru*.  
 NAME NOM graduate PST CAUS together travel-NPST  
 ‘Because Haruko graduated, I will make a trip with her.’  
 ( $E_s < n < E_m$ )

The utterance time also plays an essential role in the case of embedded stative verbs. In (9a), where the subordinate predicate is with the non-*ta* form, it indicates a state which holds at present. If the embedded verb is suffixed with *ta*, it stands in the past.

- (9) a. [Haruko ga *yasun-de iru*]<sub>B</sub> **node** *kanashii*.  
 NAME NOM take time off PROG-NPST CAUS be sad-NPST  
 ‘Because Haruko is absent, I am sad.’  
 ( $n \subseteq E_s, n \subseteq E_m$ )
- b. [Haruko ga *yasun-de* *i-* *ta*]<sub>B</sub> **node** *kanashii*.  
 NAME NOM take time off PROG PST CAUS be sad-NPST  
 ‘Because Haruko was absent, I am sad.’  
 ( $E_s < n \subseteq E_m$ )

Table 2 outlines the tense interpretation of subordinate clauses in case the matrix clause is in the non-past form.

Finally, tense interpretation of the Level C subordinate clause is made totally independent of that of the matrix clause. A non-*ta*-marked subordinate dynamic

Table 2: Tense in subordinate clause with non-past matrix sentence

	Dynamic	Stative
non- <i>ta</i> (non-past)	$n < E_s$	$n \subseteq E_s$
<i>ta</i> (past)	$E_s < n$	

predicate as in (10a) is construed as meaning an event happening in the future, regardless of the tense of the matrix predicate. Similarly, a *ta*-marked predicate in the subordinate clause, as in (10b), stands for an event that takes place in the past.

- (10) a. [Haruko wa Supein e *iku*]<sub>C</sub> **ga** Akiko wa Itaria e *it- ta*.  
 NAME TOP Spain GOAL go-NPST ADVS NAME TOP Italy GOAL go PST  
 ‘Although Haruko will go to Spain, Akiko went to Italy.’  
 ( $E_m < n, n < E_s$ )
- b. [Haruko wa Supein e *it- ta*]<sub>C</sub> **ga** Akiko wa Itaria e *it- ta*.  
 NAME TOP Spain GOAL go PST ADVS NAME TOP Italy GOAL go PST  
 ‘Although Haruko went to Spain, Akiko went to Italy.’  
 ( $E_m < n, E_s < n$ )

#### 4 Scope Control Theory

The analysis of tense in Japanese complex sentences that this paper offers will be formulated in terms of Scope Control Theory or SCT (Butler 2007). SCT is a small logical language which attempts to approximate the dependency structures in natural languages by fine-grained and restricted scope management. It does this by combining ideas from the static setup of dynamic semantics by Dekker (2002) and Cresswell (2002) with the sequence semantics of Vermeulen (1993).

In the appendix, SCT evaluation is defined with a translation  $(g, e)^\circ$ , taking assignment  $g$  and SCT expression  $e$  and returning a translation into a formula of predicate logic notation. An assignment is a mapping that assigns a (possibly empty) sequence of predicate logic variable names to each SCT name. Such translation provides a ‘snapshot’ of the dependencies semantic evaluation establishes. If desired, translation could be replaced by a full semantic evaluation, returning truth conditions with respect to models.

The building blocks of SCT expressions are six operators:

- **Use**  $(x, e)$  Supports scope creation or binding
- **Hide**  $(x, e)$  Terminates usage count
- **T**  $(x, i)$  Builds a term for name  $x$
- **Close**  $(x, e)$  Creates fresh scopes for  $x$  based on usage count
- **Lam**  $(x, y, e)$  Shifts a scope’s binding name from  $x$  to  $y$
- **Rel**  $(\vec{x}, \vec{y}, r, \vec{e})$  Builds a relation  $r$  with sequence of arguments  $\vec{e}$ , changing the assignment for each argument based on SCT name sequences  $\vec{x}$  and  $\vec{y}$



```
(16) let rel s l = Rel (nil, nil, s, l) in rel "smiles" [T ("x", 0)] ≡
      (λrel.rel "smiles" [T ("x", 0)])(λs.λl. Rel (nil, nil, s, l)) →
      (λs.λl.Rel (nil, nil, s, l) "smiles" [T ("x", 0)] →
      (λl.Rel (nil, nil, "smiles", l) [T ("x", 0)] →
      Rel (nil, nil, "smiles", [T ("x", 0)]))
```

We will also utilise `case` expressions with the form of (17), allowing for the construction of an expression that performs a case analysis based on the result of pattern matching.

```
(17) case exp
      of pattern_1 => exp_1
       | pattern_2 => exp_2
       ...
       | pattern_n => exp_n
```

The idea is that `exp` is evaluated by attempting to match it to one of the patterns, in the given order. When a successful match occurs, the variables contained in the pattern are bound to their matching values, and the corresponding expression is evaluated to give the result of the overall `case` expression. For example, the expression of enriched notation (18) reduces to (19).

```
(18) letrec clean n name f =
      (case n
       of 0 => f
        | n => Lam (name, "r", clean (n-1) name f)
       )
      in clean "x" 2 T ("r", 0)
```

```
(19) Lam ("x", "r", Lam ("x", "r", T ("r", 0)))
```

The reduction of (18) involves a recursive call to `clean`, which has patterns to match either 0 or a number greater than 0 supplied as the second parameter. The recursive call decreases by one the number of the second parameter and terminates when this is 0.

## 5 Tense in Simple Sentences

For the interpretation of tense, we introduce two binding names, `"ev"` (event time) and `"it"` (intermediate time), on which time values (scopes) can be stacked.

We can use SCT to instrument and observe the behaviour of dependencies by making points of an evaluation sensitive to what should and should not be present as a binding. We will see that, in doing this, we place constraints on what are possible language forms.

Let's suppose that evaluation is sensitive to the presence of `"it"` bindings. This is achieved with a call to `check`, (20).

```
(20) let check f = Hide ("it", Rel (["it"], ["r"], " ", [f]))
```

We assume the predicate forms `rit`, (21), and `rev`, (22), for clauses that take event arguments.

```
(21) let rit s = check (Use ("it", rel s [T ("it", 0)]))
```

```
(22) let rev s = check (rel s [T ("ev", 0)])
```

With `rit` and `rev` invoking `check`, it follows that they will show a complementary distribution:

- `rit` requires one and only one "it" binding;
- `rev` requires at least one "ev" binding and no open "it" binding.

We now require tense operators that will provide bindings for the tense names "it" and "ev". Let's start with the postfix operator `ta`, (25), which encodes (dynamic and static) past-tense. This takes two arguments: an SCT expression `f`, and a number `n`. This opens a new "ev" binding over `f` with a call to `exists`, (23), which provides a way to mimic in SCT the role of existential quantification introducing a fresh binding. It is required that the value of the new binding is before (`<`) the value of the binding that was the zero level "ev" binding when the new "ev" binding was introduced.

```
(23) let exists x f = Hide (x, Close (x, Use (x, f)))
```

```
(24) letrec cleanup n x f =  
    (case n  
      of 0 => Hide (x, Rel ([x], ["r"], " ", [f]))  
       | n => Lam (x, "r", cleanup (n-1) x f)  
    )
```

```
(25) let f n ta =  
    cleanup n "it" (  
      Hide ("it",  
        exists "ev" (  
          rel "^" [rel "<" [T ("ev", 0), T ("ev", 1)], f])))
```

The `n` argument of (25) provides the number of times `cleanup`, (24), shifts a zero level "it" binding to an "r" binding. Since `Hide ("it", #)` is in the immediate scope of `cleanup # "it" #`, all values on the "it" stack must be cleared. The extra work of clearing "it" bindings is essential: if there is an open "it" binding, any `rev` occurrence will bring about evaluation failure, leaving the `ta` operator with (almost) no binding prospect.

Next, we introduce the postfix operator `non_ta_dyn`, (26), which encodes non-past dynamic tense. Note that the extra work of clearing away any open "it" binding is again required, but for a different reason. Since `non_ta_dyn` introduces a new "it" binding, and if there was already a new "it" binding open then there will be more than one "it" binding open, which no predicate with a tense argument can support.

```
(26) let f n non_ta_dyn =  
    cleanup n "it" (  
      exists "it" (  
        rel "^" [rel "<" [T ("ev", 0), T ("it", 0)], f]))
```

Finally, we introduce the postfix operator `non_ta_stat`, (27), which encodes non-past static tense. This differs from (26) only in the form of the tense relation.

```
(27) let f n non_ta_stat =
      cleanup n "it" (
        exists "it" (
          rel "&" [rel "⊆" [T ("ev", 0), T ("it", 0)], f]))
```

With this machinery for tense, let's consider a treatment of (28). We can provide (28) with the parsed form of (29).

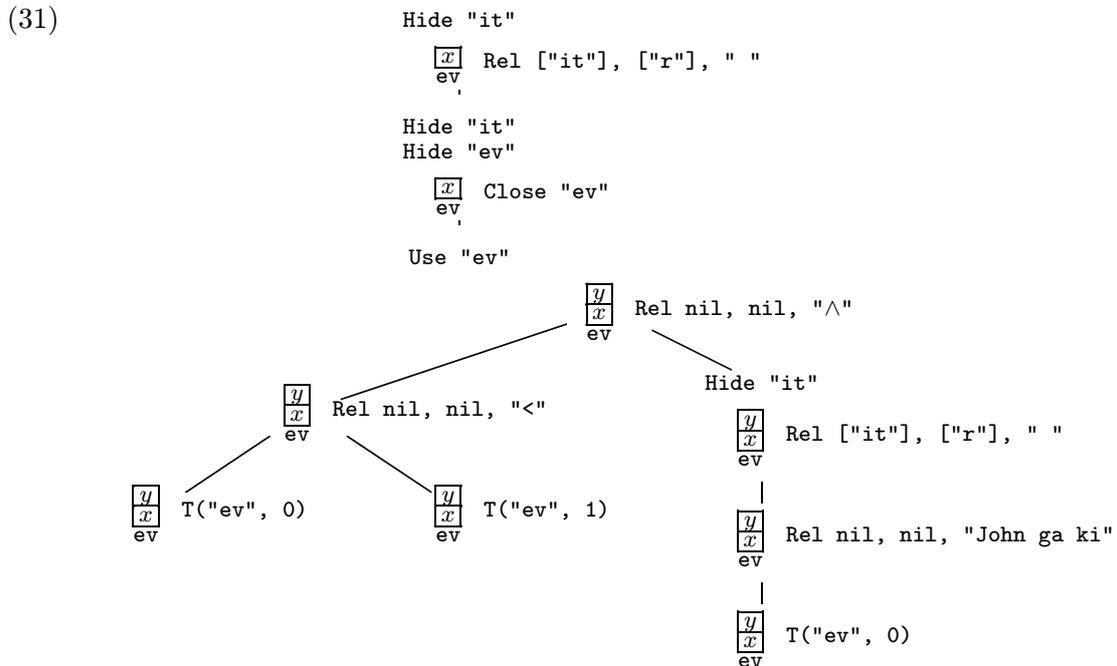
```
(28) John ga ki-ta.
      NAME NOM come-PST
      'John came.'
```

```
(29) (rev "John ga ki") 0 ta
```

In (30), we see the result of evaluating (29) against an assignment  $g$  that assigns a scope value  $x$  to "ev" (utterance time).

```
(30) (g,(29))° = ∃y(y < x ∧ John ga ki(y))
```

We can illustrate the translation of (30) with (31), which shows the creation of a new event time,  $y$ , which provides the event time for the main predicate and which is predicated as being before the utterance time  $x$ .



What is interesting to note about (29) is that the particular form of the clausal predicate, `rev`, gets enforced. Changing the form of the clausal predicate to `rit` gives (32), which as (33) indicates can have no evaluation. This holds because `rit` requires an "it" binding and such a binding is not opened by `ta`, and moreover removed if present.

(32) (rit "John ga ki") 0 ta

(33)  $\forall g : (g, (32))^\circ = *$

## 6 Tense in Complex Sentences

To give an SCT analysis of the data of section 3 for complex sentences, we need a way to capture instances of coordination. Let's introduce coordination with the infix operator `coord` of (34). This creates a subordinate clause by combining a clause `f` with a relation name `s`. The subordinate clause combines with a matrix clause `f'`. The result is an `s`-relation that combines `f` and `f'`.

(34) `let (f coord s) f' = rel s [f, f']`

### 6.1 Level A account

A Level A subordinate clause excludes operations that are able to introduce new "ev" or "it" bindings, leading to a tense interpretation that is inherited from the matrix clause. To see how this accounts for the Level A data, let's consider (5), which is repeated as (35).

(35) Tarō ga [shimbun o yomi]<sub>A</sub> nagara gohan o taberu.  
 NAME NOM newspaper ACC read SIML meal ACC eat-NPST  
 'Taro will eat reading the newspaper.'

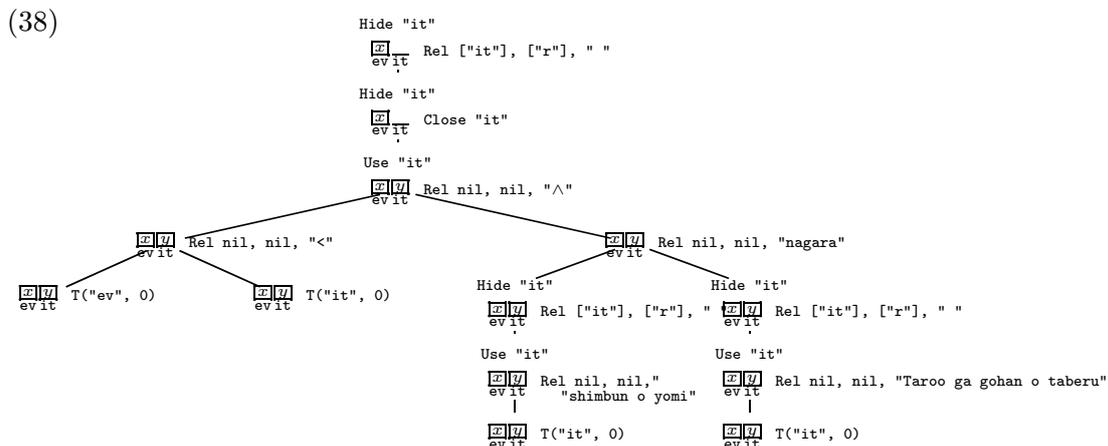
We can take (35) to have the parsed form of (36).

(36) ((rit "shimbun o yomi" coord "nagara") (rit "Taroo ga gohan o taberu")) 0 non\_ta\_dyn

In (37), we see the result of evaluating (36) against some assignment `g` that assigns a scope value `x` to "ev" (utterance time).

(37)  $(g, (36))^\circ$   
 $= \exists y (x < y \wedge \text{nagara}(\text{shimbun o yomi}(y), \text{Taroo ga gohan o taberu}(y)))$

We can illustrate the translation of (37) with (38).



With (36), the matrix clause has `non_ta_dyn` as its tense operator, and so an "it" binding is opened. As can be seen from (38), once open, the "it" binding is present ever after. This forces the matrix predicate to have an `rit` form and so be linked to the "it" binding. And since the subordinate clause is only a predicate and happens to occur in the same environment as the matrix predicate, it too must have the `rit` form and so be linked to the same "it" binding. It follows from this shared binding that the event time of the subordinate clause is (contained in) the same event time as the matrix.

## 6.2 Level B account

With a Level B subordinate clause, the Level A constraint of allowing only predicate material is relaxed. This creates an opportunity for the operators (25)–(27) to occur inside the subordinate clause. And with the occurrence of the tense operators, it follows that there will be the opportunity for the introduction of new "ev" or "it" bindings, together with relations established with the "ev" binding inherited from the matrix. Since the "ev" binding of the matrix may or may not have changed from the utterance time value inherited from the context of utterance (the initial "ev" binding), the form of tense in the matrix clause may or may not affect the subordinate clause. We will proceed by looking first at a case where the matrix clause does affect the subordinate clause, and then at a case where there is no affect.

The data of (6) and (7) show that, if the matrix is marked by *ta*, the tense of the subordinate clause is interpreted in relation to the changes made by the matrix tense. To see why, let's consider (6a), which is repeated as (39).

- (39) [Haruko ga **sotsugyō-suru**]<sub>B</sub> *node* *issho-ni* **ryokō-shi- ta**.  
 NAME NOM graduate-NPST CASL together travel PST  
 ‘Because Haruko is/was going to graduate, I made a trip with her.’  
 ( $E_m < n$ ,  $E_m < E_s$ )

We can take (39) to have the parsed form of (40).

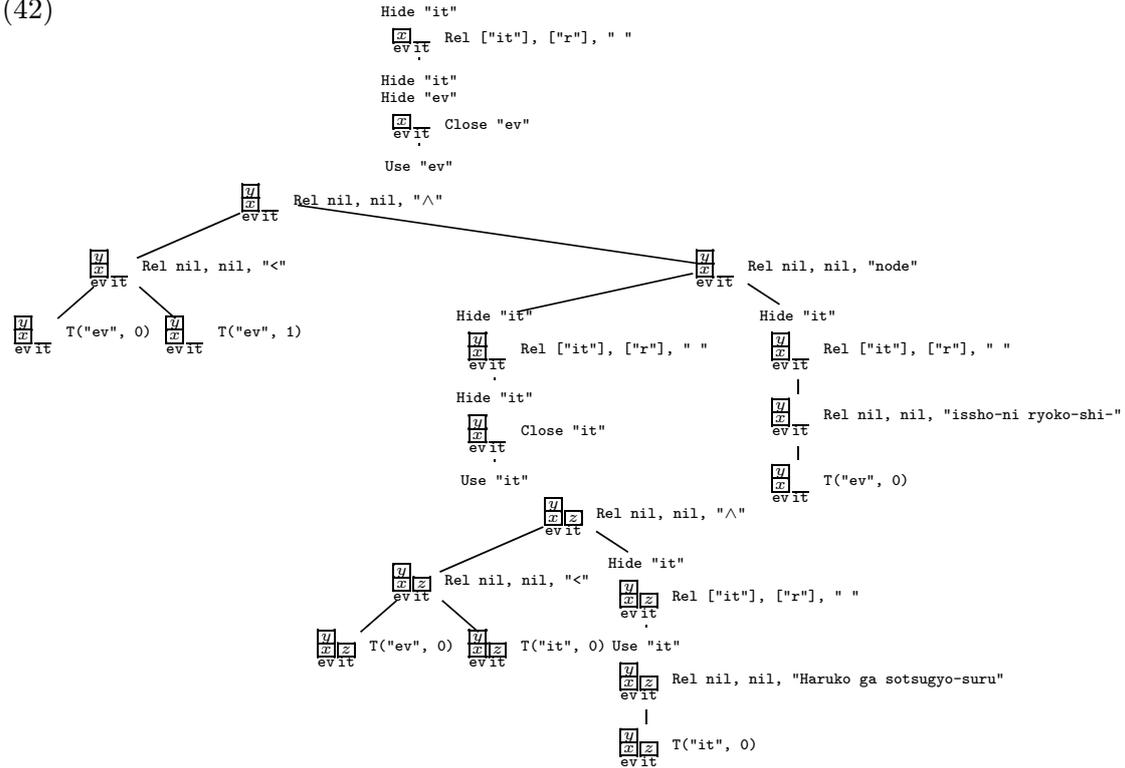
- (40) (((rit "Haruko ga sotsugyo-suru") 0 non\_ta\_dyn coord "node") (rev "issho-ni ryoko-shi-")) 0 ta

In (41), we see the result of evaluating (40) against an assignment *g* that assigns a scope value *x* to "ev" (utterance time).

- (41) ( $g, (40)$ )<sup>o</sup> =  $\exists y(y < x \wedge \text{node}(\exists z(y < z \wedge \text{Haruko ga sotsugyo-suru}(z)), \text{issho-ni ryoko-shi-}(y)))$

We can illustrate the translation of (41) with (42). This shows how the contribution of the past tense in the matrix—namely, the introduction of a new "ev" binding—is carried down into the subordinate clause. It moreover holds that the newly introduced "ev" binding occludes the original "ev" binding and so any comparison in the subordinate clause to the "ev" binding can only be with respect to the newly introduced "ev" of the matrix. It is for this reason that the tense interpretation of the subordinate clause is made dependent on the tense of the matrix. Also note that `ta` and `non_ta_dyn` of (40) both have 0 as their number argument. This is required, since, as can be seen from (42), it is only in the subordinate clause that an "it" binding is introduced, and so the need for "it" garbage collection never arises.

(42)



The facts of the other sentences of (6) and (7) can be explained in exactly the same way as for (39). This is because `non_ta_stat` and `ta` share with `non_ta_dyn` the property of giving an event comparison with respect to what is the zero level "ev" binding before they apply, and, as we can see with (42), this will be the tense introduced in the matrix when the matrix is *ta* marked.

The data of (8) and (9) show that, if the matrix predicate is in a non-past form, the subordinate clause undergoes a tense interpretation in relation to the utterance time, and is thus interpreted independently of the tense of the matrix clause. To see why, let's consider (9a), which is repeated as (43).

- (43) [Haruko ga yasun-de iru]<sub>B</sub> node kanashii.  
 NAME NOM take time off PROG-NPST CASL be sad-NPST  
 'Because Haruko is absent, I am sad.'  
 ( $n \subseteq E_m, n \subseteq E_s$ )

We can take (43) to have the parsed form of (44).

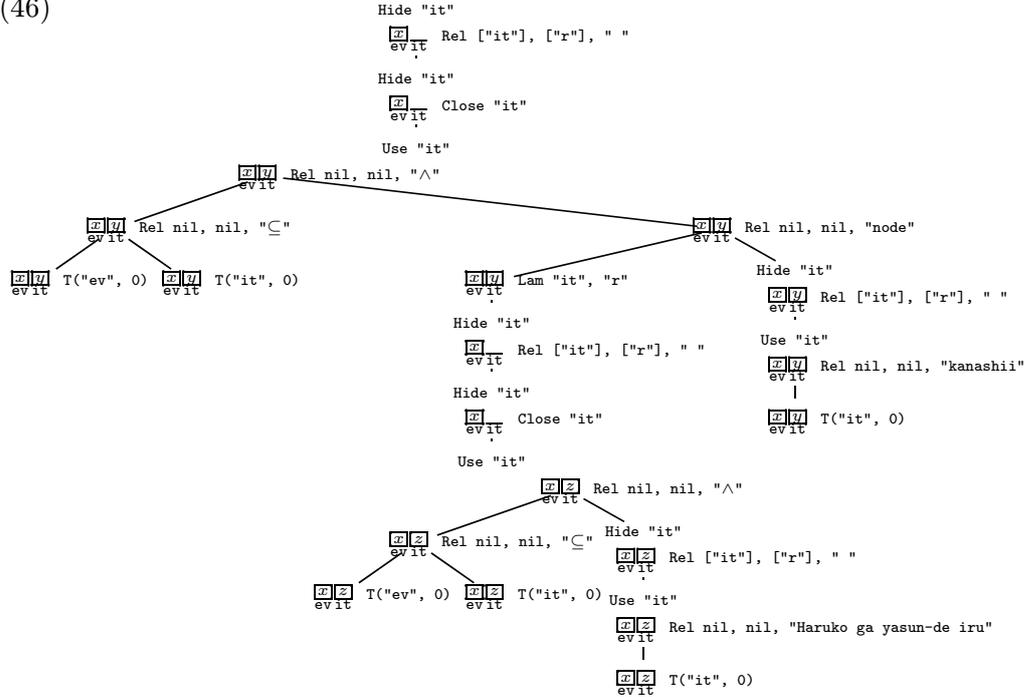
- (44) (((rit "Haruko ga yasun-de iru") 1 non\_ta\_stat coord "node") (rit "kanashii")) 0 non\_ta\_stat

In (45), we see the result of evaluating (44) against an assignment  $g$  that assigns a scope value  $x$  to "ev" (utterance time).

- (45)  $(g, (44))^\circ$   
 $= \exists y(x \subseteq y \wedge \text{node}(\exists z(x \subseteq z \wedge \text{Haruko ga yasun-de iru}(z)), \text{kanashii}(y)))$

We can illustrate the translation of (45) with (46). The change made to the assignment by the matrix is a new "it" binding. This doesn't occlude the initial "ev" binding, and so any link to the "ev" binding in the subordinate clause is to the one and only "ev" binding, which was provided by the initial state of the assignment as the utterance time. It follows that the eventuality times of the predicates in the matrix and subordinate clause are independent.

(46)



The facts of the other sentences of (8) and (9) can be explained in exactly the same way as for (43). This is because `non_ta_dyn` and `ta` share with `non_ta_stat` the property of giving an event comparison with respect to what is the zero level "ev" binding before they apply, and, as we can see with (46), this will be the utterance time.

### 6.3 Level C account

The final ingredient that we need to consider for our analysis is the role played by Level C. We will suppose that introduction of a Level C clause serves to garbage collect any "ev" bindings that have been opened in a superordinate clause. This is achieved with `eventlevelc` of (47).

(47) `let eventlevelc n f =  
 cleanup n "ev" (Use ("ev", Hide ("ev", f)))`

An application of `eventlevelc` is sensitive to the environment in which it occurs. Specifically, a value must be given for `n` that will ensure that all bindings from the "ev" sequence, with the exception of the most deeply embedded, are cleared (shifted to "r" bindings). This ensures that one and only one value, corresponding to the utterance time, is left as the "ev" binding.

To see `eventlevelc` applied, let's consider (10a), which is repeated as (48).

- (48) [Haruko wa Supein e **iku**]<sub>C</sub> *ga* Akiko wa Itaria e **it-ta**.  
 NAME TOP Spain GOAL go-NPST ADVS NAME TOP Italy GOAL go PST  
 ‘Although Haruko will go to Spain, Akiko went to Italy.’  
 ( $n < E_s, E_m < n$ )

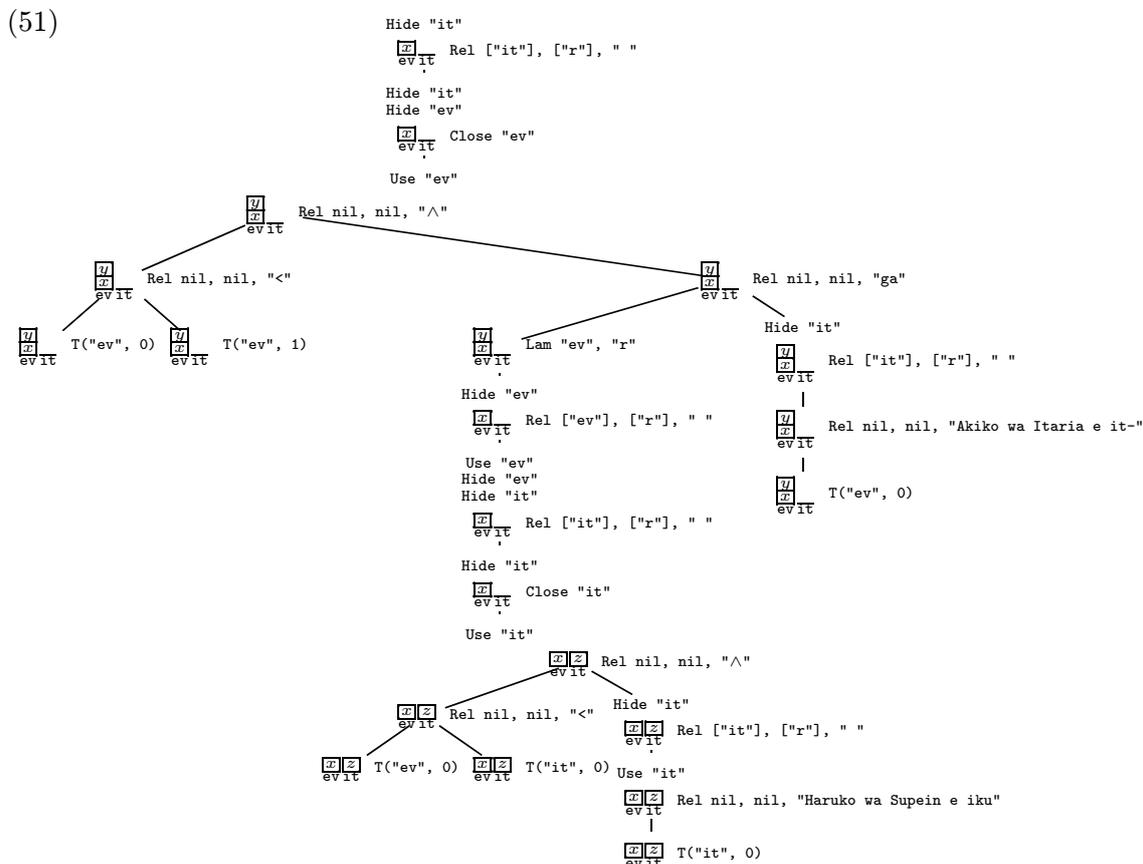
We can take (48) to have the parsed form of (49).

- (49) ((eventlevelc 1 ((rit "Haruko wa Supein e iku") 0 non\_ta\_dyn) coord  
 "ga") (rev "Akiko wa Itaria e it-")) 0 ta

In (50), we see the result of evaluating (49) against an assignment  $g$  that assigns a scope value  $x$  to "ev" (utterance time).

- (50)  $(g, (49))^\circ = \exists y(y < x \wedge \text{ga}(\exists z(x < z \wedge \text{Haruko wa Supein e iku}(z)), \text{Akiko wa Itaria e it-}(y)))$

We can illustrate the translation of (50) with (51). What is important to note is that any new "ev" bindings introduced with the matrix clause get removed as bindings with shifts to "r" bindings. This essentially removes the involved scopes from further consideration. This leaves the initial "ev" (utterance time) as the only scope that is maintained. With these garbage collection changes to the assignment, it follows that the eventuality times of the predicates of the matrix and subordinate clause will be mutually unconnected, but they will both be connected to the eventuality time of the utterance.



## 7 Conclusion

We have seen how tense relations get interpreted differently in the three types of subordinate clause in Japanese. The different consequences were derived from the same operator variable mechanisms being applied in accordance to what can occur and what has already occurred with the hierarchical structuring of the matrix and subordinate clauses. We can characterise the specific results of this paper as follows:

- With Level A, there can be no tense operations in a subordinate clause. With no tense operations allowed internally to the subordinate clause, it follows that the matrix and subordinate clause will be forced to share dependence on the same tense binding.
- With Level B, tense operations are possible. Dependencies of one event time with another can only be with respect to the current "ev" binding, since before a tense operator can be used any existing "it" binding must be garbage collected, else the new tense operation would not be possible. With past tense a fresh "ev" binding is opened, making this the current "ev" binding for a subsequent tense operation, thereby enforcing dependence. In contrast, non-past tense (either dynamic or static) makes no change to the "ev" binding, but instead introduces a fresh "it" binding, the type of tense binding that is garbage collected before a tense operation can occur, so that there can be no dependence of a subsequent tense operation on a non-past tense operation.
- With Level C, tense operations are possible, but only after a cleanup of any "ev" bindings that may have been added in a superordinate clause.

## Appendix

In this appendix, SCT evaluation is defined, taking the form of a translation from expressions of SCT into expressions of predicate logic notation.

SCT makes extensive use of sequences and operations on sequences. Below are the important notations:

- $[x_0, \dots, x_{n-1}]$ : a sequence with  $n$  elements,  $x_0$  being frontmost.
- $\vec{x}$ : abbreviation for a sequence.
- `nil`: the empty sequence.
- $\vec{x}_i$ : the  $i$ -th element of a sequence, e.g.  $[x_0, \dots, x_{n-1}]_i = x_i$ , where  $0 \leq i < n$ .
- $|\vec{x}|$ : the sequence length, e.g.  $|[x_0, \dots, x_{n-1}]| = n$ .
- `cons`( $y, [x_0, \dots, x_{n-1}]$ ) =  $[y, x_0, \dots, x_{n-1}]$ .
- `snoc`( $y, [x_0, \dots, x_{n-1}]$ ) =  $[x_0, \dots, x_{n-1}, y]$ .

Translation is always with respect to a *scope sequence assignment*. This is a mapping,  $g$ , that assigns a (possibly empty) sequence of predicate logic variable names to each SCT name:  $g : \text{Name} \rightarrow \text{Var}^*$ . Let  $SSA$  be the set of scope sequence assignments. The empty assignment,  $\lambda$ , assigns `nil` to every SCT name.

For translating to predicate logic notation, the members of  $SSA$  can only be scope sequence assignments that contain no repetition of a predicate logic variable name, either in the same assigned sequence or across assigned sequences. This condition applies because, with predicate logic notation, variable names (scopes) must be kept distinct.

We employ relations on scope sequence assignments ( $r \subseteq SSA \times SSA$ ) with pairs of scope sequence assignments  $(g, h)$ , so that a relation will take us from  $g$  to  $h$  or vice versa. As a convention, relations are named reading from  $g$  to  $h$ .

$$(g, h) \in \text{pop}_x \quad \text{iff} \quad h \text{ is just like } g, \text{ except that,} \\ g(x) = \text{cons}((g(x))_0, h(x)).$$

$$(g, h) \in \text{shift}(op)_{x,y} \quad \text{iff} \quad \exists k : (h, k) \in \text{pop}_y \text{ and } k \text{ is just like } g, \\ \text{except that, } g(x) = op((h(y))_0, k(x)).$$

Basic relations on scope sequence assignments are illustrated in (52), moving from  $g$  to  $h$ . Boxed letters represent scopes while unboxed letters represent SCT names.

$$(52) \quad \begin{array}{ccc} & & \boxed{y} \boxed{x} \\ & \nearrow \text{pop}^{\text{"x"}} & \underline{x} \quad \underline{y} \\ \boxed{z} \boxed{y} \boxed{x} & \xrightarrow{\text{shift}(\text{cons})^{\text{"x"}, \text{"y"}}} & \boxed{y} \boxed{x} \boxed{z} \\ \underline{x} \quad \underline{y} & & \underline{x} \quad \underline{y} \\ & \searrow \text{shift}(\text{snoc})^{\text{"x"}, \text{"y"}} & \boxed{z} \boxed{y} \\ & & \underline{x} \quad \underline{y} \end{array}$$

Relations can be iterated  $n$  times when augmented with a positive superscript  $n$ , e.g. (53).

$$(53) \quad \left( \frac{\boxed{y}}{\boxed{x}} \underline{\quad} \underline{\quad}, \underline{\quad} \frac{\boxed{y}}{\boxed{x}} \right) \in \text{shift}(\text{snoc})_{\text{"x"}, \text{"y"}}^2$$

We first need to define a ‘usage count’ operation on SCT expressions, denoted by  $x(e)$ . This count operation formally defines the contribution of the Use and Hide operators.

$$\begin{aligned} x(\mathbf{T} (y, i)) &= 0 \\ x(\mathbf{Use} (y, e)) &= \begin{cases} x(e) + 1 & \text{if } x = y \\ x(e) & \text{otherwise} \end{cases} \\ x(\mathbf{Hide} (y, e)) &= \begin{cases} 0 & \text{if } x = y \\ x(e) & \text{otherwise} \end{cases} \\ x(\mathbf{Close} (y, e)) &= x(e) \\ x(\mathbf{Lam} (y, z, e)) &= x(e) \\ x(\mathbf{Rel} (\vec{y}, \vec{z}, r, \vec{e})) &= \sum_{i=0}^{|\vec{e}|-1} x(\vec{e}_i) \end{aligned}$$

A formal definition for the other SCT operators is given below in terms of translation with respect to a scope sequence assignment,  $g$ .

- $(g, \mathbf{T} (x, i))^\circ$ 
  - return  $(g(x))_i$ , provided  $0 \leq i < |g(x)|$
  - otherwise return \*
- $(g, \mathbf{Use} (x, e))^\circ$ 
  - return  $(g, e)^\circ$
- $(g, \mathbf{Hide} (x, e))^\circ$ 
  - return  $(g, e)^\circ$
- $(g, \mathbf{Close} (x, e))^\circ$ 
  - if  $x(e) = 0$  return  $(g, e)^\circ$
  - else  $\exists h : (h, g) \in \mathbf{pop}_x^{x(e)}$  return  $\exists (h(x))_0 \dots (h(x))_{x(e)-1} (h, e)^\circ$ , provided  $(h, e)^\circ \neq *$
  - otherwise return \*
- $(g, \mathbf{Lam} (x, y, e))^\circ$ 
  - $\exists h : (g, h) \in \mathbf{shift}(\mathbf{cons})_{x,y}$  return  $(h, e)^\circ$
  - otherwise return \*
- $(g, \mathbf{Rel} (\vec{x}, \vec{y}, r, \vec{e}))^\circ$ 
  - return  $r((0, g, \vec{x}, \vec{y}, \vec{e})^\circ, \dots, (|\vec{e}| - 1, g, \vec{x}, \vec{y}, \vec{e})^\circ)$ , provided for  $0 \leq i < |\vec{e}|$ ,  $(i, \vec{x}, \vec{y}, \vec{e})^\circ \neq *$
  - otherwise return \*
- $(n, g, \vec{x}, \vec{y}, \vec{e})^\circ$ 
  - if  $|\vec{x}| = 0$  return  $(g, \vec{e}_n)^\circ$
  - else  $\exists h_0 \dots h_{|\vec{x}|} : h_0 = g$  and for  $0 \leq i < |\vec{x}|$ ,  
 $(h_i, h_{i+1}) \in (\mathbf{pop}_{\vec{x}_i}^{|\vec{x}_i| - \sum_{k=0}^n \vec{x}_i(\vec{e}_k)}; \mathbf{shift}(\mathbf{snoc})_{\vec{x}_i, \vec{y}_i}^{|\vec{x}_i| - \sum_{k=n}^{|\vec{e}|-1} \vec{x}_i(\vec{e}_k)})$  return  $(h_{|\vec{x}|}, \vec{e}_n)^\circ$
  - otherwise return \*

The following points explain the actions and roles of each operator.

- The **T** operator creates terms, with a name and number as arguments. Terms are found at the lowest hierarchical level of expressions, and so are the last steps in translation. The translation is only grammatical if every term finds a binding scope at the name and sequence position denoted by the term's name and number arguments. The number is usually zero. Successful translation of a term returns a predicate logic variable which, for example, fills an argument slot in a predicate.

- **Use** operators form countable entities with usage counts that signal the scope requirements of an expression. Although **Use** operators do nothing when they are translated themselves, **Use** operators figure prominently in the overall translation process because usage counts occur during the translations of **Close** and **Rel**, where they support two important processes: scope creation and binding. **Use** operators can tell **Close** operators how many scopes to create (creation support), and can tell **Rel** operators the scopes that are to be made available for given names of a given argument (binding support). The usage count operation, together with the length operator, allows numbers to be incorporated into SCT for checksum calculations.
- **Hide** operators prevent **Use** operators occurring under them from being counted in usage counts. **Hide** operators contribute nothing when translated themselves. It is customary for **Hide** operators to come directly above **Close** operators for a particular binding name, because this prevents an embedded **Use** from also adding to the usage counts of higher **Close** or **Rel** operators for the same name, which would bring about evaluation failure. **Hide** operators are important because they can be taken to mark localities that enable the re-use of names, which is necessary for embeddings.
- The **Lam** operator contributes to the binding process by modifying assignments with a `shift(cons)` operation. One scope is moved from the front of a named sequence to the front of a (possibly) differently named sequence, that is, from one binding to another. For example, this makes garbage collection possible, allowing for a binding that would conflict with the binding requirements of an embedding to be shifted to a binding where it can be essentially forgotten and so no hindrance for the evaluation of the embedding.
- The **Close** operator provides an environment in an SCT expression where new scopes can be opened. **Close** does two things on translation: it changes the assignment and participates in building the predicate logic translation. **Close** creates new scopes in the assignment corresponding to a usage count for the number of **Use** that are not occurring under **Hide**, for a particular name  $x$ . When the usage count is greater than zero, **Close** operators translate into existential quantifiers, which thereby introduce fresh bindings into the predicate logic translation. **Close** operators are usually found at the hierarchical top of the SCT expression for a sentence.
- The **Rel** operator plays the most important part in translation. **Rel** does two things on translation. Firstly, it builds relations, which not only includes predicates like *smile*, *see*, but all other relations natural languages can have, e.g., coordinating relations like conjunction. The number of arguments of the relation that will be built is equal to the number of elements of  $\vec{e}$ , the expression sequence of the **Rel** operator. Secondly, if given a non-empty argument  $\vec{x}$ , the **Rel** operator changes the initial assignment  $g$ , by removing and sorting scopes, to form new assignments  $j_0, \dots, j_{|\vec{e}|-1}$ . Each  $j$  assignment will be used to translate each element of  $\vec{e}$  to construct each argument of the resulting relation. The changes that are made to  $g$  depend on the name sequences given

as arguments  $\vec{x}$  and  $\vec{y}$ , with the number of specific changes made (with `pop` and `shift(snoc)`) depending on the usage counts of elements of  $\vec{x}$  in parts of  $\vec{e}$ .

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# Korean postpositions : clitics and weak syntactic heads

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## Abstract

This paper is to examine Korean postpositions and define their grammatical status in view of their description in HPSG. We show that they differ syntactically from suffixes and propose to treat them as clitics. They are phonologically dependent and attach to the preceding word in the phonology. We propose subsequently to treat them as weak syntactic heads, showing that they have head properties but contribute little to the syntax of the phrase. They take the host phrase as complement but share (most of) its syntactic properties. We propose also to divide them into 3 subtypes, based on their distribution: arking, oblique and semantic postpositions and to describe their syntactic information in terms of case and marking features.

**Keywords:** postposition, clitic, weak syntactic head, case feature, marking feature.

## 1. Introduction

Postpositions in Korean (henceforth P) show controversial behaviors. First, they attach to a lexical item like suffixes but affect the phrase including it like words. Second, we may omit some of them without effect on the syntax but not others.<sup>1</sup>

- (1) Paul-\*(do) Mary-ui sajin-(eul) John-\*(ege) boi-eoss-da.  
Paul-also Mary-gen photo-acc John-dat show-past-decl.  
Paul also showed Mary's photo to John.

*-eul* in (1) is attached to a noun *sajin*, but indicates that *Mary-ui sajin* is the object of the verb. It can be omitted but *-ege* after the dative complement is not optional, though both are considered as case elements. *-do* has no effect on the syntax of the subject NP but its omission is forbidden because it conveys a pragmatic meaning.

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<sup>1</sup> The transcription of the data follows “the Romanization of Korean” issued by the Korean Ministry of Culture and Tourism, without taking into account the phonetic variations.

Therefore, we must decide whether to treat P as suffixes or words and answer to subsequent questions, before describing their grammar. And we will treat them as clitics and weak syntactic heads. First, we show that P differ syntactically from suffixes and propose to consider them as clitics, taking into account their morpho-phonological dependency. They are words attaching to the preceding word in the phonology. We present briefly possible accounts for other suffix-like behaviors. Second, we propose to treat P as weak syntactic heads, showing that they have head properties but that some P may be omitted or appear without syntactic effect, unlike ordinary heads. Third, we propose to divide P into 3 subtypes: marking, oblique and semantic P, based on their distribution and contribution to the syntax and to use case and marking features to differentiate them.

Our analysis and its description in HPSG will be presented after a brief review of previous analyses in the next section.

## 2. Previous analyses

P are analyzed as words or suffixes in previous works. In the first analyses, they are words having a phrasal scope. They combine with a phrase affected by them (Yoon 1995, Chae & No 1998, *etc.*):

- (2) [Mary-ui sajin] + eul ‘Mary-gen photo-acc’

Some works introduced a derivation from (2) to (3): move the last word of the preceding phrase and attach it to P, taking into account the morpho-phonological dependency (Im 1989, Shi 1994, *etc.*):

- (3) [Mary-ui \_\_\_] sajin-eul ‘Mary-gen photo-acc’

P are inflectional suffixes in the second analyses (Sells 1995, Kim & Choi 2005, Yoo 2002, *etc.*). They attach to a lexical base or root. Their syntactic and semantic information is incorporated into the latter’s and percolated up to the mother phrase (Kim & Choi 2005). Then P may neither appear alone nor be separated from the lexical host:

- (4) - Paul-man o-ass-ni?  
       Paul-only came?  
       Did only Paul come?  
       - eung, \*(Paul)-man o-ass-da.  
       Yes, \*(Paul)-only came.
- (5) a. Paul-i chaeg-do gabang-e neoh-eoss-da.  
       Paul-nom book-also bag-loc put.  
       Paul put (the) book(s) in the bag too.

- b. Paul-*{amado,#}*-i chaeg-*{amado,#}*-do gabang-*{amado,#}*-e  
 Paul-*{perhaps,#}*-nom book-*{perhaps,#}*-also bag-*{perhaps,#}*-loc  
 neoh-eoss-da.  
 put.

Like other suffixes, some P show morpho-phonological variation (6); some hosts change their form (7); P are stacked in a strictly restricted order (8).

- (6) a. Mary-*{ga,leul,neun,wa,na,...}* ‘Mary-*{nom,acc,top,and,or,...}*’  
 b. Paul-*{i,eul,eun,gwa,ina,...}* ‘Paul-*{nom,acc,top,and,or,...}*’
- (7) a. *{nae,je,ne,nu}*-ga ‘*{I,I,you,who}*-nom’  
 b. *{na,jeo,neo,nugu}*-*{leul,neun,ege,...}* ‘*{I,I,you,who}*-*{acc,top,dat,...}*’
- (8) a. Paul-*{man,kkaji,jocha}*-*{i,eul,eun,do}*  
 Paul-*{only,up to,even}*-*{nom,acc,top,also}*  
 a’. \*Paul-*{i,eul,eun,do}*-*{man,kkaji,jocha}*  
 b. jib-*{e,eulo,eseo}*-*{man,kkaji,jocha}*  
 house-*{loc,to,at}*-*{only,up to, even}*  
 b’. \*jib-*{man,kkaji,jocha}*-*{e,eulo,eseo}*

P are divided into several subtypes in previous works. 2 groups are distinguished from the syntactic point of view: case P and non case P (Lim 2004, *etc.*). Case P includes 2 subtypes: grammatical case P that can be omitted and semantic case P that are not optional. Non case P are divided into several groups according to their semantic types:

(9)

Subtypes		P items
Case P	Grammatical P	-i/ga ‘nom’, -(l)eul ‘acc’, -ui ‘gen’
	Semantic P	-e ‘loc’, -ege ‘dat’, -(eu)lo ‘to’, <i>etc.</i>
Non case P	Specific P	-jocha ‘even’, -kkaji ‘up to’, <i>etc.</i>
	Topic marker	-(n)eun ‘top’
	Additive/restrictive P	-do ‘also’, -man ‘only’
	Conjunctive P	-(g)wa ‘and’, -(i)na ‘or’, <i>etc.</i>
	Vocative P	-(y)a ‘voc’

### 3. Our analysis

This section presents our analysis based on 3 proposals: to treat P as clitics and as weak syntactic heads and to divide P into 3 subtypes according to their syntactic information.

### 3.1. P's morphological status

P differ from suffixes in several respects, though they show suffix-like behaviors. 1) In contrast to suffixes, most P combine with various categories: noun, verb and adverb.

- (10) a. Paul-{i,eul,eun,do,man, ... }  
           Paul-{nom,acc,top,also,only, ... }  
       b. meog-go-{ga,leul,neun,do,man, ... }  
           eat-Comp-{nom,acc,top,also,only, ... }  
       c. ppalli-{ga,leul,neun,do,man, ... }  
           quickly-{nom,acc,top,also,only, ... }

Unlike inflectional suffixes, they are compatible with the adverb which is non flectional category, as given in (10c). Unlike derivational suffixes, they don't change the category.<sup>2</sup> So, the verb and the adverb in (10) can't appear in positions that accept only an NP.

2) Syntactic rules affect "X+suffix" but not "X+P" (Nam 1996, Zwicky & Pullum 1983), as illustrated in the following examples:

- (11) a. Paul-i           o-ass-da.  
           Paul-nom    come-past-decl.  
       b. geu-\*(ga)    o-ass-da.  
       c. [\_\_ o-n]        Paul-(\*i)-eul    manna-ss-da.  
           [\_\_ come-rel] Paul-(\*nom)-acc met.
- (12) a. namu-kkun-i    o-ass-da.  
           tree-person-nom came.  
       b. geu-\*(kkun)-ga o-ass-da.  
       c. [\_\_ o-n]        namu-\*(kkun)-eul manna-ss-da.  
           [\_\_ come-rel] tree-\*(person)-acc met.
- (13) a. chingu-deul-i    o-ass-da.  
           friend-plural-nom came.  
       b. geu-\*(deul)-i    o-ass-da.  
       c. [\_\_ o-n]        chingu-\*(deul)-eul manna-da.  
           [\_\_ come-rel] friend-\*(plural)-acc met.

-i/ga in (11) is not affected when the host is replaced by a pronoun and disappears when the host is relativized. On the contrary, the derivational suffix *-kkun* disappears in (12b) but moves together with the host in (12c). The plural suffix *-deul* in (13) shows different

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<sup>2</sup> Cf. categories like PP and KP, *etc.* are often used in previous works.

behaviors: it is not affected by the pronominalization like P while it is relativized with the host like derivational suffixes.

3) P but not suffixes show restricted distributions in the coordination. Some P can't be attached to the first conjunct (14a) while others can't be omitted at the last conjunct (15b).

- (14) a. Paul- $\{i,eul,ui,eun,do\}$ -gwa      Mary- $\{i,eul,ui,neun,do\}$   
          Paul- $\{nom,acc,gen,top,also\}$ -and Mary- $\{nom,acc,gen,top,also\}$
- b. Paul-gwa      Mary-(i,eul,ui)  
          Paul-and      Mary-(nom,acc,gen)
- (15) a. jib- $\{e,eseo,eulo\}$ -na      haggyo- $\{e,eseo,lo\}$   
          house- $\{loc,at,to\}$ -or      school- $\{loc,at,to\}$
- b. jib-na      haggyo- $\{e,eseo,lo\}$   
          house-or      school- $\{loc,at,to\}$

On the contrary, suffixes appear freely at each conjunct and don't show such restrictions.

- (16) a. namu-(kkun)-gwa      sanyang-(kkun)-eul      balabo-da.  
          tree-(person)-and      hunting-(person)-acc      watch.  
          watch a woodcutter/tree and a hunter/hunting.
- b. sanae ai-(deul)-gwa      yeoja ai-(deul)-eul      manna-da.  
          boy child-(*plur*)-and      girl child-(*plur*)-acc      meet.  
          meet a boy/boys and a girl/girls.

4) P have a phrasal scope. They take the whole coordination in their scope when they appear at the last conjunct, as in (14b) and (15b). But suffixes have a narrow scope and affect only the conjunct to which they are attached. So, if we delete its suffix, the first conjunct denotes a tree or trees in (16a) and may be interpreted as singular NP in (16b):

- (17) a. namu-wa      sanyang-kkun-eul      balabo-da.  
          tree-and      hunting-person-acc      watch.  
          watch a tree/trees and a hunter.
- b. han      sanae ai-wa      yeoja ai-deul-eul      manna-da.  
          one      boy child-and      girl child-plur-acc      meet.  
          meet a boy and girls.

Therefore P are words combining with a phrase. But we propose to treat them as clitics, taking into account their dependency illustrated in (4) and (5). In other words, P are dependent words and attach in the phonology to the last word of the phrase they combine with. Then the lexical host can't be an empty element: it may neither be a null pronoun nor be omitted, as illustrated in (4). (5b) will be ruled out in the syntax or in the

phonology: an adverb modifying the verb can't be embedded and the attachment in the phonology bans inserting a pause.

It is possible to account for P's suffix-like behaviors. As for P's variation in (6), we can register in the lexicon all variants with a restriction on the host's final phoneme or introduce a rule (or function) changing P's form in the phonology. For example, the variation between *-i* and *-ga* can be described by 2 lexical entries in (17) or by a rule in (18)<sup>3</sup>:

(17) a. *-i*: after a host terminating with a consonant

b. *-ga*: after a host terminating with a vowel

(18) '*nom*' → *-i* after a consonant, but *-ga* after a vowel

Idiosyncratic host forms in (7) can be accounted for in the same way. For example, we may use a phonological rule in (20) or record 2 entries in (21) for the alternation between *na* and *nae* in (19)<sup>4</sup>:

(19) a. *nae*/\**na-ga* 'I-*nom*'

b. \**nae*/*na*-{*leul,ui,neun,do,ege, ...*} 'I-{*acc,gen,top,also,dat, ...*}'

(20) 'I' → *nae* before *-i/ga*, but *na* before other P

(21) a. *nae*: it combines with *-i/ga*.

b. *na*: it combines with P other than *-i/ga*.

Ordering restrictions on P's stacking in (8) can be summarized: oblique case P < semantic P < marking P, if we revise P's subtypes (see 3.3).

### 3.2. P's syntactical status

We propose to treat P as weak syntactic heads taking the host phrase as their

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<sup>3</sup> The first solution seems preferable, since there are non phonological variations too: the dative complement is marked by *-ege* or *-e* according to its semantic type [+/-animate] and the subject is followed by *-kkeseo*, instead of *-i/ga*, if the referent is socially superior to the speaker.

i. *chaeg-eul chingu*-{*ege,\*e*}/*haggyo*-{*\*ege,e*} *bonae-ss-da*.

book-acc friend-dat/school-dat sent.

(I) sent a/the book to a/the friend.

ii *ai*-{*ga,\*kkeseo*}/*abeonim*-{*\*i,kkeseo*} *o*-(*si*)-*ass-da*.

child-nom/father-nom come-(hon)-past-decl.

(My) father came.

<sup>4</sup> It seems also possible to treat idiosyncratic forms and *-i/ga*, for example *nae-ga*, as complex words, because these host forms are not numerous and they appear only before *-i/ga*.

complement and sharing (most of) its syntactic properties (Tseng 2002, Abeillé *et al.* 2005).

P show head properties. 1) They follow always the host phrase and Korean is a head-final language:

- (22) a. [Paul-gwa Mary]-{ga,ege,eun, ...}  
           [Paul-and Mary]-{nom,dat,top, ...}  
       b. \*[Paul-gwa-{ga,ege,eun, ...} Mary]  
       c. \*{ga,ege,eun, ...}-[Paul-gwa Mary]

2) Semantic case P, such as *-ege*, *-e*, *-eseo*, *etc.*, determine the syntactic and semantic function of the phrase. And they are not optional in most contexts.

- (23) a. Paul-i Mary-\*(ege) insa-leul ha-yeoss-da.  
           Paul-nom Mary-dat greeting-acc did.  
           Paul said hello to Mary.  
       b. Paul-i jib-\*(eseo) jam-eul ja-n-da.  
           Paul-nom home-loc sleep-acc sleep-prof-decl.  
           Paul sleeps at home.

3) Grammatical case P, such as *-i/ga*, *-(l)eul*, and *-ui*, restrict the function and the distribution of the phrase (24a). They can't be omitted in (24b-c), which means that they enable the phrase to appear in these positions.

- (24) a. Paul-{i,\*eul,\*ui} Mary-{\*ga,\*leul,ui} pal-{\*i,eul,\*ui} jab-ass-da.  
           Paul-{nom,acc,gen} Mary-{nom,acc,gen} arm-{nom,acc,gen} caught.  
           Paul caught Mary's arm.  
       b. gongbuha-gi-neun doseogwan-eseo-\*(ga) joh-da.  
           study-nominalizer-top library-loc-\*(nom) is good.  
           the library is a good place to study in.  
       c. [haggyo-eseo-\*(ui) saenghwal]-edaehae mud-da.  
           [school-loc-\*(gen) life]-about ask.

4) Other P take the host phrase as semantic argument, though they don't change its syntactic function:

- (25) seonmul-eul Paul-ege-{neun,do,man,kkaji,jocha} bonae-ss-da.  
           gift-acc Paul-dat-{top,also,only,till,even} sent  
           (I) sent a gift only/also/up/even to Paul.

5) *-(n)eun* and *-do* can be used instead of *-i/ga* in (24b):

- (26) gongbuha-gi-neun doseogwan-eseo-{neun,do} joh-da.  
           study-nominalizer-top library-loc-{top,also} is good.

6) Some P restrict the host's (semantic) property:

- (27) a. *NP-dat*: [+animate]-{\*e,ege} vs. [-animate]-{e,\*ege}  
 b. *NP-nom*: [-hon]-{i/ga,\*kkeseo} vs. [+hon]-{\*i/ga,kkeseo}

We then consider P as syntactic heads and the host phrase as their complement.

But the following data shows that some P differ from ordinary heads:

- (28) a. Paul-(i) Mary-(ui) ileum-(eul) bull-esss-da.  
 Paul-nom Mary-gen name-acc called.  
 Paul called Mary's name.
- b. Paul-{eun,do,man,jocha} chaeg-{eun,do,man,jocha}  
 Paul-{top,also,only,even} book-{top,also,only,even}  
 ppalli-{neun,do,man,jocha} ilg-neun-da.  
 fast-{top,also,only,even} read-prog-decl.  
 Paul read books fast.

We propose to treat P as weak syntactic heads having underspecified syntactic properties and sharing those of the complement. P in (28a) can be omitted, because they have underspecified syntactic properties. P in (28b) share the complement's syntactic properties and consequently have no effect on the syntax of the phrase.

P in (28) share the category of the complement. For example, *-man* in (28b) forms an NP after an NP but an AdvP after an AdvP. It shares also the case value of an NP and the form value of a VP. These values are percolated up to the mother phrase and checked by the verb:

- (29) a. Paul-i nol-{ji,\*go}-man anh-ass-da.  
 Paul-nom play-Comp-only didn't.  
 Paul didn't only play.
- b. Paul-i nol-{\*ji,go}-man sipeoha-yeoss-da.  
 Paul-nom play-Comp-only wanted.  
 Paul wanted only to play.

P in (28a) share the complement's syntactic properties too. But they restrict the phrase's distribution, as illustrated in (24a). In order to account for the fact, we introduce the marking feature and attribute different values to them (Abeillé *et al.* 2004). Then they percolate different values to the mother phrase and the latter appear in different positions. For example, *Paul-i* and *Paul-eul* appear in subject and object positions respectively whereas *Paul* is compatible with both positions<sup>5</sup>.

We treat semantic case P as weak heads, too. But, they can't be omitted (30a) and

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<sup>5</sup> So, marking P in our analysis differ from case markers or case marking elements in derivational approaches that manifest a case value without assigning it.

forbid a phrase to appear in direct positions (30b-c):

- (30) a. Paul-i jib-\*(eseo) jam-eul ja-n-da.  
 Paul-*nom* house-(*loc*) sleep-*acc* sleep.  
 Paul sleeps at home.
- b. jib-#{e,eseo,lo}-i muneoji-eoss-da.  
 house-{*loc,loc,by*}-*nom* broke  
 the house broke down.
- c. Paul-eun jib-#{e,eseo,lo}-eul ji-eoss-da.  
 Paul-*top* house-{*loc,loc,by*}-*acc* built.  
 Paul built a house.

We will treat them as having a specified case value, oblique in our analysis. They share the complement's syntactic properties but not the case value. And they combine only with an NP complement, since it is the only category compatible with a case value.

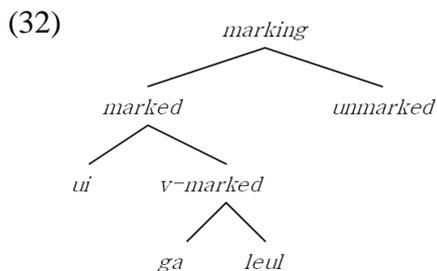
### 3.3. P's syntactic information and subtypes

We propose to divide P into 3 subtypes: marking P, oblique P and semantic P, and to use marking and case features in order to account for their difference in the syntax.

1) Grammatical case P (-i/ga, -(l)eul, -ui) and 2 non case P (-(n)eun, -do) must be grouped together, because they have similar behaviours. They can't be followed by other P (8); they can't appear together (31); they allow a phrase to appear in inaccessible positions, as illustrated in (24b) and (26).

- (31) \*Paul-{i,eul,ui,eun,do}-{i,eul,ui,eun,do}  
 Paul-{nom,acc,gen,top,also}-{nom,acc,gen,top,also}

We treat them as marking P having a specified value for the marking feature. Their marking value forbids other P to appear after them and restricts the phrase's distribution in the sentence. But it doesn't affect the syntactic function of the phrase, since marking P can be omitted. We use the following values set:



The *v-marked* value forbids the mother phrase to appear inside an NP, for example as a genitive complement. It is attributed to -(n)eun and -do that don't restrict the

distribution of the mother phrase while *-i/ga* and *-(l)eul* have more specified values. On the contrary, *-ui* conveys *ui* value and its mother phrase can't appear as a verbal constituent. The value *unmarked* is given to non marking P.

2) *-i/ga*, *-(l)eul* and *-ui* are not case P, since they have properties of non case P. They can be omitted as shown in (28a); they can attach to an oblique complement or an NP adjunct without changing its function (33); they combine with non case categories (33-34):

- (33) a. Paul-i bang-e-leul deuleoga-ss-da.  
 Paul-nom room-loc-acc entered.  
 Paul entered the room.
- b. Paul-i bang-eseo-leul nao-ass-da.  
 Paul-nom room-from-acc came out.  
 Paul came out of the room.
- (34) a. bi-ga manhi-{ga,leul} naeli-eoss-da.  
 rain-nom much-{nom,acc} fell.  
 It rained much.
- b. Paul-i wain-eul manhi-leul masi-eoss-da.  
 Paul-nom wine-acc much-acc drank.  
 Paul drank wine much.
- (35) a. na-neun wain-eul masi-go-{ga,leul} sip-eoss-da.  
 I-top wine-acc drink-Comp-{nom,acc} wanted.  
 I wanted to drink wine.
- b. na-neun wain-eul masi-ji-leul anh-ass-da.  
 I-top wine-acc drink-Comp-acc didn't.  
 I didn't drink wine.

Moreover, we can account for the fact that they restrict the phrase's distribution by introducing the marking feature. And our analysis has an advantage to describe in a coherent way the fact that marking P restrict the distribution of the AdvP modifier and the VP complement:

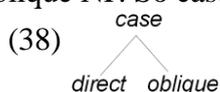
- (36) a. Paul-i wain-eul manhi-{\*ga,leul} masi-eoss-da.  
 Paul-nom wine-acc much-{\*nom,acc} drank.
- b. na-neun wain-eul masi-go-{\*ga,leul} iss-da.  
 I-top wine-acc drink-Comp-{nom,acc} am.  
 I am drinking wine.

3) We treat semantic case P as case P but attribute to them the same value: *oblique*, because it isn't easy to differentiate the syntactic function of oblique NP. For example,

*bang-e* ‘room-loc’ and *bang-eseo* ‘room-from’ in (33) are both oblique complements though they have different semantic functions. Moreover, it is difficult to distinguish oblique complement and NP adjunct without reference to the verb’s meaning, since most case P are compatible with both functions. For example, *-eseo* forms an oblique complement in (33b) but an NP adjunct in the following example:

- (37) Paul-i bang-eseo ja-n-da.  
 Paul-nom room-loc sleep-prog-decl.  
 Paul sleeps in the room.

We then consider all case P as having the *oblique* value. They combine with an NP and form an oblique NP. The latter appear in oblique positions, as oblique complement or adjunct. We introduce *direct* value to distinguish the NP in direct positions from the oblique NP. So case feature have 2 specified values:



Values like *nom*, *acc*, *etc.* are removed, because P considered as marking them are no more case P in our analysis. The *direct* value is introduced directly by nominal items, since an NP without a P may appear as subject or object.

4) All other P are treated as semantic P. They convey a contextual meaning and can’t be omitted. But they have no specified syntactic information, since they have no effect on the syntax of the phrase.

P then are divided into 3 subtypes, as illustrated in (40), based on the following properties:

- (39) a. marking P are optional and combine with various categories.  
 b. oblique P are not optional and combine only with NP.  
 c. semantic P are not optional and combine with various categories.

(40)

examples	marking P	oblique P	semantic P	in previous works
<i>-i/ga</i> ‘nom’, <i>-(l)eul</i> ‘acc’, <i>-ui</i> ‘gen’	X			grammatical case P
<i>-e</i> ‘loc’, <i>-ege</i> ‘dat’, <i>-(eu)lo</i> ‘to, by’, <i>etc.</i>		X		semantic case P
<i>-jocha</i> ‘even’, <i>-kkaji</i> ‘up to’, <i>etc.</i>			X	specific P
<i>-(n)eun</i> ‘top’	X			topic marker
<i>-do</i> ‘too’	X			additive P
<i>-man</i> ‘only’			X	restrictive P

-(g)wa ‘and’, -(i)na ‘or’, etc.		X		conjunctive P
-(y)a ‘voc’	X			vocative P

#### 4. Descriptions in HPSG

This section shows how to describe our analysis in HPSG model (Pollard & Sag 1994, Sag *et al.* 2003, *etc.*). We introduce CL (Monachesi 1998) and MARKING (Abeillé *et al.* 2004) features to P’s feature structure and adopt the notion of weak head (Tseng 2002, Abeillé *et al.* 2005).

##### 4.1 P’s feature structure

In our analysis, P are clitics and weak syntactic heads. They select a non empty phrase as complement and attach to its last word in the phonology. They share the complement’s syntactic properties. And they are divided into 3 types: marking P, oblique P and semantic P. Marking P have a specified marking value while others have an *unmarked* value. Oblique P conveys an *oblique* case value.

If we introduce CL and MARKING features, P have a feature structure as follows:

$$(41) P \rightarrow \left[ \begin{array}{l} \text{HEAD}/[1] \\ \text{CL}+ \\ \text{MARKING} \textit{marking} \\ \text{COMPS} \langle \left[ \begin{array}{l} \textit{canonical} \\ \text{HEAD}/[1] \\ \text{MARKING} \textit{unmarked} \end{array} \right] \rangle \\ \text{COMPS} \langle \rangle \end{array} \right]$$

[CL +] indicates that P are clitics. The feature MARKING has an underspecified *marking* value, which will be replaced by a more specified one (see the value set in (32)). The feature COMPS indicates P’s complement: it is a non-empty (*canonical*) phrase (COMPS < >). [MARKING *unmarked*] is added in order to forbid a P to appear after a marking P. P share the complement’s HEAD values, which is represented by identifying their notation. / means sharing by default: P share the value but they override it by their own value, if there is one.

The feature structure of 3 subtypes can be obtained, if we add feature-values appropriate to each type to the description in (41):

- (42) a. marking P → P & [MARKING *marked*]  
b. oblique P → P &  $\left[ \begin{array}{l} \text{HEAD} \textit{CASE oblique} \\ \text{MARKING} \textit{unmarked} \end{array} \right]$   
c. semantic P → P & [MARKING *unmarked*]

And P items will have following feature structures including values defined by each of them:

- (43) a. *-i/ga* → marking P & [MARKING *ga*]  
 b. *-(l)eul* → marking P & [MARKING *leul*]  
 c. *-ege* → oblique P  
 d. *-(n)eun* → marking P & [MARKING *v-marked*]  
 e. *-kkaji* → semantic P

#### 4.2 Mother phrase's feature structure

P take the host phrase as complement in our analysis. They combine with each other following the syntactic rule HEAD-COMPLEMENT<sup>6</sup>:

$$(44) \begin{bmatrix} \text{HEAD}[2] \\ \text{COMPS} \langle \rangle \end{bmatrix} \rightarrow [\text{SYNSEM } [1]] , \begin{bmatrix} \text{HEAD}[2] \\ \text{COMPS} \langle [\text{SYNSEM } [1]] \rangle \end{bmatrix}$$

P share the complement's HEAD value and percolate it to the mother phrase according to the HEAD FEATURE PRINCIPLE:

$$(45) \begin{bmatrix} \text{HEAD}/[2] \\ \text{COMPS} \langle \rangle \end{bmatrix} \rightarrow [\text{HEAD}[2]] , \begin{bmatrix} \text{HEAD}/[2] \\ \text{COMPS} \langle [\text{SYNSEM } [1][\text{HEAD}[2]] \rangle \end{bmatrix}$$

Let's see some examples. If the complement is an NP, P constitute a direct or oblique NP with a specified MARKING value:

$$(46) \text{ a. Paul-i 'Paul-nom'} \begin{bmatrix} \text{HEAD}[2] \\ \text{MARKING}_{ga} \end{bmatrix} \rightarrow$$

$$\text{Paul } [1] \begin{bmatrix} \text{HEAD}[2] \begin{bmatrix} \textit{noun} \\ \text{CAS}_{direct} \end{bmatrix} \\ \end{bmatrix} , \quad \text{-i} \begin{bmatrix} \text{HEAD}[2] \\ \text{MARKING}_{ga} \\ \text{COMPS} \langle [1] \rangle \end{bmatrix}$$

$$\text{ b. doseogwan-eseo 'library-loc'} \begin{bmatrix} \text{HEAD} \begin{bmatrix} \textit{noun} \\ \text{CASE}_{oblique} \end{bmatrix} \\ \text{MARKING}_{unmarked} \end{bmatrix} \rightarrow$$

$$\text{doseogwan } [1] \begin{bmatrix} \text{HEAD}[2] \begin{bmatrix} \textit{noun} \\ \text{CAS}_{direct} \end{bmatrix} \\ \end{bmatrix} , \quad \text{-eseo} \begin{bmatrix} \text{HEAD}[\text{CASE}_{oblique}][2] \\ \text{MARKING}_{unmarked} \\ \text{COMPS} \langle [1] \rangle \end{bmatrix}$$

*-i* in (46a) constitute a direct NP, sharing the complement's HEAD value and percolating its MARKING value. *-eseo* in (46b) shares the category value but percolates its own CASE value, which gives an oblique NP.

P form an AdvP or a VP, if they combine with an AdvP or a VP:

$$(47) \text{ a. ppalli-man 'fast-only'} \begin{bmatrix} \text{HEAD}[2] \\ \text{MARKING}_{unmarked} \end{bmatrix} \rightarrow$$

<sup>6</sup> The rule places the complement before the head, reflecting the order in Korean.

$$\begin{array}{l}
\text{ppalli [1] [HEAD[2][adverb]],} \quad -\text{man} \left[ \begin{array}{l} \text{HEAD[2]} \\ \text{MARKINGunmarked} \\ \text{COMPS}<[1]> \end{array} \right] \\
\text{b. masi-go-leul 'drink-Comp-acc'} \left[ \begin{array}{l} \text{HEAD} \left[ \begin{array}{l} \text{verb} \\ \text{VFORM } ji \end{array} \right] \\ \text{MARKINGleul} \end{array} \right] \rightarrow \\
\text{meog-go [1] [HEAD[2] \left[ \begin{array}{l} \text{verb} \\ \text{VFORM } ji \end{array} \right] ],} \quad -\text{leul} \left[ \begin{array}{l} \text{HEAD[2]} \\ \text{MARKINGleul} \\ \text{COMPS}<[1]> \end{array} \right]
\end{array}$$

*-man* in (47a) combines with an AdvP complement and forms an *unmarked* AdvP, while *-leul* in (47b) composes an *leul*-marked VP.

2 or more P can attach to a phrase by successive combinations following the HEAD-COMPLEMENT rule. For example, *bang-e-leul* ‘room-loc-acc’ is composed in 2 steps, as follows:

$$\begin{array}{l}
(48) \text{ a. } \text{bang [1] } \left[ \begin{array}{l} \text{HEAD[2] \left[ \begin{array}{l} \text{noun} \\ \text{CASE direct} \end{array} \right] } \\ \text{MARKINGunmarked} \end{array} \right], \quad -\text{e} \left[ \begin{array}{l} \text{HEAD[CASE oblique]/[2]} \\ \text{MARKINGunmarked} \\ \text{COMPS}<[1]> \end{array} \right] \\
\rightarrow \text{bang-e} \left[ \begin{array}{l} \text{HEAD} \left[ \begin{array}{l} \text{noun} \\ \text{CASE oblique} \end{array} \right] \\ \text{MARKINGunmarked} \end{array} \right] \\
\text{b. } \text{bang-e [3] } \left[ \begin{array}{l} \text{HEAD[4] \left[ \begin{array}{l} \text{noun} \\ \text{CASE oblique} \end{array} \right] } \\ \text{MARKINGunmarked} \end{array} \right], \quad -\text{leul} \left[ \begin{array}{l} \text{HEAD[4]} \\ \text{MARKINGleul} \\ \text{COMPS}<[3]> \end{array} \right] \\
\rightarrow \text{bang-e-leul} \left[ \begin{array}{l} \text{HEAD} \left[ \begin{array}{l} \text{noun} \\ \text{CASE oblique} \end{array} \right] \\ \text{MARKINGga} \end{array} \right]
\end{array}$$

#### 4.3 Verb's feature structure

Finally, we show how phrases headed by P are realised in a sentence and how they are restricted by verbs. Let's look at first the basic case that they appear as an argument of a verb:

- (49) Paul-i      seonmul-eul    Mary-ege    bonae-ss-da.  
Paul-nom    gift-acc            Mary-dat    sent.  
Paul sent a gift to Mary.

The verb selects 3 arguments: 2 direct NP for subject and direct object and an oblique NP. It allows the subject and the direct object to be followed by a marking P: *-i* and *-eul*, respectively. These marking P can be omitted and be replaced by *-(n)eun* or *-do*. But they can't replace each other. The oblique object accepts also some marking P:

- (50) a. Paul-(i) seonmul-(eul) Mary-ege bonae-ss-da.

- b. Paul- $\{i, *eul, eun, do\}$  seonmul- $\{*i, eul, eun, do\}$   
 Paul- $\{nom, *acc, top, also\}$  gift- $\{*nom, acc, top, also\}$   
 Mary-*ege*- $\{*ga, leul, neun, do\}$  bonae-ss-da.  
 Mary-*dat*- $\{*nom, acc, top, also\}$  sent.

So the verb has a feature structure concerning its arguments and syntactic restrictions it imposes on them, as illustrated in (51):

$$(51) \text{bonae-ss-da 'sent'}$$

$$\left[ \begin{array}{l} \text{SUBJ} < \text{NP} \left[ \begin{array}{l} \text{HEAD|CASE } direct \\ \text{MARKING}[1]:[1] \leq ga \text{ or } unmarked \end{array} \right] > \\ \text{COMPS} \left\langle \begin{array}{l} \text{NP} \left[ \begin{array}{l} \text{HEAD|CASE } direct \\ \text{MARKING}[2]:[2] \leq leul \text{ or } unmarked \end{array} \right] \\ \text{NP} \left[ \begin{array}{l} \text{HEAD|CASE } oblique \\ \text{MARKING}[3]:[3] \leq leul \text{ or } unmarked \end{array} \right] \end{array} \right\rangle \end{array} \right]$$

The MARKING values are described in a complex form but they show the range of possible values on the value set in (32). For example, “[1]:[1] ≤ *ga* or *unmarked*” of the subject NP means: it may have an *unmarked* value or a value equal or superior to *ga* (i.e. *ga* or *v-marked*).

If we replace the verb *bonae-ss-da* ‘sent’ by another verb *ju-eoss-da* ‘gave’, the restrictions on the arguments may change:

- (52) a. Paul-(i) seonmul-(eul) Mary-(ege) ju-eoss-da.  
 Paul-*nom* gift-*acc* Mary-*dat* gave.  
 Paul gave an/the apple to Mary.

- b. Paul- $\{i, *eul, eun, do\}$  seonmul- $\{*i, eul, eun, do\}$   
 Mary-*ege*- $\{*ga, leul, neun, do\}$  ju-eoss-da.

- c. Paul-*i* seonmul-*eul* Mary- $\{*ga, leul, neun, do\}$  ju-eoss-da.

The restrictions on the subject and the direct object doesn’t change: their marking P can be omitted and replaced by *-(n)eun* and *-do*. But the oblique object has different restrictions: the oblique P may be omitted. So the verb has a different description for it<sup>7</sup>:

$$(53) \text{ju-eoss-da}$$

$$\left[ \begin{array}{l} \text{SUBJ} < \text{NP} \left[ \begin{array}{l} \text{HEAD|CASE } direct \\ \text{MARKING} [1]:[1] \leq ga \text{ or } unmarked \end{array} \right] > \\ \text{COMPS} \left\langle \begin{array}{l} \text{NP} \left[ \begin{array}{l} \text{HEAD|CASE } direct \\ \text{MARKING} [2]:[2] \leq leul \text{ or } unmarked \end{array} \right] \\ \text{NP} \left[ \begin{array}{l} \text{HEAD|CASE } direct \text{ or } oblique \\ \text{MARKING} [3]:[3] \leq leul \text{ or } unmarked \end{array} \right] \end{array} \right\rangle \end{array} \right]$$

<sup>7</sup> It is of course possible to give 2 descriptions to the verb: one with an oblique complement and the other with 2 direct complements.

The next case is the AdvP with a P that appears as adjunct:

- (34) a. bi-ga manhi-{ga,leul} naeli-eoss-da.  
rain-nom much-{nom,acc} fell.

It rained much.

- b. Paul-i wain-eul manhi-leul masi-eoss-da.  
Paul-nom wine-acc much-acc drank.  
Paul drank wine much.

The AdvP can be followed by *-i/ga* and *-(l)eul* in (34a) but only by the latter in (34b). It can appear alone or with *-(n)eun* or *-do* in both cases:

- (54) a. bi-ga manhi-(ga,leul,neun,do) naeli-eoss-da.  
b. Paul-i wain-eul manhi-(\*ga,leul,neun,do) masi-eoss-da.

So the verbs in (34) impose different restrictions on the adjunct's MARKING value. Then they must include the adjunct in their description, even though it is not argument. We put it in their COMPS, as follows:

- (55) a. naeli-eoss-da

$$\left[ \begin{array}{l} \text{SUBJ} < \text{NP} \left[ \begin{array}{l} \text{HEAD|CASE } direct \\ \text{MARKING}[1]:[1] \leq ga \text{ or } unmarked \end{array} \right] > \\ \text{COMPS} \langle \text{AdvP}[\text{MARKING}[3]:[3] \geq v\text{-marked or } unmarked] \rangle \end{array} \right]$$

- b. masi-eoss-da

$$\left[ \begin{array}{l} \text{SUBJ} < \text{NP} \left[ \begin{array}{l} \text{HEAD|CASE } direct \\ \text{MARKING}[1]:[1] \leq ga \text{ or } unmarked \end{array} \right] > \\ \text{COMPS} \langle \text{NP} \left[ \begin{array}{l} \text{HEAD|CASE } direct \\ \text{MARKING}[2]:[2] \leq leul \text{ or } unmarked \end{array} \right], \text{AdvP}[\text{MARKING}[3]:[3] \leq leul \text{ or } unmarked] \rangle \end{array} \right]$$

The verb in (55a) allows the AdvP to have an *unmarked* value or a value equal or inferior to *v-marked*, i.e. *v-marked*, *ga* or *leul*. But the adjunct may have an *unmarked* value or a value equal or superior to *leul*, i.e. *leul* or *v-marked* when it combines with the verb in (55b).

The final case is the example in (24b):

- (24) b. gongbuha-gi-neun doseogwan-eseo-\*(ga) joh-da.  
study-nominalizer-top library-loc-\*(nom) is good.  
the library is a good place to study in.

*-i/ga* after the oblique NP is not optional. It may be replaced by *-(n)eun* and *-do*, as shown in (26), while the verb refuses *-(l)eul*. *-i/ga* become optional again, if the oblique NP is replaced by a direct NP:

- (56) gongbuha-gi-neun doseogwan-(i) joh-da.  
study-nominalizer-top library-(nom) is good.  
the library is a good place to study in.

2 descriptions can be drawn from the observation:

(57) *joh-da*

- a.  $\left[ \begin{array}{l} \text{SUBJ} < \text{NP} \left[ \begin{array}{l} \text{HEAD} | \text{CASE } \textit{oblique} \\ \text{MARKING}[1]:[1] \leq \textit{ga} \end{array} \right] > \\ \text{COMPS} < \text{NP} \left[ \begin{array}{l} \text{HEAD} | \text{CASE } \textit{direct} \\ \text{MARKING}[2]:[2] \leq \textit{ga or unmarked} \end{array} \right] > \end{array} \right]$
- b.  $\left[ \begin{array}{l} \text{SUBJ} < \text{NP} \left[ \begin{array}{l} \text{HEAD} | \text{CASE } \textit{direct} \\ \text{MARKING}[1]:[1] \leq \textit{ga or unmarked} \end{array} \right] > \\ \text{COMPS} < \text{NP} \left[ \begin{array}{l} \text{HEAD} | \text{CASE } \textit{direct} \\ \text{MARKING}[2]:[2] \leq \textit{ga or unmarked} \end{array} \right] > \end{array} \right]$

The verb in (57a) takes an *oblique* NP as subject and requires that it have a value equal or superior to *ga*. In contrast, the verb in (57b) allows an *unmarked direct* NP to appear as its subject.

The verb allows also an AdvP to appear in this position and requires that it be followed by a marking P:

- (58) *gongbuha-gi-ga*                      *honja-\*(ga,neun,do)*    *joh-da*.  
 study-nominalizer-nom    alone-\*(nom)                      is good.

Being alone is good to study.

From the data, we can infer the reason why marking P may be omitted in (56) but not in (24b) and (58). *joh-da* originally selects a *direct* NP for subject. But, it allows also an *oblique* NP or non nominal phrase subject and requires that it have a specified marking value. In other words, the *direct* case value is required first by the verb and, if this requirement is not satisfied, a specified marking value is required as the second condition. Therefore, marking P can't be omitted, if an oblique NP or an AdvP appear as subject.

## 5. Conclusion

We proposed an analysis of Korean P and showed its description in HPSG.

In our analysis, P are weak syntactic heads taking the preceding phrase as their complement and sharing its syntactic properties. They are clitics attaching to its last word in the phonology. They are divided into 3 subtypes: marking P, oblique P and semantic P. To justify our analysis, we showed 1) differences between P and suffixes and possible accounts for P's suffix-like behaviors, 2) P's head properties and their differences from ordinary heads, and 3) P's distribution inside the phrase and the mother phrase's distribution in the sentence.

For the description in HPSG, we introduced CL and MARKING features to P's

feature structure and adopted the previous analyses of weak syntactic heads. Then P percolate not only shared feature values but also their own feature values, if there are any, up to the mother phrase. So the latter has similar properties to the complement and shows different behaviors also.

We revised also certain factors. Case values are reduced into 2: *direct* and *oblique* while MARKING feature is introduced to P's analysis and its values are specified. And we revised P's classification into 3 subtypes: marking P, oblique P and semantic P. The first P have the MARKING feature with a *marked* or more specified value. The second P have the CASE feature with an *oblique* value. The third P don't have specified values for syntactic features.

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# The Interrelationship between Grammatical and Semantic Properties of Adjectives

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Lee, KyoungNam, 2008. **The interrelationship between grammatical and semantic properties of adjectives.** *CIL* 18. The purpose of this paper is to investigate the interrelationship between semantic and grammatical properties of adjectives from a pedagogical perspective. The following respects—semantic difference according to position, meaning types and grammatical properties, distinguishing indicators between participial adjectives and verb participles, and syntactic and semantic characteristics according to adjectival complementation types—are dealt with in this study. As a result, it should be noted that we need to recognize the importance of the interaction between grammar, meaning, and lexical idiosyncrasy. The discussion of grammaticality without considering the lexical and semantic properties of adjectives has limitations that lead EFL learners to gain a very poor understanding of the category of adjective.

**Key words:** interrelationship, pedagogical, position, meaning types, grammatical, participial adjectives, complementation

## 1. Introduction

Adjectives are, when used as predicative complements or objective complements, an obligatory element of a sentence. When they are used as modifiers, they are optional elements. According to Altenberg(1993, cited in Kennedy (2003, p. 126), when the complement was an adjective, SVC type accounted for 45.6% of the 5,004 examples and SVOC type 1.5% in an investigation of the relative frequency of use of clausal patterns in 5,004 examples of the recurrent word sequences extracted from the *London-Lund Corpus of Spoken British English*. Additionally, another main function is as a modifier, typically realized more frequently in written genres than in spoken English (Kennedy, 2003).

In spite of such high frequency, this category tends to be touched on comparatively lightly with regard to teaching grammar or in EFL textbooks. As a result,

EFL learners are likely to have only a superficial knowledge, which leads to a narrow understanding and the misuse of adjectives. However, the use of adjectives in our language provides more detailed information and vivid descriptions. When adjectives are used as complements, furthermore, they determine the number of arguments by playing a role of predicate in logic. Accordingly, EFL learners need to be concerned with the proper understanding and appropriate use of this category.

In particular, the problem of appropriateness presumes the connection between form and meaning in discussing linguistic phenomena. In this case, grammar and lexicon could be conceived as "opposite poles of one continuum" (Celce-Murcia & Larsen-Freeman, 1999, p. 29) and certain grammatical constructions are closely connected with the idiosyncratic characteristics of certain words. Thus, the proper understanding of a given word implies that we can acquire the correct information about its syntactic and semantic features and co-occurrence restrictions.

Thus, the purpose of this paper is to investigate the interrelationship between the semantic and grammatical properties of adjectives from a pedagogical perspective and to help EFL teachers and learners understand the properties of adjectives better and use them correctly and appropriately. The discussion of grammaticality without considering the lexical and semantic properties of adjectives has limitations that lead EFL learners to gain a very poor understanding of the category of adjective. With this focus in mind, this paper will deal with the following problems: the semantic difference according to the position of adjectives, the interrelationship between meaning types of adjectives and grammatical properties, distinguishing indicators between participial adjectives and verb participles, and the syntactic and semantic characteristics according to adjectival complementation types.

## **2. The semantic difference according to the position of adjective**

In terms of position, adjectives occur attributively and predicatively. When they occur attributively, they are used as premodifiers (e.g. *useful* advice) or postmodifiers (e.g. something *useful*). In contrast, when adjectives are used predicatively (e.g. Your advice is *useful*., He makes her *happy*.), they function as subject complement or object complement and in such clause types as SVC or SVOC, predicative adjectives are obligatory elements. In this case, there is a copular relationship between subject and subject complement and between object and object complement.

Generally, with regard to the uses of adjectives, there are criteria for establishing

adjective classes and some examples are given below (Quirk et al. , 1985, p. 404).

- (1) # criteria  
 (a) attributive use  
 (b) predicative use after the copula *seem*  
 (c) premodification by *very*  
 (d) comparison

# examples	(a)	(b)	(c)	(d)	
<i>hungry</i>	+	+	+	+	central
<i>infinite</i>	+	+	-	-	
<i>old</i>	+	-	+	+	peripheral
<i>afraid</i>	?	+	+	+	
<i>utter</i>	+	-	-	-	
<i>asleep</i>	-	-	-	-	

Criteria (c) and (d) are determined by the semantic feature, gradability. The ability of functioning both attributively and predicatively is considered to be a central feature of adjectives. Many adjectives can occur in both positions, but certain adjectives must appear either prenominal or predicatively. According to the position, morphological properties of some adjectives are realized differently as shown in the following examples.

- (2) a. \*Either the driver fell asleep or he was *drunken*.  
 b. Either the driver fell asleep or he was *drunk*.  
 c. Groups of *drunken* hooligans smashed shop windows.

However, we still have a puzzling problem in that the morphological distinction is not always clear-cut because such compounds as *drunk driver* and *drunk driving* are listed in the dictionary.

According to Celce-Murcia & Larsen-Freeman (1999, pp. 382-383), the meaning types of adjectives which occur only in the attributive position are classified into eight categories and certain adjectives which can only be predicative are classified into three categories as follows:

(3) # Attributive adjectives

- ① Those adjectives that show the reference of the head noun has already been determined: *the **very/particular/same/self-same/exact** man I was seeking*
- ② Those adjectives that show us the importance or rank of the head noun:  
*their **main/prime/principal/chief** faults*
- ③ Those adjectives that show the head noun is recognized by law or custom:  
*the **lawful/rightful/legal/true** heir*
- ④ Those adjectives that identify the reference of the noun itself—that is, they tell us (in part) what the noun means—and that may not occur after the copula *be*:  
*a **medical** doctor      \*a doctor is medical,*  
*an **atomic** physicist, a **reserve** officer*
- ⑤ Those adjectives that qualify the time reference of the noun:  
*the **future** king, the **former** chairperson, the **present** monarch,*  
*the **previous** occupant*
- ⑥ Those adjectives that qualify the geographical reference of the noun:  
*a **Southern** gentleman, the **urban** crisis, a **rural** mail carrier*
- ⑦ Those adjectives that intensify or emphasize the head noun:  
*a **total** stranger, a **mere** child, **sheer** fraud, **utter** nonsense*
- ⑧ Those adjectives that show the uniqueness of the head noun:  
*the **sole** survivor, the **only** nominee, a **single** individual*

# Predicative adjectives

- ① Adjectives that begin with an *a*-prefix:  
*The boy is **asleep**. \*the asleep boy*
- ② Health adjectives: *Larry feels **faint**. / He is not **well**.*
- ③ Adjectives that must be followed by prepositional phrases or infinitives:  
*He's **bound** for China. / Debbie seems **inclined** to agree.*

Here, adjectives beginning with *a*- are generally used predicatively, but only a few can be freely used attributively. According to Quirk et al. (1985, p. 408), “*a*-adjectives vary as to whether they can be attributive. Most *a*-adjectives are only marginally acceptable in attributive function, unless they are premodified:”

- (4) a. ?an *afraid* look / ?an *alive* eye  
b. an *aloof* character / an *alert* manner

- c. a *somewhat afraid* soldier / the *fast asleep* children /  
a *really alive/lively* student / the *wide awake* patient

“Some *a*-adjectives freely take premodification by *very* and comparison (e.g. *afraid, alert, alike, aloof, ashamed* and *awake*). Others do so marginally (e.g. *asleep* and *awake*)” (Quirk et al., 1985, p. 409). This shows that linguistic phenomena are a problem of relative tendency and thus we also need a lexical approach.

Especially when adjectives are used postpositively, there are some restrictions. In the cases of compound indefinite pronouns and adverbs ending in *-body, -one, -thing, -where* or several institutionalized expressions (mostly in official designations and in certain fixed expressions mainly borrowed from French), the adjective is postpositive as shown in the following examples.

- (5) a. something *terrible*, somebody *important*  
b. attorney *general*, heir *apparent*, president-*elect*, notary *public*

Usually adjectives ending in *-able* and *-ible* can occur in either attributive or postpositive position like the following examples.

- (6) a. the best *possible* use ~ the best use *possible*  
b. the best *available* person ~ the best person *available*

However, "some postpositive adjectives, especially those ending in *-able* or *-ible*, retain the basic meaning they have in [the] attributive position but convey the implication that what they are denoting has only a temporary application (Quirk et al., 1985, p. 419)" as shown in the following examples.

- (7) A. a. the *visible* stars (a category of stars that can (at appropriate times) be seen)  
b. the stars *visible* (stars that are visible at a time specified or implied)  
B. a. the *navigable* river (permanent characteristic)  
b. the river *navigable* (temporary state)

This phenomenon can be found in some other adjectives. Let's focus on adjectives which cause a change in meaning according to their positions. Consider the following examples.

- (8) a. The *stolen* jewels
- b. The jewels *stolen*
- (9) a. The *guilty* people
- b. The people *guilty*
- (10) a. These jewels are stolen.
- b. These people are *guilty*.
- c. The river is *navigable*.

In (8a) and (9a), the adjectives are used attributively, so they describe something semantically more permanent or characteristic about the premodified nouns, while in (8b) and (9b), the adjectives are used postnominally and tend to reflect temporary states or specific events, according to Bolinger (1967). However, the adjectives are used predicatively in (10) and here, "predicative adjectives are potentially ambiguous, since we cannot tell whether the adjective is being used to describe something that is permanent and characteristic of the subject noun or something that is temporary or occasional " (Celce-Murcia & Larsen-Freeman, 1999, p. 388).

Such semantic tendencies of attributive adjectives can be found in the semantic comparison of the following constructions.

- (11) The house was *pink* in the sunset  $\neq$  The *pink* house
- (12) a. He is *sick*.
- b. He is a *sick* person.

Example (11) shows that attributive positions tend to reject the temporary and the occasional. Also, (12a) describes his present health condition, whereas in (12b) the quality seems to be much more enduring.

According to Celce-Murcia & Larsen-Freeman (1999, p. 389), other languages like Spanish use adjective position to mark meaningful differences as shown in the following examples.

- (13) a. El viejo amigo (a friend you have had a long time)
- b. El amigo viejo (a friend who is elderly)

In this section, the data related to the position was investigated and the following was found: 1) Some adjectives can occur prenominally and postnominally but their

implication or meaning can be different according to their position. Usually, the prenominal position conveys permanent or characteristic properties of the referent, whereas the postnominal position conveys a temporary attribute or state. 2) Some adjectives can occur attributively and predicatively, but other adjectives can occur only in one position. In this case, their meaning types or morphological characteristics can affect their distribution, but in some cases, lexical idiosyncrasy is an affecting factor. This complicated interrelationship needs to be understood by EFL learners.

### 3. The interrelationship between meaning types of an adjective and grammatical properties

The interrelationship between grammar and the polysemous characteristics of a word is another puzzling area for EFL learners. Let's look into the examples relevant to these characteristics.

- (14) a. the *conscious* patient ~ The patient is *conscious*. [= 'awake']  
b. He is *conscious* of his faults. [= 'aware']
- (15) a. I tried to reach him, but the line was *busy*. [= 'engaged']  
b. He is *busy*. [= 'hectic, preoccupied']
- (16) a. a very/rather *criminal* attack (gradable adjective)  
b. *criminal* law (classificatory adjective, 'law relating to crime' cf. civil law)  
c. a *criminal* lawyer (ambiguous, 'a lawyer specializing in criminal law / a lawyer who is criminal')

Here, we can see that an adjective can have various meanings. These polysemous characteristics affect the distribution of an adjective in a sentence. This study will investigate the interrelationship between polysemous characteristics and grammatical properties by classifying the relevant meaning types into the following four categories: 1) inherent vs. noninherent 2) amplifier vs. emphazier 3) gradable vs. non-gradable 4) dynamic vs. stative.

#### 1) inherent vs. noninherent

Consider the following examples (Quirk et al. 1985, pp. 428-429).

- (17) a. an *old* woman ('aged', contrast with a young woman) ~ That woman is *old*.

- b. an *old* friend of mine (a friend whom I have had for a long time) ~  
 \*My friend is *old* (if the meaning of *old* is the opposite of *new*)

In (17a), *old* with the meaning 'aged' can occur in attributive and predicative positions, while if the word means 'long-standing, not new', it is used only in attributive position, not predicative position. To distinguish them, Quirk et al. introduce the terms INHERENT and NONINHERENT. Inherent adjectives characterize the referent of the noun directly like (17a) and they can occur in both attributive and predicative positions, whereas noninherent adjectives can be said to be an extension of the basic sense of the noun and they can occur only in the attributive position, as shown in (17b).

However, this distinction is not absolute because some noninherent adjectives can be used predicatively according to the kind of modified referent like the following examples.

- (18) a. a *new* student, a *new* friend (noninherent 'new')  
 b. That student is new.  
 c. \*My friend is new.

The possibility of such a paraphrase sometimes depends on the semantic relationship between the modifier and the referent. This distinction between inherent and noninherent properties can apply to the difference in grammaticality of the following paraphrases. In other words, if an adjective is inherent, it is often possible to derive a noun from it (Quirk et al., 1985, p. 436).

- (19) a. a *true* report ~ the *truth* of the report (inherent)  
 b. a *true* scholar ~ \*the *truth* of the scholar (noninherent)

However, there is an exceptional case as shown in the example; a ***wooden*** actor (noninherent) ~ the ***woodenness*** of the actor. This case also shows lexical idiosyncrasy.

## 2) amplifier vs. emphasize

Some adjectives can be used to intensify the meaning of the referent. These are called intensifying adjectives and tend to occur in the attributive position. They can be divided into amplifiers (scaling upwards from an assumed norm) and emphasizees (with a general heightening effect) according to the semantic effect on the referent. This difference affects their grammatical properties. With regard to this point, compare the

following sets of expressions (Quirk et al., 1985, pp. 429-430).

- (20) a. a *complete* victory ~ The victory was *complete*.  
b. a *complete* fool ~ \*The fool is *complete*.
- (21) a. *total* destruction ~ The destruction was *total*.  
b. *total* nonsense ~ \*The nonsense was *total*.
- (22) a. I drank some *pure* ['clean'] water. ~ The water is *pure*.  
b. That is *pure* ['sheer'] fabrication. ~ \*The fabrication is *pure*.

In (20a), the meaning type of 'complete' belongs to an amplifier. If this adjective is used inherently in terms of its semantic effect on the referent, it can be classified as a central adjective. Thus, this construction can be paraphrased as SVC type. However, in (20b), although the adjective is used as an amplifier, it shows a noninherent property in relation to the referent, and as such is only attributive.

A similar contrast is also shown in the example (21). While 'total' is used as an amplifier in (21a), it is used as an emphasizer in (21b). When this adjective is used as an emphasizer, it is also only attributive. This explanation applies to the contrast in (22) as well. In (22a) 'pure' means 'clean', so it can occur both attributively and predicatively. On the other hand, in (22b) the adjective is used as an emphasizer, so it is used only attributively. The above-mentioned examples show us the polysemous characteristics of a word and their influence on syntactic properties. When we paraphrase such constructions in SVC type, we need to consider the relationship between the referent and the adjective in terms of meaning type.

### 3) gradable vs. non-gradable

Generally, it is thought that adjectives can take comparison, but when we teach the category of adjective, we need to make learners notice that every adjective cannot always take comparison and that it depends on gradability, a semantic characteristic of an adjective. In Collins Cobuild (1990), adjectives are divided into two main types, qualitative and classifying, on the basis of gradability. Qualitative adjectives are gradable but classifying adjectives are non-gradable. While gradable adjectives can take comparison and be modified by degree adverbs, non-gradable adjectives cannot, as shown in the following examples. Here, these non-gradable adjectives are subclassified.

- (23) a. reference or denominal adjectives: \* *the very former senator*  
\* *an atomicer scientist*

- b. adjectives with an absolute meaning: \**a very **perfect** copy of the original*
- c. adjectives of nationality: \**She is very **British**.*
- d. material adjectives: \**a very **wooden** table* (cf. *She is a very **wooden** actress.*)

Polysemous characteristics of an adjective can often confuse EFL learners about their grammatical property. In the case of (23c), the relevant word *British* can mean either nationality or some aspect of behavior. If the meaning refers to the latter, it can be modified by an intensifier (e.g. *She is very British.*). Likewise, the difference in grammaticality of the constructions in (23d) is also related to the polysemous characteristics of the adjective, and in the latter case the relevant meaning is ‘natural’ and so it can be modified by a degree adverb.

Now, this study will look into syntactic properties which are influenced by the interrelationship between gradable adjectives and polarity. Some gradable measure adjectives consist of a pair of opposite words and they show a contrast in polarity, which refers to positive and negative contrasts in meaning. The adjectives with positive polarity are unmarked because they are used typically in neutral contexts where we ask about something, while the opposite words with negative polarity are marked and are used less frequently. The following examples show this point.

(24) <old, young>

Positive polarity: ex. How *old* is he? [unmarked and general question]

Negative polarity: ex. How *young* is he? [marked and reserved for unusual contexts]

Thus, when we try to explain the difference in grammaticality or acceptability by using a meaning type such as gradability, it would be helpful for EFL learners to have a deeper understanding of the property of adjectives.

#### 4) dynamic vs. stative

Here is another contrastive meaning type. Adjectives are characteristically stative and they do not usually take the progressive form or the imperative. In spite of this fact, many adjectives can be seen as dynamic. In particular, most adjectives that are susceptible to subjective measurement are capable of being dynamic. A general semantic feature of dynamic adjectives seems to be that they denote qualities that are thought to be subject to control by the possessor and hence can be restricted temporally. These dynamic adjectives “can be used predicatively to refer to a temporary state, a change in progress, or something immediate (Celce-Murcia & Larsen-Freeman, 1999, p.

590).” We can see the difference in grammatical behavior of stative adjectives and dynamic adjectives in the following examples.

(25) a. stative adjectives: *tall, old, black, wide, pretty* etc.

*\*He’s being tall. / \*Be tall.*

b. dynamic adjectives: *careful, jealous, obstinate, brave, shy* etc.

*He’s being careful. / Be careful.*

#### 4. Distinguishing indicators between participial adjectives and verb participles

In terms of morphological properties, participial adjectives ending with *-ing* or *-ed* and verb participles have the same forms, but their grammatical properties are obviously different. Such participial adjectives are frequently used in written genres. As Kennedy (2003, p. 234) mentioned, it is difficult to tell the difference between participial adjectives and verb participles and learners of English often find participial adjectives confusing and sometimes interpret them as verbs. As a way of avoiding such confusion, we can use an intensifier test such as *very* or *extremely* before the relevant word or replace *be* by *seem* in SVC type.

(26)	adjectives	verb participles
a.	Her views were very <i>alarming</i> .	*Her views were very <i>alarming</i> his audience.
b.	I was extremely <i>relieved</i> .	*I was extremely <i>relieved</i> by another teacher.
c.	She is very <i>calculating</i> .	She is <i>calculating</i> our salaries.
	→ She seems very <i>calculating</i> .	→ * She seems <i>calculating</i> our salaries.

As shown in (26a, b) we cannot put such intensifiers before participles that are used as verbs, and in (26c) the replacement by *seem* is not allowed before a verb participle. Greenbaum & Quirk (1990) refer to ‘verbal force’ as helping determine whether to interpret the words ending with *-ing* or *-ed* as an adjective or a participle.

These participial adjectives can be used predicatively or attributively as follows.

- (27) a. His views were very *surprising*. / his *surprising* views  
b. The man seemed very *offended*. / the *offended* man  
c. The results were *unexpected*. / the *unexpected* results  
d. All his friends are *talented*. / his *talented* friends

While (27a) and (27b) show that their participial adjectives are rooted in the corresponding verbs (*to surprise, to offend*), there are no corresponding verbs of participial adjectives in the cases of (27c) and (27d) (*\*to unexpect, \*to talent*). Thus, Quirk et al. (1985, p. 413) argue that "when there are no corresponding verbs, the forms are obviously not participles." However, we need to notice that some participial adjectives can be used only predicatively as shown in the following examples.

- (28) a. ??the *faded* curtains / ??the *retired* manager  
 b. The curtains are *faded*. / Her father is now *retired*.

Sometimes, even though there is a corresponding verb, they have different meanings, which can cause ambiguity according to whether the word is used as a participle or a participial adjective (Quirk et al., 1985, p. 414).

- (29) a. ADJECTIVE: She is (very) calculating (but her husband is frank).  
 PARTICIPLE: She is calculating (our salaries).  
 ['. . . so don't disturb her while she is doing the arithmetic.']  
 b. ADJECTIVE: They were (very) relieved (to find her at home).  
 PARTICIPLE: They were relieved (by the next group of sentries).

As shown in the above-mentioned examples, participles and participial adjectives are not distinguishable morphologically, so premodification by the intensifier *very* or the replacement of *be* by *seem* can be used as an indicator to distinguish between them.

However, when there is no such indicator as shown in the following sentence, '*The man was offended*!', the status of the participle form is indeterminate, which means that the sentence can be ambiguous. According to Quirk et al. (1985, p. 415), the participle interpretation focuses on the process, while the adjective interpretation focuses on the state resulting from the process.

To avoid such confusion, there are some verbs which have different participle forms for verbal and adjectival use, as shown in the following examples (Quirk et al., 1985, p. 416).

- (30) a. You have *drunk* too much. ~ *drunk(en)* driving/driver  
 b. Have you *shaved*? ~ a *clean-shaven* young man  
 c. The shirt has *shrunk*. ~ a *shrunk* shirt

Another problem for EFL learners is the use of participial adjectives derived from emotive verbs such as *amuse, annoy, bore, confuse, embarrass* etc. As Celce-Murcia & Larsen-Freeman (1999) and Yule (2000) point out, there is a tendency for EFL learners to overgeneralize the *-ing* participle or confuse the use of adjectives ending with *-ing* and *-ed* forms, as shown in the following examples.

- (31) A. a. \*I am *interesting* in movies.  
 b. I am *interested* in movies.  
 B. a. \*She is *embarrassing* about that question.  
 b. She is *embarrassed* about that question.  
 c. \*The question is *embarrassed*.  
 d. The question is *embarrassing* to me. (adjective)  
 e. The question is *embarrassing* me. (verb participle)

In this case, if we explain that *-ing* adjectives are related to the causer and *-ed* adjectives are related to the experiencer by using the semantic roles ‘experiencer’ (the one experiencing the emotion) and ‘causer’ (the one to refer to the cause or source of the experience), it will be helpful for EFL learners to understand the semantic and grammatical properties of these adjectives more easily.

Now, the relationship between intransitive verbs and their adjectival derivation will be examined. We can divide intransitive verbs into unergative verbs (those whose subject is generated external to the verb phrase) and ergative verbs (those whose subject is generated in the structural object position of the verb phrase). Likewise, Cinque (1990, p. 231) argues that "a comparable distinction must be recognized for [the] class of intransitive adjectives, despite the fact that adjectives morphologically related to 'ergative' verbs are not themselves 'ergative'."

With regard to this point, we will look into the following examples given in Kearns (2000, pp. 248-9).

- |                            |                  |
|----------------------------|------------------|
| (32) A. his tent collapsed | a collapsed tent |
| the milk has curdled       | curdled milk     |
| the leaves have fallen     | fallen leaves    |
| the ankles have swelled    | swollen ankles   |
| the flowers have wilted    | wilted flowers   |
| the shirt had wrinkled     | a wrinkled shirt |

the puddles had frozen	frozen puddles
B. people have talked	* recently talked people
the patient had coughed	* a coughed patient
the light has flashed	* a flashed light
several competitors have run	*several run competitors
children had played	*played children
a patient had sneezed	* a sneezed patient
the bull had charged	* a charged bull

These examples show that the past participles of intransitive verbs can sometimes be converted into adjectives, and sometimes cannot. How can we explain this difference? As Cinque suggested, the distinction of intransitive verbs between unergative verbs and ergative verbs is helpful to explain this difference. The examples of (32A) belong to ergative verbs. Their subjects are generated in the structural object position of the verb phrase, and thus their thematic roles are 'themes'. In contrast, those of (32B) do not belong to ergative verbs. Their subjects are generated external to the verb phrase, and so the thematic roles of most of these verbs are 'agents'. Such differences help explain the possibility of converting a past participle into an adjective.

#### 5. Syntactic and semantic **characteristics according to adjectival complementation types**

When we consider the category of adjective, we are likely to think of only the functions of modifier and predicate complement and to neglect the fact that they can take their own complements. However, some adjectives can take complements of their own to elaborate their meaning, an operation called adjectival complementation. There are four types in this complementation: Adjectives may be followed by a prepositional phrase, a finite clause, a non-finite *to*-infinitive or an *-ing* participle clause as shown in the following examples.

- (33) a. I'm grateful for your help.  
 b. I'm sorry that you failed in the examination.  
 c. I was sorry to hear that news.  
 d. She was busy doing homework.

When adjectives are followed by a prepositional phrase, particular adjectives are combined with particular prepositions as shown in (34), and also some adjectives can be combined with more than one preposition according to the intended meaning like in (35).

- (34) a. They're *dependent on* each other.  
b. They are *sure of* their success.  
c. I'm *sorry about* what's happened  
d. Most people are too *busy with* their own troubles to give much help.
- (35) a. I'm not very *good at* dancing. (skillful and successful at doing something)  
b. Rain water was once considered to be *good for* the complexion. (benefit)  
c. My receptionist is very *good with* people. (skillful at using something or dealing with someone)  
d. Her mother was *good to* me. (an expression meaning kind to someone)

This shows us polysemous characteristics of a word and the choices of different prepositions according to different meanings. Thus, we need to notice the interaction between adjectives and prepositions and acquire these lexical units as collocations.

Now, consider another group of sentences with regard to *to*-infinitive adjectival complementation. Here, we can find some interesting linguistic phenomena.

- (36) A. a. He is wont to be late.  
b. \*He is wont.  
B. a. Max is averse to games.  
b. \*Max is averse.  
C. a. She is sure to win = It is certain that she will win  
b. She is sure = She is not in any doubt.  
D. a. She is eager to win.  
b. She is eager.

(36A) and (36B) show that in 'wont' and 'averse' types the complement is obligatory. However, in (36C), there is a change in the meaning of the adjective according to whether the adjective takes a complement or not, while there is no change in the meaning of the adjective without regard to the complementation in (36D).

Furthermore, when adjectives are followed by *to*-infinitive clauses, we need to distinguish a direct complement licensed by the adjective lexeme itself from

superficially similar constructions. Compare the following examples (Huddleston & Pullum, 2002, p. 1256).

- (37) a. You are [free to leave when you want].
- b. She's [too young to go to school].
- c. She's [young] to be going to school.
- d. I was [mad] to volunteer.
- e. It would be [foolish] to ignore them.

Among the examples given in (37), a real complement licensed by an adjective is (37a). In the case of (37b), the *to*-infinitive clause is licensed by *too* rather than by the adjective *young*, so this infinitival is an indirect complement. In the cases of (37c) and (37d), the infinitival is used as an adjunct, not a complement, which means that it is not lexically licensed. According to Huddleston & Pullum, the syntactic difference between a complement and an adjunct is shown in such ungrammatical constructions as *\*She is one of those young to be going to school* and *\*Anyone mad to volunteer can't expect much sympathy*. Therefore, the infinitival here does not form part of the adjective phrase. The infinitival in (37e) is not a complement of the adjective but is an extraposed subject, so the relevant sentence without extraposition is *To ignore them would be foolish* and as such is not part of the adjective phrase.

When we look into non-finite complements of adjectives, we need to distinguish syntactic differences in derivation according to the types of adjectives. Compare the following examples (Huddleston & Pullum, 2002, pp. 1257-8).

- (38) a. Their argument was [impossible [to follow \_ ]].
- b. Kim was [anxious [to follow the argument]].
- (39) a. Liz was determined to convince them.
- b. Liz was likely to convince them.

The sentences given in (38) and (39) superficially seem to be similar, and the infinitival complements are all licensed by the head adjectives. However, there are syntactic differences between them. In the case of (38a), although the syntactic subject is 'their argument', it is derived from the object position of the *to*-infinitive verb 'follow' and it is not a logical subject of the predicate 'impossible'. Normally such clauses as (38a) have a gap in some non-subject function, that is, object of a verb or preposition in the infinitival complements. On the other hand, the subject of the sentence (38b), 'Kim',

is a logical subject of the predicate 'anxious' and also a covert subject of the *to*-infinitive verb 'follow'. Thus, we need to classify non-finite complements of adjectives into different types. Huddleston & Pullum calls cases like (38a) 'hollow infinitivals' and cases like (38b) 'ordinary infinitivals'. The following adjectives can take 'hollow *to*-infinitivals': *awkward, bad, boring, convenient, dangerous, desirable, difficult, easy, embarrassing, essential, hard, impossible, odd, pleasant, tough, useful, wonderful* (Huddleston & Pullum, 2002, p. 1246).

Now, the structural property of (39) will be examined. (39a) is an example of a non-raising adjective construction, while (39b) is an example of a raising adjective construction. In (39a) and (39b), the adjectives 'determined' and 'likely' commonly function as predicative complements and take an infinitival complement, so their constructions look similar superficially. When considering their logical relationship of argument and predicate, however, there are some grammatical and semantic differences between them. In (39a), *Liz* is an argument of 'determined to convince them', but in (39b) the likelihood applies to the situation of '*Liz*'s convincing them', not to *Liz*. Therefore, we can respectively paraphrase (39a) as '*Liz*<sub>i</sub> was determined that she<sub>i</sub> would convince them.' and (39b) as 'It was likely that *Liz* would convince them.'

Adjectives belonging to the same type as 'determined' take an animate subject but adjectives such as 'likely' do not have a direct semantic relation to their subjects. Adjectives taking a raised subject are as follows: *about, apt, bound, certain, due, fated, liable, set, sure, wont*. In contrast, adjectives taking ordinary subjects are much more numerous (Huddleston & Pullum, 2002, p. 1258).

Now, consider adjective complementation by *that*-clauses. As shown in the following examples, we can divide *that*-clauses following an adjective into three types: (Quirk et al. 1985, p. 1222)

- (40) a. indicative verb: *I am sure (that) he is here now.*
- b. subjunctive verb: *They were insistent (that) we be ready.* <formal>
- c. putative should: *I'm sorry (that) he should have left.* <formal>

The indicative *that*-clause refers to an established fact. On the other hand, mandative subjunctive can be used with adjectives whose meaning contains semantic conditions such as 'demand, recommendation, proposal, resolution, intention, etc'. The relevant examples are as follows: *advisable, desirable, fitting, imperative* (Quirk et al. p. 157).

The putative *should* construction has nonfactual bias and can often be used after

adjectives with the meaning of such emotion as *sorrow, joy, displeasure, surprise, wonder*, etc. There is a tendency to prefer this construction in nonassertive contexts, or where the adjective has negative or unfavorable association (Quirk et al., 1985, pp. 1222-3).

Quirk et al. classify adjectives with an 'experiencer' as subject into the three types as follows.

(41) (i) *That*-clauses with indicative verb only.

These adjectives express degrees of certainty or confidence:

*aware, certain, confident, sure.*

(ii) *That*-clause with putative *should*, or subjunctive verb.

The three principal adjectives in this class are *anxious, eager*, and *willing*.

(iii) *That*-clause with indicative verb or putative *should*.

These adjectives express emotions: *afraid, hopeful, angry, proud, alarmed, disturbed, pleased, shocked, upset* etc.

With regard to gerund-participial complements, there are only a few adjectives licensing such a form: *busy* and *worth/worthwhile*. In this case we can also divide adjectives into various types in terms of the logical relationship between the subject and predicate adjectives as in the adjectives taking infinitival complements: ordinary, hollow, and impersonal, as shown in the following examples (Huddleston & Pullum, 2002, p. 1259).

(42) a. She was busy [preparing her report]. [ordinary]

b. These objections; aren't worth [bothering about \_i]. [hollow]

c. It isn't worth [taking the matter any further]. [ordinary; impersonal]

In the cases of such adjectives as *too, enough*, and *sufficient*, infinitival complements are indirectly licensed by them. "The licensors indicate degree relative to some need, purpose, desire, etc." (Huddleston & Pullum, 2002, p. 1263).

## 6. Conclusion

What I have tried to show in this paper is that we need to recognize the importance of the interaction between grammar, meaning, and lexical idiosyncrasy in order to

understand linguistic phenomena relevant to the category of adjective properly. For the purpose of teaching and learning English, in particular, the interface between grammar, meaning, and lexical idiosyncrasy must be dealt with carefully. With this focus in mind, the interrelationship between grammatical and semantic properties of adjectives has been investigated in the following respects.

With regard to the factor of the position of adjectives in a sentence—prenominal, postnominal and predicative—this study shows that there are some differences in meaning according to the position and that in some cases morphological properties or lexical idiosyncrasy can affect their distribution.

In respect to the interrelationship between meaning types of adjectives and grammatical properties, this study shows that the polysemous characteristics of a word are determining factors, that we need to consider the meaning types of a given adjective in relation to its modified noun referent and that according to meaning type the relevant grammatical behavior is affected.

Learners of English often find it difficult to distinguish between participial adjectives and verb participles. Indicators to distinguish them, like the use of an intensifier test and the replacement of *be* by *seem* in SVC type, prove to be effective. Additionally, in some cases, there are semantic or morphological characteristics according to the function as a participial adjective or as a verb participle. The distinction between ergative and unergative intransitive verbs can also be helpful in explaining the possibility of converting a past participle into an adjective.

Lastly, with regard to adjectival complementation, it should be pointed out that in teaching or learning English, we tend to emphasize only the main functions of adjectives as modifiers and predicate complements while neglecting the fact that they can take their own complements. However, adjectives can be followed by a prepositional phrase, a finite clause, a non-finite *to*-infinitive or an *-ing* participle clause. In relation to such complementation, polysemous characteristics and collocation have to be considered. In the case of a *to*-infinitive complement, furthermore, it is important to distinguish a direct complement licensed by the adjective itself from superficially similar constructions and to notice that there are ‘hollow infinitivals’, ‘ordinary infinitivals’, ‘raising adjective constructions’ and ‘non-raising adjective constructions’ according to each one’s syntactic and semantic properties. When adjectives take a *that*-clause or a gerund participial complement, it must be emphasized that syntactic differences are related to the semantic properties of the relevant adjectives

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# Democratization and Language Policy Changes in Spain and Paraguay

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## **Abstract**

Hypothetically, we could suppose that a dictatorial regime justifies a highly centralized language policy while a democratic regime requires a decentralized language policy that might respect the language rights of all citizens and their linguistic freedom. In this paper, we examine Spain and Paraguay because they are countries well-known for their language policy changes in transition to democratization after more than 35 years of dictatorship. We investigate whether the type of government directly influenced the choice of type of language policy in these countries.

From the comparative analysis, we conclude that the type of political regimes (i.e., dictatorship or democratization) does not have a direct relationship with centralization of language policies, though the transition from one political regime to another could provoke crucial changes in language policy just as in any other aspect of society.

**Keywords:** language policy changes, centralized language policy, decentralized language policy, Spain, Paraguay.

## **1. Introduction**

It makes sense to hypothesize that a dictatorial regime would justify a highly centralized language policy but a democratic regime would require a decentralized language policy, respecting all citizens' language rights and linguistic freedom. Schiffman (1996:1), for example, proposes a continuum of language policies, from the autocratic centrist policy of France to the multilingual accommodationist policy of India, with the USA somewhere in between. According to this kind of classification, the typology of language policies not only depends on the kinds of political regimes but also on historical changes.

In this paper, we choose Spain and Paraguay, because they are well-known for their language policy changes in their transition to democratization after more than 35

years of dictatorship. We investigate whether government type directly influenced these countries' language policies, analyze the principle factors which caused language policy changes, and observe what has happened after their application. For this purpose, we consider the case of Spain in part 2 and the case of Paraguay in part 3. Finally, we conclude by comparing the two cases.

## **2. Spain**

### *2.1. Centralized Language Policy during Franco's Dictatorship*

The Castilian language was renamed as Spanish language in 1923 by the dictator Primo de Rivera (1923-30), though the Castilianization begun in the 18<sup>th</sup> century during the regime of Felipe the 5<sup>th</sup>. During the Franco period (1939-75), his model of Spain was of a totally unified nation with one single, unchallenged, centralized regime, and with one Spanish identity. For this purpose, the use of one single unified language was fundamental. The regions with their own proper languages could not be respected. The Castilianization process was accelerated and any deviation from this was oppressed.

At the beginning of the regime, the use of the regional languages was very heavily punished. Their public use, including teaching, was prohibited. Disobeying this prohibition was sanctioned with fines and even prison sentences. But by the end of the regime, this prohibition had weakened considerably. The use of regional languages was tolerated in more trivial activities, and they were considered dialects which might be dominated by Spanish in the linguistic hierarchy. Many of the speakers of regional languages were still able to transmit these languages to their children, but they did not, because they felt guilty doing it, and thus there was no development and full acquisition of the regional dialects by the younger generation due to the lack of teaching to consolidate and reinforce their use and learning (Mar-Molinero 2000: 84).

The regional languages were rapidly losing, but the regime's clever propaganda drive to promote the Castilianization made one costly mistake as mentioned by Mar-Molinero (2000: 85): "The rejection and even ridicule of the minority languages became so closely associated with the ideology of the Franco regime that it also served as a point of reference around which to build the opposition to it. Language became a symbolic standard bearer for and against the regime."

In any case, because of this Spanish monolingual language policy, the bilingual population decreased considerably and the whole population of Spain could speak Spanish. But as a reaction against this Castilianization policy, the regional languages began to be recognized by the oppressed people as a major symbol of their identity against the dictatorship. The recovery of linguistic rights was considered an essential point of democratization.

## *2.2. Decentralized Multilingual Policy through Democratization*

The end of the Franco dictatorship in 1975 initiated the democratization of the nation and the 1978 Constitution consolidated the transition to democracy. On the basis of this constitution, Spain changed from a highly centralized political regime to one of the most decentralized in the world through the recognition of the autonomy of the regional communities. At the same time it declared multilingualism and the protection of linguistic rights, though the official use of Spanish language nationwide continued to be a legal obligation for its people. This means that the realization of multilingualism is dependent ultimately not on the central state policy, but on the individual community's policy. Consequently, as a nation, Spain assumed a partial multilingual policy and the regional communities such as Catalonia, Valencia, the Balearic Islands, Galicia, the Basque Country and Navarra decided to implement multilingual language policies to promote the normalization of their communities' own local languages. Their legal texts regarding language policy are very similar, but their realization is very different because of the distinct language situations and the different economic and social nature of the regions. After the application of multilingualism, the most successful regional language is the Catalan language used in Catalonia, while the less successful language is the Basque language in Navarra.

Before the dictatorship, the Catalan language was used by the majority of the population, and it was considered to be a prestigious language. So the suppression during the dictatorship caused the great desire to recover it. Now, after the democratization, for the official meetings and the administration in the local government it is used officially. The education in Catalan language is obligatory. Sixty percent of classes at the University of Barcelona and 90% of classes at the University of Pompeu Fabra are conducted in Catalan (Siguán 2005: 153).

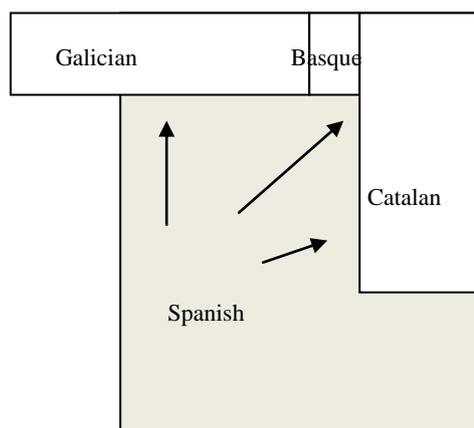
Meanwhile, before the dictatorship, the Galician language was used by the majority of the population, but it was considered to be a less prestigious language.

Therefore, the rejection of Castilianization was relatively weak. Now, after democratization, it is now used for official meetings and local government administration, though education is conducted in Spanish. Twenty percent of classes at the University of Santiago de Compostela are conducted in Galician.

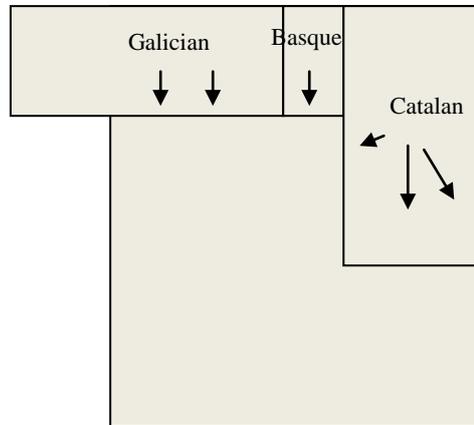
On the other hand, before the dictatorship, the Basque language was used by less than 20% of the population. Due to the lack of a standard writing system, it was difficult to learn Basque, so during the dictatorship, it weakened drastically. Now, for official parliamentary meetings a simultaneous translation system is used. There is an option to be educated in either language, Castilian or Basque. In universities, however, few majors are offered in Basque.

### 2.3. Current Problems in the Application of Multilingual Policy

From the period of the dictatorship, the general Castilianization of the nation was achieved. After democratization, much of the success in promotion of the regional languages in their own territories has also been achieved. The multilingual policy is adapted to each individual community's economic power and the willingness of its people. This has contributed to the balanced development among distinct regions and has become a relevant example of linguistic democratization in the world.



<Figure 1> Castilianization during Franco's Dictatorship



<Figure 2> Current Situation in Spain

In Figure 1 we observe that Castilianization was forced toward the non-Castilian speaking regions, while in Figure 2, that process has been completed, though the extension of the regional languages is now growing. However, there are some serious counter results. First, Spain manifests multilingualism but the central government does not take any responsibility for its realization. It supports Castilianization throughout the whole of Spain to maintain its unity. Spanish can be used anywhere within the territory. The minority languages are not respected outside of their own communities. In other words, the language rights of the minorities still are not respected completely within the Spanish territory.

Second, the majorities of the population in bilingual territories such as Catalonia, Galicia and the Basque Country impose their official local language on minorities who do not have that language as their mother tongue. Spanish-monolingual citizens can actually be excluded from jobs and official positions simply because they do not master the same language as people who speak the language that the regional government imposes. Such enforcement of the regional government is just as unfair as the former imposition of Spanish as the official language for the whole of Spain during General Franco's dictatorship (Kees 2003).

Third, those regional languages are not taught to the citizens in other Spanish territories, while other foreign languages like English and French are taught. With the passage of time, it may deepen the emotional gap among them.

Fourth, the children in bilingual territories are required to learn more languages than others. The EU also supports multilingual language policy and demands for its

citizens to learn two more languages of its member countries. In principle, the children in Spanish bilingual territories are required to learn four languages as EU citizens and this could be an intellectual burden for them.

### **3. Paraguay**

#### *3.1. Language Policy during Stroessner's Dictatorship*

In Paraguay, during the Stroessner period (1954-89), the only official language of the nation was Spanish, though the native languages including Guaraní were not repressed. On the other hand, even though education was carried out in Spanish, it did not promote Castilianization because the Paraguayan investment in this sector was so insignificant that it was the lowest among Latin American countries (Rivarola 2000: 11).

There was other evidence of the fact that the language policy during Stroessner's dictatorship was not centralized. On the one hand, some public processes to promote the use of Guaraní were observed. In 1967, Guaraní was recognized as a national language in the National Constitution. In 1972, the University of Asunción initiated a major in the Guaraní language, giving it a social-educative state for the first time in the country's history. At the level of secondary education, from 1975 it was implemented as a subject of study. In 1983, the transitional model of bilingual education was implanted for the Guaraní monolingual children in elementary school, though thereafter it was considered to have failed (Choi 2004: 244).

On the other hand, Stroessner supported patronage of the Guaraní-speaking peasants. According to Chambers (1999), farms in Concepción, San Pedro, Caaguazú, Caazapá, Itapúa, and Alto Paraná increased dramatically during the seventies. Because of this policy, rural monolingualism in Guaraní was strengthened and bilingualism decreased.

In summary, we could say that during Stroessner's dictatorship there was no centralized language policy as we expected hypothetically. Other factors, including historical and ethnic ones, forced the dictator to maintain a bilingual society.

#### *3.2. Bilingual Education Policy through Democratization*

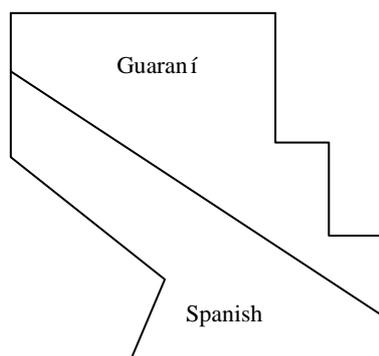
The fall in 1989 of Stroessner's 35-year dictatorship of Paraguay was followed by dramatic changes in Paraguayan language policy. The 1992 Constitution consolidated this transition to democracy. It declared multilingualism and the protection of the linguistic right to receive education through the mother tongue. Spanish remains official, but since 1992, Guaraní has had the same status. Education in Spanish for monolingual Guaraní-speaking children was ineffective, so many of them dropped out and remained illiterate. As a solution to this phenomenon, educating them in their mother tongue, Guaraní, was adopted in spite of some opposition (Gynan 1999).

Since 1994, the current program of bilingual education has begun to produce coordinate bilinguals, that is, individuals capable of using Guaraní and Spanish in any context with equal ability, but maintaining separate system codes. According to this purpose, a child is taught first in his or her mother tongue and the second language is gradually introduced, until in the sixth year when the equilibrium between the two languages is reached. There are two modalities, the Spanish-speaking and the Guaraní-speaking ones (Choi 2004).

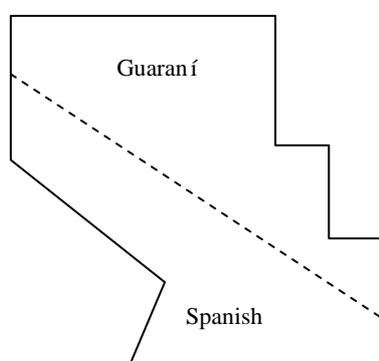
The first modality was applied in urban areas, while the latter was applied in rural areas. In urban areas, Guaraní is learned as a second language and many students say that they use Guaraní most in the classroom. It means that for many of them, Guaraní becomes an academic language, like other foreign languages. Still, there is very low investment in education, so teachers with low salaries have continued to protest and parents think that the Castilian monolingual schools are better than the Guaraní-Castilian bilingual schools for their children (Rivarola 2000).

### *3.3. Current Problems in the Application of Bilingual Education Policy*

In the case of Paraguay, the national government currently insists on centralized language policy focusing on general bilingualism, without considering the economic reality of the nation and the economic gap between urban and rural areas. This has caused an unbalanced development of the nation. Paraguay has generated idealized legal texts but does not have enough human and economic resources to realize them. Castilianization and movement toward bilingualism are accelerated in urban areas, while Castilianization is hampered and Guaraní monolingualism is increasing in rural areas.



<Figure 3> Language distribution during Stroessner's dictatorship



<Figure 4> Current language distribution

We observe that in Figure 3, which is a rough abstraction developed by the author, the country was divided into two areas on the basis of the languages and the division was clearly established. Meanwhile, in Figure 4 the division is still maintained, but without such clarity because of the bilingual education. This bilingual education policy has caused some counter results. In rural areas, many Guaraní speaking students had problems with the Guaraní taught in their schools. The Guaraní that they speak is a variant mixed with and influenced by Spanish, which is called *jopara*, but the Guaraní that they have to learn is a pure variant without code-switching, code-mixing and borrowings from Spanish. This variant is quite different from the colloquial variant *jopara*, so their pure Guaraní learned is of a low level and their Spanish learned as a second language is also of a low level. Moreover, many students give up their studies for economic reasons, so in the rural areas, Castilianization is obstructed. Another reason for the increase of monolingualism in Guaraní in rural areas is the increasing immigration from rural to urban areas because of the collapse of agriculture. There are

higher rates of migration among bilingual populations than among monolingual Guaraní so the monolingual Guaraní remains in rural areas (Gynan 2001). These phenomena deepen the monolingualism in rural areas and extend the linguistic gap between rural and urban areas.

#### **4. Conclusion**

Spain and Paraguay have one thing in common: in both countries the long dictatorship promoted the public desire for democratization and respect for language rights. Both countries established the legality of the multilingual language policy through the modification of their constitution at the beginning of democratization. However, the results of that decision are quite different in each case.

Spain is a partially multilingual country. The citizens of the bilingual regions are expected to be bilingual, though many of them are not. The central government enforces Castilianization throughout the whole of Spain to maintain its unity. Spanish can be used anywhere within the Spanish territory, while the minority languages are just used in their own communities. The language rights of Spanish monolinguals are not respected within the bilingual communities, while those of minority language speaking people are not respected outside of their communities.

In the case of Paraguay, the government currently insists on centralized linguistic policy focusing on general bilingualism, without considering the economic reality of the nation and the economic gap between urban and rural areas. In Paraguay, there is a great difference between the policy as stated and the policy as it really works at the practical level. This has caused an unbalanced development of the nation. Paraguay has created an idealized legal text but does not have enough human and economic resources to realize its goals. Castilianization and bilingualism are accelerated in urban areas, while Castilianization is prevented and Guaraní monolingualism is increasing in rural areas.

In this research comparing the cases of Spain and Paraguay, we conclude that the types of political regimes such as dictatorship or democratization do not have a direct relationship with centralized or decentralized language policies, though the transition from one political regime to another could provoke crucial changes in language policies just as in any other social aspect.

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# A preliminary study of metaphor use by Hong Kong university students

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## Abstract

Metaphoric competence – the knowledge of and ability to use metaphor appropriately and effectively – contributes to all aspects of communicative competence, and is therefore ‘highly relevant to second language learning, teaching and testing.’ (Littlemore & Low, 2006: 268). This paper reports an investigation into the use of metaphor by Hong Kong university students who are advanced learners of English. There were two parts to the study: data mining of a learner corpus which comprised communicative and argumentative writing, and analysis of a metaphor elicitation test. The discussion focuses on the frequency and types of conceptual metaphors produced in different contexts. It is argued that students’ metaphoric competence should be enhanced because metaphors can make communication more effective and impressive.

**Key words:** metaphor, cognitive ability, linguistic competence, ESL/EFL

## 1. Introduction

Metaphoric meaning arises from the interaction between words and their discourse context. Most metaphor studies have focused on identifying, describing and explaining metaphorical language in published and professional discourses such as politics, business, and education. For example, Charteris-Black (2005) analysed the political speeches of Winston Churchill, Martin Luther King, Margaret Thatcher, Tony Blair and the Bushes. Results showed that figurative language was used frequently with about six metaphors produced in every hundred words. Metaphor mapping revealed conceptual metaphors of journey, health, morality, life, death, and animals. Charteris-Black argued that metaphor plays an essential role in the persuasiveness of political rhetoric, that it contributes to the construction of political identity, and that without it ‘politicians would lack hallmarks of charismatic leadership such as passion, energy and conviction’ (Charteris-Black, 2005: 198). The use of metaphor as a tool for persuasion has also been identified in business discourse (e.g., Elwood, 1995; Rohrer, 1995; Boers, 1997; Clancy, 1999; Li & Bilbow, 2000; Henderson, 2000; Koller, 2004). A number of figurative expressions are frequently used. For example, money transfers constitute *cash flow*, new firms are *infant companies*, firms may *collapse*, banks may *sink*, stock markets may *crash*, economic forecasts may be *gloomy*, and currencies may be *weak*, *strong* or *stable* (Henderson, 1986; Boers, 1997; Eubanks, 1997; Li & Bilbow, 2002, 2004; Koller, 2004). Metaphors are also frequently encountered in educational discourse. For example, teaching and learning have been described as *gardening*, *a journey*, *scaffolding*, *mining*, *a bridge* and *movement of water* (Munby, 1986; Cortazzi, 1991; Scott, 1994; Cortazzi & Jin, 1999; Cameron, 2003).

Metaphor is not a linguistic peculiarity restricted to specialized discourse, however, but is pervasive throughout language (Lakoff & Johnson, 1980; Cameron & Low, 1999; Deignan, 2005) because it is inextricably intertwined with thought. On the one hand, metaphors ‘allow us to think about and organise chaotic reality’ (Gannon 2001: 1) and can be used as a linguistic device to express difficult-to-talk-about abstract concepts in terms of concrete entities (Lakoff, 1993; Lakoff & Johnson, 1980). On the other hand, ‘metaphor influences our beliefs, attitudes and values’ (Charteris-Black 2005: 13). Furthermore, experimental research suggests that exposure to certain metaphors can improve cognitive reasoning ability (Gentner & Gentner, 1983), increase understanding of certain concepts (Smith, 1995), and develop critical thinking

(Boers, 1997). This is perhaps because metaphor comprehension requires cognitive effort to link the target and source domain (Cortazzi & Jin, 1999: 154). Metaphor is therefore a fundamental component of overall language proficiency, a potentially useful educational tool, and of considerable relevance for second language learners. However, although a number of studies have identified, described and explained metaphorical language in published discourse, little research has considered the use of metaphor by ESL/EFL learners.

Chateris-Black (2002: 114) proposed a six-type cross-linguistic metaphor classification system which takes account of a metaphor's surface linguistic structure, the underlying concepts which are expressed, and whether the metaphor is culture specific (opaque) or universal (transparent). Table 1 shows the six types. Such a model is useful in ESL/EFL research because for second language learners linguistic, conceptual and cultural differences in metaphor use between their first (L1) and second (L2) languages may result in inappropriate cross-linguistic transfer (Deignan, Gabrys, & Solska, 1997; Irujo, 1986). Alternatively, learners may avoid using words metaphorically in their L2. For example, two small scale studies investigating English language use in a free composition exercise by Italian (Danesi, 1995) and Malay (Chateris-Black, 2002) second language learners of English showed that the metaphors used were those which could be directly translated (both linguistically and conceptually) from the learners' L1.

Table 1. Cross-linguistic model for metaphor use (source: Chateris-Black, 2002: 114)

Category	Linguistic form	Conceptual basis
Type 1	=	=
Type 2	~	=
Type 3	=	#
Type 4	#	=
Type 5	#	# + transparent
Type 6	#	# + opaque

= equivalent; # different; ~ similar

In recent years metaphor research has been dominated by the cognitive linguistics approach, which is underpinned by the assumption that language reflects thought. Two levels of metaphor can be distinguished: conceptual metaphors and linguistic metaphors. The term 'conceptual metaphor' is used to refer to a connection between two semantic areas at a cognitive level. ANGER is HEAT is a conceptual metaphor reflecting the cognitive connection that seems to exist between anger and fire for speakers of many languages (Lakoff 1987). The target (ANGER) is the conceptual domain that is the focus of the investigation; the source (HEAT) is the conceptual domain from which metaphorical expressions can be drawn. Linguistic metaphors are the linguistic realizations of a conceptual metaphor. In the case of ANGER is HEAT, one example is 'She's got a *fiery* temper'. A specific aim of cognitive linguistics is the analysis of linguistic metaphors to make inferences about underlying conceptual metaphors which are then used to make inferences about thought (Cameron & Low, 1999: 18). The approach relies largely on researcher intuition, using examples as necessary which are often decontextualised. Although cognitive linguistics has had a significant influence on metaphor theories (e.g., Gibbs, 1994; 1992; Kittay, 1987; Lakoff, 1987; Lakoff & Johnson, 1980), critics argue that metaphor must be considered in its natural context (e.g., Cameron, 1999, Deignan, 2008). Importantly, the use of single examples can result in important generalizations being missed or in the formation of mistaken assumptions that selected examples of metaphor

accurately reflect all aspects of metaphoric language (Gibbs 2000: 30).

Corpus linguistics is the study of authentic language in context. The approach enables claims about language use to be made from real-life data rather than relying on intuitions which are unreliable (Sinclair, 1991; Teubert, 2005: 1) or on data that is experimentally elicited in psycholinguistic studies and which may be atypical (Deignan, 2008). Computerised methods for data analysis have contributed to its position as one of the most useful and popular methodologies within applied linguistics.

By incorporating both quantitative and qualitative analyses, corpus linguistics offers a way to investigate students' spontaneous metaphor use and to compare metaphor use between different text types. Metaphors can be described in terms of their frequency, proportion (relative to literal use), collocations, underlying concepts, and semantic prosody (whether the metaphor conveys a positive or negative meaning in context).

The aim of the present research is to investigate Chinese students' English metaphor use by analyzing the spontaneously produced metaphors in a corpus of learner English, and the metaphors produced in a metaphor elicitation test.

## **2. Research methodology**

There were two parts to the current research. In the first part a corpus approach was used to examine spontaneously produced metaphors in different types of student writing. The second part was a metaphor elicitation test.

### *2.1. Investigating spontaneously produced metaphors*

#### *2.1.1. Learner written corpus*

The learner corpus used in the project was from the PolyU Language Bank, a collective database consisting of various texts collected between 1999 and 2005 by staff members in the Department of English at the Hong Kong Polytechnic University. Two types of writing were considered, argumentative and communicative. The argumentative writing totals 780,300 words and includes essays for writing competitions, travelogues, and creative pieces. The communicative writing totals 1,080,000 words and largely comprises simulated business letters and memos, minutes and reports. It also includes samples of student MSN messages and blogs.

#### *2.1.2. Corpus analysis*

The analysis broadly followed the three stages of Critical Metaphor Analysis (Cameron 2003): identification, interpretation, and explanation. The writing was initially examined qualitatively to identify metaphors commonly used to describe integral aspects of students' university lives. These metaphors were then mapped according to their source domain – the concepts that they reflect.

For the purposes of the present study 15 words with potential metaphoric meaning were then identified for further quantitative analysis. The words were examples of Goatly's (1997) 'general reifying', 'specific reifying' and 'personification' metaphors. Examples included nouns representing entities, verbs realizing states and process, adjectives representing the properties of entities, and adverbs representing the properties of processes. A wordlist was generated from the corpus and lemmatized. The word list was searched for the presence of the 15 key words, and then the Key Word in Context (KWIC) method was used to judge whether the words were used

metaphorically. It is important to evaluate the metaphoricity of words in context because metaphoric meaning can only be established through an interaction between the word and its context. For example, when ‘grow’ collocates with abstract nouns such as ‘knowledge’, ‘crime rate’, and ‘sales’, it is metaphoric. When the agent is a living entity, such as ‘flower’, ‘plant’, and ‘children’, ‘grow’ typically conveys a literal meaning, although children’s growth is sometimes metaphoric. The phrasal verb ‘grow up’ may convey a literal or a metaphoric meaning.

## 2.2. Investigating experimentally elicited metaphors

The second part of the study was conducted to investigate how metaphors reflect students’ thinking about various topics, using a paradigm which has been previously used (Cortazzi & Jin 1999). Four target words were selected for inclusion in the experiment: ‘internet’, ‘computer’, ‘learning’ and ‘teacher’. ‘Internet’ was specifically selected because it has become an integral part of modern day human life, but yet the nature of the World Wide Web is unfamiliar to most people (Ratzan, 2000). Previous research has documented internet metaphors used pervasively by the on-line community and discussed how they help users’ understanding of the internet. The other three words also reflect important aspects of university life. A group of 201 Hong Kong University students (151 BA students; 50 MA students) were asked to complete sentence stems of the following format:

The TARGET is \_\_\_\_\_ because \_\_\_\_\_.

Students were encouraged to produce metaphors. The metaphors which were produced were mapped according to their source domain – the concepts that they reflect.

## 3. Results and discussion

### 3.1. Discussion of findings of spontaneous metaphor use

The qualitative analysis of the learner corpus revealed that students produced both dead and creative metaphors. Dead metaphors are those which have been used so frequently over time that their meaning has been assimilated into language so that the transferred meaning is not present and not considered by the language user. Dead metaphors include metaphoric clichés. Active metaphors convey incongruity between a focus term and its surrounding discourse. Students used metaphor to describe a number of different aspects of their academic lives. Table 2 shows examples.

Table 2. Examples of metaphors produced spontaneously to describe different aspects of academic life.

TARGET DOMAIN	SOURCE DOMAIN	Examples
INTERNET	JUNGLE/SEA	network, surf
LEARNING	JOURNEY	start, end, milestone, bridge, passport, pave the way
UNIVERSITY	HOME/FAMILY	brother, sister, parents
	HUMAN BODY	head, heart, hand, arm, brain
UNIVERSITY LIFE	WEATHER	cold, hot, storm, sunshine

<b>KNOWLEDGE</b>	SEA	get lost, drawn, sail
<b>STUDENT</b>	PLANT	grow, root, cultivate, seed, branch, harvest, blossom

Students used personification to provide a concrete and accessible framework for certain descriptions. For example, ‘university’ was described as ‘a brother’, ‘a sister’, and as ‘parents’. Personification was also used to help students convey emotion towards that entity. For example:

(1) *I consider every meeting has its good and evil side.*

In addition to metaphoric personification, students also used personification in similes – comparisons that show how two things that are not alike in most ways are similar in one important way – to make their writing more interesting and entertaining. For example:

(2) *To me, Shanghai sounds familiar yet strange; it is like a face covered with a veil.*

(3) *Actually, the city is like a beauty.*

The learner corpus was examined for the presence of 15 potential metaphors, selected *a priori* as examples of Goatly’s (1997) ‘general reifying’, ‘specific reifying’ and ‘personification’. Table 3 shows the occurrence of the 15 target words in the two types of writing. The frequency of literal and metaphoric uses of the metaphoric candidates differs between the types of writing. For example, ‘deep’ as a metaphor occurs more frequently in communicative than in argumentative writing. Literal uses of ‘deep’ can be observed in communicative writing, but metaphoric uses are more common. In argumentative writing ‘deep’ always occurs with a metaphoric sense.

Table 3. Comparison of the occurrence of the 15 target words in communicative and argumentative writing, shown as overall frequency, and the frequency and proportion of times that the word is used metaphorically.

Word	Word frequency		Frequency with which word is used metaphorically		Proportion of times word is used metaphorically (%)	
	Communicative (780,300 words)	Argumentative (1,080,000 words)	Communicative (780,300 words)	Argumentative (1,080,000 words)	Communicative (780,300 words)	Argumentative (1,080,000 words)
bridge	18.0	20.0	0.0	5.0	0.0	25.0
core	7.0	12.0	3.0	12.0	42.9	100.0
cultivate	7.0	6.0	6.0	6.0	85.7	100.0
dance	8.0	2.0	1.0	2.0	12.5	100.0
deep	41.0	28.0	37.0	28.0	90.2	100.0
flavour	8.0	3.0	1.0	2.0	12.5	66.7
flaw	3.0	4.0	3.0	4.0	100.0	100.0
flow	38.0	22.0	35.0	20.0	92.1	90.9
grow	46.0	56.0	22.0	26.0	47.8	46.4
handle	46.0	152.0	45.0	152.0	97.8	100.0
hole	6.0	2.0	1.0	2.0	16.7	100.0
journey	63.0	15.0	2.0	2.0	3.2	13.3
root	30.0	5.0	30.0	5.0	100.0	100.0
shape	15.0	4.0	1.0	1.0	6.7	25.0
war	7.0	12.0	2.0	0.0	28.6	0.0

Observation of the table shows that students did use many of the 15 target words metaphorically. For example, they described knowledge in terms of ‘growth’, they referred to ‘core’ issues, they discussed ‘handling’ a problem, and they considered ‘flaws’ in plans. However, differences were observed in the use of metaphor between the two types of writing, as can be seen with the example of ‘core’. Figures 1 and 2 show the concordance of ‘core’ in the two types of writing. In communicative writing, ‘core’ was used metaphorically less than half of the time (Figure 1, lines 1, 2, and 3), whereas in argumentative writing ‘core’ always occurred with a metaphoric sense (Figure 2).

N Concordance

1 drug abuses among young people will be the core issue. Firstly, 'club drugs' would be defined.

2 In general, the members of public perceive that the core tasks of the police are arresting criminals and

3 be sexually aggressive. Those who watched soft-core pornography were less likely to engage in

4 suggested the entrance area near the Library and core DE, FG as well. Miss Chan and Pricilla both

5 is due to the time for students to walk from core to core. Amber Choi disagreed that some of them were

6 is due to the time for students to walk from core to core. Amber Choi disagreed that some of

7 being one of them. Staring at the cruciform-shaped core with hollow center, we were amazed by the

Figure 1. Concordance of ‘core’ in communicative writing.

N Concordance

1 improve their English. University students usually take their core subjects more important to Language subjects as the

2 the weighting of language subjects and not as high as the core subjects for departments other than language learning

3 there are too much workload. They have to deal with the core subjects that related to their future jobs, if there are an

4 Kong. Most of them may just concentrate more time on the core subjects but neglect the communication languages ---

5 employers. Students' focus will be changed not only to the core subjects but also English --- international language.

6 difficulties to some graduates' study. Their result of the core subject may be affected by the exit test. In my opinion, I

7 students already have a great pressure on studying their core subject, it is crude to put them on a hotty pan. Actually,

8 I think it is better to keep using English. It is because the core purpose for studying is find a good job. Using English,

9 of several issues. An interview done by a team of health core professionals found that half of women in Hong Kong

10 business. For the States, it has already become the core of business in the world. It is inevitable for the countries

11 That means the students is able to spend more time in the core of the subject rather than to look up at the dictionary

12 especially after its entry into WTO. That means the core of international business world should be shifted from

13 English. And many textbooks are written in English. The core of the question is that people have already thought

14 foreign companies are attracted to locate their businesses core in Hong Kong, especially in logistic and finacial sector

Figure 2. Concordance of ‘core’ in argumentative writing.

A number of researchers have studied universality and cultural specificity of metaphors (e.g., Eubanks, 1997; Cameron & Low, 1999; Cortazzi & Jin, 1999). Analysis of the 15 words reported in the paper did not reveal any specific influence of the Chinese culture on English metaphoric use. However, previous analyses of business metaphors in Hong Kong have demonstrated an influence of culture on the metaphoric use of body parts and colour terms (Li & Bilbow, 2004). Future work with the present corpus will therefore analyse a larger set of words which includes body parts and colour terms in the two types of writing.

### 3.2. Discussion of findings from the metaphor elicitation experiment

Table 4 shows the results from the metaphor elicitation experiment. Responses for the targets have been grouped into clusters according to the source domain of the elicited metaphor. Many different metaphors were produced by the 201 students for each of the targets. Metaphor mapping demonstrates the use of various source domains, which reveals the ways in which the targets were conceptualized by the students.

Table 4. Number and percentage of students producing metaphoric descriptions for each of the targets, and the reasons. Results are grouped according to the source domain of the metaphor (the underlying conceptualization).

TARGET DOMAIN	SOURCE DOMAIN	Reason	Frequency	Percentage
<b>INTERNET</b>	NICE PERSON	helpful, supportive, obedient	22	11.0
	BAD PERSON	cheating, unreliable	3	1.5
	SOURCE OF KNOWLEDGE	informative, including all	43	21.4
	TOOL	useful and efficient	6	3.0
	LINK	connecting people worldwide	11	5.5
	BODY OF WATER	vast amount of information, easily drawn	23	11.4
	DRUG	can be helpful and harmful	8	4.0
	CONTAINER	including too much stuff	8	4.0
	JUNGLE	confusing, hard to find something	4	1.9
<b>COMPUTER</b>	NICE PERSON	helpful, knowledgeable, obedient	81	40.3
	FRIEND	ready to help	17	8.5
	EVIL PERSON	making trouble, harmful	7	3.5
	BRAIN	clever, informative	14	7.0
	DRUG	captivated, addicted	14	4.5
	CONTAINER	spacious, cramped	7	3.5
	TOOL	versatile	8	4.0
	HUMAN BODY	indispensable, useful	11	5.5
<b>LEARNING</b>	JOURNEY	long, endless	27	13.4
	ROAD	having to go step by step	8	4.0
	SPORTS	competitive, exciting	18	8.9
	INVESTMENT/BUSINESS	getting what is paid for	15	7.5
	LIFE	in different stages	14	6.9
	COOKING	mixing ingredients	7	3.5
<b>TEACHER</b>	BOOK	knowledgeable	24	11.9
	FRIEND	ready to help	10	4.9
	LIGHT	leading the way	25	12.4
	FAMILY	showing care, closeness	23	11.4
	CARETAKER	considerate	14	6.9
	AUTHORITY	tough control	4	2.0
	GARDENER	growing plants	13	6.5
	ANIMAL	hardworking	6	3.0
	BOSS	bossy	4	2.0

Following the conceptual mapping, the metaphors were additionally grouped according to whether they conveyed positive or negative meanings. The responses to ‘internet’ were both positive and negative. The positive responses included:

1. The internet as a PERSON: *teacher, guide, friend, doctor, assistant*
2. The internet as a SOURCE OF KNOWLEDGE: *encyclopedia, Wikipedia, book, dictionary*
3. The internet as the WORLD: *universe, world, globe*
4. The internet as a TOOL: *tool, screw driver, wireless phone*
5. The internet as a LINK: *link, hook, net, bridge*
6. The internet as a BODY OF WATER: *sea, ocean, pool*

The negative responses included:

1. The internet as a BAD PERSON: *monster, big liar*
2. The internet as a DRUG: *drug, poison, virus, poisonous, addictive, infectious, suffering*
3. The internet as a CONTAINER: *rubbish bin, dust bin, dye vat*
4. The internet as a JUNGLE: *puzzle, maze, jungle*

Metaphors were classified according to Chateris-Black's (2002) model (see Table 1). Most of the elicited metaphors of internet were of Type 1 meaning that the same conceptual metaphor and an equivalent linguistic expression exist in Chinese. The examples are INTERNET as BRAIN, as NET, as SEA, as JUNGLE, as BRIDGE and ADDICTIVE.

An example of a Type 3 metaphor is TEACHER as COW, which has also been observed in previous research (Cortazzi & Jin, 1999). The connotations of 'cow' in Chinese are commitment, devotion, hardworking and asking nothing in return and it is therefore used positively as a description of a teacher. However, in western culture 'cow' may mean slow, old-fashioned and unenergetic and is used as an insult.

An example of a Type 6 metaphor, meaning that both the concept and linguistic expression are different in Chinese is 'dye vat' which was used by one student to describe the internet: *'the internet is a dye vat because its stuff has bad influence on children'*. The source domain *dye vat* (*rangang*, 染缸) is a high-frequency metaphor used in the Chinese language. A google search resulted in 562,000 hits and few of them refer to the literal meaning of dying cloth in a big vat. To Chinese people, the metaphor has negative connotations which can be transferred to the entertainment business, society, the internet, and blogs. However, the use of 'dye vat' as a metaphor is not part of Western culture. Other examples of Type 6 metaphors are descriptions of TEACHER as CANDLE, as LADDER, and as STEPPING STONE. These metaphors convey the way in which teachers' dissemination of knowledge requires self sacrifice and lack of regard for personal gain. The metaphor reflects the Chinese cultural value of placing greater importance on society as a whole rather than on the individual, and demonstrates how the cultural background of students can impact on their linguistic constructions in a second language.

#### 4. Conclusions

Hong Kong Chinese students have little difficulty expressing concepts metaphorically in English, at least when explicitly asked, although there was some indication of interference of the Chinese culture. The variety of metaphors produced in the elicitation experiment demonstrates students' ability to use English figuratively when specifically encouraged and indicates that students do have metaphoric awareness. Conceptual mapping of the metaphors offer some insight into the way particular objects are conceptualized. Furthermore, the findings from the metaphor elicitation test are compatible with the possibility that the low metaphorical use in spontaneous writing is not a result of a lack of metaphorical understanding, but reflects a failure to utilize metaphoric awareness in production.

Students' metaphoric competence should be enhanced by incorporating metaphor training into second language teaching. Possible training methods include engaging students in tasks such as the experimental metaphor elicitation test reported in the present paper. With an increased metaphoric awareness students' spontaneous use of metaphor is expected to increase, which should enhance the effectiveness of their writing.

Future work will examine spontaneous metaphor use in more depth and investigate elicited metaphors produced in context. In addition, the use of metaphor by Hong Kong students will be compared with those produced by native English speakers, as well as those produced by Mainland Chinese students. This will enable more informative claims to be made about students' competence and may reveal more about the influence of linguistic, conceptual and cultural differences between students' L1 and L2 on their metaphor production in a second language.

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# **Paradigm lost... and refunded: A case for a three-leveled syntax<sup>1</sup>**

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## **Abstract**

In Asian languages, core arguments (subjects and objects) are normally optional, so in that way they behave as what traditional grammar and any consistent linguistic description would call ‘adjuncts’.

Optionality may then appear as a very unsatisfactory means of classification. But some recent developments in linguistics seem to provide a fresh look into the relative status of sentence constituents, putting emphasis on whether they can be explicitly put in paradigmatic contrast. This paper, focusing on Korean data, aims precisely at showing the difference of behaviour of two kinds of constituents: those able to fall under the scope of the particles *-to* ‘also’ and *-man* ‘only’, and those that are not, thus allowing to distinguish between three different syntactic levels.

**Keywords:** paradigmatic axis, delimiters, micro-syntax, macro-syntax.

## **1. Introduction: Optional arguments and argument-like adjuncts**

It is a general rule, in Asian languages, though not in European languages, that functional equivalents of core arguments – subjects and objects – are optional, i.e. they can be left out without damage to the grammaticality of sentences.<sup>2</sup> Thus, they behave as what traditional grammar would call ‘adjuncts’.<sup>3</sup> One should therefore consider that in those languages, there is no distinction between ‘core arguments’ and ‘adverbial adjuncts’ in terms of syntactic behavior, and that optionality is, for those languages, an ineffective means of classification.<sup>4</sup>

Leaving aside the problem of optionality, I shall distinguish between two types of constituents using the licensing –on those constituents– of particles indicating restriction (‘only’), and addition (‘also’) as a test. Constituents able to fall under the scope of those two particles will be considered either to be arguments, or to be argument-like adjuncts, while those that do not will be seen as proper disjuncts. Doing so, I shall apply tests equivalent to those proposed for Spoken French to Korean, and in line with claims made by a group of French descriptivist linguists, draw first a major demarcation line between two kinds of syntaxes: a micro-syntax corresponding to complements bound to the verb and to the assertive part of utterances, versus a macro-syntax more loosely linked. Then, observing the behavior of collocational sequences with respect to the same diagnostic tests, I shall set up a third syntactic level below ‘micro-syntax’, namely a ‘nano-syntax’.

The method employed is based on tests more that are reliable than the optionality criterium, especially for languages such as Korean, and also gives results that seem to match to a significant extent with structurally similar languages such as Mongolian, as well as for languages very different from Korean, i.e., English or French.

But first let me explain the reasons that led me to use those tests.

### 1.1. Some diagnostic tests for Spoken French (*Groupe Aixois de Recherches en Syntaxe*)

My interest in the restriction test was first aroused by a proposal made by a French research team from Aix-en-Provence (*The Groupe Aixois de Recherche en Syntaxe / GARS*), whose main objective is to describe the grammatical features of a spoken language (Spoken French). Acknowledging that many traditional descriptive notions are ineffective when applied to spoken data, they strived to develop a more suitable means of description. It has to be noted that the perspective of this team is basically descriptive, not theoretical, and it is to their credit that they attach more importance to real data than to any a prioristic discourse on alleged language particulars or universals of structure.

It is worth noting that the traditional criteria of obligatoriness for distinguishing arguments from adjuncts is unsatisfactory. Indeed, if it were really applied, it would lead to count as adjuncts a great number of direct and indirect objects. They observe that arguments, whether obligatory or not, display a set of properties that can be tested. For instance, they are as follows. (see Blanche-Benveniste & al., 1990):

-Properties of arguments (and argument-like adjuncts)

- a. Licensed in cleft constructions: Fr. *C'est ... qui/que ...* ('It is ... who/that')
- b. Licensed under the scope of the negation marker: Fr. *ne (V) pas ...* ('not')
- c. Licensed under the scope of the restriction marker: Fr. *ne (V) que ...* ('only')

Those properties are shared, for example, by the obligatory locative complement of the verb *aller* ('go'), as well as by the optional direct object of *manger* ('eat')<sup>5</sup>:

- (1) *Il est allé {en Allemagne}*. 'He went to Germany.'  
> *C'est {en Allemagne} qu'il est allé*. 'It is to Germany that he went.'  
> *Il n'est pas allé {en Allemagne}*. 'He didn't go to Germany.'  
> *Il n'est allé qu' {en Allemagne}*. 'He only went to Germany.'
- (2) *Il a mangé {une pomme}*. 'He ate an apple.'  
> *C'est {une pomme} qu'il a mangée*. 'It is an apple that he ate.'  
> *Il n'a pas mangé {une/de pomme}*. 'He didn't eat an apple.'  
> *Il n'a mangé qu' {une pomme}*. 'He only ate an apple.'

To make sure that the scope of the restrictive or negative markers is precisely what is intended (here, the complement only), and not wider (for instance including the verb), one should see whether another complement of the same class can be put into contrast with the former, e.g., *Il n'est pas allé en Allemagne, mais en Suisse* 'He didn't go to Germany, but to Switzerland'.

Now, elements that are not usually considered as arguments share the same properties. For instance, locative or temporal adjuncts, such as *en Suisse* 'in Switzerland' in the following sentence, can enter cleft constructions and negative or

restrictive constructions, with the same interpretation as above:

- (3) *Il a pris son petit-déjeuner {en Suisse}*. ‘He had his breakfast in Switzerland.’  
> *C’est {en Suisse} qu’il a pris son petit-déjeuner*.  
‘It is in Switzerland that he had his breakfast.’  
> *Il n’a pas pris son petit-déjeuner {en Suisse}, (mais {en Allemagne})*.  
‘He didn’t have his breakfast in Switzerland, but in Germany.’  
> *Il n’a pris son petit-déjeuner qu’{en Suisse}, (pas {en Allemagne})*.  
‘He had his breakfast only in Switzerland, not in Germany.’

### 1.2. The notion *rection large* (wide government)

As those adjunct constituents behave, save their syntactic optionality, as regular arguments, researchers of GARS have developed the notion *rection large* (‘wide rection/government’) (e.g. Blanche-Benveniste 1990, 2002), which incorporates not only constituents regarded as arguments, but also constituents regarded as adjuncts.

Naturally, this notion is meaningful if and only if other elements in a sentence behave differently. And so are elements that may be called “discourse constituents”, or “disjuncts” as opposed to “adjuncts”. I shall here illustrate with English sentences, manipulating examples from Hasselgård & al. (1999), but French would behave similarly:

-Adjuncts vs. disjuncts:

- (4) *He first met {her in 1982}*. (time adjunct)  
> *It is {in 1982} that he first met her*.  
*He wiped his hands {carefully} on the towel*. (process adjunct)  
> *It was {carefully} that he wiped his hands on the towel*.
- (5) *Apparently, they never received your letter*. (modal disjunct)  
> *\*It is {apparently} that they never received your letter*.  
*John said he couldn’t help me, which is ridiculous*. (comment disjunct).  
> *\*It is {which is ridiculous} that John said he couldn’t help me*.

While time or process adjuncts such as in (4) display argument properties, in terms of behavior with respect to cleft-formation, restriction, or negation, the modal and comment disjuncts do not. Note in addition, those “discourse constituents” are often seen as not “grammatically” integrated, but rather “pragmatically” or “prosodically”, and are the ones usually left aside in grammatical description, especially in syntactic description. Indeed, given the difference in behavior with respect to the basic syntactic transformations used as tests, it may be claimed that those constituents are not governed by syntactic rules. However, with the help of tests, they may be integrated into grammatical description, albeit negatively. The GARS also coined new terminology that makes it clearer that those constituents should also constitute a target of syntactic description, in calling them “macro-syntactic” constituents, as opposed to “micro-syntactic” constituents (those pertaining to the wide government) (Berrendonner 1991;

Blanche-Benveniste 2002). As already mentioned, the distinction can be roughly spelled out in terms of ‘disjuncts’ on the one hand, versus ‘adjuncts’ and ‘arguments’ on the other.

<p><b>“Macro-syntax”</b>          (macro-syntactic constituents)          ≈ <i>Disjuncts/Discourse constituents</i></p>	<p>vs.</p>	<p><b>“Micro-syntax”</b>          (micro-syntactic constituents)          ≈ <i>Adjuncts</i>                      ≈ <i>Arguments</i></p>
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### 1.3. Paradigmatic interpretation

While syntax has long been exclusively concerned with the *syntagmatic axis* (i.e. the question whether or not a given string of segments form a phrase, and if so, whether the syntagmatic structure fits with dependency relations), such approaches explicitly or implicitly highlight the *paradigmatic axis* (Deulofeu 2007). Indeed, the fact that micro-syntactic constituents such as subjects, objects, or place and time adverbials can generally be put into contrast with other constituents by means of negative, contrastive, exclusive, or restrictive markers (also questioned by means of interrogative proforms), shows that those constituents are the result of a paradigmatic choice on the part of the speaker. Discourse constituents, on the other hand, do not display those properties. In pragmatic terms, the distinction between the two kinds of syntax has interestingly, though, again, roughly, been reworded as a distinction between the syntax of assertion (= what results from the online speaker’s choice) and the syntax of presupposition (= what is contextually given).<sup>6</sup>

## 2. Delimiter particle insertion in Korean and the argument/adjunct ~ disjunct opposition

Let’s turn now to an application to an agglutinative language with SOV order: Korean. As mentioned above, tests have been conducted with two particles, called ‘delimiters’, expressing restriction and addition: particles *-man* ‘only’ and *-to* ‘also’. Both, where they are licensed, are supposed to indicate a ‘paradigmatic slot’, so that they are expected to give a basis for the macro-/micro-syntax distinction. However, given that only the first particle has a functional equivalent among the tests proposed for French, it has to be explained why those two particles have been selected, while tests relying on cleft formation and negation have been excluded.

G.A.R.S. researchers use three main tests for stating the macro- or micro-syntactic nature of constituents: pseudo-cleft formation, negation, and restriction. But it should be noted that those three constructions are not mutually incompatible, as illustrated in the following example:

- (6) *Ce n’est pas que lui qui est venu.*  
 ‘It is not only him/he who came.’

Cleft formation has scope over negation which itself has scope over restriction.

The order of application can be hierarchically represented as:

CLEFT [ NEG [ REST [*lui*] ] ]

In order to preserve the homogeneity of tests (thus, hopefully, the homogeneity of results), it is better to choose constructions that are mutually exclusive, in this case, choose one out of the three possibilities. I shall exclude first cleft formation because it is much more restricted in Korean than in English or French (see Cho S.Y. (1991), Choi-Jonin I. (2003) for contrastive accounts with respectively English and French). Negation formation is naturally available, but its use as a test can easily be a delicate matter, because negation can receive a metalinguistic interpretation. Also, it can lead to build long and complex test sentences that often sound unnatural.

Eventually we have the use of the restrictive marker. As it can be expressed in many languages as a phonologically light particle, its insertion does not imply much change or unnaturalness in tested sentences. Also, together with the additive marker, with which it is mutually exclusive, it is widely used. In addition, at least in Korean, Japanese, and Mongolian, both particles are less constrained than other particles of the same paradigm. All those properties make tests easier to conduct, and guarantee more homogenous results.

Note that these particles do not always imply a paradigmatic variation in the position of the constituent they attach to. Such is the ‘idiomatic use’ of Kor. addition particle *-to* (as Japanese *-mo*) marking exclamatory utterances, a use that I shall therefore not consider as relevant for the tests conducted:

- (7) *Onul pam.un tal.to palk.kuna* (오늘 밤은 달도 밝구나)  
*Konya.wa tsuki.mo akarui.nee* (今夜は月も明るいねえ)  
‘Tonight the moon is so bright!’ (vs. ‘Tonight the moon is bright too’)

### 2.1. Nominal functions

What is relevant here is to show that the restriction and addition delimiters can attach to regular arguments or argument-like adjuncts with their expected meanings: putting –explicitly or implicitly– the element they attach to in association with other elements of the same paradigm. To ensure that restrictive or additive markers have scope over the tested element only, and not over some larger phrase, it has been inquired whether other elements belonging to the same class can explicitly be added as units contrasting with the first argument. In each case below, informants could interpret the nouns under scope in contrast with other nouns belonging to the same paradigm. This holds for arguments, e.g.: *Myengsik* vs. *Chelswu* (8: e.g. ‘Only Myungshik spoke in Korean, Chelswu did not’); *doctor* vs. *nurse* (9); *book* vs. *paper*; *student(s)* vs. *teacher(s)* (10), *I* vs. *other people* (11), as well as for a locative complement, e.g.: *Seoul* vs. *Busan* (12). Example (13) gives an illustration drawn from real data (a song’s lyrics) showing a beneficiary complement marked with *-man*: the implicit paradigmatic contrast should not be questionable.

- (8) *{Myengshik}.man/to hankwukmal.lo malhayssta* (명식만/도 한국말로 말했다.)  
'{Myungshik} spoke in Korean.' vs. {Chelswu, etc.}
- (9) *{Uisa}.man/to philyohata* (의사만/도 필요하다.)  
'(I) need {a doctor}.' vs. {nurse, etc.}
- (10) *Senseyngnim.un {hakseyng}.ekey.man/to {chayk}.man/to cwuessta* (선생님은 학생에게만/도 책만/도 주었다)  
'The teacher gave {books} to {the students}.' vs. {papers, etc.} / {other teachers, etc.}
- (11) *{Na}.lang kathi (nolay.lul) pwuluca* (나랑만/도 같이 (노래를) 부르자)  
'Let's sing together {with me}.' vs. {him, etc.}
- (12) *{Sewul.ey}.man/to pom.i wassta* (서울에만/도 봄이 왔다)  
'Spring came {in Seoul}.' vs. {Busan, etc.}
- (13) *Oloci {na.lul wihayse}.man salanghaycwul yeca.* (오로지 나를 위해서만 사랑해줄 여자) (가야랑, 수리수리마수리)  
'A woman able to give her love solely {for me}.'

Delimiters here naturally have a narrow scope interpretation, which means that the most natural way of interpreting complements marked by *-to* or *-man* is to draw them out of a set of other possible elements belonging to the same paradigm. Such complements may be said to pertain to the wide government, or to the micro-syntactic part of grammar.

## 2.2. Adverbial functions

If a temporal adverb such as *ecey* 'yesterday' behaves as expected in (14) (possible contrast with *onul* 'today'), modal adverbs of the comment type, as in (15) or (16), even if they can occasionally attach the additive marker (15), do not lend their slot open to paradigmatic variation (i.e. the insertion of *-to* is not interpreted as an additive process). There is no possibility to retrieve a set of elements contrasting with *tahayngghi* 'fortunately', or *mullon* 'of course':

- (14) *{Ecey}.man/to sicang.ey kassta* (어제만/도 시장에 갔다)  
'{Yesterday} I've been to the market.' vs. {today, etc.}
- (15) *Tahayngghi.(to) ppye.nun pwulecici anhassta* (다행히(도) 뼈는 부러지지 않았다)  
'Fortunately, he had no bones broken.' vs. {Ø}
- (16) *Mwullon. \*(to/man)* (물론\*(도/만))  
'Of course.' vs. {Ø}

Adverbial clauses may display a different sensitivity to delimiter particles. For instance, the purpose clause in (17) may attach both, with the expected restrictive and additive meanings, but conditional clauses with the suffixes *-myen* or *-ketun*, as well as causal clauses with *-se* or *-nikka* cannot directly attach the particle on their right end. Thus, (18) and (19) are ungrammatical:

- (17) *{Na.nun yeki.ey chayk.ul chac.ule}.man/to on keieyyo* (나는 여기에 책을 찾으러 온 거예요.)  
 ‘I went her {to buy a book}.’ vs. {to see you, etc.}
- (18) *{Ttattushayci.myen}.\*man/\*to, wuli.nun kongwen.ey kakeyssta* (따뜻해지면, 우리는 공원에 가겠다.)  
 ‘{If it gets warm}, we’ll go to the park.’ vs. {Ø}  
*{Cey.ka cip.ey eps.ketun}.\*man/\*to samwusil.ey cenhwahaycwuseyyo* (제가 집에 없거든 사무실에 전화해주세요.)  
 ‘{If I am not at home}, please call at my office.’ vs. {Ø}
- (19) *{Chwuw.ese/chwuwu.nikka}.\*man/\*to pakkulo an nakasse.* (추워서/추우니까 밖으로 안 나갔어)  
 ‘I didn’t go outside {because/since it was cold}.’ vs. {Ø}

In order to get acceptable sentences, one has to attach the delimiters to the root of the main verb in the adverbial clause, then attach the conditional or causal connector to the anaphoric verb *ha-* (‘do’). E.g.: *ttattus.man hayci-myen*, [...] ‘only if it gets warm, [...]’.<sup>7</sup>

The peculiarity of such a construction, in contrast with the direct attachment of the suffix to purpose clauses, may indicate that conditional and causal adverbial clauses stand at the border between the syntax of assertion and the syntax of presupposition. It is worth noting that in languages such as English or French, while purpose clauses are always licensed in cleft constructions and acceptable under the scope of restrictive or negative markers, *if*-clauses do not always sound natural in the same contexts (e.g.: *?It is if you go that I’ll go*), while some causal markers never pass the paradigmatic tests (Eng. *since*, Fr. *puisque*).<sup>8</sup>

One step further past the border of assertive syntax, and towards a contextually-bound syntax (i.e. linked with presupposed knowledge), you may find concessive clauses. In Korean, as in Japanese or Mongolian, the additive particle can mark the concessive meaning. But there is no implication of a paradigm. Naturally, it can be argued that there is another element in contrast, that is, the contradictory proposition, for instance “it snowed” vs. “it didn’t snow”, and this may be the explanation why an additive particle appears here, but as contradictory elements, they also cannot coexist in the same paradigmatic set. Moreover, the additive particle can never be substituted for the restrictive one:

- (20) *Nwun.i wa.to/\*man cip.ey issesseyo* (눈이 와도 집에 있었어요.)  
 ‘Also (= even though) {it snowed}, we stayed at home.’ vs. {Ø}

Concessive clauses clearly refer to contents that defy any attempt of explicit paradigmatic variation,<sup>9</sup> and accordingly should be considered as macro-syntactic constituents.

### 2.3. Negative proforms

Another striking similarity concerning the additive particles in Korean, Japanese and Mongolian, is its use in forming negative nominal or adverbial proforms. As in the previous case, the insertion of, respectively, *-to*, *-mo* and *ch*, is not interpreted as an additive process:

- (21) *Amu.to/\*man kaci anhassta* (아무도 오지 않았다.)  
*Dare.mo/\*dake konakatta* (誰も来なかった。)  
*Xen ch/\*l ireegüi* (Хэн ч ирээгүй.)  
 ‘Nobody came.’ vs. {Ø}  
*Amu kes.to/\*man poici anhnunta* (아무 것도 보이지 않는다.)  
*Nani.mo/\*dake mienai* (何も見えない。)  
*Yuu ch/\*l üzexgüi* (Юу ч үзэхгүй.)  
 ‘(I) can’t see anything.’ vs. {Ø}

In paradigmatic terms, and this not surprising, there is no conceivable element that could be contrasted to ‘nobody’ or ‘nothing’ in the set of persons or the set of things referred to respectively. In addition, there is no possibility to substitute *-to* for *-man*. Negative proforms, together with other proforms (indefinite and interrogative) should be given a very specific status here, whatever their function, given that they occupy micro-syntactic slots without having micro-syntactic properties. They have an outsider status, and so are elements that may serve as tests for the macro-/micro syntax distinction (e.g. the negative, restrictive markers themselves): in the same way, indefinite and interrogative proforms are hints that some parts of grammar allow the construction of paradigmatic sets, even if they are empty.

They also point to the fact that the macro-/micro-syntax distinction made here relies on semantic factors, because they show that knowing the function of a given constituent is not sufficient to determine its macro-/micro-syntactic status, in other words, it is not true that functions such as subjects or objects necessarily have the properties of micro-syntactic constituents. This assumption is important, and more, must be emphasized, insofar as it extends to a great deal of *non pronominal* constituents having regular nominal or adverbial functions, which are even so numerous that one is led to posit not less than another syntactic tier.

## 3. Fake arguments in compounds and collocations

### 3.1. Introduction: classic diagnostic tests for compounding

If one really tries to apply tests to all possible elements of a sentence, there is not

much choice left but to acknowledge that there is another syntactic level below which elements cannot be under the scope of delimiters. That level, which could therefore be named ‘nano-syntax’, includes constituents below the word level (morphemes) as well as most constituents belonging to noun or prepositional phrases. It can be recalled here that insertion of the Jap. particle *sae* ‘even’ has been used by Kageyama (1999) for testing the lexical integrity of compounds. In a similar vein, Spencer (2005:78) notes that “it is generally agreed that displacements which realize information structure, such as topicalization/focussing, scrambling, wh-movement and so on cannot affect parts of words”. Here are some Eng. examples quoted in Kageyama (1999:299):

- (22) ?*What do you like (...)ball? > Base(...).*  
 (23) ?*It is not base(...), but volley(...) that I like (...)balls.*  
 ?*Talking of (...)balls, I only like base(...).*

But Spencer goes on observing that *productively formed* noun-noun “compounds” like *morphology lecture* in *She would never give a morphology lecture* are also “immune from such processes”. The list should not end here: many other parts of phrases such as determiners, attributive adjectives, and relative clauses, as well as the head itself, cannot either be *it*-clefted, at least in English (24):

- (24) \**It is {a} that I met young girl.*  
 \**It is {young} that I met a girl.*  
 \**It is {who was wounded ... } that I met another man.*  
 \**It is {girl} that I met a young.*

Compare now a set of classic criteria for compounding (cleft-formation, topicalization and coordination) applied to *morphology* in *morphology lecture*, which was argued to be a compound, with the same set applied to *young* in *young girl*:

- (25) \**It is morphology that he gave a lecture.*      \**It is young that I met a girl.*  
 \**Morphology, he gave a lecture.*                      \**Young, I met a girl.*  
*He gave a morphology and syntax lecture.*      *I met a young and pretty girl.*

What these and other syntactic tests may tell us is simply that elements such as constituents of noun phrases behave in a similar way with respect to some syntactic rules, but they are by no way conclusive on the lexicon/syntax distinction. To make this point clearer, let us take an example of another Adj + N sequence, say *green house*. In one interpretation, it depicts a house that is green (syntactic formation, with a compositional meaning), while in another, it refers to a building designed for growing plants, in which case, the sequence is seen as a lexical formation. But from *I have seen a green house*, neither topicalization nor clefting can be used to distinguish one structure from the other, because they give the same negative results whatever the intended interpretation is:

- (26) \**It's green that I have seen a house.*  
 \**Green, I have seen a house.*

It should be clear then that most syntactic tests used as criteria for compounding do not distinguish lexical units from 'syntactically formed units' such as noun phrases. Naturally, those tests that also serve for the macro-/micro-syntax distinction cannot either be interpreted in terms of syntax vs. lexicon. In the present case as well, it makes more sense to speak of another sort of syntax, namely a 'nano-syntax'. This syntactic level below 'regular syntax' will be illustrated further in collocational sentences.

### 3.2. Fake arguments in collocational sequences

It will be shown here that some constituents that are (1) not to be considered as parts of compounds, and can (2) be marked as regular verb arguments –whatever their function– do not actually behave as regular arguments. Specifically, even though they can attach a delimiter, their actual scope is not solely the noun phrase, but the whole [noun+verb] complex. Thus, when asked to retrieve elements in contrast, informants cannot give contrasting nouns, but they rather give contrasting complexes, with a different noun and a different verb (this option is possible also with regular arguments). The sharp sign (#) in examples (24-31) indicates when the most likely interpretation of the sentence involves a wide scope contrast. Let look first at expressions involving a subject.

In (27), the restrictive particle *-man* was rejected by my first informant on the subject of the expression 'eye-got\_blind = be blind'. Choi E-J. (p.c.) found it however fine in opposition with e.g. 'be healthy', 'be great', etc. *-to* 'also' is licensed only with the metaphorical interpretation of the sequence, i.e. 'lose one's reason', and thus can stand in paradigmatic contrast with other misdeeds (*topak.to heyssta* 'gambled', *mayak.to hayssta* 'took drugs', etc.). (28) and (29) accept both the restrictive and additive particles on the subjects belly and throat, and typically stand in contrast with each other ('I am only hungry, I am not thirsty'), and there is no contrasting subject available for a same predicate, in other words nothing else than (somebody's) belly that could be hungry, or than (somebody's) throat that could be dry. The subject *palam* 'wind' in (30), 'wind is blowing' can have *-man* attached. The sentence, not so natural for my informant, could however be uttered as a reply to someone worrying about a sound, and it would be understood with a wide scope interpretation ('It's only wind that is blowing').<sup>10</sup> *-to* instead of *-man* would also get a wide scope and mean 'And on top of this, it's also windy' (not only does it rain...).

Finally, the example in (30) is one of the most micro-syntactic-like sequence, in that its subject can contrast with other potential strong characteristics, although it most naturally goes along with other collocations, such as 'be smart'.

- (27) *X nwun. \*man/#to melessta* (X 눈\*만/#도 멀었다)  
 X eye.only/also got\_blind 'X is blind.' vs. {??}

- (28) *X pay.#man/#to kophuta* (X 배#만/#도 고프다.)  
X belly.only/also hungry ‘X is hungry.’ vs. {be thirsty, tired, etc.}
- (29) *X mok.#man/#to maluta* (X 목#만/#도 마르다.)  
X throat.only/also dry ‘X is thirsty.’ vs. {be hungry, etc.}
- (30) *Palam.#man/#to pwulko issta* (바람#만/#도 불고 있다.)  
Wind.only/also be\_blowing ‘Wind is blowing’ vs. {??}
- (31) *X him.(#)man/(#)to seyta* (X 힘(#)만/(#)도 세다.)  
X energy.only/also strong ‘X is strong.’ vs. {be smart}

Similar answers were obtained in:

- (32): an object like ‘tobacco’ in ‘smoke tobacco’ (e.g., with *-man*: X does nothing else than smoking (tobacco is implied); with *-to*: exclamation or contrast with ‘drink alcohol’),
- (33): the locative complement ‘outside’ in ‘go outside’ (*-man* is strange, since there is no other choice than going outside, but possible if meaning ‘I did nothing else (e.g. I didn’t hit him) than going outside; *-to* would be acceptable in the context ‘I looked for it inside and I also went outside’)
- (34): the object ‘study’ of the support verb construction ‘do study’ (e.g., contrast with ‘watch TV, play games, etc.’).

- (32) *X tambay.#man/#to phiunta* (X 담배#만/#도 피운다.)  
X tobacco.only/also smoke ‘X smokes tobacco.’ vs. {drink alcohol, etc.}
- (33) *Pakkuro.#man/#to nakassta* (밖으로#만/#도 나갔다.)  
Outside.only/also went\_out ‘I went outside.’ vs. {look for something inside}
- (34) *Kongpwu.#man/#to hay.la.* (공부#만/#도 해라.)  
Study.only/also do.IMP ‘Study!’ vs. {watch the TV, play games, etc.}

Even though the nominal constituents of those example sentences display the functions and marks of regular arguments, they do not behave like micro-syntactic constituents, because they are not in a slot where paradigmatic variation is allowed. Even if they attach delimiters, those have (or, in some cases, tend more naturally to have) a wide scope interpretation: the only possible contrast holds with other verb complexes or collocational sequences. Indeed, any attempt to put another argument in contrast would lead to a semantic incongruity close to what is otherwise known as a figure of speech, namely a **syllipsis**. Examples of syllipsis, as in (35), show that the sole fact that a given verb accepts various complements does not imply they belong to the same set. So the cause for the semantic clash in (35) is not of syntactic nature, but is due to a paradigmatic weirdness. The reason for the awkwardness of coordination in (35) is the same as that of contrast in the previous test sentences.

- (35) *Mr Jones took his coat and his leave.*                      \*take {coat, leave}

*You held your breath and the door for me.* \*hold {breath, door}

A generalized ‘syllepsis principle’ could be called upon here that would account for the ungrammaticality or unnaturalness of sequences where the governing word is somehow forced to accept paradigmatic variation in a complement slot that do not constitute a proper set.

The process at work here is very close to what Halliday (1967:59), speaking of cognate objects, termed a ‘mutual expectancy of collocation between the noun and the verb involved’:

Cognateness is best thought of as ‘extension inherent in the process’ leading to a mutual expectancy of collocation between the noun and the verb involved. (Halliday, 1967:59)

As a matter of fact, cognate object constructions only accept a wide scope contrast when they attach a delimiter.<sup>11</sup> Let us give here another attested utterance:

- (36) (kids.hankooki.com/lpage/entertain/200412/kd2004120915540643540.htm)  
밤늦게까지 먹고 마시면서 ...  
*Pam.nuckey.kkaci mek.ko masi.myense ...*  
night.late.until eat.and drink.while ...  
... 노래도 부르고 춤도 했습니다.  
... *nolay.to pwulu.ko chwum.to chw.ess.supnita*  
... song.also sing.and **dance.also danse**.PAST.ST  
‘Until late at night, while eating and drinking, we sang songs and danced (dances).’

In (36), no noun other than the cognate object *chwum* ‘dance’ can be retrieved as a potential additive object of *chwuta* ‘to dance’, despite the presence of the delimiter –to ‘also’. There is indeed an additive meaning, but bearing on the whole cognate object construction, that is ‘dance dances’ in addition to ‘sing songs’.

There is no doubt that numerous verb-argument constructions would fall under the ‘syllepsis principle’, and among them one should expect many support verb constructions, synthetic compounds or pseudo compounds, cognate object constructions, and even meteorological clauses. Korean facts presented here should not be surprising since it would not be difficult to find similar phenomena in European languages, and test again the licensing of paradigmatic variation.

- (37) *Bill kicked the bucket.*  
→ \**It is the bucket that Bill kicked.*  
→ \**Bill kicked the bucket only, not ...*  
→ \**Bill did not kick the bucket, he kicked ...*  
(see also question formation: \**What did Bill kick?*)

#### 4. Concluding remarks

Specialists of collocations know and have been using these tests for a long time, but it has to be emphasized (1) that collocations are by no means exceptional in their resistance to paradigmatic variation (i.e. they are not singled out from other kinds of word combinations); (2) the obvious cross-linguistic applicability of those tests, with respect to collocations as well as to other elements, should not be overlooked by descriptivist grammarians, because they provide a useful, reliable, and typologically friendly means of classification of elements in a sentence.

Now I would like to add some of the data that were elicited from Korean, and, for the sake of comparison, Mongolian, a language that shares many structural features with the former. It aims to point out some differences in the use of delimiters<sup>12</sup> but can also lead to the conclusion that the results match to a significant extent for what regards the micro-syntax and “nano-syntax” distinction. The detailed answers provided by my informants<sup>13</sup> cannot be reproduced here, so that the chart displays only the main information, that is whether the delimiter is licensed on the constituent in curly brackets, and with what scope interpretation when put explicitly in contrast: narrow scope, i.e. on the constituent only (+), or wide scope (‘wide’). A ‘Ø’ indicates that the answer was not available because of structural particulars of the language investigated).

	Korean		Mongolian	
	만 -man	도 -to	Л -l	Ч -ch
<b>Subjects</b>				
{M.} spoke in English	+	+	+	+
(To) me {doctor} is needed ‘I need a doctor’	+	+	+	+
(To) me {two books} exist ‘I have two books’	+	+	Ø	Ø
{Wind} is blowing	wide	wide	wide/+	wide
{Rain} came/fell/entered ‘It rained’	wide	wide	-/wide	wide/+
X {strength} strong ‘X is strong’	wide/+	wide/+	Ø	Ø
X {age} young ‘X is young’	+	?+	+	+
X {throat/mouth} dry/thirsty ‘X is thirsty’	wide	wide	wide	wide
X {belly} hungry/empty ‘X is hungry’	wide	wide	wide	wide
X {eye} blind ‘X is blind’	-	wide	?wide	wide
<b>Other functions</b>				
<i>Accusative</i> : Did you see {this movie}?	+	+	+	(-) [бас]
X gave {books} to the students	+	+	+	+
Do {study}! ‘Study!’	wide	wide	wide	wide
X smokes {tobacco}	wide	wide	wide	wide
<i>Dative</i> : X gave books {to the students}	+	+	+	+
I went {outside}	(wide)	wide	wide	wide
<i>Allative</i> : I want to go {to Mongolia}	+	+	+	+
<i>Comitative</i> : Sing {with me}	+	+	+	+
<i>Instrumental</i> : X spoke {in English}	+	+	+	+
<i>Location</i> : Spring came {in London}	+	+	(+)	+
<i>Comparative</i> : T. is taller {than M.}	+	(+)	+	+
<b>Temporal/aspectual adverbs</b>				
{Yesterday} I went to the market	+	+	+	+
{Sometimes} I go to the market.	-	-	(same meaning)	(wide)

<i>Nominalized clause</i> A book hard {to understand}	+	wide/(+)	+	+
<b>Purpose</b> I went here {to take books}				
Kor. <i>-le</i>	+	+	∅	∅
Mong. <i>-xaap</i>	∅	∅	+	+
<b>Cause</b>				
Kor. <i>-se / -nikka</i>	(+)	(+)	∅	∅
Mong. <i>-xoops / yчpaac</i>	∅	∅	+	(+)
<b>Conditional</b> {If (the weather) gets warm}, [...].				
Kor. <i>-myen / -ketun</i>	(+)	(+)	∅	∅
Mong. <i>-bol</i>	∅	∅	+	(+)
<b>Concessive</b> Also (= ‘even if’) {it snowed}, I stayed at home.	-	∅	-	∅

As can be seen from the chart, the overlap of identical answers for structurally similar constructions is striking. But if we were to take into account the optionality of the complements involved in some collocations, we would get a very different picture. For instance, the subjects ‘belly’ and ‘throat’ in Korean expressions for respectively ‘being hungry’ and ‘being thirsty’ (lit. ‘belly-hungry’ and ‘throat-dry’) are rarely omitted, therefore are not normally optional, while in Mongolian, they are. If one were consistent with the criterium of optionality, one would consider that ‘belly’ or ‘throat’ in those collocational sequences are arguments in Korean but adjuncts in Mongolian. Moreover, emphasis on the non-optionality would lead to the conclusion that in Korean, ‘arguments’ involved in collocational sequences are more argument-like than ‘arguments’ in free sequences, because the former are usually optional while the latter are not. Usually, when one has to say that he is hungry in Korean, there is no need to express the first person; the order and optionality of the constituents in such a sentence could be pictured as follows:

(I.Top/Subj) belly.(Subj) hungry.

Using here the labels ‘adjunct’ for the first, optional, subject, and ‘argument’ for the second, (quasi) obligatory subject, would, from my point of view, be quite misleading, mainly because it would fail to recognize the collocational nature of the relation between Subj2 and the predicate, as opposed to the free combinatorial nature of Subj1. In other terms, fail to pinpoint the domain where the speaker has a real choice in combining units, which is beyond doubt, what underlies our implicit conception of what syntax is designed for.

Now, units belonging to ‘nano-syntax’ can still be described as displaying some sort of syntax, not only because their apparent output is often very similar to that of micro-syntax, but also because there are (i) placement rules and (ii) selection restrictions (as in morphology proper).

The same claim can be made for discourse elements, although a thorough investigation of their placement rules and, above all, of their selection restrictions, has still to be undertaken.<sup>14</sup>

So I am likely to support a three-leveled syntax whose three main typical domains of application would be: (1) the ‘core syntax’ with the verb and its arguments and argument-like adjuncts, (2) the syntax of various discourse and context-bound

elements, (3) the syntax of collocational sequences and compounds (possibly covering morphology as well).

	<b>Disjunct syntax</b> = ‘macro-syntax’	<b>Core syntax</b> = ‘micro-syntax’	<b>Collocational syntax</b> = ‘nano-syntax’
<i>Typical domain of application</i>	Modal disjuncts Comment disjuncts	Verb + (free) arguments Verb + (free) adjuncts	Compounds Collocations

As a final remark, In opposition to micro-syntactic constituents, discourse elements and elements of collocations have the same property of not being able to be explicitly or implicitly contrasted. Why? Does this mean that they share a common feature? The main reason, as the tests used, is certainly to be formulated in negative terms: they do not belong to the assertive part of the utterance. Discourse elements, as already mentioned, are linked to contextual presupposed knowledge, while elements of set expressions, not to speak of the internal components of words, most certainly belong to a common mental lexicon (in a wide sense, because it can also involve combinations of words) shared by the speakers of a given community. So that, when a speaker takes its turn, the informational content implied by those elements is already decided.

<sup>1</sup> This paper is one outcome of research that was achieved in Korea (Seoul National University) thanks to the generous support of the Korea Foundation 2008 Field Research Program. I am also grateful to the many valuable comments provided at various stages of my work by Pr. Kim Changsup, my research advisor at Seoul National University, and Choi E-jung (Ewha Womans University), among others. My ‘Frenghish’ has been kindly checked by Douglas Vautour (Seoul National University), but all remaining errors are mine.

<sup>2</sup> There are in fact exceptions.

<sup>3</sup> See Park C.W. (2002) for a treatment of adjuncts.

<sup>4</sup> Not satisfying either for European languages as well. For instance, many, if not most, transitive verbs in those languages also have intransitive uses. The other way round, a great deal of intransitive verbs may ‘lose’ their intransitivity, e.g. in so-called ‘cognate object’ constructions.

<sup>5</sup> Curly brackets (‘{ }’) in example sentences indicate a slot allowing paradigmatic variation. See below.

<sup>6</sup> On this topic: Berrendonner (1983), Danon-Boileau & al. (1991). See also Givón (1975).

<sup>7</sup> Example kindly provided by Choi E-jung (Ewha Womans University).

<sup>8</sup> Contrast the well-known behavior of *because* vs. (causal) *since* with respect to contrastive focalization through clefting: *It is not {because the truth is too difficult to see} ; that we make mistakes, we make mistakes {because the easiest and most comfortable course for us is to seek insight where it accords with our emotions – especially selfish ones} ;* (Alexander Solzhenitsyn) vs. *\*It is not since the truth is too difficult...*

<sup>9</sup> Compare for instance with the behavior of the Eng. concessive marker *although*: *\*It is although it snowed that we stayed at home; \*We did not stay at home although it snowed, but although we were tired, etc.*

<sup>10</sup> Choi E-jung (p.c.) judges it natural however in various contexts.

<sup>11</sup> All things being equal, when they do not have an attributive extension, in which case, the scope may be narrower thanks to the attribute: e.g. *dream only bad dreams. / live only one’s life*. Such constructions thus recover their expected micro-syntactic properties (see also focalization, question formation, etc.) and have to be differentiated from cognate object constructions where the object is normally not otherwise expanded (cf. Kor. *kkwum kkwuta* ‘dream’, *chwum chwuta* ‘dance’).

<sup>12</sup> The most commonly used restriction and addition markers are respectively Kor. *-man* (만), Mong. *-l* (л), and Kor. *-to* (토), Mong. *-ch* (ч). They are to be considered as clitics, attached at the end of words

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(but they are written as separate words Mongolian). Quite often, they are used together with lexemes having the same meaning, as Kor. *yoksi* and Mong. *bas*, both meaning ‘also’. Also, it is irrelevant here whether, and in which order they may combine or not with case particles (in Mongolian, delimiters always follow case markers). See Kang S. (2004) for a contrastive account.

<sup>13</sup> The data were collected thanks to: Lee Jaymin (Korean) and Turtogtoh Janar (Mongolian), both good informants and good friends.

<sup>14</sup> For instance, it has been noted that interaction adverbs may be restricted to some sentence types and excluded from others. See for instance *frankly*: \**Frankly, come with me.*

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# **Local Lexical Intrusions in English Dailies: A Comparison of Malaysian, Singaporean and Pakistani Newspapers**

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## **Abstract**

This research examines written data extracted from local English newspapers from three countries: Malaysia, Singapore, and Pakistan. This research aims at examining the written words used by writers in the news articles and the extent of the use of these words in the local varieties of English. The papers examined are 'The New Strait Times' and 'The Star' from Malaysia, 'The Straits Times', 'Sunday Times', 'Today' and 'The New Paper' from Singapore and 'The Nation' and 'The News' from Pakistan. The borrowing and assimilation of a large number of lexical items identified are then analysed and categorized. The categorization across the countries will be discussed. Such informed knowledge truly makes English an Asian language.

**Keywords:** nativisation, lexical items, newspapers, code switching

## **Introduction**

Despite being an international language that is spoken and used by many speakers in many countries, English is not universally understood. Not everyone who speaks English can understand each other as precisely as it ought to be understood. Due to the existence of various variables like region and location, ethnic landscape, social class, gender, occupation, education, religion, physical environment, age, gender and needs, the way English is used by one group of speakers may differ from the way it is used by another speech community. Each group and its sub-groups have specific characteristics and these characteristics are reflected in the variety of English that they use. Such cultural traits reflected in the way English is used have been discussed by Anna Wierzbicka (1995) who writes about the cultural specifics of the Polish language which result in the inability to explain certain concepts with adequate English lexical items.

How language is used by a particular society or community is a reflection of that society. Language reflects identity, culture, mood, and power and politeness are displayed through language. Differences in how English is used and spoken by people

can be detected in accent, pronunciation, tone, vocabulary and syntax. The English language has been evolving over centuries, moving from old English to Medieval English to Modern English. In the same way, the variety of English used by speakers in Indonesia is different from the variety used by people in Taiwan. The English language, like fashion is constantly evolving and changing. Linguistic change is tangible and can be seen from the way words from local languages are borrowed and assimilated into regional Englishes. This adds a new dimension to the variety of English used in any one locality or region and this has enriched regional Englishes

One of the major tools of communication the world over is the print media. In Malaysia, and Singapore there are four main English dailies and in Pakistan, there is no less than fourteen daily English language newspapers. This study reveals a large number of local lexical intrusions in all the newspapers selected for research.

### **Aim of study**

As the focus of this study is on the nativisation of English, we focus on how words from local languages are used in English language newspapers. In identifying these words we aim to highlight the extent of the process of nativisation of English that has occurred in these three countries.

### **Corpus of data**

This study is based on the collection of data which has been extracted from the newspaper articles in local English newspapers. In Malaysia, the selected English dailies were the “New Straits Times” and the “Star”. Extracts were collected from January 31, to May 12, 2004. In Singapore data from “The New Paper” was collected from February 21, to May 4, 2007; “Today” from February 8, to March 22, 2007; “The Straits Times” from March 4, 2007 to May 4, 2007 and from “The Sunday Times” dated March 18, 2007. In Pakistan, the selected Pakistani dailies were “The Nation” and “The News”. “The Nation” was randomly selected from February 6, 2005 to July 31, 2005, while “The News” was randomly selected from June 1, 2005 to August 31, 2005. This study focuses only on articles written in these newspapers and not on headlines or advertisements.

### **Methodology**

Due to the massive entries of code-switches (and code-mixes) which seem to occur almost daily in these newspapers; random selecting from the data occurring over a period of time would help show that code-switches are a natural phenomenon and occur frequently. Code-switches used by writers were identified and highlighted. Such words had to be words that were not found in British or American dictionaries. To gain a general idea of how much the English of these three countries had been nativised by

lexical items from local languages, the code-switches identified were then categorized. Before moving on to the analysis definitions of certain terms is apt.

### **Nativization**

The Collins English Dictionary (1996, 2006) defines the term, ‘going native’ as to adopt the lifestyle of the local population. By the term nativisation, we mean a variety of English that has borrowed from local languages. For instance, the interaction of two co-existing languages like English and Urdu in Pakistan, English and Malay, English and Chinese (Mandarin and the sub-dialects), or even English and Tamil in multilingual Malaysia and Singapore facilitate multilingual speakers to select words which are culturally associated with certain concepts and situations. This process of nativisation, irrespective of geographical location, does in no way make the particular variety of English more superior or inferior to standard English. In fact, such specific usage results in a specific variety of English with a linguistic identity and culture of its own. The nativisation of English both in Malaysia and Singapore is not very different as the two countries have common languages like Malay, English, Tamil, Mandarin and other dialects of Chinese.

### **Code-switching**

Haugen defines code-switching as the “alternative use of two languages,” and Marasigan (1983) refers to it as the use of two languages in the same sentence or discourse. Gumperz (1982) terms code-switching as being addressee specific, while Fishman (1996) argues that the choice of codes is based on domains. David (2001, 2003) and Kow (2003) demonstrate that code-switching have multiple functions while Kuang (2007) suggests that code-switching in a young child’s writing occurs because the child only has that concept in that particular language. In another study Kuang and Ng (2007) examined how students writing in Malay used English words but maintained Malay syntax.

The mass media in the globalised world is experiencing code-switches. Daniel Hernandez (2004) in an article published in the Boston Globe said that ‘Spanglish’ (Spanish and English) is becoming more and more prominent among US-born Hispanic communities in America, and the mass media is catering to their codes.

Code switching and lexical borrowing is a natural linguistic process in language contact situations. Malaysian, Singaporean and Pakistani varieties of English have moved beyond the stage of lexical borrowings alone. Hybridized and grammaticised mother tongue lexical items are prevalent in English language dailies and have become an integral part of the English lexicon in these countries.

### **Discussion and analysis**

For the analysis of data, the code-switching instances are first identified and highlighted in the English newspapers after which they are categorized into 11 classes. The analysis is organised in the 11 classes listed under a., b. and c. which are used to highlight the respective countries of Malaysia (a.), Singapore (b.), and Pakistan (c.). The 11 classes are as follows:

(1) People (Titles and Honoraries)	(7) Arts and Films
(2) Events	(8) Food
(3) Cultural activities (and physical items)	(9) Clothes
(4) Places	(10) Quotations
(5) Political movements and government	(11) Conceptualising local concepts
(6) Religion	

### **(1) People (Titles and Honoraries)**

All human experiences are, to some extent, mediated through culture and language. Objects and forces in the physical environment become labeled in language only if they have cultural significance. In other words, they take up the attention of the community. Such words or objects or activities become culturally significant.

As a former appendage of Malaysia before 1968, Singapore is not totally unlike Malaysia where titles and honoraries may resemble each other. In Malaysia titles conferred by state governments and by the king are used before the name of the person. Titles like *Datuk*, *Tan Seri*, *Puan Seri*, etc. are often seen in English dailies.

As both Pakistan and Malaysia share a common Islamic tradition certain religious terminology in both Pakistani and Malaysian English dailies emerge. For instance, anyone who has performed the holy Pilgrimage or *Haj* is called a *Haji* and is allowed to use this term before his name. In Pakistan, *Mullah*, *Maulana*, *Hafiz* and *Qari* are all words which refer to persons associated with the religious fraternity.

From the data which follows it is clear that in hierarchical societies like Malaysia, Pakistan and Singapore, titles of respect for heads of organizations, tribal chiefs and religious scholars are used in the English dailies. These titles originate from the local languages and there are no such equivalents in English.

#### **(1) a. People, titles and honoraries in Malaysian dailies**

“As *Datuk Seri* Abdullah Ahmad Badawi has mentioned, we want a closer relationship between the races. We want to feel like one *Bangsa* Malaysia.”(New Straits Times. (2004). April 7, 2004: 11)

Thumbs up were given to these professionally-administered schools not only by those who called themselves “*Anak Johor*” (those who were born and live in the State), but also by people from other states who moved and work here.(Sayuthi, Shahrum. February 28, 2004: 15)

“The move by Selangor *Menteri Besar Datuk Seri* Dr Mohd Khir Toyo to send civil servants who do not buck up to reform school will send a clear message that a certain...(Ganeshadeva, M. February 24, 2004: 11)

**(1) b. People, titles and honoraries in Singapore dailies**

While Muslim law allows a bride’s father to perform the marriage solemnization in the presence of two witnesses, he risks getting jailed if caught doing so without the *kadi’s* (marriage solemniser’s) presence, said Mr Pasuni. Arlina Arshad: The Sunday Times, 18/03/2007, pg 27

Hundreds of people – many with children in tow – were at the *Pasir Ris* resort to see what “*Guru*” Zareena N. Ban had to offer at the Laughter Day event, organized by the NTUC club. Ho Ai Li: The Straits Times, 02/04/2007, pg H2

The tall, well-built bachelor grins mischievously as he says: “When I go on to *Geylang Serai*, some of the ‘*mak cik*’ (Malay aunties) recognize me and shake my hand. I have to watch what I wear now.” Lee Sze Yong: The Straits Times, 02/04/2007, pg Life! People 5

**(1) c. People, titles and honoraries in Pakistani dailies**

Former Foreign Minister *Sardar* (Chief of tribe) Assif Ahmad Ali Saturday said..... (The News 24-07-05)

Other speakers on the occasion including *Maulana* (Religious scholar) *Irshad-ul-Haq* emphasized that Islam is a religion of peace. (The News 24-07-05)

They were *Hafiz* (One who has memorized the Quran) Muhammad Nawaz and Qari Shabir Ahmad. (The News 24-07-05)

This was informed by Pakistan Commissioner for Indus Waters Treaty *Syed* (Revered caste) Jamait Ali Shah .....carrying out inspection of the project along with Indian officials. (The News 31-07-05)

.....tribal notable *Haji* (One who has performed Haj) Ali Mardan, all of them were abducted at gunpoint near Sui by unknown armed men..... (July 24th, 2005)

*Imam* ( One who leads the prayers in the mosque) doubts terrorist link to Pak-American men. (July 24th, 2005)

The group of *Yatrees* (Pilgrims who come to visit holy sites) arrived here on June 21st on ten day visit to participate in 166th death anniversary of Maharajja (Great king) Ranjeet Singh. (The News 01-07-05)

**(2) Events, Ceremonies and Rituals**

Speakers give names to important entities and events in their physical and social worlds, and once named these lexical items become entrenched. Words associated with

ceremonies and rituals relating to birth, marriage and death are generally borrowed from the local languages. Words like *nikah* (both in Malaysia and Pakistan) ,and *shadi rasm-i-hina* (Pakistan) refer to various ceremonies related to weddings. Similarly words like *qul*, *chehlum* and *barsi* (Pakistan) are related to rituals associated with death. Then there are certain words in all three countries which have been accepted in English due to continued usage e.g. bazaar. In the Singaporean context, words like *yusheng*, *gong xi fa cai*, and *chingay* from Chinese were noted. Examples follow:-

### **(2) a. Events, Ceremonies and Rituals in Malaysian dailies**

“He is especially touched when the boys *cium tangan* (kiss his hand as a sign of respect)...a basic *salam* will do...” (Aljunid, Sharifah Sakinah, May 8, 2004: L7.)

The nature of such gatherings is a combination of edutainment, networking, *gotong royong* – whatever you care to call it. (Bajunid, Ibrahim Ahmad, April 18, 2004: 8)

### **(2) b. Events, Ceremonies and Rituals in Singapore dailies**

Reading how Blackie has made alive the endangered “*kampong spirit*”, I can feel a ray of hope for our future. Dr Tan Chek Wee: The New Paper, 25/02/2007, pg 4

Okay, lah, also, *gong xi fa cai*! Peter H L Lim: The New Paper, 21/07/2007, pg 18

If, like me, you’re used to the milder version at neighbourhood *pasar malams*, you may want to avoid ordering it here. Lee Pei Qi: The New Paper, 21/07/2007, pg 26 & 27

Road closure for the *Chingay* Parade preview today will affect 22 SBS Transit bus services. The New Paper, 23/02/2007, pg 18

### **(2) c. Events, Ceremonies and Rituals in Pakistani dailies**

The *nikah* ((the signing of the marriage contract) ceremony but *valima* (the reception hosted by the boy’s family) or reception that was deliberately passed off The nation,30-7-05)

We are at *Data Saab*( Muslim saint ‘s tomb) no one will say anything to you here. (The News 6-6-2005)

### **(3) Cultural activities**

In the Oxford dictionary of sociology (1998), culture is “a general term for the symbolic and learned aspects of human society...[encompassing] to a learned complex of knowledge, belief, art, morals, law and customs” (p. 137). Cultures are context specific and they are maintained through the sociocultural practises of society (also see Fairclough, 1995). Below are some of the examples of cultural activities which are not found in non-Malaysian and non-Pakistani environments (in this case, newspapers).

### **(3) a. Cultural activities in Malaysian dailies**

Video cameras to keeps tabs on *ceramah*. (talk) (Krishnamoorthy, M. February 26, 2004: 1/4)

“After accepting the job, I treated him to a big *makan* (treat) to thank him” (Ang, Yen Ling, May 4, 2004: 15).

Last Saturday was Workers Day. In the name of workers – an lest we forget, we are all workers – let’s reward them properly before their contribution is forgotten. *Selamat Hari Pekerja!* (happy worker’s day). (Talib, Ahmad A. May 3, 2004: 10)

### **(3) b. Cultural activities in Singapore dailies**

Then, as I grew older, I started to wonder why there were more *gong xi fa cai* (Mandarin for wishing you prosperity) wishes than *xin nian kuai le* (happy new year) greetings during Chinese New Year. Peter H L Lim: The New Paper, 21/07/2007, pg 18

Those with their eye on the goodies will tell you that they are hoping for an early *hong bao* from the Government in the Budget to be delivered one week from now. (Tor Ching Li: Today, 08/02/2007, pg 1)

### **(3) c. Cultural activities in Pakistani dailies**

The 377th annual 3 day *urs* (annual celebration) of Hazrat Baba Shah Jamal will start at Saints *Mazar* (Tomb) in Ichra, Lahore on Thursday. (The Nation 12-05-05)

*Thana culture*. (police station) (The Nation 06-06-05)

### **(4) Places**

Names of places mostly use native expressions and these are retained as such in the English language newspapers. Places, like events and cultural values are contextual ‘items’, and over time, the local languages are assimilated into the matrix language.

#### **(4) a. Places in Malaysian dailies**

I support the *SJK* (Sekolah Jenis Kebangsaan). (Aznam, Suhaini. (2004). Gruelling day on the campaign trail. March 20. 20.)

A couple of years ago, I called Hospital *Universiti Kebangsaan Malaysia* (National University of Malaysia Hospital) for an appointment to have a child...(Teh, B. C., May 8, 2004. StarTwo 27).

The many so-called *rumah tumpangan* (brothel) here ply the flesh trade openly.(Tan Hwee Mui, Margaret. April 9, 2004: 11).

As for Noornadia, Ansara’s assistance would enable her to continue her studies at *Kolej Matrikulasi* Kulim (Kulim Matriculation College) in Kedah.(New Straits Times. May 8, 2004: 12).

“Furthermore, the ministry is taking over *Dewan Bahasa dan Pustaka* (Language and Cultural Centre) because it is very important to teach the young to speak proper Malay,” she added. (Ritikos, Jane. April 22, 2004: 12)

#### **(4) b. Places in Singapore dailies**

Mr Ng said his bakery daily produces about 1,000 loaves of brown bread, supplying *Kopitiam* and Banquet foodcourts. (Teh Jen Lee: The New Paper, 25/02/2007, pg 14)

There are many reasons *Bagus* (“good” in Malay), which opened three years ago lives up to its name. (Teo Pau Lin; The Sunday Times, 18/03/2007, pg L31)

#### **(4) c. Places in Pakistani dailies**

...afternoon at *kamran's baradari* (A verandah with twelve arches) (The News 14-08-05)

*Anarkali Bazaars*. (A shopping centre named after a royal maid servant )

A police post exhibition hall Suma'a hall industrial school for women, library, *langar khana* (a place for dining which gives free food)and *musafir khanas*.(inn offering free lodging) (The News 6-6-2005)

*Bab-e- Pakistan* (The Pakistan Gate) project is being completed on 110 Acres of land. (The News 14-08-05)

A low of profile politician, invited me to his sprawling *Lal Havel*. (The News,1-7=05)  
The *Lari Adda* (Bus stop) police said..... (The News 01-07-05)

#### **(5) Political movements and government**

All political movements are indigenous in origin. Also their success and popularity depend on their appeal that cater to the masses so they carry names in the national language, Urdu. Since a vast majority of the public is not familiar with English, Urdu is used to reach out to the maximum number of people in the country. In the Malaysian and Singaporean data base under study, no such examples were found.

#### **(5) c. Political movements and government in Pakistani dailies**

English is the official language in Pakistan. Most of the written communication is done in English.

There are however, some posts that carry Urdu names and one such post is that of *Nazim* which means administrator. This post occurs as the administrator at the lower level (*tehsil*) or at the higher level (district).

A compound word - *Nazimship* was also recorded (The News, 1-07 -06).

*Khaksar Tehrik* (Movement) Pakistan has announced its support to Ms. Fakhrunisa for that office of Lahore High court Bar association. (The Nation 25-02-05)

MMA, ARD and Pakistan *Tehrik Insaf* (movement for justice)agreed yielding unanimous candidate for the *Nazim* slot against the ruling party in UC-32, Dars Baray Mian, Mughalpura. (July 7, 2005)

President Musharraf will also distribute medals among two hundred *Karkun-e- Tehreek* Pakistan. (Workers of the Pakistan Movement) (The News 14-08-05)

The sources said both the parties in their party meetings discussed in detail the ruling party's strategy to win the seats right from union councils to the district and *Tehsil Nazims*. (Local government administrators)

Ministers would also be eligible for simultaneous *nazimship*. (coinage of a new term) (The News 01-07-05)

Dcos, Tmos replace *nazims*. (The News 01-07-05)

Secretariat will come under the Mohtasib. ( Accountability chief) The News, 6-07-05.

Candidates for union council *nazim* and *naib nazim* (deputy administrator) will file their papers. (1-07-05)

The election commission has fixed September 29th for the elections of district, *tehsils*, *talukas* and / or towns. (The Nation 17-06-05)

## **(6) Religion**

Malaysia and Pakistan share a common state religion- Islam hence, it was not surprising to find that a vast majority of words under this category were found. Names of religious places, religious events and activities are retained in the native form in the English dailies. Examples are words like *masjid*, (place of worship for Muslims); *naat khawani* (recitation of poems in praise of the Holy Prophet Mohammad; *assalamualaikum* (peace be upon him) or Quran *khawani* (recitation of the Holy Quran) . Such instances of code-switches in Singaporean newspapers were not found.

### **(6) a. Religion in Malaysian dailies**

But then, we could not sit together because there would be a non-*halal* section and a *halal* section. (New Straits Times. (2004). Captions. February 1. 2.)

The *mutaah* comprised claims of up to 15 year for alimony (*nafkah*) amounting to RM360,000, clothing and accessories (RM270,000) and maintenance of their four children aged between 13 and 22. The remainder, to be given in movable and fixed assets, was acquired by the couple during their marriage (*harta sepencarian*). Properties given to Nooraini as matrimonial gifts (*pemberian hibbah*) – including a BMW car, a Honda Civic car and a house in Subang Jaya, Selangor – will remain at her disposal. (Othman, M. Husairy. May 12, 2004: 6).

“I am not young anymore, and this is a way for me to earn my *pahala* (spiritual merit for doing good deeds),” she says. Just as Muslims have to attend courses to perform the *umrah* and the haj, Asmah too had attended short courses organised by the State Religious Department, the Health Ministry as well as the *surau* to qualify for the job. (Yusoff, Yuslina. May 12, 2004)

### **(6) c. Religion in Pakistani dailies**

*Chehlum* ( Religious prayer /Condolence Ceremony held forty days after death) of *Chaudhary Faqir* Muhammad will be held on Sunday. (The News 24-07-05)

*Qul*( Religious prayers held on the third day after death) of Razzatullah Khan at Jamia Masjid Ashrafia Sant Nagar Today. (July 24th, 2005)

*Madrassa*( Religious seminary /school) reforms Board meets today. (July 7, 2005)

Quran *Khawani*( Reading of the Quran) for mother of Dr. Nadeem Cheema will be held at..... (July 24th, 2005)

...honor of this *Ummah* ( The Muslim nation) is being sold..... ( July 7th, 2005)

### **(7) Arts and film**

Arts define the properties of culture and is presented in the local language, in order to 'contextualise' the value. Both Malaysia and Pakistan's data base displayed such code-switching but it was not found in the Singaporean data base.

#### **(7) a. Arts and film in Malaysian dailies**

He said the performing arts had also been neglected and the new ministry could revive dying traditional arts such as *wayang kulit* and *mak yong*.(Ritikos, Jane. April 22, 2004: 12)

Jeganathan Ramachandram's art exhibition '*Vaastu – Windows to Time*'...The concept is very much like *feng shui*, but *vaastu* also incorporates the time factor in its application...A musician in his own right, he was also trained as a *veenai* (a traditional Indian stringed instrument) player in South India. (Samat, Hafidah, May 8, 2004: L14).

One child especially was in her element dancing to a *bhangra* tune, and mesmerising the audience with her slick Bollywood moves. (Taib, Shuib. April 29, 2004: CL1).

Pengkalan Kotan candidate Lee Hack Teik of Barisan National kicked off his campaign with a song entitled *Say Kai Tay Ee Theng* (meaning "The World's Bravest" in Hokkien).(Star. March 15, 2004: 4).

#### **(7) c. Arts and film in Pakistani dailies**

Names of movies, plays and theatrical performances are mostly in the local language.

Hmm! While on the one hand we have couples heading for splitsville, we have one dusky *dhamaka* (Explosion) from *Sheikhpura* (name of place) *Meera* desperately trying to create some big bangs across the great divide. (July 12, 2005)

Double *Sawari*. (The Nation 05-09-05)

"*Paoon Ka Zever*". (The Nation 05-09-05)

"*Kareeb Kareeb*" (The Nation 05-09-05)

*Samri jadugar* (The Nation 05-09-05)

*Oh ho ho! Ainak Wala Jin* ( The bespectacled genie) (The Nation 05-09-05)

He revealed that he plans to stage play “*Kaereb Kareeb*”.( name of play) (The Nation 05-09-05)

### **(8) Food**

Like art, food also indicates cultural identity. Names of local dishes, foods, fruits and vegetables are referred to by using words from local languages. The reliance on local names occurred because there are no English equivalents:

#### **(8) a. Food in Malaysian dailies**

According to her niece, Delphine Rane Dawson, who is in her mid 30s, “My aunt’s anchovy and *petai sambal* is unbeatable!”...Her catering business includes doing the weekly cooking for a couple and providing snake packs of fried *meehoon* and *nasi lemak* for the altar boys...Her spicy brinjal *chutney*, fiery chicken *sambal*, crispy fish cutlets, rich cauliflower *kurma* and aromatic *briyani* make her clients come back for more... However, her *dhalca*, mutton varuvel and chicken *briyani* have remained all-time favourites...(Chen, Grace, May 8, 2004: StarTwo 4).

As I recall, it used to be a small, friendly, calm, slow, cheap, serene place with a beach and sea view all the trappings of a port city and a pretty good *nasi kandar* and *char kuay teow*...(Moses, Rajan, May 8, 2004: 11).

Smoking be banned in all restaurants, *teh tarik* stalls and toilets. (J., Peter, May 8, 2004. StarTwo 27).

The owner, a short man who still wears a Pagoda- brand white singlet, knows his order – *kopi kau* (strong coffee with condensed milk). Although the tables are always filled up because of a popular *Hokkien mee*, or prawn mee stall there, the 65- year-old teacher is left undisturbed to read his two English newspapers. At *ceramah*, he tells his listeners he has eaten *kari pooi* (curry rice in Hokkein) – a euphemism for having spent time in prison or a lock-up. (Wong, Chun Wai. March 20, 2004: 8).

#### **(8) b. Food in Singapore dailies**

The thought of *ginseng* in *chawanmushi* made me a little nervous. An added bonus? The ginkgo nut at the bottom of the cup. The *tang gui* flower crab is another dish on offer.(Lee Pei Qi: The New Paper, 21/07/2007, pg 26 & 27)

Halfway through our *ramen* dinner, I popped the question: “Where did the two of you meet?” (Mindy Tan: The New Paper, 23/02/2007, pg 25 & 26)

Especially the dinning bit, what with the array of pineapple tarts, *kueh lapis* and abalone meals. (Mindy Tan: The New Paper, 23/02/2007, pg 25 & 26)

If these bakeries were ever to close down, Singaporeans would feel the loss most keenly when they want to eat *kaya* toast. (Teh Jen Lee: The New Paper, 25/02/2007, pg 14)

Go for the *a la carte* buffet if you have the luxury of time and a good appetite (Goh Mei Yi: The New Paper, 26/02/2007, pg 31)

Inspired by a Thai-style glass noodle dish, I decided to prepare a claypot meal using bean thread noodles (*tang hoon*), tiger prawns and thinly-sliced abalone. (Amy Van: Today, 08/02/2007, pg 50)

The crowd is young and casual, and seems to be as comfortable ordering wood-fired pizzas as they are *briyani*, the city's famous meat-and-rice dish. (Today, 08/02/2007, pg 51)

Try carrying a mountain bike, a box of *bak kua* and Kylie Minogue's perfume onto the MRT. (Neil Humphreys: Today, 17-18/03/2007, pg 12)

Last night, I had a strange dream, in which I was wearing my favourite white wrap shirt tucking into an enormous bowl of *laksa*. (Pearlyn Tham: Today, 17-18/03/2007, pg 20)

After all, the laidback recreation area is more commonly known for affordable family-friendly chow than posh nosh like *foie gras*. (Neo Chai Chin: Today, 17-18/03/2007, pg 22)

I was a tad disappointed with the slipper lobster pasta (\$18), comprising chunks of slipper lobster meat, served with chopped parsley in light cream and *pomodoro* (tomato) sauce. (Eveline Gan: Today, 17-18/03/2007, pg 22)

I opted for the baked chocolate *lava gateau* (\$6) served with vanilla ice cream and strawberries. (Eveline Gan: Today, 17-18/03/2007, pg 22)

The eatery will, for instance, serve an eclectic range of food including *foie gras* fried rice, sweet-potato pancakes with *gula melaka* (palm sugar) and *cempedak* preserves. (Ashraf Safdar: Today, 21/03/2007, pg 39)

Organic *miso*, Korean *chilli* paste, maple syrup, eggs, lots of fruit, salad greens, real butter, my store of Chinese herbal tonics such as sweet and bitter apricot kernels, Chinese dates and chicken soup herbs. And my home-made *kimchi* collection. (Eveline Gan: Today, 17-18/03/2007, pg 22)

My Beijing sister-in-law's *jiaozi* (steamed dumplings), served with aged Chinese vinegar with tender ginger juliennes and a saucerful of *jiucaihua* (pickled flowering chives). (Eveline Gan: Today, 17-18/03/2007, pg 22)

At first sight, this *halal yong tau* foo restaurant in a shophouse unit in Changi Road doesn't look promising. You can even have it with *la mian* (pulled noodles, add \$1), bee hoon or rice (add 50 cents). For example, the best-selling *ikan parang* balls (\$4 for a few balls in soup) are big and bouncy, and you can tell they're handmade because their surfaces are pock-marked. (Teo Pau Lin; The Sunday Times, 18/03/2007, pg .L31)

There was also the monkey guffaw, involving much scratching of heads and armpits, and even a local “*teh-tarik*” laugh. (The Straits Times, 02/04/2007, pg 1)

Here I marry two traditions by spicing up a Mediterranean broth with a sambal which I either make from scratch or put together with the help of a bottled paste. I end up with a full-boiled stew, spiked by *chillies* and *belachan*. 2 slices *batang* fish, cut into at least 6 pieces. 1 tbs tamarine puree (available bottled from Tekka market). Mix in turmeric and *galangal* powders. (Sylvia Tan: The Straits Times, 04/04/2007, pg mindyourbody 15)

Just as special is the unique Saison Sayang, a beer crafted in the European style but with a touch of Asian spices like coriander, Chinese *ba jiao* and lightly spiced with a liquorish anise undertone. (Today, 22/03/2007, pg 46)

Serve the rice with slices of lime, coriander leaves, *chilli padi* and cashew nuts. To prepare this dish, you’ll need to get a bottle of preserved olive vegetables (*kana chai*) packed in brine. (Amy Van: Today, 22/03/2007, pg 52)

No doubt about it, *doujiang* (Chinese salted bean sauce). A really good packet of fried hor fun topped with lots of tasty gravy, slices of shark meat, liver, pork fillets and prawns, all wrapped up in smoky, dried palm leaf (*wuba ye*). So breakfast is now one plain *roti prata* for 60 cents. (Radha Basu: The Straits Times, 03/04/2007, pg 2)

#### **(8) c. Food in Pakistani dailies**

They found a packet of *Chaars* (Marijuana) in it and arrested me. (July 12, 2005)

....are called *simla mirch*. (capsicum). (The News 14-08-05)

....while wave after wave of *falsa* (purple coloured sour berries) lychee, mangoes and plums are visible.” (The News 30-06-05)

“the per acre produces of the *sindhr* ( a variety of mangoes) mangoes is around stones.” (The News 06-07-05)

“Mrs Samira Shahzad’s cooking classes ; *Sheesh Kabab* (meat dish) (The News 06-07-05)

*koftas*. (meat balls) (The News 28-08-05)

“... a few itinerant vendors selling peanuts and *chana jor garam* ( roasted grams)...” (The News 28-08-05)

#### **(9) Clothes**

In the era of globalisation, clothes provide the wearer with an identity. The data indicates that clothings which are native in origin are referred to by using words from the local languages.

#### **(9) a. Clothes in Malaysian dailies**

Male students wear black *songkok*, white baju *Melayu teluk belanga*, black *samping* and white shoes. Female students wear white-and-blue *baju kurung*, white *tudung* and white shoes. Male teachers are required to be dressed with tie and *songkok*, while women wear *baju kurung* with *tudung*. Nowhere in sight is “Arabic” attire such as *jubah* (robes), *ketayap* (skull caps) and *serban* (turbans), which are trademarks of religious schools in other parts of the country. (Sayuthi, Shahrums. February 28, 2004: 15).

Probably the most eye-catching were the Wanita Umno members who were using the “blue wave” to maximum effect – they wore the blue BN flag as their *selendang* with their white and red *baju kurung*. (New Straits Times. February 24, 2004: 2).

Clad in a fuschia *songket baju kurung*, guest of honour Datin Paduka Seri Endon Mahmood was clearly pleased to see the stylish creations. (Manan, Dazman. May 7, 2004: 3).

#### **(9) b. Clothes in Singapore dailies**

For a day out at the zoo or in the urban jungle, dress up your little ones in the Safari designs, which are heavy on flower and camouflage prints and crochet details and come drenched in shades of green, *khaki* and pink. (Pearlyn Tham: Today, 17-18/03/2007, pg 21)

The new rules follow a high-profile court case in which the father of a 12-year-old Muslim girl was last month refused permission by London’s High Court to challenge a school’s ban on her wearing the full-face veil, or *niqab*, during lessons. (Today, 21/03/2007, pg 20)

Outwardly, it appears conservative, with many women in long cloaks and wearing the *hijab* (head scarf), yet it boasts a chic quarter, Al-Jedeida, home to a number of boutique hotels with stylish restaurants. (Tan Chung Lee: The Straits Times, 03/04/2007, pg Life! Travel 2)

Law studies: Former Hong Kong actress-turned-lawyer Yung Ching Ching, the wife of director Lau Kar Leung, has been donning a *tudung* and *mini-kurong* while studying Islamic law in Singapore, reported Malaysia’s *Guang Ming Daily*. (The Straits Times, 03/04/2007, pg Life! Buzz 12)

#### **(9) c. Clothes in Pakistani dailies**

She exhibited her bridal collection of *ghararas* and *saris* made in muslin. (The News 24-07-05)

The kind of work seen on the costume included tapestry ,embroided work like *jaamdani* and *zardozi* work on muslin and pure silk. (The News 24-07-05)

She has stuck to se limits with the exception of a *khaadi* shoot in which she felt she revealed too much. (The News 24-07-05)

That and another shoot in which my *choli* was way too small. (The News 24-07-05)

We need to prove that *kurtas*, sequins and *khussaa* are as much our culture as India's. (The News 24-07-05)

President Musharraf was clad in white *Shalwar Qameez* with a traditional *Khusa*. (The News 16-08-05)

She designed her bridal collection of *Ghararas* and *Saris*. She also showed her interest in *Khussas* and *Kurtas* clothes.

### (10) Quotations

Quotations are frequently used to by journalists so as to emphasise and provide a realistic account. This is done in the language used by the speaker.

#### (10) a. Quotations in Malaysian dailies

“*Apakah sangat teruk kerja sini? Cari duit saja. Bau busuk dah biasa* (what is so bad about working here? It is just to earn money. We get used to the stench),” exclaimed one of the women, who gave her name as Mas and she said she was 48 (Chin, Mui Yoon. April 19, 2004: 2-3)

It was scorchingly hot, but one in the crowd was heard saying: “*Panas lit lit pun tak pa. Semangat tu ada.*” “It doesn't matter how hot it is, the spirit is here.” And in thick Penang patois he added: “*Jangan buat lekeh.*” It means, don't spoil it. (Nadzri, Syed. March 9, 2004: 4)

“*Guane, nok sokong lagi?*” (How? Do you still want to support them?). Another popular slogan is “*Pas molek doh weh, Umno dok rok chetong,*” *Molek* which means elok, and *dok rok chetong* translates as *lekeh* or “not in the same class”, say locals. Where the above slogan is seen, Umno's retort can be found a few telephone poles away: “*Serik doh wehhh.*” (Enough already.) “*Umno bina, PAS musnah*” (Umno builds, PAS destroys) – a catchphrase popular in Setiu and Besut, is answered by “*Umno bina tol, PAS musnah tol*” as you cross the Sultan Mahmud bridge into the state capital. At makeshift huts along the road to Merang it is simply “*Selamat tinggal PAS*” (Goodbye PAS) to which PAS retorts: “*Selamat tinggal Umno, dan jangan kembali lagi*” (Goodbye Umno and don't come back). An Umno banner posted in the vicinity of government offices and quarters in Besut carries the list of political blunders allegedly committed by PAS leaders: “2001 – *Panggil wartawan tupai dan monyet* (Called journalists squirrels and monkeys), 2002 – *Panggil polis syaitan bisu* (Called the police silent devils), 2003 – *Panggil kakitangan kerajaan berkaki empat* (Called civil servants four-legged, implying they were animals). The banner ends with the word “*Guane?*” At the state capital, the messages are more conservative with a giant billboard showing Menteri Besar Datuk Seri Abdul Hadi Awang and the ruling government's main slogan below: “*Terengganu kite, hok kite*” (Our Terengganu, Our right) – a direct reference to the issue of oil royalty allegedly owed to the state by the Federal Government. (Suthakar, K. and Baharom, Farris. March 8, 2004: 19).

### **(10) b. Quotations in Singapore dailies**

The Japanese have a proverb: *Ishi no ue nimo san nen* – which means. After sitting on a cold stone for three years, the stone becomes warm. (Letter from John A Tessensohn in Osaka, Japan: Today, 08/02/2007, pg 26)

In reference to their upcoming concert being named Jump: *Li Kai Di Qiu Biao Mian* (Mandarin for “Jump: Leaving the Face of the Earth”), the band’s guitarist Stone said at a press conference on Friday: “In the physical sense, we hope our fans that come to the concert will join us in jumping to the beat if the music and hence ‘leave’ the earth.” (Winson Teo: Today, 17-18/03/2007, pg 30)

He said: “*Tilam* (mattress in Malay) is a very common item. How you interpret it depends on your mindset. But to many....it means having a home, a personal space, a possession.” Wendy Teo: The New Paper, 05/04/2007, pg 26

Student Lim Aik, 21, says: “I’d fell ‘*paiseh*’ (Hokkien for embarrassed) if there was a line of people waiting for seats.” (Shaan Seth: The Sunday Times, 18/03/2007, pg L10)

### **(10) c. Quotations in Pakistani dailies**

Nazar na lagay. (God save you from the evil eye) (July 12, 2005)

History is repeating itself. Previously Mohsin Khan left cricket and joined the Indian Film Industry. Ultimately he was like a “*dhobi ka kutam na ghar ka na ghat ka*” *Har Qadam Zindagi* ! (life at every step)

### **(11) Conceptualising of local concepts**

Although the above categories have attempted to highlight concepts that were related to religion and culture, the following section illustrates instances of code-switches in Singaporean newspapers. These instances appeared to be using local concepts like the Hokkien ‘*kiasu*’ which means afraid to lose.

Although in *huayu* it’s cool, it’s not so hot in English. Mandarin speakers might say *mai hui lai*, which literally translates to “buy back”. (The Sunday Times, 18/03/2007, pg 42)  
But inversely, when there’s more than plenty and one is still grabby, well, there’s being *kiasu* to the nth degree (meaning to the highest order). (Sylvia Toh Paik Choo: The New Paper, 25/02/2007, pg 27)

Oily rice in today’s *kiasi* (fear of death) mindset is a no-no because it can make you feel sick. (K.F. Seetoh: The New Paper, 25/02/2007, pg 30)

The therapeutic aim of a TCM treatment is to invigorate the kidneys and liver, especially through nourishing the kidney *yin* to restore the inner balance. (Gerard Yeo: The Sunday Times, 18/03/2007, pg L12)

It saves you trouble at the airport counter and gives you more time to trawl through the duty-free shops or sip a *mai-tai* in the lounge. (Jason Hahn: The Sunday Times, 18/03/2007, pg L15)

Journalist who have interviewed her attest to her “*nu ren wei*” or sense of femininity.

When I look at the photo, I was dishevelled and my face like *kena bus langah* (like a bus had hit me). (Judith Tan: The Straits Times, 04/04/2007, pg mindyourbody 4)

## Conclusion

The corpus of data had been compiled from local English newspapers in Malaysia, Singapore and Pakistan and they have been categorised under 11 classes. Although Malaysia and Singapore share many historical facts the study indicates that there were a number of categories of lexical usage that are present in Malaysian newspapers but not in Singaporean newspapers and vice versa. A number of possible reasons leading to this could include strict censorship by the Singaporean government on the usage of English to ensure what may be construed by the government as “pure English”. In contrast there is a need to cater to the food habits of Singaporeans and this has resulted in the emergence of many lexical items from other languages. This study also highlights the fact that Malaysia and Pakistan share many similarities in terms of their hybridization of words found in their respective English newspapers while despite the physical closeness, Singapore appears to be more Chinese as many of the terms identified appear to have a Chinese origin.

This richness of lexical intrusions and assimilation into regional varieties of English makes them truly our English and so we can strongly assert that the colonization process has come full circle with the one time colonies of the British Raj now colonizing and Asianising the Raj's language. English is a global language and more importantly from the perspective of learners of English it has become our language as so many of our lexical items have assimilated and been accepted not only in the regional varieties but globally. Everyone knows what a *kampung* is and what going *amuk* means!

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# Korean Locative Adverbs and Politeness

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## Abstract

Korean locative adverbs *yeki*, *keki*, and *ceki*, when suffixed with the polite *-yo*, function as attention-grabbing devices demarcating the different degrees of politeness toward addressee(s) whose relationship with the speaker is not intimate or formal enough to opt for the typical options (e.g., first name, social titles, etc). *ceki-yo* is very frequently used in catching someone's attention in a very polite manner, polite enough to be used to seniors. *yeki-yo* is used mostly at places such as restaurants and stores where a customer (i.e., speaker) tries to drag the other party's (i.e., waiter/clerk) attention toward him/herself. *Keki-yo* is not polite enough to be used to seniors and, depending on the context, could sound offensive or rude to the hearer.

**Keywords:** Korean locative adverbs, place deixis, person deixis, politeness

## 1. Introduction

The term deixis comes from the Greek language, which means “pointing” via language. When it comes to the spatial deictic expressions such as locative adverbs (e.g., here, there) and demonstratives (e.g., this, that), the notion of relative “proximity” is considered as playing the central role in their use. In some languages with two-term system (e.g., English, Dutch, etc.), the two expressions are contrasted in terms of proximity to the speaker. For languages with three-term system (e.g., Japanese, Korean, Spanish, etc.), the three expressions are used in terms of proximity to either the speaker or the hearer. In addition, the use of proximal deictic conveys the speaker's increased involvement or empathy, and the distal deictic conveys decreased involvement or empathy. That is, the choice between a proximal and a distal deictic form can also be influenced by the speaker's emotional preference toward an object, namely psychological distance (Brown & Levinson, 1987; Fillmore, 1982; Lakoff, 1974), which

is considered as the truly pragmatic basis of spatial deixis (Yule, 1996).

The aim of this paper is to investigate how some Korean deictic expressions, locative adverbs in particular, are used as address terms, demarcating the different degrees of politeness toward addressee(s) whose relationship with the speaker is not intimate or formal enough to opt for the typical options (e.g., first name, social titles, etc). In other words, distance measured by these locative adverbs in physical space, is being extended to mental dimensions, demarcating the degree of politeness between interlocutors. The locative adverbs of interest are: *yeki* ‘here’, *keki* ‘there’, and *ceki* ‘there’. Each of these three locative adverbs is used according to the spatial relation among the three entities: *speaker*, *hearer*, and the *referent*, as in the following examples.

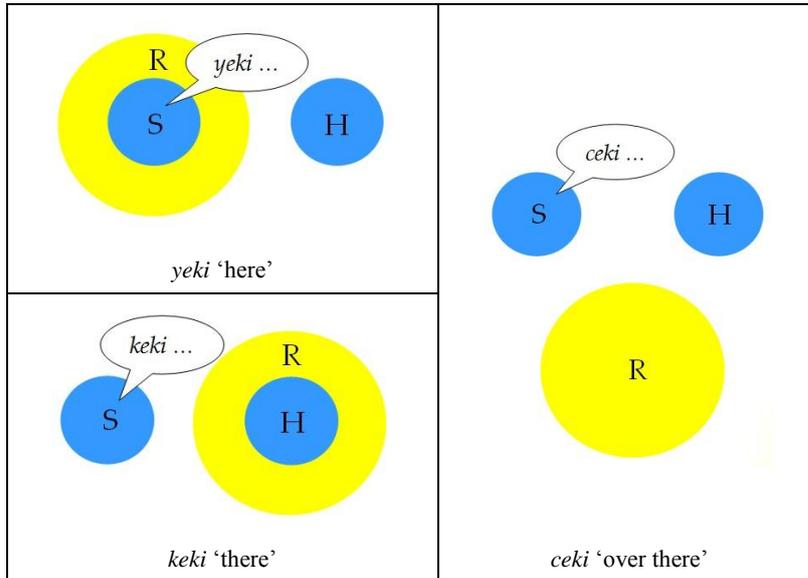
- (1) a. *ku uyca-lul yeki-lo kacjeta cwu-sey-yo*  
that chair-AC here-to bring give-hon-POL  
“(Please) bring that chair over here.”
- b. *i kkoch-pyeng-un keki-ey noh-usey-yo*  
this flower vase-TOP there-on put-hon-POL  
“Put this vase there.” (proximal to hearer)
- c. *i kulim-un ceki-ey kel-e cwu-sey-yo*  
this painting-TOP over there-on hang-give-hon-POL  
“(Please) hang this painting over there.” (distal from both speaker and hearer)

Korean locative adverbs in the example sentences (1)a-c are interpreted in the following ways:

- *yeki* ‘here’
- *keki* ‘there’ (when the referent is distal from speaker but proximal to hearer)
- *ceki* ‘over there’ (when the referent is distal from both speaker and hearer).

It is generally understood that the locative adverb *yeki* ‘here’ refers to a space proximal to the speaker, and this includes the overall space surrounding the speaker. In the similar way, *keki* ‘there’ refers to a surrounding space proximal to the hearer but distal to the speaker. Finally, *ceki* ‘over there’ refers to a space distal from both speaker and hearer. The relation among the speaker, hearer, and the referent shown in these adverbs can be illustrated as in the figure 1 below, where S stands for speaker, H stands for hearer, and R stands for referent.

Figure 1. *yeki / keki / ceki*



Korean speakers use diverse linguistic expressions in addressing others, either to attract their attention or to refer to them, in a spoken discourse. The way in which speakers select these address terms depends largely on the relationship between the interlocutors (e.g., the degree of formality and intimacy) and the social context in which they are engaged during the course of a conversation. In Korean, there are more than one personal pronoun referring to the speaker and the addressee since it reflects a relative social hierarchy between the speaker and the addressee, or the referent (Sohn, 1999). When no particular address term can be selected in addressing the other party, however, speakers often use the locative adverbs to index their rather obscure relationship. These locative adverbs, which function as attention grabbing devices, not only depict speaker-hearer-referent spatial relationship but also the degree of the speaker's politeness toward the hearer. Now, consider the following example sentences.

- (2) a. *yeki, maykcwu twu can chwuka-yo*  
 here, beer two glasses add-POL  
 “Here, please bring two glasses of beer.”
- b. *keki, mwe ha-nun ke-yey-yo*  
 there what do-RT thing-be-POL  
 “There, what are you doing?”

c. *ceki*,        *yeki sicheng-i*        *eti-ey iss-e-yo?*  
over there here City Hall-NM where-at be-POL  
“Excuse me but where is the City Hall around here?”

The locative adverbs *yeki* ‘here’ and *keki* ‘there’ in the examples (2)a and (2)b above illustrate their use as locative deixis as well as attention grabbing devices at the same time. In *ceki* ‘over there’ in (2)c, on the other hand, its function of attention grabbing is predominant over its place deictic function. Furthermore, *ceki* ‘over there’ when used with the polite speech style suffix *-yo*, which accentuate its attention grabbing function, is very frequently used as an address term, such as ‘Excuse me’ in English. In the following sections, the mechanisms through which the distance measured by these place deixis is being extended to mental or psychological dimensions, demarcating the degree of politeness between interlocutors when used as person deixis.

## 2. Method

In order to elaborate such a perplexing relationship among the speaker, hearer, and the referent, a close observation to the context where the speech event takes place is necessary. This study is based on the data collected from TV programs (e.g., commercials, dramas, etc.) in which interlocutors’ spatial and social relationships as well as contextual and situational settings are clearly shown. Excerpts containing the use of the three locative adverbs as person deixis were taken from 112 hours of video materials for careful analysis through a discourse analysis of the speakers and hearers as well as the context within which the interaction occurs from the excerpts.

## 3. Data and Discussion

Excerpts containing the locative adverbs *ceki-yo* ‘there’, *keki-yo* ‘there’, and *yeki-yo* ‘here’ used as person deixis were taken into consideration for this study, and the number of relevant clips is as follows. 9 tokens of *yeki-yo* and 1 token of *keki-yo* were found first. Then, 90 tokens of *ceki-yo* were added to the excerpts to make 100 all together, since the use of *ceki-yo* was endlessly found from the video materials. Because the number of frequency on each token is not the main interest of this paper, we limited the tokens of *ceki-yo*.

**Table 1. Tokens of *yeki* / *keki* / *ceki***

tokens	#	location
<i>ceki-yo</i>	90	various
<i>yeki-yo</i>	9	restaurant/hospital
<i>keki-yo</i>	1	street

*ceki-yo* was predominant among the three forms (see table 1), and all 90 tokens were used in various types of contexts and environments. The 9 tokens of *yeki-yo* were found mostly in restaurant situation where the customer calls the waiter/waitress for assistance. *keki-yo*, on the other hand, was very hard to find as shown in the table, and there was only one instance where this form was used in the street. *ceki* has a unique function of being used as an attention-grabbing device (Park, 2003; Yoon, 2003). However, as shown in examples (2)a and (2)b, the tokens found in this study indicate that not only *ceki*, but *yeki* and *keki* also convey the function of attention grabbing depending on the contexts and situations.

### 3.1. *ceki-yo*

Example (3) below is one of the most typical use of *ceki-yo*. In this excerpt, the speaker and the hearer do not know each other. The speaker (man) is asking for direction to a passerby (woman).

(3) M: *ceki-yo*  
 there-POL  
 “Excuse me!”

W: ...

M: *i kunch-e-y*      *kkochcip-i eti iss-e.yo?*  
 this neighborhood flower shop-NM where be-POL  
 “Where is a flower shop around here?”



In a situation as in excerpt (3), the first thing the speaker would do is to grab the passerby's attention toward himself. The speaker needs to achieve in catching the passerby's attention in an accurate but polite manner. That is, the hearer must recognize whom the speaker is addressing. The Korean second person pronouns such as *ne* 'you' and *tangsin* 'you' are very rude to be used to a stranger, and some other options are such as *haksayng* 'student', *akassi* 'miss', *acwumma* 'mam', and so on often replace the second person pronouns. In excerpt (3), the man could have called the lady by *haksayng* 'student' or *akassi* 'miss', but then he has to make sure to use the right title that goes with her identity, in which case the hearer's identity might be mistakenly assumed by the speaker. In this case, the speaker might have to give up on the politeness toward a stranger. Therefore, in order to avoid an awkward situation, speakers could use an inexplicit expression to grab the hearer's attention, and *ceki-yo*, *yeki-yo*, and *keki-yo* are often used for this purpose.

What is interesting in this excerpt is that the images captured for excerpt (3) show that the speaker (man) is only a 2-3 feet away from the passing-by hearer (woman), yet he chooses to use *ceki-yo* which denotes a distal referent. Therefore, the speaker's selection of the locative adverb *ceki* has nothing to do with the physical distance between the speaker and the hearer. Based on the overall situation, the speaker is the one asking for a favor to the hearer, and therefore an adequate level of politeness is expected from the hearer. The use of *yeki-yo* and *keki-yo* do not fit into the situation very well, not because of the physical distance conveyed within these expressions but rather due to the degree of politeness projected by *yeki* and *keki*. This subtle difference in the degree of politeness is well shown in the next excerpt.

In this excerpt, the speaker and the hearer do not know each other. The boy (hearer) is reading a book, and the girl (speaker) approaches him with an intention of asking him a question

(4) W: *ceki-yo*  
 there-POL  
 “Excuse me.”

M: *ney*  
 yes  
 “Yes?”

W: *ceki, hoksi sikan com iss-u.sey-yo?*  
 over there perhaps time a little be-hon-POL  
 “Well, do you have some time?”



The speaker and the hearer in this excerpt have no acquaintance with each other (students from different schools). The girl approaches the boy to ask if he would be available to go to a school party with her. Therefore, the girl tries to be as polite and pleasant as possible. Similar to the previous excerpt (3), the speaker is very close to the hearer and yet she grabs the hearer’s attention using *ceki-yo*. Therefore, in using one of the three locative adverbs *yeki*, *keki*, and *ceki* with attention grabbing purpose, the speaker does not consider the physical distance between herself and the hearer. When

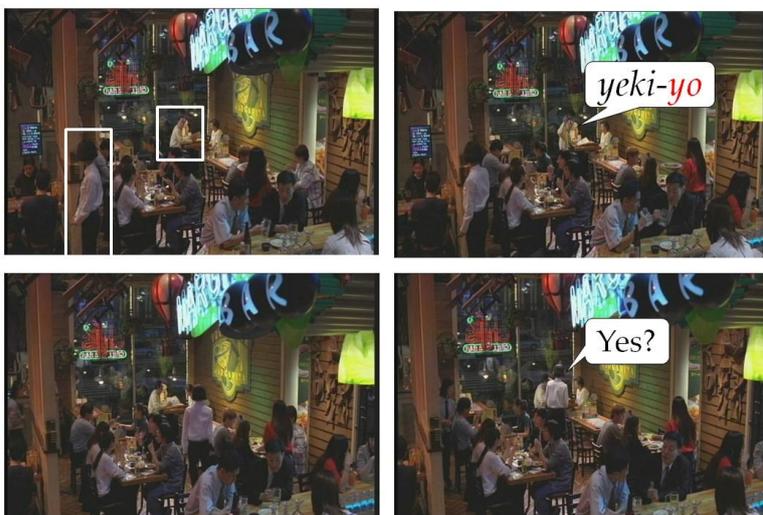
these place deixis are being used as person deixis, the speaker considers the degree of politeness in selecting one out of the three forms.

### 3.2. *yeki-yo*

Now, let us consider the use of *yeki-yo* in the following excerpt. The speaker and the hearer do not know each other, and the speaker is a customer at a restaurant, and the hearer is the waitress. The speaker (customer) calls the hearer (waitress) who is at another table quite distant from his own table in order to request something.

(5) M: *yeki-yo*  
here-POL  
“Excuse me!”

W: (approaching)  
*ney*  
yes  
“Yes?”



The customer, the speaker in this case, calls the waitress, the hearer, who is quite distant (4-5 yards) from his own table, using *yeki-yo*. Once again, the selection of the attention grabbing device is not based on the physical distance conveyed within the locative adverb *yeki* ‘here’. According to other excerpts containing the use of *yeki-yo* show that customers also use *yeki-yo* to call the waiter/waitress who is out of their sight.

By using *yeki-yo*, the speaker (customer) brings the hearer (waitress)’s attention

toward himself. On the other hand, speakers in excerpts (3) and (4) use *ceki-yo* with an intention of reflecting the hearers' attention back to themselves. Going back to the excerpt (5), the speaker (customer) calls the hearer (waitress), being conscious about his identity of being a customer and that of the hearer as a waitress, indirectly manifesting that he deserves the hearer's service and attention. Therefore, when a customer calls a waitress using *yeki-yo*, the speaker induces the hearer's immediate reaction.

Now, look at another instance where *yeki-yo* is being used. In this excerpt, the speaker and the hearer do not know each other; the speaker is a guest in a party, and the hearer is the waiter. The speaker (guest) who is leaning against the table with food calls the hearer (waiter) who is standing at the other side of the table ready to serve wine to the guests.

(6) W: (turning her head slightly toward the back)

*yeki-yo*

here-POL

"Excuse me!"

M: ...

W: (turning her head completely toward the back and looking at the waiter)

*wain han can cwu-sey-yo*

Wine one glass give-hon-POL

"Please, give me a glass of wine."

M: (approaches the woman, and pours the wine in her empty glass)



In this case, the hearer (waiter) is right behind the speaker (guest). The woman turns her head slightly toward the waiter and brings his attention toward herself by using *yeki-yo*. When the waiter looks at her, she now turns her head and shoulder completely toward the waiter and asks him for more wine. Once again, this excerpt shows that the speaker does not consider the physical distance in selecting the appropriate locative adverb, but instead the relationship between herself and the hearer. Some excerpts show that customers use *ceki-yo* instead of *yeki-yo*. In this case, the hearer is usually within a certain boundary to be shared with the speaker. In other words, their respective identities go beyond that of customer-waiter relationship. According to the excerpts, customers generally use *yeki-yo* to call the waiter/waitress but when they have eye contact, customers used *ceki-yo* instead. This implies that customers gain a consciousness on the social relationship between the two parties, and therefore, the customer-waiter relationship gets weakened. Then, the speaker chooses the more polite form *ceki-yo*.

### 3.3. *keki-yo*

The following excerpt shows the use of *keki-yo* which is the only instance of *keki* 'there' found from the video materials. Even in real life situations, any native speaker of Korean would notice that *keki-yo* is rarely used, but instead *keki* without the polite suffix *-yo* is more frequently used.

- (7) M: (looks around after placing the disposal bag on a non-designated area)

W: (realizes what the man is doing)  
*keki-yo*  
 there-POL  
 “Excuse me!”



In this excerpt, a man dressed all black hangs around a neighborhood late at night. He keeps gazing around as if he is trying to avoid being seen by anyone. When he sees no one around, he puts down a bulky parcel in black plastic bag he was carrying next to a garbage can that belongs to someone’s house and tries to leave the place. Right next to the spot where the garbage bag was left, there is a big sign that reads: *Do not place the garbage here*. In Korea, the volume-rate garbage disposal system is strictly kept, and therefore, its violation is directly related to penalty fee. This man in the excerpt is trying avoid the penalty by placing his garbage bag in front of a house in a strange neighborhood. Right in that moment, a woman, the owner of the house, calls the man who is about to flee using *keki-yo*.

The hearer (man), in this case, is getting caught in the middle of a wrong-doing by the speaker (woman) who witnesses his action. When the woman calls the man leaving the place in a hurry, she does it without showing her politeness at the highest degree. Perhaps, the woman uses *keki-yo* to convey her displeasure toward the man. Instead of omitting the polite suffix *-yo*, she uses a different locative adverb *keki* which is not as common as the other two forms. In other words, the woman tries to show the weakest form of politeness toward this man without hurting her own dignity by using the non-polite form to a stranger.

While the person deixis *keki-yo* is rarely used, *keki* without the polite suffix *-yo* is more frequently used both in real life as well as in video materials.

(8) Man: (wearing a white mask passes the gate and enters the campus)

SG: (notices something strange about this guy)

*ya, keki*

hey there

“Hey, you!”



In this excerpt, a security guard working at the main gate of a women’s college sees a strange guy wearing a white mask and carrying a metallic case passing the gate and entering the campus. Then, the guard calls the guy using *keki* without the polite suffix *-yo*. Notice that the guard uses *ya* ‘hey’ with *keki* to call the guy. *keki* itself conveys a low degree of politeness due to its directness pointing at the hearer, but in addition, the speaker drops off the polite suffix *-yo* making this attention grabbing device rude. As a consequence, some sort of rebuke or scolding is expected from the speaker, in this excerpt or any similar situation.

The main reason these locative adverbs are used in grabbing people’s attention is to avoid using inadequate titles in calling people’s attention. However, *keki* somewhat conveys a directness by pinpointing the hearer resulting in an adverse effect in terms of politeness. This is the reason why the polite form *keki-yo* is rarely used, since the connotation of *keki* does not match with the polite suffix *-yo*. As a consequence, it is hard to find excerpts where *keki-yo* is used, and *keki* is usually used instead without the polite suffix *-yo*.

## 4. Discussion

In the previous sections, the semantic extension of locative adverbs *yeki*, *keki*, and *ceki* into their person deixis counterparts *ceki-yo*, *keki-yo*, and *ceki-yo* were detected from different excerpts. Korean speakers use people's names, titles, kinship terms, and so on when addressing other parties. However, when it is hard to find an adequate term to call the hearer, as in vocative case, speakers rather use the locative adverbs *yeki*, *keki*, and *ceki* with deictic function. In this case, the referential meaning left in each of these expressions effectively avoids the directness of pinpointing at the hearer. And the degree of politeness conveyed by each of these three expressions can be accounted for by the physical distance projected through their original locative deictic functions. More detailed analyses of the three expressions are provided in the next subsections.

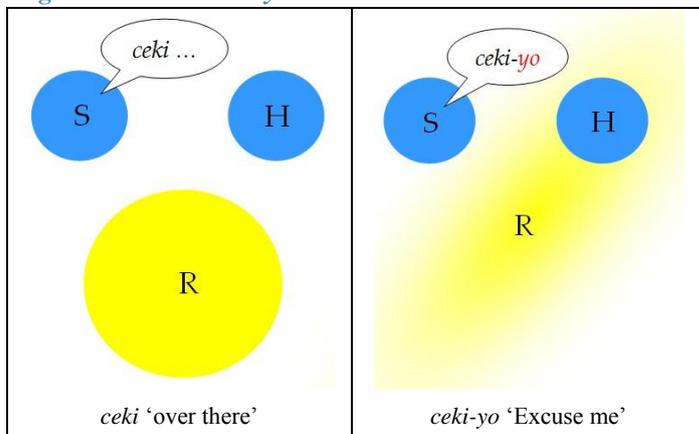
### 4.1. *ceki*

The locative adverb *ceki* 'over there' indicates a reference space that is away from both speaker and hearer. For instance, when a speaker asks a question to a hearer, "What's *ceki*?" without fixing his gaze to a particular point, the hearer would be looking around trying to find something that might catch his attention. However, when *ceki* is used as person deixis as in *ceki-yo*, it denotes the hearer, which is obvious for both parties participating in the talk-in-interaction. In other words, when *ceki* is used with the polite suffix *-yo*, there is no ambiguity at all, and both the speaker and hearer are well aware of this speech context. The polite suffix *-yo* not only increases the level of politeness conveyed within the element it is attached to, *ceki* in this case, but it also functions as an indicator that the expression being uttered contains an addressee's honorific device, and therefore, *ceki-yo* is being specifically addressed to the hearer in a polite manner.

The original meaning of the adverbial *ceki* remains unclear since it points to a vague and abstract space distant from both the speaker and the hearer. The speaker puts his gaze to the hearer and uses the polite suffix *-yo* which clarifies that the speaker is addressing the hearer, and yet, the semantic meaning of *ceki* 'over there' does not point at the speaker nor the hearer. Thus, the speaker achieves an indirectness in addressing the hearer by pointing an invisible finger at any direction other than that of the hearer or the speaker himself. By using *ceki-yo*, the speaker achieves triple indirectness effect in that the denotational meaning conveyed in *ceki* 'over there' puts the focus far away from the hearer; the reference scope depicted by *ceki* 'over there' is vast to figure out which

area the speaker is referring to; and finally, the adverb *ceki* ‘over there’ does not have any referent at all.

Figure 2. *ceki* vs. *ceki-yo*



When *ceki* is used as a locative adverb (see figure 2), the referent (the yellow circle) is a space distant from the speaker and the hearer. Also shown in the graph, *ceki-yo* ‘excuse me’ indicates a vague and abstract space distant from both the speaker and the hearer, but the speaker extends part of the referent (yellow circle) and brings it in until it covers the hearer. So now, the hearer is within this vague reference space. In this way, *ceki-yo* conveys the most indirect expression among the three, and therefore, the degree of politeness conveyed by this indirectness increases, making the expression *ceki-yo* one of the most polite devices in calling people’s attention.

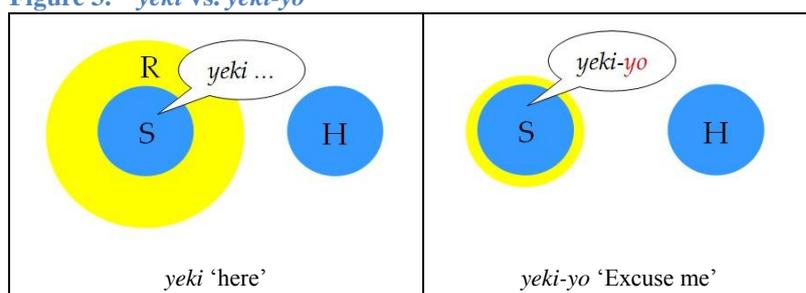
#### 4.2. *yeki*

The locative adverb *yeki* ‘here’ designates a somewhat vast area of reference which includes the speaker himself. For instance, when someone says, “I’m here,” the locative adverb *yeki* ‘here’ can refer to the point where the speaker is standing, the room, the house, the city, and so on. When the polite suffix *-yo* is attached to the spatial deictic *yeki*, it changes into a person deictic, in which case the reference area is relatively smaller compared to *yeki* used as spatial deixis. From excerpt (5), when the customer says *yeki-yo*, he is not implying the entire restaurant but his own table or even just himself, and in addition, the expression is not just referring to the location but rather it is being used to grab the waitress’ attention. This notion is represented in the graphics below.

When *yeki* is used as a locative adverb, its referent space is somewhere near the speaker and its scope extends to all areas surrounding the speaker. The yellow area

surrounding the blue circle with S (speaker) roughly represents the area that could be covered by the locative *yeki*. When *yeki-yo* is used as person deixis with the suffix *-yo*, its scope is diminished from that of the locative *yeki*. Its scope is mostly covered by the speaker himself, leaving some margins surrounding the speaker but not as spacious as in case of the locative *yeki*. Therefore, when speaker uses *yeki-yo* as a person deixis, this device function as attention grabbing, requesting the addressee to put his attention to the speaker himself and not his surroundings. Compared to that of *ceki-yo*, the scope expressed by *yeki-yo* is narrower and more specific since its referent space mostly overlaps with the speaker, and therefore, it directly pinpoints the speaker himself. *yeki-yo* is used to bring the addressee's attention toward the speaker, and therefore, the degree of politeness is slightly lower than that of *ceki-yo*. For this reason, *yeki-yo* is most commonly used in situations such as a restaurant where the speaker (e.g., customer) believes that he deserves to be the center of attention without violating one's cultural norms of politeness.

Figure 3. *yeki* vs. *yeki-yo*



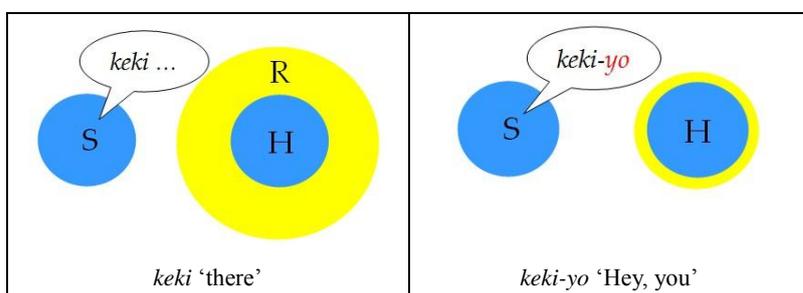
#### 4.3. *keki*

When used as a locative adverb, *keki* includes the hearer and the area surrounding him. For instance, when a speaker in the living room asks a question to a hearer in the kitchen, “Is my car key there?” *keki* ‘there’ refers to the entire kitchen where the hearer is found at the moment of the utterance. On the other hand, when *keki* is used as a person deixis, it refers to the hearer only. For instance, when a high school teacher calls a student passing by the hall using *keki*, it refers to that particular student only. This has an effect of pointing at someone with a finger since it is a very specific and direct way of grabbing the hearer's attention. As seen from the earlier sections, people use the locative adverbs in calling people's attention in order to avoid directness. Yet, due to its directness feature, *keki-yo* is rarely used as person deictic expression. In addition, combining such a direct expression *keki* with the suffix conveying speaker's politeness

toward the addressee *-yo* is such a contradiction.

When used as a locative adverb (see figure 4), *keki* depicts a space surrounding the hearer. This space not only includes the hearer but depending on contexts, it could include an entire city or even country. For instance, in a telephone conversation between someone who has left his own country and his friend back at home, when the friend calls and asks, “How’s everything there?” *there* could imply his friend’s new place, new city, or even his new country. Therefore, the space covered by the locative adverb *keki* ‘there’ could be wider than what’s shown in the graphs. When *keki* is used to refer to people, however, the reference space is smaller and includes mainly the hearer and a small area surrounding him. Targeting the hearer and placing the focus on the hearer alone is such a direct expression that it is like pointing at someone with a finger. Therefore, speakers use *keki-yo* when addressing the hearer with a negative or critical attitude. Since its degree of politeness is very low, *keki* is rarely used with the polite suffix *-yo*. Among the three locative adverbs, *keki-yo* is the least commonly used as person deictic, due to its feature that expresses such a low degree of politeness.

Figure 4. *keki* vs. *keki-yo*



#### 4.4. Summary

So far, we have discussed the use of the spatial deixis as person deixis, focusing on the way in which the denotational meanings conveyed within these spatial deixis are metaphorically extended to different degrees of politeness when used as interactive person deixis. Among the three forms, *yeki-yo*, *keki-yo*, and *ceki-yo*, the last one expresses the highest degree of politeness, whereas the second one expresses the lowest degree of politeness. The degree of politeness expressed through the first one is lower than *ceki-yo*, but higher than *keki-yo*.

*ceki-yo* achieves the highest degree of politeness by referring to a rather vague space that does not include neither of the interlocutors (i.e., speaker and hearer)

‘somewhere over there’. In this way, the speaker achieves the highest degree of politeness by using a rather vague and indirect expression. In case of *keki-yo*, the speaker gives this device an effect of directness in a similar way that a second person pronoun does. Using *keki-yo* to the addressee is almost like pointing at the addressee with the speaker’s finger. Different degrees of politeness conveyed within each form is summarized in the following table.

Table 2. Degrees of politeness: *yeki-yo* / *keki-yo* / *ceki-yo*

token	Referent scope	Degree of politeness
<i>ceki-yo</i>	away from Sp & H	High
<i>yeki-yo</i>	focused on Sp	Midium
<i>keki-yo</i>	focused on H	Low

Speakers of different languages (e.g., Korean, French, Spanish, etc.) avoid using the second person pronoun to the hearer since it is considered too direct and therefore rude. Thus, they either use 3<sup>rd</sup> person pronouns in addressing a hearer or a pronoun designated for the 2<sup>nd</sup> person plural. In similar ways, Korean speakers avoid using *keki-yo* to grab people’s attention for the similar reason they avoid using 2<sup>nd</sup> person pronouns to their addressees. *yeki-yo* places the speaker’s focus to himself, but since the speaker is pointing at himself, it does not convey any rudeness. Since *yeki-yo* try to bring the hearer’s attention toward the speaker, however, this is not as polite as *ceki-yo* which drags the speaker himself toward the hearer.

## 5. Conclusion

The present study has attempted to determine the mechanism in which the semantic extension occurs from locative adverbs (i.e., spatial deixis) to person deixis. The results of the data analysis clearly show that *yeki-yo* ‘here-POL’, equivalent to English “Excuse me,” is used in limited occasions, mostly at places such as restaurants and stores where customers are expected to have a service offered. By using the locative adverbial *yeki*, the speaker tries to drag the other party’s (e.g., waiter, clerk, etc.) attention toward him/herself. *ceki-yo* ‘there-POL’, on the other hand, is very frequently used in catching someone’s attention in a very polite manner, as in English “excuse me,” polite enough to be used to seniors. Among several uses of this locative adverbial, that of the attention grabber is most frequent when used with the polite speech style suffix

-yo. By using the adverbial *ceki* 'there', the speaker catches the addressee's attention by placing the focus on a vague referential point distant from both speaker and addressee.

*Keki* 'there' is sometimes used as a second person pronoun and thus the polite ending -yo is omitted. This form is not polite enough to be used to seniors and, depending on the context, could sound offensive or rude to the addressee. Furthermore, the findings show that among the three locative adverbials, *ceki* is the most polite one. The deictic information of adverbials *yeki* and *keki* diminishes the degree of politeness since they pinpoint either the speaker him/herself or the addressee, which could be impolite or even offensive in Korean culture as if in pointing a finger directly at someone. When using *ceki*, the speaker moves the focus away from the addressee and puts it at a vague referential point onto which the interlocutors' attention is expected to be placed. In conclusion, the distance measured by these locative deictics in physical space, is being extended to mental dimensions, demarcating speaker's degree of politeness toward the addressee.

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# The English causal adposition *thanks to*: a grammaticalization perspective

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## Abstract

This paper describes English complex preposition *thanks to* from a grammaticalization perspective. The semantic change of *thanks to* occurred along the path of [thought > favorable thought, favor > expression of gratitude > indebtedness > cause]. The semantic development from ‘thought’ to ‘favor’ involves narrowing. The semantic extensions from ‘gratitude’ to ‘indebtedness’ and further to ‘cause’ are also based on psychological contiguity of speakers i.e. metonymy. The source meaning of *thanks to* is ‘favor’, and it adheres to the causal preposition. Therefore, the *thanks to* phrases are restricted to the sentences that are semantically compatible with its original lexical meaning, ‘favor’ with the exception of ironical usages. Finally, this investigation analyzes *thanks to* in accordance with speaker involvement degree by using the 100 –million word British National Corpus, and described how the speaker involvement level affected the current usages and the distribution of *thanks to*.

**Keywords:** grammaticalization, semantic change, speaker involvement, semantic persistence.

## 1. Introduction

Causality is an important principle of human perception and a central category in human cognition. The conceptualization of causality is fundamental to the representation of human knowledge and to other cognitive processes. This is well illustrated by numerous cognitive explorations on causality (cf. ‘force dynamics’ (Talmy 1995), Talmy 2000, Sweetser 2000, Matt & Sanders 2000, Noordman & Blijzer 2000). In this regard, without much risk of overstatement it can be claimed that every language has specific linguistic means to express causal relations. When language users want to express causality, they can use causal connectives such as English *because*, *so* and *since*, Korean *kerese*, *keremero*, and *kerekitemune*, or adpositions such as English *because of*, *due to*, and *thanks to*, and Korean *ttaymwuney*, *palamey*, and *tekwuney*. Although all

these linguistic means express causality in one way or another, they seem not to be used interchangeably. Interestingly, however, English causal adposition *thanks to* indicates positive causality such as *khop khun* ‘thanks to’ in Thai, *con el favor de* ‘with the favor of’ in Spanish, and *tekwuney* in Korean. The sentences including *thanks to* comprise a causer and a causee, and a causer largely becomes a benefactor and a causee becomes a beneficiary.

The present investigation is intended to provide a detailed description of grammaticalization of the positive causality marker *thanks to*. English complex preposition *thanks to* is an example par excellence of grammaticalization in many aspects as it shows properties typical of grammaticalization processes. Although the scope of grammaticalization research is wide enough to look at grammaticalization of *thanks to* from many different perspectives, this paper focuses on characterizing the diachronic semantic changes from a grammaticalization point of view. This paper also addresses morphosyntactic changes. In addition, this study discusses different aspects of the current usage as well as the distributional characteristics of this complex preposition by using the 100-million word British national Corpus.<sup>1</sup>

## 2. Grammaticalization of *thanks to*

English complex preposition *thanks to* has developed from the independent relational noun, *thank* designating ‘favor’, accompanied by a preposition *to* (Oxford English Dictionary 1991, 2<sup>nd</sup> ed., OED hereafter). An investigation into the semantic change pattern exhibited by *thank to* reveals that it has undergone a series of semantic change. This is well illustrated in the following examples taken from OED.

(1) ‘Thought’

Gode *þonkes* and monie þewes for te teche fele schrewes. (1300, Prov. Hending i.)  
‘God’s thought and money needed for the technology was not easy to seek’

(2) ‘Favorable thought’, ‘favor’

If thou wilt doe good, know to whom thou doest it, and there shal be much *thanke* in thy good deedes (1609, Bible Eccclus. Xii. I)

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<sup>1</sup> The British National Corpus is a large corpus of modern English (almost 100 million words) which was designed to be a representative sampling of the language as it was used on the British Isles towards the end of the twentieth century.

The examples above show that *thank*, which was originally used to denote ‘thought’ as in (1), has developed to refer to ‘favorable thought’ or ‘favor’ in (2). This semantic extension from ‘thought’ to ‘favorable thought’ or ‘favor’ involves metonymic transfer, essentially triggered by the contiguity relationship between two entities or events. The metonymization mechanism involved in the semantic change above shows that certain aspects of an event or a state are given a special focus. For instance, in this semantic extension from ‘thought’ to ‘favorable thought’, the particular aspect, i.e. ‘favorable thought’ is selected by metonymization, which is due to the human’s subjective mind. Humans generally tend to recall and focus upon only the best memories from the past, that is, favorable thoughts rather than negative or painful thinking. Furthermore, the human mind appears to have a built-in tendency to erase more painful aspects from its memory, which is also one of human strengths that are strongly tied to happiness. This human propensity to give focus on the favorable thought has been already noted by numerous psychologists. (Seligman 2007)

It is to be noted that this semantic development from ‘thought’ to ‘favorable thought’ also involves narrowing (e.g. *drink* used to mean ‘alcoholic drink’). Narrowing is the case where a word is used to convey a more specific sense than the encoded one, with a restriction of the linguistically-specified denotation (Lakoff 1987, Wilson 2002). As for *thank*, the sense of ‘thought’ changed into the more specified one of ‘favorable thought’.<sup>2</sup> However, given the fact that specific and concrete meanings entering into grammaticalization process become generalized and more abstract, narrowing is not the general outcome of the semantic change.

(3) ‘gratitude, an expression of gratitude for a favor received’

a. Is this the *thanke* which you returne to God? (1642, Rogers Naaman)

b. *Thanks*, Sir: the like to you (1605, Macb. II.)

(4) ‘Thanks being given to’

It *is* no *thanks to* a man to pay that willingly, which he must doe of necessitie.

(1633, Earl Manch)

(5) ‘Indebted to (in debt to)’

*Thanks to* Homer since I live and thrive, indebted to no prince or peer alive

(1737, Pope *Hor. Epist.* II).

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<sup>2</sup> English prepositions, *between*, *on* also involve narrowing. As for *between*, the sense of ‘area next to two’ changed into the more specified one of ‘intervening space of two.’ The preposition *on* which denoted ‘any point in contact’ means more specifically ‘superior point in contact’ (Rhee 2004).

(6) 'In consequence of'

It is a sight but rarely spied, *thanks to* man's wrath and woman's pride

(1813, Scott Rokeby v.).

The semantic change from 'favorable thought, favor' in (2) to 'gratitude' in (3), (4) relates a shift of perspective. For example, the role of a speaker or a subject changes from *receiving* a favor to *giving* thanks to the favor giver. In other words, as *thank* denotes 'favor', the speaker is the one (i.e. beneficiary) who receives the favor, but when the sense of 'favor' changes into that of 'gratitude', the speaker becomes the one who expresses gratitude for the favor received.

Metonymy, i.e. psychological contiguity of speakers is also the driving force behind the semantic developments from 'gratitude in (3) (4)' to 'indebtedness' in (5) and further to 'cause' in (6). For instance, when a person is 'thankful' for the favor received, he or she may feel 'in debt' to the favor giver. Further, the favor is 'attributed' to the giver. In other words, the favor giver is considered as a causer.

As shown in the examples above, *thanks to* has undergone a series of semantic change. The semantic path can be diagrammatically represented as:

**Figure 1. The semantic path of *thanks to***

[thought > favorable thought (favor) > gratitude for a favor received > being in debt to (a favor giver) > being attributed to (a favor giver) > cause]

Diverse semantic change mechanisms operate over the semantic change such as metonymy and semantic generalization. Of particular importance among these is metonymy, a cognitive mechanism of extension of meanings enabled by the contiguity relationship between the original and new meanings. In the progression of the semantic change, the development of ironical meaning falls outside of the natural way of metonymic inference. The emergence of the ironical meaning may have to do with the strategic use of irony as a figure of speech as seen in (7).

(7) 'Ironical'

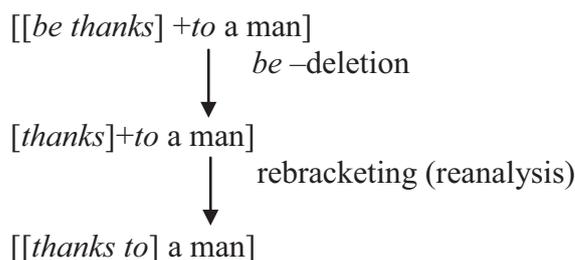
But...now, *thanks to* you, he can't wait to get rid of me (BNC).

As shown in (7), the *thanks to* phrase co-occurs with the subject, *he* which is not a beneficiary. This brings about irony because the source meaning of *thanks to* is 'favor',

and it adheres to the causal adposition, and therefore, the *thanks to* phrase is incompatible with the subject which is not a beneficiary. In other words, the *thanks to* phrases are restricted to the sentences that are semantically compatible with their original lexical meaning, ‘favor’. Nevertheless, the *thanks to* phrases sometimes co-occur with subjects [-beneficiary], which causes ironical meanings as in (7).<sup>3</sup>

In the paths of grammaticalization, morphosyntactic changes, in general, follow the semantic changes. As seen in the examples (4) and (5), the causal complex preposition *thanks to* in (5) has derived from a predicative *be thanks to* in (4). The structural boundary within a construction comprising *[[be thanks] + to a man]* has shifted into a causal construction consisting of *[[thanks to] + a man]*. The rebracketing process can be understood as a process of 'reanalysis'.

Reanalysis has been considered the major factor in morphosyntactic change, and reanalysis is defined as the reinterpreting of old structure (i.e. rebracketing) and is considered one having the effect of redefining constituent boundaries (Traugott and Dasher 2002). The structural evolution of *thanks to* is as follows:



**Figure 2. The structural evolution of *thanks to***

- (15) a. It is no *thanks to* a man to pay that willingly, which he must doe of necessitie.  
 (Manch 1633)
- b. *Thanks to* Homer since I live and thrive, indebted to no prince or peer alive.  
 (Pope 1737)

The complex preposition, *thanks to* in (15b) has also derived from a predicative, *be thanks to* designating ‘be due to’ as in (15a). This change also involves analogy. As the predicative *be thanks to* was used to denote ‘be due to’, the complex preposition, *thanks*

<sup>3</sup> In modern English, the preposition *for* is primarily used to designate advantageous relationship, but it was used to denote ‘disadvantage’ as attested in OED. (Rhee 2007) The emergence of the sense of ‘disadvantage’ is related to the strategic use of irony as a figure of speech, as shown in the following examples in OED

a. I will swinge his jacket for him. (1740, Xmas Entertainm. ii 12)

b. It would have been a mercy if I hadn’t broken some of his bones for him. (1855, Smedley. H. Coverdale Liii)

*to* occurred, following the complex preposition *due to* and omitting *be* as in (14) because of semantic similarities.

### 3. The speaker involvement analysis of *thanks to* and its distributional characteristic

Analyses of the speaker involvement potential inherent to causal complex prepositions in English can not do without systematic corpus analyses. However, there has been scant interest in the causal complex prepositions in English. Hence, we carried out corpus analyses of English causal complex prepositions, *thanks to* and *due to* with the help of the British National Corpus (BNC). For each of these prepositions, we assembled 50 occurrences from BNC.

First, we contrasted the prepositions in terms of the relations they occur in. These relational interpretations are the result of an interaction between the prepositions and the connected discourse segments. We have characterized this contribution in terms of a certain speaker involvement level that is added to the interpretation of its discourse environment. The results for these English causal prepositions are given in Table 1

Causal prepositions	Relation		
	non volitional	volitional	epistemic
Due to	43	12	5
Thanks to	22	9	19

**Table 1. Relational interpretations co occurring with *thanks to* and *due to***

Table 1 indicates that *thanks to* more frequently express epistemic relations than *due to*. With respect to volitional relations, there are not much significant differences between the two prepositions. The causal connective, *due to* has much to do with non volitional relations. Thus, the relational interpretations of the fragments containing a preposition also constitute the area of the speaker involvement scale covered by the prepositions. The relationship between speaker involvement and causal relations can be illustrated as in Figure 3:

*non volitional < volitional < epistemic < speech act*

**Figure 3. Speaker involvement and Causal coherence relations**

In this regard, we can hypothesize that *thanks to* is higher on the speaker involvement scale in terms of relational interpretations than *due to*. To determine the proper level of speaker involvement of the prepositions, we analyzed each occurrence in accordance with these four speaker involvement aspects presented: i) the degree of subjective involvement of a conscious participant, ii) the degree of iconicity of the causal relation, iii) the distance to speaker and speaking time, iv) the degree of explicitness of the participants involved in the causal relation. The combination of these distributional data determines the level of speaker involvement encoded by the prepositions. For each occurrence of a given preposition, we analyzed the related segments for a number of features related to these four aspects. Doing so, we can scale the prepositions *thanks to* and *due to* with respect to each other on the speaker involvement scale.

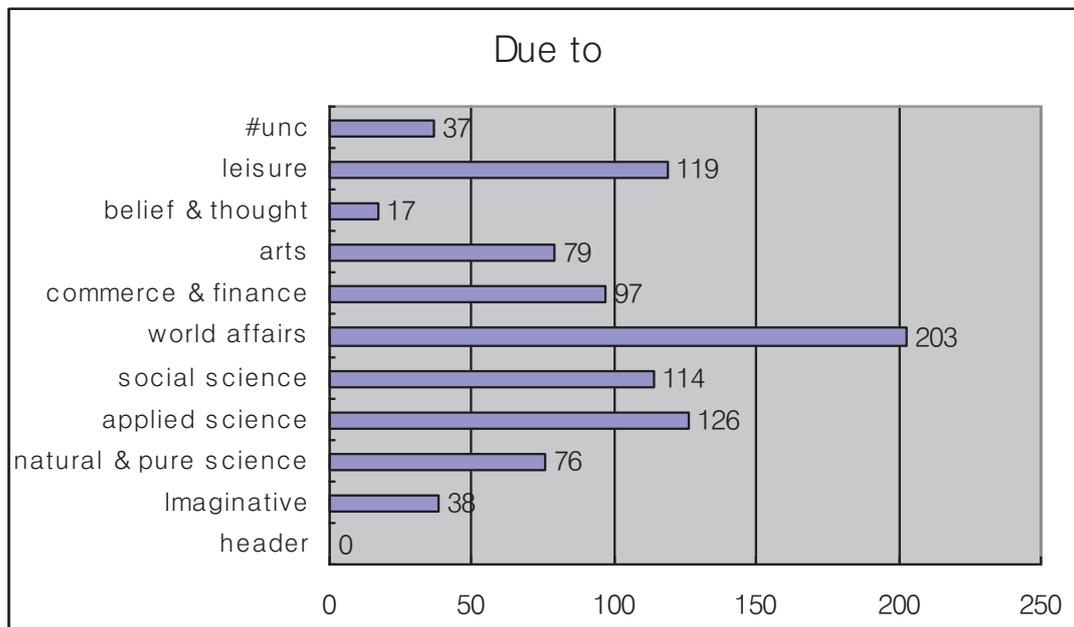
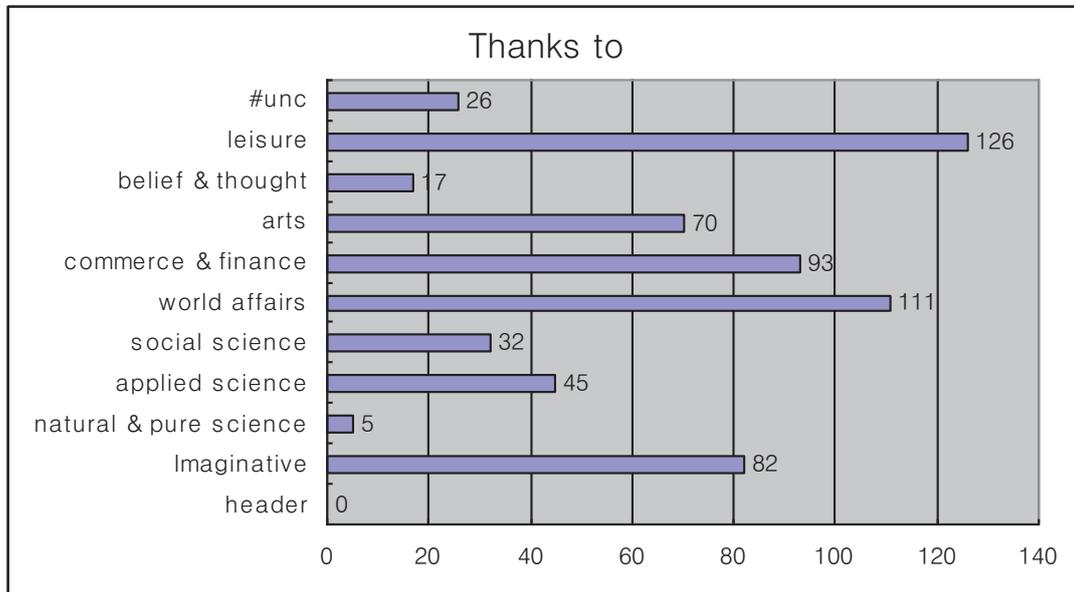
As seen above, there is a significant tendency for *due to* to express causal relations that are isomorphic with real-world causality, i.e. non volitional. The non volitional relations are at a certain distance from speaker and speaking time. These two characteristics place *due to* lower on the speaker involvement scale than *thanks to*. The latter preposition can also express relations that are non-iconic with respect to real world causality, i.e. epistemic relations. Hence, we hypothesize that *thanks to* is higher on the speaker involvement scale than *due to*.

Causal prepositions	Tense	
	present / future	past /present or past perfect
Due to	13	37
Thanks to	22	28

**Table 2. Tense co-occurring with *due to* and *thanks to***

Table 2 shows that speaker involvement increases when the distance between speaking time and causal situation time decreases. *Thanks to* more often comes with the present or future tense than *due to*. If we consider these data in Table 1, 2, we can conclude that *thanks to* is higher on the speaker involvement scale. than *due to*.

**Figure 4. The distribution of the complex prepositions *thanks to* and *due to* over the text domains of the BNC**



As seen in Figure 4, the causal preposition *due to* is frequent in ‘social science’, ‘world affairs’, ‘applied science’, and ‘natural and pure science’ whereas ‘imaginative’ is the category with lower frequency. For the written component of the BNC, a major distinction is made between *imaginative* and *informative* texts. The ‘imaginative’

category comprises texts ‘which are fictional or which are generally perceived to be literary or creative’ (Burnard 200:7). The domain ‘imaginative prose’ comprises samples from novels, drama scripts, short stories, and poetry collections. In this regard, ‘imaginative prose’ is less associated with non volitional (factual) relations than informative prose. Therefore, *due to* which expresses non volitional (factual) relations does not occur frequently in imaginative prose.

The complex preposition *thanks to*, however, have more instances in imaginative texts than *due to* while *thanks to* occurs less frequently in natural and pure science domains than *due to*. This is also in line with the fact that *thanks to* is higher on the speaker involvement scale than *due to*, that is, being more related to volitional and epistemic relations than the preposition *due to*.

#### **4. Meaning development and human cognition**

Semantic change is largely considered far less systematic and general than changes in phonology, morphology and syntax. Nevertheless, recent studies within the field of grammaticalization have provided overwhelming arguments that meaning change is motivated by cognitive principles independent of specific languages. Sweetser (1990: 18) states that in certain semantic domains there is a “deep cognitive predisposition” to turn to specific concrete domains to derive vocabulary for specific abstract domains. Traugott (1985) also has sought to identify over-arching and predictable cross- linguistic regularities in semantic change and have highlighted the extent to which meaning change as well as meaning itself is structured by cognition. The regularity of semantic change in grammaticalization is proposed in the Source Determination Hypothesis (Bybee et al 1994). Likewise, Heine et al. (1993) and Heine and Kuteva (2002) also reveal that there is a compelling reason to believe that there is a close relationship between the source and target meanings.

The semantic nuances of the source construction can also be retained in certain contexts long after grammaticalization has begun (Bybee et al. 1994). Persistence (Hopper 1991) states that when ‘a form undergoes grammaticalization from a lexical to a grammatical function, so long as it is grammatically viable, some traces of its original lexical meanings tend to adhere to it, and details of its lexical history may be reflected in constraints on its grammatical distribution’.

Therefore, the adposition is incompatible with the situation which is not beneficial to the subject or the possessor. That is, as illustrated in (16), the usages of *thanks to* are

restricted to the sentences that are semantically compatible with their original lexical meaning ‘favor’ with the exception of ironical usage. In the example (16), the nominal *my parents* following *thanks to* is a favor giver, and the favor is beneficial to the subject *I*.

(16) Thanks to my parents, I could have college education.

## 5. Conclusion

This paper addressed English causal adposition *thanks to* from a grammaticalization perspective. The grammatical form, *thanks to* is a good instance of a general evolution whereby a lexical item, (i.e. a noun), *thank* turns into the grammatical item, (i.e. a complex preposition) *thanks to*. This evolution is unidirectional, and involves a number of interrelated mechanisms such as desemanticization, decategorialization, and phonetic erosion.

Diverse change mechanisms such as metaphor, metonymy, and generalization operated in the course of semantic changes of *thanks to*. The source lexeme of *thank* is ‘thought’. The semantic change of *thanks to* occurred along the path of [thought > favorable thought, favor > expression of gratitude > cause]. The semantic development from ‘thought’ to ‘favorable thought’ or ‘favor’ regards narrowing which is not the general outcome of grammaticalization. Along the path of grammaticalization, *thank* did not denote the original meaning ‘thought’ but more specifically, ‘favorable thought.’ The semantic developments from ‘gratitude’ to ‘indebtedness’ and further to ‘cause’ are also based on psychological contiguity of speakers i.e. metonymy.

We analyzed the causal complex preposition *thanks to* in accordance with speaker involvement degree by using the 100 –million word British National Corpus, and described how the speaker involvement level affected the current usages and the distribution of *thanks to*. Further, we discussed that the usages of *thanks to* are also restricted by the semantic persistence.

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# Head Morae in Tonal Reduction: Interaction of Stress, Mora, and Tone

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## Abstract

This paper discusses the interaction of stress, mora and tone in two cases of tonal reduction, a kind of tone sandhi where a lexical tone is reduced to approximately half its length in an unstressed syllable. In *Liuyang* dialect, head mora is avoided in unstressed syllable, which leads to the deletion of the first tonal feature and first mora. Contrastively, in *Jiangxiang* dialect, the head mora in unstressed syllable is delicately preserved to such a degree that it loses its link with lexical tone but maintains its ability to attract H tone.

**Keywords:** head mora , tonal reduction, stress, interaction

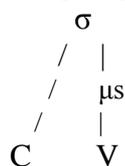
## 1. Head Mora vs. Non-head Mora

### 1.1. Head Mora vs. Non-head Mora

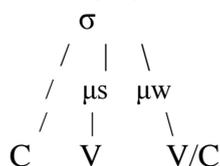
In phonological studies, mora has been argued to be the tone-bearing units (van der Hulst 1984, Hyman 1985, Hayes 1989, etc.), and a finer distinction between head-mora and non-head mora in Shaw (1992, 1993, 1995), Jiang (1996, 1999), etc. The idea goes as (1):

#### (1) Moraic Structure of Syllable

##### a. light syllable



##### b. heavy syllable



( $\mu s$  = nucleus mora= head mora,  $\mu w$  = non-nucleus mora= non-head mora)

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Such a dichotomy throws light on some types of reduplication (Shaw 1992, 1993, 1995, etc.), and certain tonal phenomena in Chinese dialects (Jiang 1996). Below, I will first visit the tonal distribution in Chinese dialects, and review the significance of such a dichotomy in the analysis of tonal inventory..

### 1.2. Prevalence of H Tones across Chinese Dialects

In terms of tonal typology, Jiao (2003) makes a statistics of the distribution of full tones across 40 Chinese dialects, as illustrated in (2):

(2) Distribution of Inventory Tones across 40 Chinese Dialects (Jiao 2003)

Tone Type	Shape	No.	Shape	No.	Shape	No.	Shape	No.
Level Tone	HH	29	MM	19	LL	1	No Level	6
Falling Tone	HL	5	HM	28	ML	20	No Falling	1
Rising Tone	LH	4	MH	27	LM	7	No Rising	3
Concave	HMH	5	MLM	14	Convex	2	MLML	(1)

(No. refers to the number of dialects where the tonal shape on the left is attested.)

From the above statistics, it can be seen that H tone is more frequent in tonal inventory than L and M tone. In a similar style, J. Lu (1999) samples 28 dialects and concludes that high-level tone (HH) show stability in tone sandhi, while low-level tone (LL) undergoes changes in most cases. This *asymmetry* is better accounted for in (1996, 1999). With data of 26 dialects from both South and North Chinese dialects, Jiang (1999) observes that (i) high level tones occurs more frequently than mid-level tones, and low level tones occurs the least, i.e.  $HH > MM > LL$ ; (ii) *half rising* tones (MH, LM) occur more frequently than *full rising* tones (LH); *half falling* tones (HM, ML) occur more frequently than *full falling* tones (HL).

### 1.3. An OT Account

To capture the above asymmetry, Jiang (1996a, b) proposes Tonal Sonority Hierarchy:

(3) *Tonal Sonority Hierarchy* (Jiang 1996, 1999)

$$|H| > |M| > |L|$$

This hypothesis is supported by the facts that (i) the general distribution of high-level tone and its stability in tone sandhi, (ii) the priority of high tone in acquisition to low tone, and (iii) the psychological prominence of high tone (Jiang 1999). Jiang (1996) also proposes the following constraint to capture the distribution of tonal shapes across Chinese dialects.

(4) Tonal Alignment Constraint (TAC) (Jiang 1996, 1999)

a.  $*\mu s/[L]$ : L tone cannot be linked to head mora;

b.  $*\mu s/[M]$ : M tone cannot be linked to head mora;

c.  $*\mu s/[H]$ : H tone cannot be linked to head mora.

Ordering in hierarchy:  $*\mu s/[L] \gg * \mu s/[M] \gg * \mu s/[H]$

Jiang (1999) further argues that within a syllable, non-head mora ( $\mu w$ ) cannot be linked to H tone, with a constraint triplet as follows:

(5)  $*\mu w/[H] \gg * \mu w/[M] \gg * \mu w/[L]$

From (4) to (5), Jiang (1999) captures the distributional asymmetry between H and L *within a syllable*. The idea here can be simplified into (6):

(6) Within a syllable, head mora ( $\mu s$ ) bans L and non-head mora ( $\mu w$ ) bans H.

In the following part, I will demonstrate the effect of the above argument in some particular types of tonal phenomenon in Chinese dialects.

## 2. Neutral Tone in Unstressed Syllables

### 2.1. Neutral Tone

Neutral tone is a special phonological phenomenon in Chinese tonology. It refers to the case where, in the disyllabic sequence like Mandarin *zhuozi* ‘table’, the second syllable is pronounced in a style light and short. In its lexical form, the syllable *zhuo* bears a tonal value 55 and the *zi* syllable bears a tonal value 214 (The numerical figure is a convention of tonal description proposed by Chao (1930), with 5 representing the highest tone and 1 the lowest.). In the disyllabic sequence, *zhuo* is read as 55, however,

zi is read as a low tone, rather than 214, comparatively short and light, like (7)

(7) Neutral Tone in Beijing Mandarin

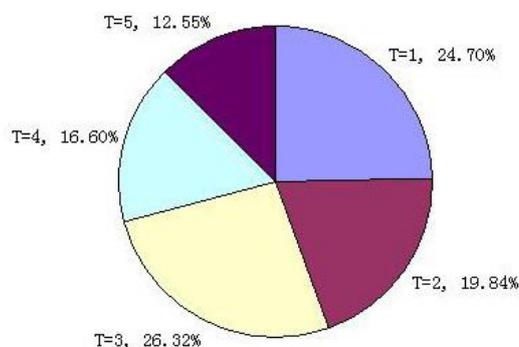
tian. <i>shang</i>	HH.L	sky-up	‘in the sky’
hong. <i>de</i>	LH.L	red-affix	‘red’
jiao. <i>zi</i>	LL.H	dumpling-affix	‘dumpling’
mu. <i>tou</i>	HL.L	wood-affix	‘wood’

Phonologically speaking, neutral tone is characterized by i) the loss of tonal contrast in unstressed syllables, which indicates the loss of tonal features; and ii) the shortening of syllable duration, which indicates the loss of mora. Then, how can we capture this type of phonological phenomenon?

2.2. \*NEUTRAL TONE/H (J. Wang 2002)

With a statistics of 55 Chinese dialects, Li (2004) got the following pattern of neutral tone values among Chinese dialects, as in (8).

(8) Statistics of 55 Chinese Dialects (Li 2004)



In general, this chart shows that in neutral-tone syllables lower tone is preferred than higher tones. With regard to Pulleyblank (1986), J. Wang (2002) proposes a constraint \*Neutral tone-H, which bans H tone in neutral-tone syllable.

(9) \*NEUTRAL TONE-H (J. Wang 2002)

Neutral-tone syllable cannot be linked to H.

This constraint is statistically supported by (8) above. Then, is there a unified account

for both the preference of H tones (as in 1.2) and the dislike of it (as in 2.2)?

### 2.3. *Decomposition of \*NEUTRAL TONE/H*

Li (2004) decomposes Wang's constraint into the following three constraints (10), (12), and (13) respectively.

(10) **NON-HEADSYLLABLE/MONO-MORA (\*σw/μμ)**

Non-head syllable (σw) in a syllabic foot bans two morae.

This constraint is a similar function to Weight-to-Stress Principle (Prince 1983, Prince & Smolensky 1993), where the matching of syllable weight and prominence is highly supported by cross-linguistic evidence.

(11) **Weight-to-Stress Principle (WSP)** (Prince 1983; Prince & Smolensky 1993)

Heavy syllables are stressed.

Neutral tone occurs in unstressed syllable, and the syllable is invariably light than its neighboring normal syllable. Thus, the constraint (10) accounts for why unstressed syllables are short.

(12) **NONHEADMORA-NONHIGH (\*μw/[H])**

Non-head mora bans tonal feature H.

This constraint is consistent with Jiang (1999)'s account of full tones, as well as J. Wang's (2000, 2002a, 2003) claim for neutral tone, and is supported by my statistics of 55 dialects as illustrated in (8).

(11) captures the mechanism above the mora, and (12) captures the tonal configuration below the mora. Then, what is left between the syllable and tone needs explanation. I attribute the relevant function to (13), namely, weak syllable bans non-head mora.

(13) **NON-HEADSYLLABLE/NON-HEADMORA (\*σw/μs)**

Non-head syllable bans head mora.

Thus, the constraint of \*NEUTRAL TONE-H in J. Wang (2002a, b) can be decomposed into the following constraint triplet:

$$(14) \quad *σw/μμ, *σw/μs, *μw/[H]$$

A simple tableau is given below for the selection of optimal candidates. It can be seen that this constraint triplet can predict the unmarked form regardless of the input form. In an OT sense, this is caused by the absence of faithful elements in constraint triplet (14).

(15) a.

Input: σw /\ μ μ	*σw /μμ	*σw /μs	*μw /[H]
a. σw   ☞ μw   L			
b. σw   μw   H			*!
c. σw   μs   H		*!	
d. σw /\ μ μ     t t	*!		

b.

Input: σw   μ	*σw /μμ	*σw /μs	*μw /[H]
a. σw   ☞ μw   L			
b. σw   μw   H			*!
c. σw   μs   H		*!	
d. σw /\ μ μ     t t	*!		

### 3. Tonal Reduction in Unstressed Syllables (I): Head-Cutting Model

Tonal reduction, in this paper, refers to a kind of tone sandhi, in which a normal lexical tone, usually two morae in nature, is reduced to approximately half its length in an unstressed syllable. Below we will examine two cases of tonal reduction in Chinese dialects.

### 3.1. Liuyang Dialect (J. Xia 1989)

Tonal reduction is attested in Liuyang Dialect (Hunan Province), where the last syllable in multi-syllabic sequences is usually read in a slight and short manner. (Xia 1989). (16) shows the configuration of this reduction.

(16) Tonal reduction in Liuyang (Xia 1989)

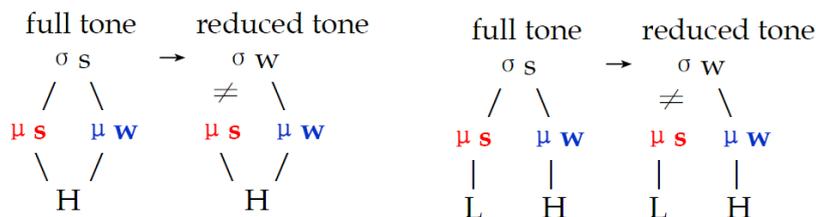
	Lexical Tone	Reduced Tone
Tone 1	33 (M ↓ )	M
Tone 2	55 (H)	H
Tone 3	24 (LH)	H
Tone 4	11 (L)	L
Tone 5	44 (M)	M

The reduction from normal length (two morae) to half the length is suggestive of the loss of a mora. If so, which mora is deleted, the head mora ( $\mu s$ ) or the nonhead mora ( $\mu w$ )? On the other hand, the reduced tonal form usually changes from a tonal contour to a single tonal feature. Thus, if mora is assumed to be the tone-bearing unit (van der Hulst 1984, Hyman 1985, Hayes 1989, among others), then tonal reduction will involve the deletion of both a mora and, presumably, the deletion of a tonal feature.

### 3.2. Head-cutting Model

Under a closer examination, it can be seen that the deleted mora in Liuyan is unanimously the *head-morae*. If we assume no phonological forms like re-linking has happened, then the single mora and its tone in the reduced form corresponds to the *non-head mora* in the lexical syllable. Figuratively, we can say the lexical-tone syllable has been *beheaded* to satisfy some conditions. This configuration is illustrated in (17)

(17) Head-cutting Reduction in Liuyang dialect



Recall the constraint  $*\sigma w/\mu s$  which bans head mora on a non-head syllable. It can be seen that this “head-cutting” effect can be attributed to the higher ranking of  $*\sigma w/\mu s$  and  $*\sigma w/\mu\mu$  over faithfulness constraint MAX-IO (T), which bans deletion of input tonal features. Note that there is no change of the tonal features in the non-head mora, another faithfulness IDENT-IO (T) is expected to sit at the top of the constraint ranking. However, in Liuyang dialect,  $*\mu w/[H]$  is violated, i.e. H, M, L are all attested for the value of “full-tone-related neutral tone”. Thus, I expect a sandwiching position of  $*\sigma w/\mu\mu$ ,  $*\sigma w/\mu s$  between IDENT-IO (T) and MAX-IO(T),  $*\mu w/[H]$ . The following constraint hierarchy is proposed for tonal reduction in Liuyang dialect:

(18) Liuyang Grammar for Tonal Reduction

IDENT-IO (T) >>  $*\sigma w/\mu\mu$ ,  $*\sigma w/\mu s$  >> MAX-IO (T),  $*\mu w/[H]$

Input: $\sigma w$ $\wedge$ $\mu s \mu w$     M M	ID- IO- T	$*\sigma w$ / $\mu\mu$	$*\sigma w$ / $\mu s$	Max- -IO -T	$*\mu w$ /[H]
a. $\sigma w$ ☞   $\mu w$   M				*	
b. $\sigma w$   $\mu s$   M			*!		
c. $\sigma w$ $\wedge$ $\mu s \mu w$     M M		*!			
d. $\sigma w$ $\wedge$ $\mu s \mu w$     L L	*!	*			
Input: $\sigma w$ $\wedge$ $\mu s \mu w$     L H	ID- IO- T	$*\sigma w$ / $\mu\mu$	$*\sigma w$ / $\mu s$	Max- -IO -T	$*\mu w$ /[H]
b. $\sigma w$ ☞   $\mu w$   H				*	*
c. $\sigma w$   $\mu s$   L			*!		
d. $\sigma w$ $\wedge$ $\mu \mu$     L L	*!	*			
e. $\sigma w$ $\wedge$ $\mu s \mu w$     H M	*!*	*			

## 4. Tonal Reduction in Unstressed Syllables (II): High-Preserving Model

### 4.1. Jiangxiang Dialect (Jiang & Xie 2001)

Jiang & Xie (2001) reports that in disyllabic SN sequences (1 stressed syllable + 1 unstressed syllable), tonal reduction occurs. The reduced tones are short, indicating the existence of one single mora. However, the tonal realization of these reduced forms is related to the lexical tone. Jiang & Xie (2001) summarizes the mechanism into (19):

(19) Tonal Reduction in Jiangxiang (Jiang & Xie 2001):

- i) Reduced tone = H, if H is present in lexical tone;
- ii) Reduced tone = L, if H is absent from lexical tone;
- iii) No change on 5 (H) and 2 (L)

### 4.2. High-Preserving Model

In the reduced form, it is clear that no tonal features occurs as non-existing in lexical (underlying/input) forms, thus (20) is highly considered.

(20) **DEPENDENCY-IO (or DEP-IO)**

Output segments must have input correspondents. (No epenthesis!)

To specify it to tonal faithfulness, I formulate it as **DEPENDENCY-IO (T)** or **DEP-IO(T)**

(21) **DEPENDENCY-IO (T) or DEP-IO(T)**

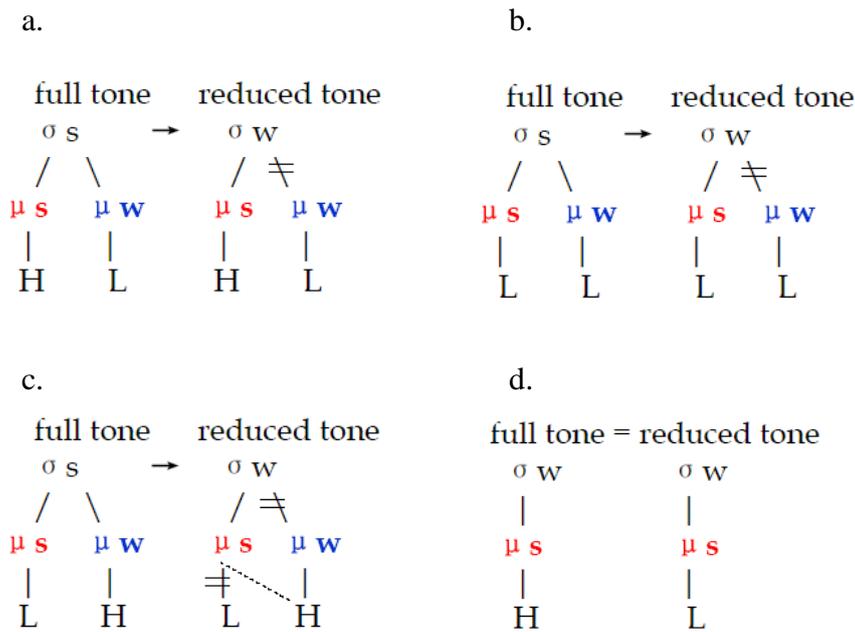
Output tonal features must have input correspondents. (No epenthesis!)

Now let's consider the preference for H Tone. As said in (19), the tonal reduction in Jiangxiang dialect shows preference for H tone, within the limits of faithfulness. Recalling Jiang's account of H preference in full tones, (4) ~ (5), it can be realized that H preference is the property of *head mora* ( $\mu_s$ ), rather than non-head mora ( $\mu_w$ ). Thus, we are justified to postulate that in the reduced form there is (only) head-mora.

Then, what about the unreduced tones (19 iii), which are said to undergo no reduction? Actually, if we assume head-mora is the only mora in the lexical tone (i.e. 5 (H) and 2 (L)), then this will not conflict our analysis above. Namely, the only head mora is consistent with the other reduced form in that its only mora is a 'head-one'.

On the whole, the tonal reduction in Jiangxiang dialect can be illustrated as (22), where the head mora is preserved in the tonal reduction but the head-mora is not bounded to its lexical linking with tone. Rather, when necessary, it de-link with its original tone and goes for a preferred tone, as in (22a), (22b), (22c).

(22) Tonal Reduction in Jiangxiang



From the above analysis, I propose (23) to be the grammar for tonal reduction in Jiangxiang dialect, with tableaux for illustration:

(23) Jiangxiang Grammar for Tonal Reduction

IDENT-IO (T), \* $\sigma$ w/ $\mu$  $\mu$ , MAX-IO- $\mu$ s >> \* $\mu$ s/[L] >> \* $\sigma$ w/ $\mu$ s

5. Conclusions

In this paper, I discussed the interaction of stress, mora and tone in two cases of tonal reduction. In *Liuyang* dialect, head mora is avoided in unstressed syllable, which leads to the deletion of the first tonal feature and first mora. Contrastively, in *Jiangxiang* dialect, the head mora in unstressed syllable is delicately preserved to such a degree that it loses its link with lexical tone but maintains its ability to attract H tone.

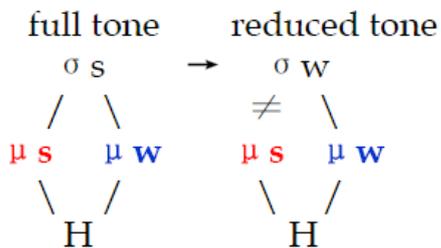
Input: $\sigma$ $\begin{array}{c} \wedge \\ \mu s \quad \mu w \\   \quad   \\ H \quad L \end{array}$	MAX-IO-T	* $\sigma w/\mu\mu$	MAX-IO- $\mu s$	* $\mu s/[L]$	* $\sigma w/\mu s$
a. $\sigma$ $\begin{array}{c}   \\ \mu s \\   \\ H \end{array}$					
b. $\sigma$ $\begin{array}{c}   \\ \mu w \\   \\ L \end{array}$			*!	*	
c. $\sigma$ $\begin{array}{c} \wedge \\ \mu \mu \\   \quad   \\ H \quad L \end{array}$		*!			

Input: $\sigma$ $\begin{array}{c} \wedge \\ \mu s \quad \mu w \\   \quad   \\ L \quad L \end{array}$	MAX-IO-T	* $\sigma w/\mu\mu$	MAX-IO- $\mu s$	* $\mu s/[L]$	* $\sigma w/\mu s$
a. $\sigma$ $\begin{array}{c}   \\ \mu s \\   \\ L \end{array}$				*	
b. $\sigma$ $\begin{array}{c}   \\ \mu w \\   \\ L \end{array}$			*!		
c. $\sigma$ $\begin{array}{c} \wedge \\ \mu \mu \\   \quad   \\ L \quad L \end{array}$		*!			

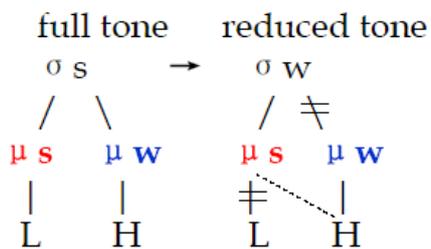
## 6. Residual Issue

In the above analysis about Jiangxiang and Liuyang, one aspect may deserve further consideration, that is the different faithfulness between the mora and its lexically linked tone. In Liuyang dialect (24 a), the above analysis assumes that there is no relinking effect like the Jiangxiang case (24 b).

(24) a



b.



Due to the scale of the current paper, I will not go into discussion on this problem. However, the faithfulness between mora and tone should be an interesting topic to explore.

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# Story Co-construction and Establishment of Mutual Consent: Convergences and Divergences between English, Japanese and Korean

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## Abstract

This paper aims to show similarities and differences in the establishment of mutual consent in problem-solving tasks engaged in by English, Japanese, and Korean speakers. We examined 'Mr. O Corpus', where two people worked together to construct a coherent story by arranging 15 picture cards. We classified all the verbal behaviors into three categories: a) the storyline, b) descriptions about the cards, and c) ordering of the cards. The results show that 82.6% of their total turns by English pairs but only 73.7% by Japanese and 77.2% by Korean pairs belong to the three types of talk. Further analyses show that English speakers tend to be direct and task-oriented whereas Japanese and Korean speakers tend to be interactionally-oriented.

**Keywords:** task-based conversation, interaction, cultural perspective, English, Japanese, Korean.

## 1. Introduction

The present paper aims to show similarities and differences in how English, Japanese, and Korean speakers establish mutual consent in a problem-solving task, and to suggest that the results can be better accounted for by considering the deep-rooted cultural practices of each language users, than by existing frameworks based on western cultures and philosophical assumptions.

The data 'Mr. O Corpus' is part of a cross-linguistic video corpus, consisting of three types of interactions--conversations, narratives, and problem-solving tasks--in American English, Japanese, Korean, and Chinese.<sup>1</sup> The data on which this study is based is the problem-solving tasks, where two people were asked to work together to construct a coherent story by arranging one of the two sets of 15 picture cards. In Story

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<sup>1</sup> The corpus was collected for the project entitled "Empirical and Theoretical Studies on Culture, Interaction, and Language in Asia" under a Grant-in-Aid for Scientific Research from the Japanese Academy for the Promotion of Science (No. 15320054), directed by Sachiko Ide at Japan Women's University).

I, Mr. O tries to get across a cliff by using a stick, and succeeds in the second attempt but finds himself stuck in an island. In Story II, Mr. O tries to get across a cliff with a help of a bigger guy but the bigger guy jumps off him to the other side of the cliff. Mr. O tries to do the same thing with a smaller guy but ends up crushing him instead. Some of the pictures are shown in Figure 1 below:

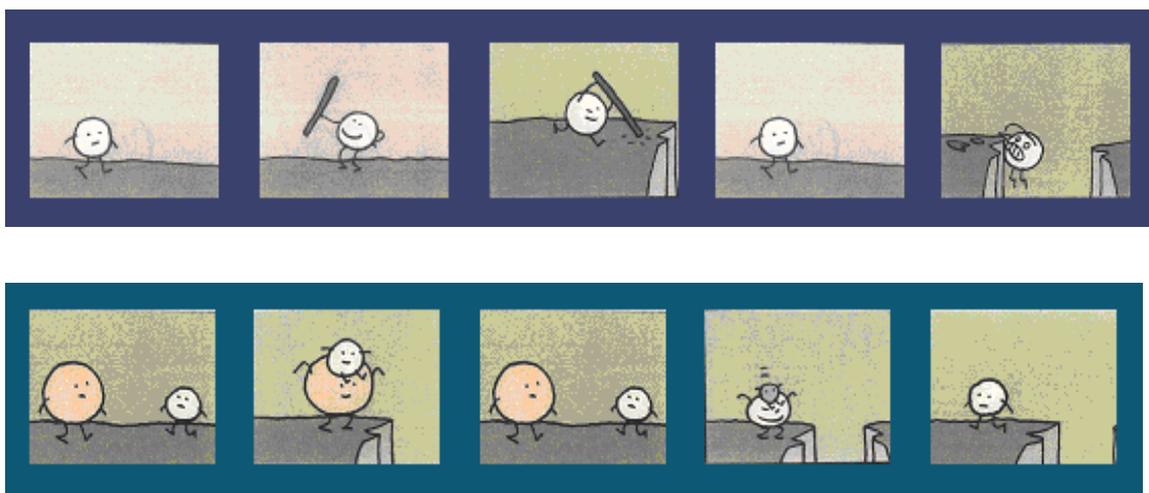


Figure 1. Story I and II

The subjects were all female speakers, with half of them being university students and the other half teachers. Half of the pairs were student-teacher (S-T) pairs and the other half were student-student (S-S) pairs. They were told to make a coherent story by arranging the fifteen pictures but told that there is no “correct” story. All the processes and interactions were videotaped. In total, we examined the data from 22 pairs of American and Japanese speakers and 20 pairs of Korean speakers.

## 2. What Do They Verbalize?

### 2.1. General characteristics of the verbal behavior during the task

First of all, we compared some general characteristics of the three language corpora. We examined the average time to complete the task, the number of turns, and the time spent on each turn. Table 1 summarizes the results.

Table 1. General Characteristics of the Data

	English	Japanese	Korean
No. of Subjects	22	22	20
Average Time (min.)	7.07 (max. 14.28, min. 3.39)	7.55 (max. 13.58, min. 3.53)	7.21 (max. 15.54, min. 3.19)
Average No. of Turns	67	93	86
Turn Duration (sec.)	6.5	5.4	5.0

The result shows that the Japanese pairs spent more time on the task than the American pairs, and that the Korean pairs were in the middle. Compared to the task time spent, however, the American pairs exchanged longer turns than the Japanese or Korean pairs.

## 2.2. *The three types of talk- the amounts of verbalization*

Second, we examined all the verbal behaviors in the data, and classified them into the following three categories: that is, 1) the storyline, 2) the descriptions and comments about the cards, and 3) the ordering of the cards. Examples for each category in the English data are shown in (1)-(3):

- (1) He is walking along, he sees the cliff, and he can't get across...
- (2) These two characters look very similar.
- (3) This is obviously first, right?

They illustrate the storyline talk, description of the card, and ordering of the cards respectively. Each turn might have more than one type of talk, as in (4):

- (4) Then again, this one looks happy also, so I don't know where this one would actually fit in.

In (4), the first part is classified as a description, whereas the second part is classified as an ordering talk.

Table 2 shows the extent to which each group of language speakers verbalize the three kinds of talk in all of the turns:

Table 2. The Percentage of Each Type of Talk in the Total Turns  
by the American, Japanese, and Korean Pairs

3 types of talk	American	Japanese	Korean
Storyline	45.8 %	37.2 %	39.4 %
Description	21.7 %	20.8 %	23.7 %
Ordering	15.1 %	15.7 %	14.1 %
Total	82.6 %	73.7 %	77.2 %

The result shows that 82.6% of the turns by the American pairs, but only 73.7% by the Japanese pairs belong to the three types of talk. Again, the Korean pairs fall in the middle, using 77.2% of their total turns for the three types of talk. It seems that the American pairs explicitly verbalize the three types of talk constantly. On the other hand, the Japanese and Korean pairs have a great tendency not to verbalize their thoughts, depending more on the shared visual information.

Next, we would like to examine the data more in detail to see how the three language speakers depend on verbalization and how they establish mutual consent.

### 3. Establishing mutual consent

#### 3.1. The American way of interaction

Examples (5)-(8) below, which are from a single pair (E14), illustrate a typical American way of constructing a story. First of all, consider example (5):

(5) (E14: 047-075)

01 A: he sees the cliff first[, and then he meets the little per[son.

02 B: [oh! [no, it goes like this, {disagreeing}

03 A: oh, oh, I bet what happens is this guy comes and he says 'I can't get over the cliff', so he bounces, but this guy (actually) bounces over instead[, but he's still stuck on this [hah... {start agreeing} cliff[, so he finds the little guy and tries to do the same thing,[ and it doesn't work[.

[yeah

[Uh-huh

Example (5) shows that in line 1, A proposes the beginning part of the story, but B tries to interrupt to start presenting her way of thinking. Ignoring what B tries to say, A starts explaining a story of her own in line 3. It seems that the interaction of this American

pair is rather direct and straightforward.

(6)

04 B: [Oh... okay, let's do it that way].

05 A: [let's do it this way, okay. [So...

06 B: [I would have done it differently, but I guess because we're working together...

{indirectly expressing disagreement}

07 B: Wait, no, wait, wait...

08 A: So first it's ...=

09 B: =Wait, first he's like...

{start insisting her own idea}

10 A: There's the cliff.

11 B: I think ... okay...

For what A presents, B sounds like she agrees in line 4. However, she shows her opposition in line 6 saying “I would have done it differently, but I guess because we’re working together...” but finally starts trying to insist her way of thinking “wait, no, wait, wait...” and “wait, first he’s like...” in lines 7 and 9. Even though B tries to stop A, A claims her idea by saying “There’s the cliff,” for which B reluctantly agrees saying, “I think... okay....”

(7)

12 A: Then he walks away from the [cliff.

13 B: [No, no... wait, hold on... {expressing disagreement}

14 B: No wait, you're totally messing this up. [{laugh} {disagreeing with blaming}

15 A: [Hah, (I'm( sorry. {apologizing}

16 B: Wait, hold on.

17 A: Okay, so[...oh, I think he meets the yellow person before the grey person. {start again}

18 B: [Okay.

19 B: (Wait...) yeah.

A does not stop presenting her idea, then B again says, “No, no... wait, hold on...” and “No wait, you’re totally messing this up” in lines 13 and 14 while laughing as if it mitigates its negative impact. Finally, A apologizes “I’m sorry,” but B still keeps saying “wait, hold on” on line 16. Then, A starts her rough storyline again in line 17.

(8)

21 B: Okay, wait so he's like... he's like still on this side. {start expressing her idea}

22 A: Uh-huh[. {agreeing}

23 B: [Okay, I think this one's the first one, though, like [totally,  
{expressing an idea}

24 A: [I think that's good.  
{agreeing}

From lines 21 to 23, the leadership changes from A to B, for which A agrees by saying "I think that's good." After this excerpt, they construct a story one by one. While they are doing it, if either one has a different idea, she shows her disagreement by saying, "maybe ... yeah" but when she finds the other one is right, she shows it by saying, "no, I think you're right." Thus, their interaction is rather straightforward.

This short excerpt demonstrates that the American participants tend to express their own ideas in a direct manner. When they do not agree with each other, they rather directly express disagreement and try to convince the partner with explicit verbalization. The American interaction can be characterized as information-oriented, confrontational, and task-oriented, etc.

### 3.2. *The Japanese way of interaction*

Now, we will look at a typical Japanese style of interaction in excerpts (9)-(15) below:

(9) (J16: 043-071)

01 A: *eto, kore, kore-wa nani*= {asking}  
'well, this, what is this?'

02 B: = *sore-wa, naNnaN-deshou-ka* {wondering the same thing}  
'it is, I wonder what it is'

03 B: *a, chiisai-no, de mazu hajimeni yat-te, chousen-shitara tsubure-chat-ta-node, ookii-no*[*de yat-tara, jibun-ga* {proposing an idea}  
'ah, at first, (s/he) tried with the small one and challenged, but since (it) was smashed, (s/he) tried with the big one, then s/he himself/herself'

04 A: [*ah, na?*  
'ah, na?'

In this excerpt, A and B finally have started constructing a concrete story. First of all, A posits a question holding a card and says, “*kore-wa nani* (what is this?)” and B is wondering what it is as well. Then, from lines 3 to 6, B looks like she has a hunch and starts verbalizing a summary of a storyline, looking at the whole cards.

(10)

05 A: *tobe-ta, mitaina, e?* = {proposing a different idea}

‘(s/he) could like jump, eh?’

06 B: = *?e, pechanko-ni na, na, n?, (1.0) a, jibun-wa tobezu-ni*

‘eh?, (it) becomes smashed, although s/he himself/herself could not jump’ {disagreeing}

[pause: 3.0 seconds]

07 B: [*u..n?*

{wondering}

‘nnn?’

08 A: [*a, ja, kore, kore-ga sagashi-te-ta-n-da, (1.0) sagashi-ni it-te, a, kore-janai, saisho, shitara, un?*

{proposing another idea} {wondering}

‘ah, then, this, this was looking for, went to look for, ah, is this the first one, then, nn?’

[pause: 2.0 seconds]

In line 5, however, A gives a different idea about the picture, but cannot get any immediate agreement or response from B, so she expresses her uncertainty in a very small voice as “e?” On the other hand, in line 6, B is surprised with A’s unexpected story so she also expresses her uncertainty with the expression “e?” the instant she hears A’s idea. Then, B continues her idea in line 6, which is an opposite idea to A’s, that is, “(the character) could not jump.” However, since B cannot get any agreement from A either, she pauses a little and shows uncertainty saying “nnn?” on line 7. Overlapping with B, in line 8, A tries to turn their focus on a different card and proposes it as the first card of the story by saying, “is this the first one?” But A says, “nn?” again after not getting any agreement from B.

(11)

09 B: *a, demo, watarou-to-shite at-te, akirame-[te, at-te* {disagreeing, proposing an idea}

‘ah, but, (s/he) tries to jump and meets, gives up,

10 A:

[*un un, at-te*

{agreeing}

‘yeah yeah, (s/he) meets’

11 B: (0.4) *de*

‘then’

12 A: (0.8) *sou sou sou*, [*sou-dayo-ne* {agreeing}  
'right, right, right, that's it, isn't it?'

Without showing any response to A's proposal, but just by saying, "*demo* (but)," B starts her story again. This "*demo* (but)" actually implies that B does not agree with A's proposal of the first card. However, without saying direct opposite expressions such as "no," or "I don't think so," B finds some other cards that will come before A's proposed card. Thus, by proposing her own story, B indirectly shows that the card which A suggested is not the first one. A, then, rides on what B proposes here and from lines 10 to 12, they agree on the storyline by exchanging the verbal signs of agreement, "*un*, *un* (yes, yes)," and "*sou*, *sou*, *sou* (right, right, right)," and the repetition of "meet."

(12)  
13 B: [*a, a, demo kore\_* {wondering}  
'ah, ah, but this'  
14 A: *a*, [*ja, mazu sore-da* {proposing an idea}  
'ah, then, first, that one'  
15 B: [*a, ja kou-[desu-ka* {asking with agreement}  
'ah, then, like this?'  
16 A: [*un un* {agreeing}  
'yeah yeah'  
[pause: 2.0 seconds]

From lines 13 to 16, B picks up a card and wonders "*kore* (this)?" but they both have the same idea at the same time and agree where to put the card by overlapping. While they are saying "then, that one, first," "like this?" "yeah, yeah.", they put the card in order. However, again it is hard for an observer to follow why they agree on the order of the cards.

(13)  
17 B: *komat-te*, [*modot-te* {verbalizing a story}  
'being troubled, returns'  
18 A: [*modot-te \_* {verbalizing a story}  
'returns...'  
19 B: *at-te\_* {verbalizing a story}  
'meets...'

- 20 A: (0.2) *a, to kore at-te\_* { verbalizing a story }  
 ‘ah, .. this, meets...’  
 [pause: 2.0 seconds]
- 21 B: *de\_, sasou?* { asking }  
 ‘then, invites?’
- 22 A: *sasot, -te\_* { verbalizing a story with agreement }  
 ‘invites, ...’  
 [pause: 2.0 seconds]

From lines 17 to 22, they both verbalize the storyline “(the character) is troubled, returns, meets, and invites.” They are saying the storyline together as if they were sharing a mind, which is revealed in the overlapping “returns” in lines 17 and 18, or repetitions of action verbs of “meet” and “invite.”

- (14)
- 23 B: *de [kou* { proposing }  
 ‘then, like this’
- 24 A: [*a, ha, mat-te, kore-kara hajimaru-n-janai, moshikashi[te* { proposing the first card }  
 ‘ah, ha, wait, start from this one? Maybe’
- 25 B: [*a sou-desu-ne, arui-[te-ta*  
 ‘ah, right, walking’ { agreeing }

Then in line 24, A suddenly finds a card saying, “does the story maybe start from this one?” and B, without any hesitation, agrees on A’s proposal in line 25. Again, it is hard for onlookers to know why A judges the card as the first one and why B agrees with her without any hesitation.

- (15)
- 26 A: [*te-tara, watarae-nai, [modot-te, mitukeru* { verbalizing a story }  
 ‘then, can’t go across, returns, finds’
- 27 B: [*modot-te, mituke-te, sasot-[te\_* { verbalizing a story }  
 ‘returns, finds, asks’
- 28 A: [*un, nok-[ke-tara* { verbalizing a story }  
 ‘yes, put him/her on, then...’
- 29 B: [*nok-ke-te, tsubureru* { verbalizing a story }  
 ‘put him/her on, is smashed’

Then, both start verbalizing the story from the beginning from lines 25 to 29 pointing to each card one by one. The frequent occurrence of repetition and overlapping reveals as if A and B are sharing a mind.

The analyses of the Japanese interaction show that they construct a story by agreeing with each other at every step. They try to avoid conflict and seek understanding from the partner step-by-step. Their indirect way of interactions are characterized by their profuse use of repetition, overlapping, co-construction, modality expressions such as *mitai* ‘it seems’ or ‘it looks like’ forms, question or tag-question forms, and final particle *ne* which induces the partner’s agreement. Furthermore, the Japanese verbal interaction deeply depends on the context. They hardly mention, or name the characters in the cards; instead, they often use deictic expressions together with pointing or holding the cards. Thus, compared to the American interactions, the Japanese interactions are interaction-oriented, non-confrontational, and context-based.

### 3.3. The Korean Interaction

Finally, the following excerpts (16)-(21) illustrate how Korean pairs establish their agreement in their task. In this excerpt, the Korean pair explores different parts of the story.

(16) K2: 031-071

01 B: *kurem ceke-n mwue-ya? ah, ceke-n,*

‘Then, what’s that? Ah, that,’

02 A: *un. cal moru-kess-e. kukka, yay-ka iltan honca ka-nun key ceyil cheum i-l ke khat-ay, kuci?*

‘I don’t know. Anyway, looks like the one where this one goes alone is the beginning, right?’

03 B: (cough)

04 A: *ah, anin, a, kuntey ikey mwue-lkka?*

‘Maybe not? By the way, what would be this one?’

In line 2, A proposes the first picture of the story, but when she doesn’t get agreement from B, she backs down and moves to something else in line 4. Notice that speaker A expresses her opinion by using a tag question in line 2.

Korean speakers also use negative questions to seek agreement from their partner, as in line 5 and 7 below:

(17)

05 B: *kukka ike, ike taum aniya? Ttak yay-ka mwue ha-lye, irehkey, irehkey mwue ha-nuntey*

‘Isn’t this after this? When this one is just trying to do something like this, like this,’

06 A: *um*

07 B: *@cay-n ccipwureci-n ke ani-ya, nemwu ccokkumayse, @*

‘Isn’t that one crushed? Because it is too small?’

08 A: *ah: kukka, ike kil-ul ka-taka,*

‘ah:, while this one goes on the road,’

09 B: *uh. ‘Yes.’*

10 A: *kuntey na-nun mwue-nka[ka, ] yayney yayney twul-i manna-n sanghwang-i iss-ko,*

‘By the way, I think something like there’s a situation where this one and this one met, and’

In Line 8, it is hard to say whether A agrees with B’s opinion. She just goes back to the beginning of the story.

(18)

11 B: *[kil-ul, ung]*

‘on the street, yes’

12 B: *ung*

13 A: *yayney twul-i manna-n sanghwang-i iss-cianha.*

‘there’s a situation where these two met, as you know.’

14 B: *ung*

15 A: *kuraykaciko i, kenne-l ttay yay-ka, mence yay-lul wi-ey thaywu-cianha?*

‘And when he crosses over, this one rides this one on top, as you know.’

16 B: *ung*

Speaker A explains the two situations where Mr. O meets two guys by using *cianha* in line 13 and 15, which is an agreement seeker like ‘you know’ in English.

(19)

17 A: *kurehkey ha-nuntey, wey yay-ka irehkey toy-ss-nunci moru-kess-e.*

‘While they do it, I don’t know why this one became like this.’

18 A: *nemeci-ese [yay] kkali-n ke-ci? cak-un ay. @Aninka?@*

‘Isn’t it he fell down and he got sat on? The small one. Is it not?’

19 B: *[ah!]*

20 B: *camkkanman camkkanman ikey na-nun cikum*

‘Just a moment, just a moment, this I now’

21 A: *um*

A shows uncertainty about a picture in line 17 but attempts to her opinion, again in a subtle way using -ci, a weak agreement seeking ending and a negative question in line 18.

(20)

22 B: *irehkey ieci-nun key ani-lkka, irehkey? Ah, ike camkkan. Uh,: hh ani, mwue-ci?*

‘Isn’t it connected like this? Ah, this, just a moment. No, what is it?’

23 A: *## cal moru-kess-ci ?*

‘You don’t know either, right?’

24 B : *ung: camkkanman, taychwung macchwe po-lkka, wuri, hayse,*

‘Yeah. Just a minute, shall we put together roughly?’

25 A: *nangttere-ci-lul manna-se [tasi tolaka-nun kes kath-un-*

‘Seems like (he) meets a cliff and goes back’

26 B: *[manna-se,*

‘meets and’

In line 22, we see B expressing her opinion in a very indirect way. As they try to make a story together, they use repetitions as in line 26, and 28 below:

(21)

27 B: *tolaka-ss-nuntey, tolaka-ss-nuntey, [yeki yay-lul manna?]*

‘(he) went back, went back, and met this one?’

28 A: *[ah, tolaka-taka] yay-lul manna-na?*

‘Ah, when (he) goes back, does he meet this one?’

29 B: *kurem cyay-nun ettehkey hay? Kunikka yay-rang yay-rang nwuka te mence manna-ss-nunya-ka: cwungyoha-nka?*

‘Then, what do we do with that one? I mean, is it important which one of the two he meets first?’

30 A: *ya, ike ieci-nun ke-ci? hana-ci? [iyaki.]*

‘Hey, this is a connected one, right? One story, right?’

31 B: *[ung.] ung.*

The analyses of the Korean interaction show that the Korean speakers are more

like Japanese speakers than Americans in that they use indirect, non-confrontational expressions and seek agreement from the partner constantly. Various question forms and sentence-endings are very useful devices to achieve this goal. Also, they have a greater tendency to depend on the context, using a lot of gestures and deictic expressions.

## 5. Implications of the Findings

So far, this study has demonstrated some differences in interactional characteristics among the American, Japanese and Korean pairs as they were working on a problem-solving task. We would like to illustrate the differences between the American and Japanese/Korean interactions using the *field/ba/cang*-theory (Shimizu 2000). Figures 1 and 2 below illustrate the different patterns of interaction between the American and Japanese/Korean pairs:

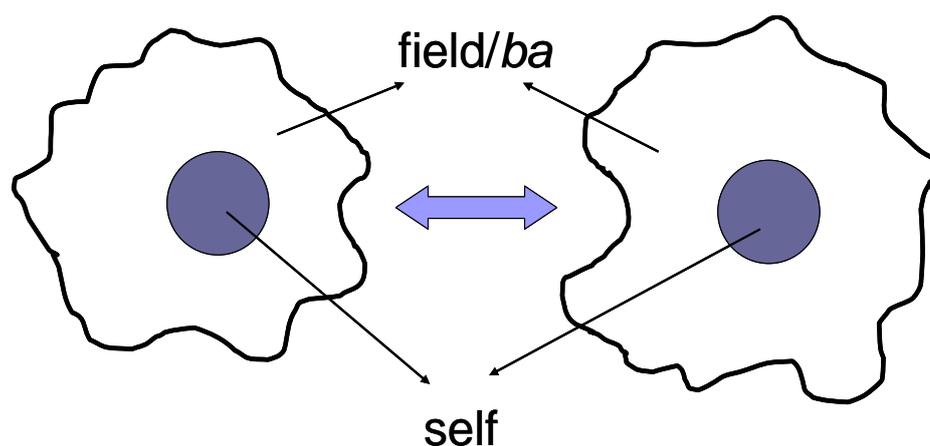


Figure 1. Patterns of Interaction 1: American Interaction

In the American interaction, the participants keep their independent selves of separate fields throughout the interaction. Their interaction mostly consists of the exchange and negotiation of information in order to accomplish the task.

Figure 2 illustrates the Japanese and Korean pattern of interaction:

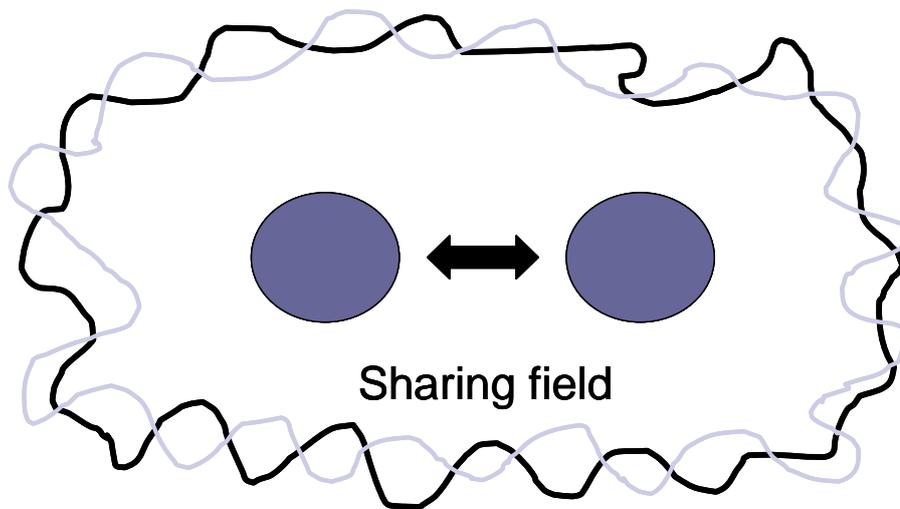


Figure 2: Patterns of Interaction 2: Japanese and Korean Interaction

Figure 2 illustrates the Japanese and Korean pattern of interaction where the participants always concern about the partner's position as well as themselves. Then, they reorient themselves at every moment of the interaction so that their fields/*ba* can merge into one. Then, on the sharing field/*ba*, they work together as if they had a single mind in order to accomplish the task. What this study reveals is that, compared to the English counterpart, the Japanese and Korean interactions show the value of the practice of field/*ba*-dependency over and above the practice of information exchange.

We strongly believe that this field/*ba*-dependency is deeply rooted in the underlying cultural practices in the Japanese and Korean societies, which are based on their rice-farming culture and Buddhism. In rice-farming culture, people inevitably have to settle permanently in one place. In such a society, individuals are closely bound to each other and they form an exclusive social nexus.

Buddhism is also characterized by the recognition of nexus, not only with other people, but also with other beings. Thereby one feels indebtedness to other people that may or may not be relevant to oneself (Ide 2007). These underlying cultural practices make us situate ourselves in the context; that is, participants index their sharing field/*ba* as well as themselves at each moment of interaction.

We would like to conclude our talk by suggesting that we should account for the diversity of patterns in interaction from a wider perspective based on underlying cultural practices. However, at this moment we would like to leave the difference between the Japanese and Korean interactions as an open question.

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# New Korean Adjectival Suffix ‘-tic’

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## Abstract

English adjectival suffix *-tic* is increasingly used to formulate new verity of Korean adjectives though there are pre-existing Korean adjectival suffixes. The *-tic* forms are combined with various root words and productively create new types of adjectives. It is worth analyzing the characteristics of the adjectival suffix *-tic*. Three different methods have been applied to illustrate the characteristics of *-tic* forms. Four Korean Internet search engines are used to gather the actual data, a questionnaire is conducted to identify the Korean native speakers’ intuition on the forms, and a substitution check is applied to reveal the relationship between new suffix and pre-existing ones. The findings demonstrate that *-tic* forms are morphologically and semantically similar to the pre-existing Korean adjectival suffixes.

**Keywords:** Korean adjective, derived adjective, adjectival suffix, English suffix

## 1. Introduction

Adjectives can be “verb-like” or “noun-like” with respect to their functions as predicates or modifications (Dixon 2004: 31). There have been many attempts to classify Korean adjectives, but it is still controversial to categorize Korean adjective explicitly as well as noun and verb classes (Sohn 2004).

Plag (2003) states that morpheme can be coined with various word classes and generate many different word categories effectively. One productive way of making English adjectives is by using suffixes. Korean likewise uses several suffixes such as *-sulepta* ‘seem to’, *-tapta* ‘be similar to’ or *-cek* ‘being alike, 的’ to create derived adjectives. Recently Korean has adopted English forms to formulate a new category of words (Yoo 2004; Park 2005). Though Korean already has adjectival suffixes, English suffixes have been increasingly used to make adjectives. The main concern of this study is to analyze the new Korean adjective forms and their preceding stems. Among many

adopted English adjectival suffixes, ‘-*tic* (being alike)’ appears to be the most widely and frequently used form.<sup>1</sup> The following examples show the various usage of -*tic*:

(1) *Sonye-tic-hata*.

girl being alike do  
“(It) seems girlish”

(2) *Chun Yu-ok-tic-hata*.

Chun Yu-ok being alike do  
“(She) is similar to Chun Yu-ok’s character”

(3) *Pwutulewun-tic-hata*.

Soft being alike do  
“(It) is soft”

(4) *Yume-tic-hata*.

humor being alike do  
“(It) is humorous”

(5) *Tulama-tic-hata*.

drama being alike do  
“(It) is dramatic”

(6) *Ccicil-tic-hata*.

pathetic being alike do  
“(It) is pathetic”

These examples are collected from four Korean Internet search engine sites.<sup>2</sup> They show that the English adjectival suffix -*tic* can be joined with Korean common nouns (1), Korean proper nouns (2), Korean native adjectives (3), English nouns (4), English adjectives (5), and even Internet newly coined words (6).<sup>3</sup> It is very simple and systematic to create new adjectives; add -*tic* at the end of the morphemes no matter what their grammatical categories are. One of the most unique phenomena of the examples is (4). Although there is an English adjective ‘humorous,’ some of Korean speakers rather uses -*tic* form with English noun *humour*. It suggests the productivity of

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<sup>1</sup> Though English adjectival -*tic* should be spelled as -*thik* according to the Yale Romanization System, in this paper, I will use -*tic* to indicate that it originates from English suffix as in *romantic* or *dramatic*.

<sup>2</sup> Four Internet search engines are selected according to the 2006 year report and first quarter of 2008 report of the Acecounter: Naver, Daum, Yahoo! Korea, and Google Korea ([http://www.acecounter.com/report/report\\_list\\_view.html?no=28&pageno=1](http://www.acecounter.com/report/report_list_view.html?no=28&pageno=1)).

<sup>3</sup> Internet newly coined words are created by the netizens, who enjoy using the ellipsis, acronym, misspelled words, and neglecting to space between words (Hwang, 2006).

the *-tic* forms. It is the starting point of the present study; to characterize the morphological and semantic characteristics of the English derived adjectival suffix *-tic*.

The pattern of new Korean adjectives is that English suffixes are coined with Korean root words. It is worth investigating the characteristics of root words to categorize the derived adjectives. Once a root word and the adjectival suffix *-tic* are merged, they subsequently are combined with dummy verb *-hata* (do/be) which is a predicate form, or with dummy modifying suffix *-han* (done/being) which is a modification form. These new adjectival forms are used in a wide range of contexts.

## 2. Literature Review

Adopting English suffixes to create Korean adjectives is the morphological borrowing (Min 1998: 92-102; as cited in Yoo 2004). Park (1999) defines Korean words which contain ‘X-*tic*’ form as compound words; English adjectival suffix *-tic* has been combined with Korean nouns. According to Park’s (2005) claim, it is relatively natural to borrow vocabularies to create new Korean words; however, it is very awkward to adopt grammatical forms such as bound morphemes. Moreover, Yoo (2004) agrees that the borrowing of English bound morphemes to make Korean words is redundant because Korean already has abundant bound morphemes. One of the most widely used Korean adjectival bound morphemes is *-cek* which is derived from Chinese character 的.<sup>4</sup> The study of *-cek* has been accompanied with the study of its stem words; what types of stem words can be coined with the bound morpheme of *-cek*. However, the study of *-tic* forms or its stem words scarcely has been made.

The data with respect to the Korean adjectival suffix *-cek* has been collected and compared with *-tic* form to identify its characteristics. The research on *-cek* has been largely conducted by Kim (1990), Nam (2001, 2002), and Mok (2001).

First, Kim (1990) focuses on the analysis of the ‘preceding stems’ which appear in front of the suffix *-cek*. He reports that the nouns which originate from Chinese language are mostly used for the preceding stems, and the nouns from the native Korean and the loanwords from the western languages are used, respectively. To sum up, most nouns can be coined with the suffix *-cek* and productively produced the adjectives.

Second, Nam (2001, 2002) and Mok (2001) take the morphological analysis of *-cek*. Nam (2001, 2002) questions the effectiveness of the Korean adjective classification. She opposes admitting *-cek* as an adjectival suffix, and suggests *X-cek ita* as one type of

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<sup>4</sup> Not only Korean but also Chinese and Japanese use *-cek* to formulate adjectives.

the adjective form. Her studies mainly focus on the form of *X-cek ita* rather than *X* (preceding stems) itself. Mok (2001), in contrast, defines *-cek* as the (predicative) noun derivative suffix. He insists that nouns and adjectival stems can be located in front of the suffix *-cek*. Mok's (2001) idea can be compared with that of Kim (1990); Kim asserts that only nouns can be the preceding words of the suffix *-cek*, whereas Mok broadens the scope of the preceding words to nouns and adjectival stems.

In short, the previous studies of *-cek* have been conducted in two different fields: semantic and morphology. The main concerns are defining the range of *X-cek ita* form, and clarifying the characteristics of its preceding stems.

### 3. Method

The data for the empirical component of the present study were collected from the top four Korean Internet search engines in 2006 and 2008. The two keywords were: *tic-hata* (predicate form) and *tic-han* (modification form), and the words which contained *-tic* were gathered from the first three pages of the result in 2006, and the first five pages in 2008. The collected items were sorted by the feature of the root words. Next, the characteristics of the root words are compared semantically and morphologically with the previous studies: the analysis of *-cek*.

For further validation of the research authenticity, a questionnaire was administered to the native speakers of Korean.<sup>5</sup> Participants in 2006 were 13 male university students, their average age was 24, and all of them were majoring computer science. Due to their major, all of them spent more than six hours to access Internet every day. They were familiar with the Internet jargons and the new vocabularies which were created on the web. The number of participants in 2008 was 68, all university students, and most of them were science major.<sup>6</sup> The proportion of male and female was 81% (55) and 19% (13) respectively. Their mean age was 23.3 years old, and their average time of Internet use was 5.6 hours per day. The participants were asked to judge the naturalness/awkwardness of twenty most frequently used derived adjectives with the English suffix *-tic*. They value the items within 5 Likert scale; if the word is natural they are asked to give 5 points, if it sounds awkward then they are asked to give 1 point on the item. The examples used in the questionnaire were selected from the results of the

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<sup>5</sup> The list of words for questionnaire is on the Appendix.

<sup>6</sup> 66 (97%) were majoring in science such as Computer Science, Biology, Environmental Engineering and so on.

Internet search engines data. Four top most frequently used adjectives from each category were chosen: Korean common nouns, Korean proper nouns, English loan words, and English words.

To verify the relationship between *-cek* and *-tic* form, a substitution check was conducted. The collected *-tic* forms were replaced in the position of Korean adjectives which use pre-existing Korean adjectival suffix *cek-ita* ‘being alike’. It was to examine the possibility of meaning substitution between pre-existing form and new one. The root words from the twenty adjectives, which were used for the questionnaires, had been coined with *-cek* form, and employed in keyword search on top four Internet search engines. For example, the words *yua-tic* (childish) had been changed to *yua-cek* (childish), and the substituted word *yua-cek* (childish) was used for a keyword search.

#### 4. Results and Discussion

The same procedure for collecting data from the Internet search is applied both in 2006 and 2008. Items are gathered through the keyword search and then the overlapped items are deleted. Table 1 shows the number of items collected from the Internet search. The total number of the collected items in 2006 research is 240 but the actual number is 157 after omitting overlapped items; the number of the predicate form (*tic-hata*) is 77 (49%), and that of the modification form (*tic-han*) is 80 (51%). In 2008 research, the total number of collected item is 400 but the actual number of items for the research is 181; the number of the predicate form (n=98, 58%) is more than that of the modification form (n=83, 42%) this time.

Table 1. The number of collected items from the Internet search engines

	<i>tic hata</i> (n (%))	<i>tic han</i> (n (%))	Sum
2006	77 (49%)	80 (51%)	157
2008	98 (58%)	83 (42%)	181

The root words of *-tic* forms are divided into five groups: Korean common nouns, Korean proper nouns, English loan words, English adjectives, and extra. These categories are based on Kim’s (1990) classification, and additional categories are included according to the frequency of the appearance from the Internet search. Kim (1990) analyzes preceding stems of *-cek* and classifies them as Korean nouns derived from Chinese, native Korean nouns, and loan words from western languages. From the

Internet research data, Korean nouns are divided into common nouns and proper nouns such as a name of person, country, video game, movie, book or ideology. English vocabularies are also sorted by English loan words and English adjectives with *-tic*; all of the English loan words are common or proper nouns. The items which are not fit into the four categories are sorted as extra group which are Korean native adjectives, English adjectives except the words containing *-tic* forms, Internet newly coined words, Internet jargons, slang, symbols, and onomatopoeia.

Figure 1 and table 2 show the percentage of the preceding components of *-tic*. Predicate forms (*tic-hata*) and modification forms (*tic-han*) are compared by the year of the research (2006 and 2008). Five categories can be grouped according to the characteristics of the preceding stems. Figure 1 illustrates that Korean common nouns, Korean proper nouns, and loan words are wildly used.<sup>7</sup>

Figure 1. The comparison of the Internet research data

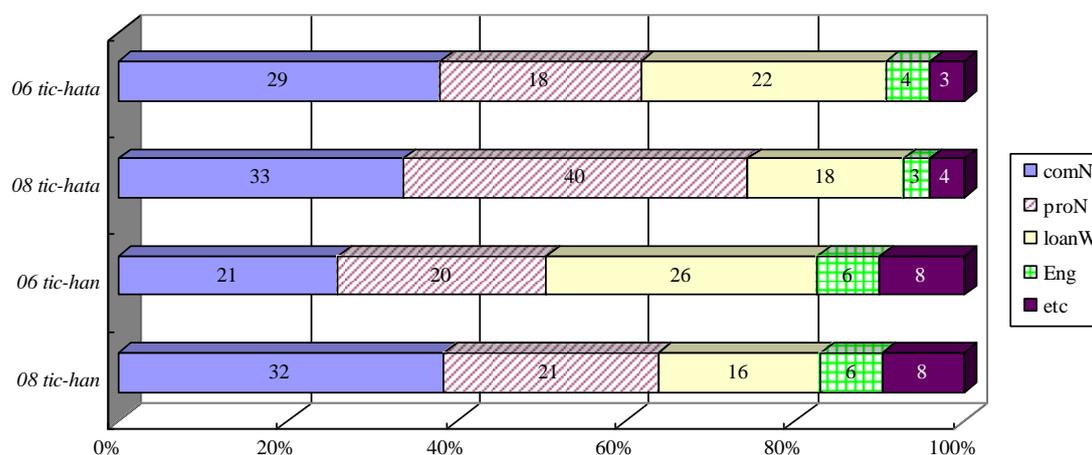


Table 2. The descriptive analysis of the Internet research data (n(%))

	comN	proN	loanW	Eng	etc
06 tic-hata	29(38.2%)	18(23.7%)	22(28.9%)	4(5.3%)	3(3.9%)
08 tic-hata	33(33.7%)	40(40.8%)	18(18.4%)	3(3.1%)	4(4.1%)
06 tic-han	21(25.9%)	20(24.7%)	26(32.1%)	6(7.4%)	8(9.9%)
08 tic-han	32 (38.6%)	21(25.3%)	16(19.3%)	6(7.2%)	8(9.6%)

\*com N: Korean common noun, pro N: Korean proper nouns,  
loan W: English loan words, Eng: English adjectives, etc: extra

<sup>7</sup> Loan word is directly adopted from foreign language and transcribed with Korean alphabet. The examples are *Khenthuli* (country), *imici* (image), *ssaikho* (psycho), and so on.

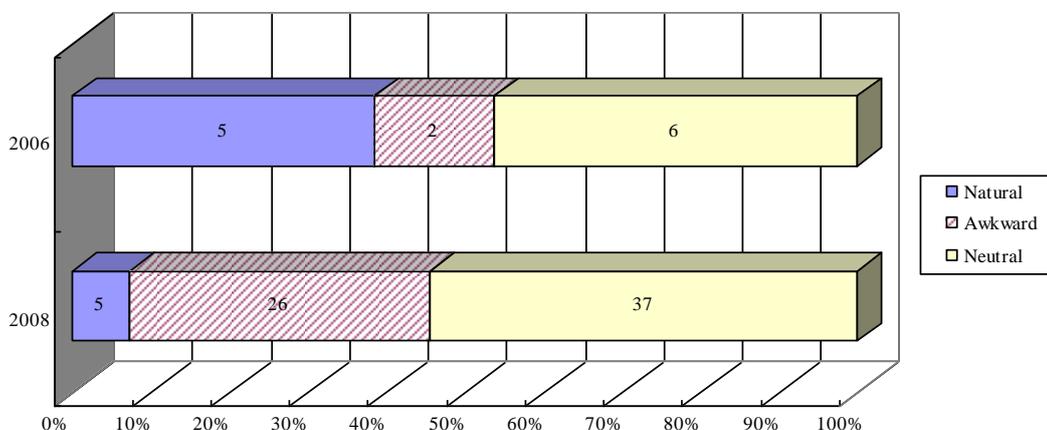
Figure 1 and table 2 suggest that Korean common nouns are the most widely used elements overall. According to the findings, for predicate forms (*tic-hata*), Korean common nouns are popular in 2006 whereas Korean proper nouns are used more in 2008. For modification forms (*tic-han*), loan words are the most frequently combined elements in 2006 but Korean common nouns are used twice more than loan words in 2008 research.

The percentage of Korean proper nouns and the loan words are very similar in predicate forms in 2006. Contrary to the previous research, the ratio of Korean common nouns and loan words are decreased in 2008. The three categories (Korean common nouns, Korean proper nouns, and loan nouns) take up almost 90% of the whole components of the predicate forms (*tic-hata*) both in 2006 and 2008 research.

While the loan words are the most popular preceding stems for the modification form (*tic-han*), Korean common nouns and Korean proper nouns are also largely used in the modification forms in 2006. The use of Korean common nouns increased in the later analysis. The percentage of Korean nouns and loan words in the modification form (*tic-han*) is almost 80% in 2006 and 2008 study.

The total amount of Korean nouns and loan words of figure 1 and table 2 illustrate that *-tic* is a very productive suffix. Even though the percentages of each category which is coined with suffix *-tic* form are vary according to the functions (predicate/modification) and the time (research year), the total percentage of Korean nouns and loan words take up more than 80%. Comparing with the number of English words which contain *-tic*, the new Korean adjectives using *-tic* forms are overwhelmingly massive.

Figure 2. Judgment of Korean native speakers' on the *-tic* forms



Next, figure 2 shows the results of the intuitive judgment on the *-tic* forms by the Korean native speakers. Though the percentage of awkwardness has been increased, more than half of the participants answer that *-tic* forms sound natural or at least, they do not sound awkward. The number of participants in 2006 is small and it might be difficult to generalize the results; however, both results provide the interpretation that almost half of the Korean native speakers are ready to accept new adjectives using *-tic* forms.

Figure 3 and 4 demonstrate the intuition of Korean native speakers on the *-tic* forms in four different categories. In terms of the naturalness, English words are the most natural elements with *-tic-hata/han* forms. Needless to say, it is obvious that English adjectives containing *-tic* form can be the most natural elements because they are the original forms of the words: such as *dramatic*, *romantic*, and *fantastic*. Besides English adjectives, Korean common nouns are the second most suitable preceding stem of *-tic* forms. It is interesting that loan words are not considered as the natural preceding stems for *-tic* forms.

Figure 3. Judgment of Korean native speakers' on the naturalness of *-tic* forms

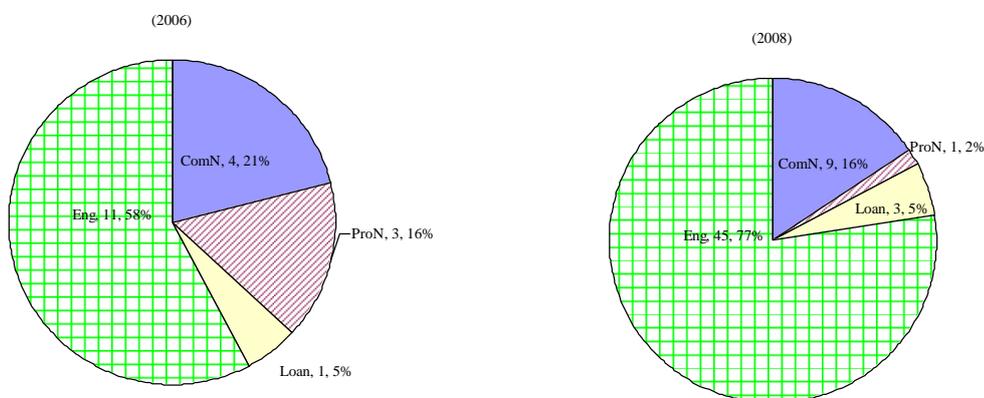
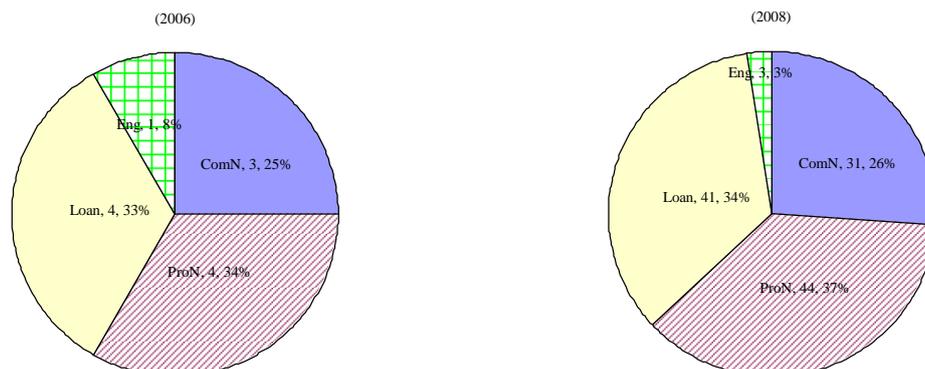


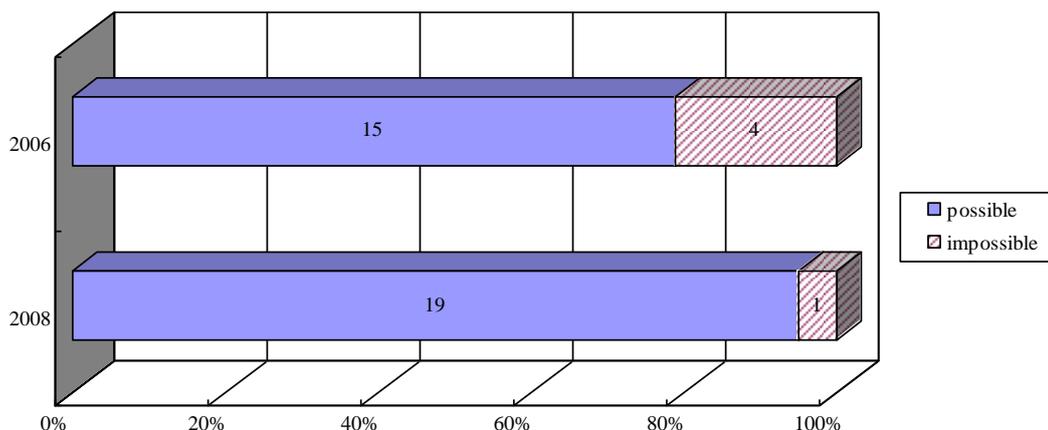
Figure 4. Judgment of Korean native speakers' on the awkwardness of *-tic* forms



On the contrary, in terms of the awkwardness, Korean native speakers judge that Korean common nouns, Korean proper nouns, and loan words are awkward to combine with *-tic* forms. Though participants answer that Korean common nouns can be suitable for stem words of *-tic* forms, their judgment on the awkwardness contradicts the previous findings. It can be interpreted that even Korean native speakers have not obtained full intuition of the new adjectival suffix *-tic*. To be surprised, some participants value English words such as *energetic* is awkward. During the personal communications, they mentioned that the word *energetic* was not familiar to them, and they guessed *energytic* (*energy* + *tic*) is the natural form of it.

The results also reveal the discrepancy between the actual usage and the intuitive judgment. Though loan words are widely used for preceding stems of *-tic* from the Internet research (figure 1), some Korean speakers believe that these words are not appropriate for the preceding stems (figure 4).

Figure 5. The possibility of substitution with *-cek* forms



Last, figure 5 shows the potentiality of the new adjectival suffix *-tic*; both results (2006 and 2008) indicate the high possibility of the substitution. The preceding stems of the *-tic* forms can be replaced with that of pre-existing Korean adjectival suffixes *-cek*. It is interesting that even English root words with suffix *-tic* can be substituted with *-cek* forms. For example, the word “*drama-cek*” which is the converted word for “*dramatic*” is found on the substitution test. The result of the figure 5 proposes that *-tic* forms are easily switched with *-cek* forms regardless of the root word categories. It also implies that *cek-ita* form is morphologically similar to the *-tic-hata* form not to mention of its semantic similarity, and it explains the high potential of the substitution.

## 5. Conclusion

The results of the present study prove that adopted English adjectival suffix *-tic* can be generally joined with many types of Korean root words: nouns, adjectives, loanwords, or English nouns and adjectives. However, the verbs or adverbs are scarcely used for the preceding stems of *-tic* form.

The native speakers of Korean judge that English words are the most natural with the suffix *-tic*, and Korean common nouns are ranked as the second most natural stems for the *-tic* forms. In contrast, in terms of awkwardness, the participants answer that Korean nouns and loanwords do not sound natural with *-tic* forms. Their replies suggest two things: one is their intuitions on the *-tic* forms are not clearly establish, the other is the discrepancy between the actual usage of *-tic* forms and their intuition of the new words.

Morphologically, nowadays, using *-tic* form to create new Korean adjectives is more productive than that of pre-existing adjectival suffix *-cek*. In semantic point of view, most of words which contain *-tic* form have the same meaning with the pre-existing Korean adjectives such as *-cek* form. It is proved by substituting *-tic* forms with those of *-cek* in the sentence from the web sites. Consequently, the morphological and semantic analysis of *-tic* forms reveal that *-tic* can be included in new types of Korean adjectival suffix though the morphological borrowing has not been common in Korean.

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(2 February, 2008)

## Appendix

### List of words used for the questionnaire

ComN	ProN	Loan	Eng
yua(a child)	Dragon ball	slump	romantic
acessi(a man)	ilbon (Japan)	country	erotic
ppalkayngi (a communist)	tongnama (Southeast Asia)	cyber	energetic
sonye (a girl)	Hankyel	image	fantastic
ssakwulye (cheap thing)	Chun Yu-ok	psycho	dramatic

\*com N: Korean common noun, pro N: Korean proper nouns,  
loan: English loan words, Eng: English adjectives

# Varying Implicature in Contrastiveness

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## Abstract

This paper investigates the varying implicatures in contrastiveness in Japanese and considers how the variability can be accounted for in a principled way. The varying types of implicature in contrastiveness have to do with the following parameters: (i) the presence or absence of uncertainty meaning inside the implicatures, and (ii) whether the contrastive is specific (existential) or universal. As for the first parameter, the notion of strengthening/exhaustivity can account for the variability (e.g. Hara and van Rooij 2007). As for the second parameter, I argue that the contextual domain restriction plays an important role in capturing the variability of implicatures. It will be shown that the narrower the speaker's/ hearer's contextual domain is, the more specific the contrastive becomes.

**Keywords:** contrastiveness, scalar implicature, strengthening, contextual domain

## 1. Introduction

This paper investigates the varying implicatures of contrastive *wa* and tries to explain this variability in a unified way. Let us observe the following dialogue (CT stands for contrastive marker):

- (1) a. Among John, Mary and Tom, who came to the party?  
b. JOHN-wa ki-masi-ta  
    John-CT come-PRED.POLITE-PAST  
    ‘[John]<sub>CT</sub> came.’  
c. ... (interpreting the conversation between A and B)

The sentence in (1b) can have various implicatures, symbolized by  $\rightarrow$  :

- (2)a. → But it is possible that Mary didn't come.  
 b. → But Mary didn't.  
 c. → But it is possible that no one other than John came.  
 d. → But no one other than John came.

The implicatures in (2a) and (2b) contrast the focused element (John) with a specific individual (Mary).<sup>1</sup> That is to say, the implicature of contrastiveness is considered to be binary (Kadmon 2001: 324) and no other comparison class will come to mind except for the set containing precisely these two individuals. In these implicatures, the speaker in (1b) does not care about Tom. (The natural situation for the implicatures is where the speaker in (1b) is indifferent to Tom). It is true that it is difficult for the speaker in (1a) to get these implicatures, but the speaker in (2c) can get implicatures like (2a) or (2b) if he/she knows that the speaker in (1b) does not know about Tom (or he/she knows that the speaker in (1b) is indifferent to Tom). Where (2a) and (2b) differ is in the presence or absence of the meaning of the speaker's uncertainty in implicatures. That is, while (2a) has a possibility modal in its implicature, (2b) does not have such an operator.

Now let us consider (2c) and (2d), which are different from (2a) and (2b) in that the former pair, but not the latter, contrasts John with all of the alternatives. There is no specificity in terms of contrastiveness. As for the difference between (2c) and (2d), we can observe that while (2c) has a possibility meaning (i.e. the speaker's uncertainty), (2d) does not have such a meaning. (2d) is a situation where *dake* 'only' is used. Note that the speaker can naturally say (2a-d) immediately after (1b):

(3) (Among John, Mary and Tom, who came to the party?)

- a. John-wa ki-ta-kedo, Mary-wa ko-na-katta-kamosirenai.  
 John-CT come-PAST-though, Mary-CT come-NOT-PAST-may  
 'John came but it is possible that Mary didn't come.'
- b. John-wa ki-ta-kedo, Mary-wa ko-na-katta.  
 John-CT come-PAST-though, Mary-CT come-NOT-PAST  
 'John came but Mary didn't come.'
- c. John-wa ki-ta-kedo, hokano-minna-wa ko-na-katta-kamosirenai.

John-CT come-PAST-though, other-everyone-CT come-NOT-PAST-may  
 ‘John came but it is possible that no one else came.’

d. John-wa ki-ta-kedo, hokano-minna-wa ko-na-katta.  
 John-CT come-PAST-though, other-everyone-CT come-NOT-PAST  
 ‘John came but no one else did.’

We can summarize the differences of implicature in (2a)-(2d) as follows:<sup>2</sup>

(4) Varying implicatures of contrastiveness

(2a)	(2b)	(2c)	(2d)
$\diamond\exists x[C(x) \wedge x \neq \text{John} \wedge \neg P(x)]$	$\exists x[C(x) \wedge x \neq \text{John} \wedge \neg P(x)]$	$\diamond\forall x[C(x) \wedge x \neq \text{John} \rightarrow \neg P(x)]$	$\forall x[C(x) \wedge x \neq \text{John} \rightarrow \neg P(x)]$
			<i>cf. only</i>

Here, variable C is a contextually determined set of individuals. We can classify the varying implicatures in Table (4) by the following two parameters: (i) the presence or absence of the speaker’s uncertainty concerning the implicature and (ii) whether the contrastive is specific (existential) or universal:

(5)

	+Uncertainty	-Uncertainty
Specific/Existential contrastiveness	(2a)	(2b)
Universal contrastiveness	(2c)	(2d)

The purpose of this paper is to consider how the variability of implicature can be explained in a principled way. We will first introduce the two representative approaches to the implicature of contrastive *wa*—reversed polarity (Oshima 2008) and the scalar alternative (Hara 2005, 2006)—and consider whether these two approaches can explain the variability of implicature. I will claim that both approaches seem to have pros and cons in analyzing the variability of implicatures, but the scalar alternative approach can become a better approach if accompanied by the assumptions that (i) the contextual variable C is fixed by the speaker or the hearer, so the contextual domain may be different

for each of them and (ii) the smaller the contextual domain of C is, the more specific the contrastive meaning becomes.

Finally, I will compare the scalar and non-scalar uses of contrastive *wa* (Sawada in press) and consider whether these two uses are to be understood as special cases of a single meaning (cf. *only*; Beaver and Clark 2008 and references therein). It will be shown that the scalar alternative approach can unify the two uses in principled way.

## 2. Background: Thematic *Wa* vs. Contrastive *Wa*

It is well known that the particle *wa* in Japanese has two kinds of uses, thematic and contrastive:

(6) Taro-*wa* hasi-ttei-ru.

Taro-WA run -PROG-PRES

a. Thematic *wa*: ‘Speaking of Taro, he is running.’

b. Contrastive *wa*: ‘Taro is running (but Hanako is not running.)’

(Kuno 1973a: 207)

In (6a) *wa* marks a constituent that stands for theme as opposed to content. According to Kuno (1972), the theme must be either **generic** or **anaphoric** (previously mentioned). In (6b), on the other hand, *wa* marks the contrastive element of the sentence, and conventionally implies that there is another element that is an alternative to it. Notice that the contrastive element can be generic, anaphoric or neither of the two (Kuno 1972). That is, there is no constraint on the contrastive *wa*. Notice that contrastive *wa* and thematic *wa* are different in terms of phonology as well. Sentence (6) is interpreted as contrastive if we stress the element attached to the particle *wa* (here, ‘Taro’) or *wa* itself.

### 3. Previous Analyses of the Contrastive *Wa*

In this section we will introduce the representative approaches to contrastive *wa* (reversed polarity vs. scalar alternative) and consider whether either approach can explain the variability of contrastiveness.<sup>3</sup>

#### 3.1. Reversed polarity approach

Many researchers agree on the following idea:

##### (7) *Reversed polarity approach*:

The implicature induced by contrastive *wa* has an opposite meaning: ‘*x-wa...*’ implies ‘but it is **not** the case that *y-wa...*’ (Kuno 1973b; Teramura 1991; Noda 1996; Oshima 2008, among others)

Some researchers call this implicature the ‘reversed polarity presupposition’ (e.g. Lee 2006; Oshima 2008). For example, Oshima (2008) argues that an utterance of (8) is felicitous only if **at least one of the alternative propositions** with respect to John, like those listed in (9), is *not* in the common ground C.

##### (8) (Among John, Mary and Tom, who came to the party?)

JOHN-wa ki-mashi-ta.

John-CT come-PRED.POL-PAST

‘[John]<sub>CT</sub> came.’

##### (9) {Mary came; Tom came}

In this analysis the common ground is a contextually determined set of alternative propositions to sentence (8) with respect to John. Oshima’s approach can explain the implicatures in (10b) and (10d) because his felicity condition for contrastive *wa* enables us to use (8) in two situations: where all of the contextually determined persons didn’t come, or where only some of them didn’t come:

(10) Variability of implicature of (8)(=1b)

(a)	(b)	(c)	(d)
$\diamond\exists x[C(x) \wedge x \neq \text{John} \wedge \neg P(x)]$	$\exists x[C(x) \wedge x \neq \text{John} \wedge \neg P(x)]$	$\diamond\forall x[C(x) \wedge x \neq \text{John} \rightarrow \neg P(x)]$	$\forall x[C(x) \wedge x \neq \text{John} \rightarrow \neg P(x)]$
			cf. <i>only</i>

Note that in the above table, I use the variable C to represent a contextually determined set of alternative individuals with respect to John.

The reversed polarity approach is intuitively right, but the problem is how to explain cases (a) and (c) where the speaker's epistemic uncertainty is conveyed.

3.2. Scalar alternative approach

Hara (2004, 2006) claims that a contrastive topic presupposes a particular set of scalar alternatives, namely stronger propositions than the one asserted, and conventionally implies that it is possible that the stronger alternative is false. I will call this approach the scalar alternative approach:

(11) Scalar alternative approach: The contrastive *wa* 'always' induces a conventional Q implicature (Hara 2004, 2006).

She formalizes this idea as follows:

(12) CONTRASTIVE(<B, F>) (B : background, F: the focus-marked elements)

- a. asserts: B(T)
- b. presupposes:  $\exists F'[F' \in \text{ALTC}(F) \wedge B(F') \text{ entails } B(F) \wedge B(F) \text{ doesn't entail } B(F')]$
- c. implicates:  $\forall F'[F' \in \text{ALTC}(F) \wedge B(F') \text{ entails } B(F) \wedge B(F) \text{ doesn't entail } B(F')] \rightarrow \text{Poss}(\neg B(F'))]$

As we can see in (12b), there must be a scalar alternative that *entails* but *is not entailed by* the original assertion. If the presupposition is correct, the sentence with CON conventionally implies that the speaker is considering the possibility that the stronger

alternative is false, as shown in (12c).

Let us apply the above idea to example (13):

(13) a. Among John, Mary and Tom, who came to the party?

b. JOHN-wa ki-mashi-ta.

John-CT come-PRED.POL-PAST

‘[John]<sub>CT</sub> came.’

→ Mary didn’t come, or I don’t know about Mary.

(14) shows the interpretation of (13):

(14) a.  $B = \lambda x. x$  came

F=John

F’={John & Mary, John & Tom, John & Mary & Tom}

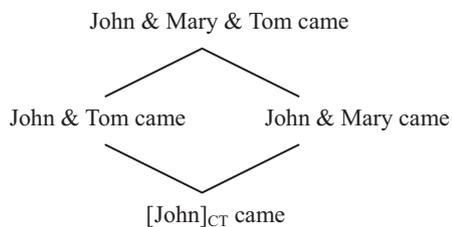
b. assertion: John came.

c. implicatures: the speaker is considering the possibility that ‘every proposition that is stronger than the asserted one is false.’

d. assertion + implicature: the speaker is considering the possibility that no one other than John came.

As we can see in the following figure, the alternatives to the focus-marked element (John came) are {John & Mary came, John & Tom came, John & Mary & Tom came}:

(15)



By negating every proposition that is stronger than the assertion, we get the scalar implicature that ‘it is possible that no one other than John came to the party.’ Now, let us

consider this approach in terms of variability of implicature.

(16) Variability of implicature in (13b) (=1b))

(a)	(b)	(c)	(d)
$\diamond\exists x[C(x) \wedge x \neq \text{John} \wedge \neg P(x)]$	$\exists x[C(x) \wedge x \neq \text{John} \wedge \neg P(x)]$	$\diamond\forall x[C(x) \wedge x \neq \text{John} \rightarrow \neg P(x)]$	$\forall x[C(x) \wedge x \neq \text{John} \rightarrow \neg P(x)]$
			cf. <i>only</i>

Hara's scalar alternative approach corresponds to the implicature in (16c) in the table. Note that the scalar alternative approach can explain (16d) based on the general mechanism of scalar implicature (Hara and van Rooij 2007). Soames (1982) suggests that the epistemic force of scalar implicature arises from the external negation of the Hintikka operator K. Thus, asserting 'some came' will conversationally imply that 'the speaker does not know whether everyone came.' In our case, this corresponds to (16c). However, Soames suggests that this implicature may be strengthened to a particularized conversational implicature that 'the speaker definitely knows that not everyone came' due to an additional assumption (See also Suerland 2004; Schulz and Robert van Rooij 2006 and references therein). Although we are assuming that the contrastive *wa* induces a 'conventional scalar implicature', but not 'conversational scalar implicature', it is natural to think that the same analysis can be applied to implicature of contrastive *wa*. That is, the primary implicature in (16c) is strengthened to (16d) (Hara and van Rooij 2007).

Thus we can conclude that the variability in the level of the speaker's uncertainty can be captured by Hara's approach. Notice that the following example only has a strong implicature:

(17) (Can you speak French and German?)

Fransu-go-wa            hanas-e-masu.

French language-CT    speak-can-PRED.POL

'I can speak [French]<sub>CT</sub>.'

In this context, the natural implicature of (17) will be 'but I cannot speak German,' because the speaker is talking about himself. Things become different, however, if the

speaker is talking about Taro's competence in foreign languages.

The potential problem with the scalar alternative approach is that it may not be able to explain the variability of specificity. Observe the following sentence:

(18) a. Among John, Mary and Tom, who came to the party?

b. JOHN-wa ki-masi-ta

John-CT come-PRED.POLITE.PAST

'John]<sub>CT</sub> came.'

→ But Mary didn't come./It is possible that Mary didn't come.

According to the scalar alternative approach, (18b) makes a scale like (15) and generates the conventional implicatures that 'it is possible that no one other than John came' or 'no one other than John came'. However, the implicature of (18b) can be more specific. For example, it can be binary as in (18). Is there a way to explain this implicature using the scalar alternative approach?

#### 4. Domain Restriction and the Contextual Variable C

I argue that the problem with the scalar alternative approach disappears if we assume that the contextual variable C is fixed separately by the speaker and the hearer, who do not always share the same contextual domain. Let us observe the above example again:

(19) a. Among John, Mary and Tom, who came to the party?

b. JOHN-wa ki-masi-ta

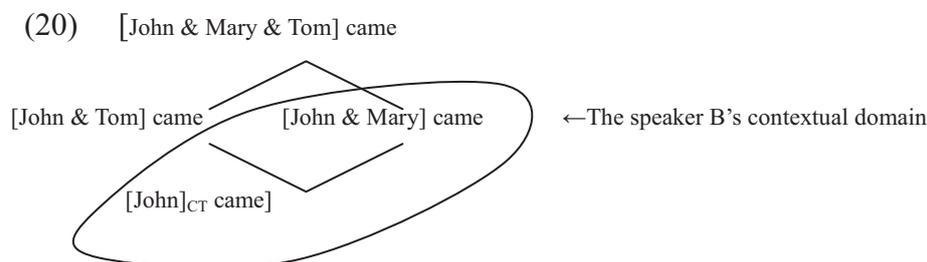
John-CT come-PRED.POLITE.PAST

[John]<sub>CT</sub> came.'

→ But Mary didn't come./It is possible that Mary didn't come.

The implicature in (19b) can be generated if the speaker does not know Tom. The

implicature is generated by narrowing the contextual domain:



In this situation, the speaker knows that John came and Tom didn't, but is not sure whether Mary came to the party. The narrowing of the contextual domain is meaningful in this case, because the speaker can highlight the fact that Mary didn't come. Although the implicature is a scalar implicature with a universal meaning (=21a), since there are only two members (i.e. John and Mary) in the contextual domain, the implicature is construed as a binary contrast whose quantificational force is existential, as shown in (21b).

- (21) a.  $\lambda C \diamond \forall x [C(x) \wedge x \neq \text{John} \rightarrow \neg \text{came}(x)]$  (where C contains John and Tom)  
 b.  $\exists x [x \neq \text{John} \wedge \neg \text{came}(x)]$

I would like to suggest that contrastiveness has the following cognitive principle:

- (22) The smaller the set of alternatives to John is, the more specific (existential) the contrastiveness becomes.

By adopting the idea that the contextual domain can be different between the speaker and the hearer, and that there is a correlation between the contextual domain and the specificity of contrastiveness, we can maintain the scalar alternative approach.

## 5. The Scalar Use of Contrastive *Wa*

Sawada (in press) claims that there are two types of contrastive *wa*: scalar contrastive *wa* and polarity contrastive *wa*. All of the examples belong to the polarity contrastive *wa* (non-scalar use) because intuitively, they do not invoke a scale like <x, y, z, ...> (where x is a focus marked element).<sup>4</sup> The scalar contrastive *wa*, on the other hand, can invoke a scale from the focused element. Sawada argues that scalar contrastive *wa* behaves like a mirror image of *sae* ‘even.’ Observe the following examples:

(23) (Context: Taro participated in an unofficial tennis tournament (=round robin). He competed with an amateur, a semi-professional and a professional.)

- a. Taro-wa    sirooto-ni            {*wa*/ ??*sae*}    ka-tta.  
Taro-TOP   amateur-DAT    CT/    even    win-PAST  
‘(lit.) Taro beat an [amateur]<sub>CT</sub>. /??Taro even beat an amateur.’
- b. Taro-wa    puro            -ni            {??*wa* / *sae*}    ka -tta.  
Taro-TOP   professional -DAT    CT / even    win-PAST  
‘(lit.) ??Taro beat a [professional]<sub>CT</sub> / Taro beat even a professional.’

The good cases in (23) are those in which the scalar contrastive *wa* picks a focused element that is construed as low on a given scale (in this case, the ranking of tennis players in terms of skills), and *sae* ‘even’ picks a focused element that is high on this scale.<sup>5</sup>

## 6. Empirical Facts Concerning the Scalar Use of Contrastive *Wa*

There are several pieces of linguistic evidence to support the idea that there is a scalar use of contrastive *wa*.

### 6.1. Standard of comparison with contrastive *wa*

If contrastive *wa* is attached to *yori*, the standard of comparison is construed as low on a given scale, as shown in (24b):

(24) a. Taro-wa Ziro-yori se -ga takai.

Taro-TOP Ziro-than height-NOM tall

‘Taro is taller than Ziro.’

b. Taro-wa Ziro-yori-*wa* se -ga takai.

Taro-TOP Ziro-than-CT height -NOM tall

‘Compared to Ziro, Taro is tall.’

→ Ziro is short. (Implicature from the standard of comparison)

→ Taro is not definitely tall. (Implicature from the main clause)

Notice that there is another implication as well: that ‘Taro is not definitely tall’ (Sawada 2007).

### 6.2. Predicate with contrastive *wa*

A low scalar value also arises when contrastive *wa* is attached to the predicate of a sentence (i.e. adjective, verb):

(25) Ame-wa furi-*wa* si-ta.

Rain-TOP fall-CT do-PAST

‘It [rained]<sub>CT</sub>.’

→ (Implicature): It didn’t rain a lot. (low amount)

### 6.3. Polar question (negative bias)

Positive questions with minimizers can express a negative bias (Borkin 1971, Ladusaw 1980, Giannakidou 2007, among others):

(26) Did Tom *lift a finger* to help?

(Bias: No, he didn’t.)

Contrastive *wa* can also be used in a positive question with a negative bias.

- (27) X daigaku-ni-wa ukari-masi-ta-ka.  
X university-DAT-CT pass-POLITE-PAST-Q  
'Were you accepted by [X university]<sub>CT</sub>?  
(Bias: I assume that you weren't.)

This fact supports the argument that scalar contrastive *wa* has a low scalar value.

## 7. The Difference between the Scalar and Non-scalar Uses of Contrastive *Wa*

So what can we say about the scalar approach in the end? It seems that the scalar alternative approach can explain the distinction between the scalar and non-scalar uses (e.g. (1)) in a unified way. Both uses construe a focused element as being at the **bottom** (or low) of a scale and generate a conventional scalar implicature (cf. *at least*; Geurts and Nouwen 2007). The only difference between the two uses is whether a scale is created based on logical entailment or pragmatic entailment (Hirschberg 1991). For example, [Tom and Mary came] logically entails [Tom came], but [Tom beat a professional] pragmatically entails that [Tom beat a semi-professional]. (It is possible that Tom beat a professional but he could not beat a semi-professional.) Thus we can say that in principle the implicatures of the scalar and non-scalar uses of *wa* are derived from the same pragmatic mechanism.

## 8. Conclusions

This paper investigated the varying implicatures of contrastive *wa* and tried to explain the variability of its implicatures in a unified way. As for the variability of uncertainty meaning inside the implicatures, it can be captured by the mechanism of the strengthening/exhaustivity (Hara and van Rooij 2007), similarly to the case of a conversational scalar implicature (e.g. Soames 1982; Horn 1989). As for the variability in quantificational force, I argued that the quantificational force of contrast *wa* can change if

the speaker narrows the contextual domain. Furthermore, I proposed as a general mechanism that the smaller the contextual domain is, the more specific the contrastive meaning becomes. I also showed that the scalar alternative approach can explain the behaviors of scalar and non-scalar uses of contrastive *wa* in a unified way. The difference between the two uses is due to the nature of the scale (i.e., whether it is a logical entailment scale or a pragmatic scale).

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### Notes

1. Of course, there is another implicature similar to (2a) and (2b):

(2a') But it is possible that Tom didn't come.

(2b') But Tom didn't come.

These are fundamentally the same as (2a) and (2b) in that they contrast John with Tom (a binary contrast).

2. Here, since the contrastive marker *wa* attaches to John, the alternatives are variables of type <e>. However, the contrastive *wa* can also target constituents such as verbs and postpositional phrases.

3. There are other approaches as well. For example, Tomioka (2007) proposes a contrastive speech act approach. In this approach, CTs operate at the level of speech acts and contrastive *wa* introduces a set of alternative Speech Acts.

4. It seems that the English only also has both scalar and non-scalar uses. (Beaver and Clark 2008 and references therein):

(i) David *only* wears a bow tie when teaching. (Beaver and Clark 2008:69)

(ii) At the time of the battle of Shiloh, MacPherson had *only* been a lieutenant colonel.

(Beaver and Clark 2008: 69)

Beaver and Clark (2008) take a position that the scalar and non-scalar uses of *only* are understood as special cases of a single meaning.

5. Sawada (in press) uses the ‘unlikelihood’ scale for the scalar contrastive *wa* in order to capture the similarities and differences between the particle and *sae* ‘even’.

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# *Hae-Haeng-Chong-Jae*: a Clue to Middle-Age and Modern Japanese

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## Abstract

The purpose of this paper is to introduce several key observations of both middle-age and modern Japanese language by Korean envoys. These observations regarding Japanese grammar, lexicon, dialects, phonetics, and the writing system are prevalent throughout their travel log, *Hae-Haeng-Chong-Jae*. Korean envoys made detailed notes regarding Sino-Japanese words. In particular, they transcribed some words using different Chinese characters, so we can assume the change in pronunciation of Sino-Japanese words. They also made detailed observations regarding the difference between Sino-Japanese words and Sino-Korean words, such as in the phonetic-reading of Chinese characters. In addition, they recorded the exceptional use of Chinese language by their Japanese contemporaries, for example, the semantic-reading of Sino-Japanese words and the Japanese reading method of deciphering Chinese text.

**Keywords:** Korean envoys, Japanese grammar, Japanese lexicon, Japanese dialects, Japanese phonetics, Japanese writing system.

## 1. Data

The text of *Hae-Haeng-Chong-Jae* (海行摠載) is a collection of travel records written by the hands of various Korean envoys, recorded between the end of the Goryeo (高麗) and the end of the Joseon (朝鮮) period.

For example Japanese words for names of places in *Hae-Haeng-Chong-Jae* and the transcription of some words are as follows.

- (1) a. 兩人皆着肩衣 倭音可當其妻。  
b. 倭音謂忠海 謂但多于微。  
c. 橫泊對馬島志志見浦 倭音시시미우라。 <扶桑錄(1655~6)>

This text comprises twenty-four travel logs (see Table 1), among which *Mun-Gyeon-Byeol-Rok* (聞見別錄) and *Hae-Yu-Rok* (海遊錄) are especially noteworthy for their observations regarding the Japanese language of that time.

My purpose is to analyze the nature of this text as a valuable source of knowledge regarding those observations made by the Korean envoys, especially regarding contemporary Japanese language.

*Hae-Haeng-Chong-Jae* in the national library of Korea can be used as research data, because this book is recognized as the closest version of the original text. The *Catalog of Old Books* (古書目錄, 1972) explains this book as follows.

(2) Call number: 한古朝90-2

Title: 海行摠載

Contents: 24 manuscripts, undated, 27.8 cm (height) × 19.2 cm (width), 28 letters in each 10 line.

<Table 1> The travel logs in *Hae-Haeng-Chong-Jae*

Title	Date of completion (year)	Writer	Author's political status
鄭圃隱奉使時作	1337~1392	鄭夢周	使臣
海東諸國記	1471	申叔舟	書狀官
申高靈奉使時作	1470's	申叔舟	書狀官
海槎錄	1590	金誠一	副使
看羊錄	1597~1600	姜沆	捕虜
海槎錄	1607	慶暹	副使
東槎上日錄	1617	吳允謙	正使
扶桑錄	1617	李景稷	從事官
東槎錄	1624~5	姜弘重	副使
丙子日本日記	1636~7	任統	正使
海槎錄	1636~7	金世濂	副使
槎上錄	1636~7	金世濂	副使
東槎錄	1636~7	黃* (戶木)	通譯官
東槎錄	1643	趙綱	副使
海槎錄	1643	申濡	從事官
癸未東槎日記	1643	unknown	
聞見別錄	1655~6	南龍翼	從事官
扶桑錄	1655~6	南龍翼	從事官

東槎錄	1681~2	洪禹載	通譯官
東槎日錄	1682	金指南	通譯官
海遊錄	1719~20	申維翰	製述官
前後使行備考	After 1748	unknown	
漂舟錄	1756~7(?)	李志恆	漂流者
海槎日記	1763~4	趙曦	正使

## 2. Kana

In terms of the Japanese writing system (*Kana*), it is noted that from 47 to 50 letters—simplified versions of Chinese characters—are used by men and women, old and young alike. It was observed that *Kana* was similar to the Korean official reading *Idu* (吏讀) and *Hanguel* (諺文), because *Kana* and *Hanguel* were used with Chinese characters.

- (3) a. 其國以爲生佛。依方言以四十八字。〈海上錄〉(1597-1599, 鄭希得)  
 b. 依方言以四十八字。分作倭諺。 〈看羊錄〉(1597-1600)  
 c. 以倭人不解文字。依方言。以四十八字。 〈海槎錄〉(1636-7)  
 d. 國中所用諺文有四十八字。 〈海遊錄〉(1719)  
 e. 伊呂波四十七字。〈中略〉蓋本梵字十二摩多。三十五體文。而統四十七字。 〈青莊館全書〉(1795, 李德懋)

As for the number of *Kana*, most Korean envoys said that it was comprised of 48 letters.

- (4) 48字: 海上錄, 看羊錄, 海槎錄, 海遊錄  
 47字: 青莊館全書

In the Heian (平安) Period, ㄱ was distinguished into two: [e] and [ye], though [e] and [ye] were merged to [ye] at the end of the Heian period. This is why Korean envoys cited the number of *Kana* as 48 letters first and 47 letters latter. Furthermore the 五十音圖, like present, was figured in *Il-Sa-Jip-Ryak* (日槎集略, 1881) with translated *Hanguel*.

Observations regarding Japanese “home-made” Chinese characters (that is, characters existing only in Japan) can also be found throughout this text. National



there are some faults in (6a) and (6b), such as in character 鶴頂 (←鶴頸), and in pronunciation 海 (由未[jumi]←于未[umi]).

Other examples are observed in *Cheong-Jang-Gwan-Jeon-Seo* (靑莊館全書, 1795). Records of the pronunciation are listed below <Table 2>. When there is a mistake of transcription, I have suggested the accurate pronunciation.

<Table 2> Pronunciation of the Japanese proper word (聞見別錄, 海遊錄, 靑莊館全書)

Original character	Korean transcription of Japanese pronunciation	Original character or phrase	Korean transcription of Japanese pronunciation
山	夜麻 yama	冠	加牟里 kamori
海	由未 yumi(←umi)	烏帽	染浦是/汝甫是 yə <sup>m</sup> bosi/yəbosi
火	噫伊 huii	折烏帽	烏里染甫是/烏里汝甫是 oriyə <sup>m</sup> bosi/oriyəbosi
水	閔注/民註 mi <sup>n</sup> ᄁu/mi <sup>n</sup> ᄁu	振舞	候老麻伊 huromai(←hurumai)
紙	加未 kami	見物之美者	乂伊 yei
筆	侯代 hudəi	不好者	曰伊 wari(←warui)
墨	愁未 sumi	用力之聲	乂沙乂沙 yesə-yesə
硯	愁愁里 susuri(←suᄁuri)	用力之聲	夜沙夜沙 yasə-yasə
殿様	敦于沙麻 donosəma	夫則前者唱	高里臥沙 koriwasə
御前様	烏麻伊沙麻 omaisəma	後者應曰	高里臥是 koriwasi
上様	加美沙馬 kamisəma	徐行則緩聲	伊即于伊 iᄁugui(←isoge)
飯	眠時 myə <sup>n</sup> si	徐行	疏老疏老 soro-soro
鳥	時麻 sima	疾行	何要何要 hwayo-hwayo
肩衣	可當其婁 kata <sup>n</sup> giru	喫	央喝伊 a <sup>n</sup> gari
道袍	老服古 robokko	也, 乎(助動詞)	麻時 masi
唐袴	化可馬 hwakama		

In <Table 2>, there were examples of the noun ‘山 mountain’, adjective ‘良い good’, ‘悪い bad’, and the verb ‘急ぐ hurry’. In addition, an adverb ‘そろそろ slowly’, and the exclamation exchanged between workers such as ‘早早 hwayo-hwayo’ were included. In the case of exclamation, they noted that reduplication was used frequently.

In particular, there are some words transcribed using different Chinese characters.



<Table 4> Special use of Chinese character in Japan (聞見別錄)

	Sino-Japanese or usage in Japan	(corresponding) Sino-Korean or usage in Korea
進上	regardless of political status	the upper classes
臣	regardless of political status	Officials of superior class
Monk	法印	僧侶
A hotel of envoy	御宿	館所
A hotel of the lower classes	御所	處所

For example, 臣 was used for officials of the superior class in Korea, but the word is used regardless of status in Japan. In addition, Korean people used the honorific Chinese character 御 (Korean 'eo', Japanese 'on') exclusively when referring to a king, whereas the Japanese people liberally prefixed this character to anyone of exceptional honor. These differences in the use of Chinese characters resulted in occasional feelings of discontent and misunderstanding among the Korean envoys.

Careful notes were made regarding Chinese terms adopted into the Japanese language not existing in the Korean language.

For example, names of the Pisces are presented as follows.

- (8) 謂大口魚曰鱈。銀口魚曰鯨。道味魚曰鯛。古刀魚曰鮎、或曰鯖。魴魚曰紅魚、或曰鮠。鱧魚曰鮭魚。賊魚曰\*(魚+曷)。乾者曰干。生者曰鮮。沈鹽曰鹽漬。沈糟曰粕漬。 <海遊錄,下>

#### 4. Japanese reading method of deciphering Chinese texts

The Japanese method of deciphering Chinese texts semantically was not something practiced by Korean scholars. Because Japanese word-order is SOV, so Japanese used certain diacritics, such as 上下 (top and bottom), to indicate Japanese word-order and to adjust Chinese word-order to Japanese one.

Korean envoys cited that Japanese people had difficulty in reading the Chinese text, and this tendency resulted in that kind of reading.

- (9) 其爲讀書。不解倒結先後之法。逐字辛苦。下上其指。然後僅通其義。如

馬上逢寒食。則讀逢字於寒食之下。忽見陌頭楊柳色。則讀見字於楊柳色之後。文字之難於學習。又如此。 <海遊錄,下>

Korean scholars were accustomed to reading Chinese texts directly, that is, using the Korean phonetic readings of Chinese characters without changing the word-order of the original text.

For this reason, the Japanese method of reading Chinese texts prevalent at that time must have seemed to these envoys both unique and at the same time strangely inefficient. In this light, the value of this text lies in those observations regarding the differences between the Japanese and Korean language.

Because Korean word-order is SOV like Japanese, when Koreans decipher Chinese texts in their native tongue, it is necessary to change the word-order. But Koreans do not use the Japanese method, but simply read the texts phonetically and attach Korean auxiliary verbs, particles and endings (口訣) to facilitate understanding. Even now this system is maintained in Korea. So, this observation is due to the difference in method of reading the Chinese texts between Korea and Japan.

## 5. Japanese phonetic readings of Chinese character

### 5.1. Japanese pronunciation of the final (韻母)

(10) 日本讀字之音。如東冬陽庚青蒸之韻、則呼以二音。東字曰都于。陽字曰要于。青字曰世伊。江字曰乂伊。 <中略> 其他蕭豪韻及入聲、亦用二音。而時或與我國彷彿。 <海遊錄,下>

The Korean envoys also point out that the Japanese phonetic readings of such Chinese characters as 東, 陽, 青 are pronounced with long vowels, 'tou', 'you', 'sei', where as the Korean pronunciation of these same characters is given a short vowel followed by nasal close, 'dong', 'yang', 'cheong'. In a similar vein the envoys, focusing on the absence of glottal stops in Japanese phonetic readings, noted that while the Japanese pronunciation of 蕭 is 'shuku', two distinct syllables ending with a vowel, the Korean pronunciation is 'suk', a single syllable ending in a clear glottal stop. On the other hand, the Japanese pronunciation of the final (韻母) such as 眞, 文, 元, 先, 寒 and 刪 were noted as being more-or-less similar to the Korean reading.

## 5.2. unvoiced/voiced(清濁) and accent

Regarding the Japanese phonetic readings of Chinese characters, the Korean envoys observed that the Japanese system of pronunciation was purely unvoiced (純清), lacking any noticeable voiced sounds. Shin-Yuhan (申維翰) recorded about the Japanese sound of Chinese character in *Hae-Yu-Rok*, borrowing the words of Amenomori-Hosyu (雨森芳洲, 1668-1755).

- (11) 嘗與雨森東。論音譯異同。東曰。華音多濁。鮮音多清。日本之音。純清無濁。 <海遊錄,下>

Amenomori-Hosyu, a Japanese interpreter for incoming Korean envoys, stated that Japanese pronunciation is not sonant. Shin-Yuhan (申維翰) also commented that there is neither heavy sound nor vocal sound in Japanese pronunciation.

- (12) 然大抵倭人弄舌。本多輕浮而啾噪。語似鳥音。故全清而無濁。有淺聲而無重聲。如我國之於中華。不得其全濁也。 <海遊錄,下>

In like manner, J. F. van Overmeer Fisscher, visiting Japan at the same time as these Korean envoys, notes that the Japanese pronunciation of Chinese characters was completely unvoiced (輕清) making it difficult to understand.

Futhermore Shin-Yuhan (申維翰) noted that the Japanese reading of Chinese characters does not make use of tone, a crucial part of Chinese pronunciation.

- (13) 其爲字音、又無清濁高低。欲學詩者。先以三韻。積年用工。能辨某字高某字低。然後苟合成章。 <海遊錄,下>

However, the fact that contemporary Korean pronunciation of Chinese characters had likewise already abandoned the use of tones suggests that the intellectuals of Korea made such observations not on the basis of their native language but on the basis of Chinese, which was the real language of scholarship at that time.

This theory may be supported by certain records regarding the exchanges of Chinese poems between Korean and Japanese scholars, where it becomes apparent that the latter have great difficulty in making use of correct Chinese rhyme-characters. Therefore, it appears that Korean scholars tended to judge the ability of their Japanese neighbors insofar as they were able to accurately employ rhyme in their composition of

Chinese poems.

Contrary to this, however, Amenomori-Hosyu (雨森芳洲) retorts that it was not a lack of knowledge on the part of Japanese scholars but rather the fact that the Korean governmental-examination contained a section on Chinese rhyme which made the Koreans seem superior in this area.

## 6. Dialect

### 6.1. Vocabulary

A shipwrecked traveler makes various observations regarding certain Japanese dialects, among these one of the more interesting being the Ainu dialect. Exchanging questions and answers with an official interpreter, Korean recorded some words in *Pyo-Ju-Rok* (漂舟錄) of the Ainu dialect.

- (14) 一時歸現於松前太守前。餘在船中日。與書示探識其言語物情。而不盡詳知。問蝦夷通事者曰。蝦夷等。마즈마이云者何言耶。曰謂松前稱也。又問앙그랍에何耶。曰平安也。빌기의何也。美也。악기何也。水也。아비何也。火也。憑以倭語則大相不同。 <漂舟錄, 1. July. 1756>

Observing that the Ainu word for water is ‘akki’ while the word for fire is ‘abi’, they realized that this dialect was completely different from central Japanese.

The Ryukyu dialect appeared in *Hae-dong-je-guk-gi* (海東諸國記).

- (15) 肉시시, 魚이우, 鹿肉카우루시시, 猪肉오와시시, 兔肉우상가시시, 油으 부라, 鹽마시오, 醬미쇼, <中略> 面초라, 眼무, 鼻파나, 口크지, 耳미, 頭가난우, 手데, 足피산, 舌頭시자, 手指頭외빅, 頭髮카시리, 牙齒파, 花파라, 綠으오스, 黑구루스, 靑탄청, 牛우시, 馬우마, 猪우와, 鷄투리, 狗이노, 羊비즈자, 老鼠오야비쥬, 蛇파우, 龍타즈, 象자, 獅시시, 虎도라 <海東諸國記-語音翻譯, 1471>

Eoe-Um-Beon-Yeok (語音翻譯) has 169 words of the Ryukyu of the time.

### 6.2. Impression of dialect

A difference between the central tongue and the local tongue in Japanese language may be seen in comparative length.

(16) 日本方言。亦有京外之別。外方則差緩而實。京則愈輕而簡。馬島之人至江戸。多以言缺見笑。即如我京之於嶺邑也。 <海遊錄,下>

In terms of the differences between central Japanese and the various surrounding dialects, for example Tsushima dialect, the envoys, borrowing the words of Amenomori-Hosyu (雨森芳洲) note that while the former is …“relatively light and terse”, the latter are …“slow and thick”.

## 7. Conclusion

By analyzing this text I hoped to introduce several observations of the Japanese language by Korean envoys of the middle-ages and modern period. I do not here wish to say whether or not these observations are in fact accurate, but rather wish to point out that here in this text we find by far the greatest number of such observations in any given Korean travel log.

Considering that Korean intellectuals of this time were accustomed to the use of Chinese characters and language, it seems understandable why they would make such detailed notes regarding the exceptional use of Chinese by their Japanese contemporaries.

Not only this, but observations regarding Japanese grammar, lexicon, dialects, phonetics, as well as the writing system (*Kana*) are also prevalent throughout the text. It may be possible, through a comparison of this text with similar records left by European visitors, to judge just how far we may trust the accuracy of such observations.

## Appendixes

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# The Semantics of Cantonese Lexical Quantifier –*saai* ‘all’<sup>1</sup>

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## Abstract

Adopting a syntax-semantics mapping approach, this paper studies quantification with a special reference to Cantonese verbal particle –*saai* ‘all’ which gives a universal meaning to its associated item. As a quantifying particle attached to the verb, –*saai* is categorized as a lexical type of quantification, hence a lexical quantifier under A-quantifiers (Partee 1987, 1991, 1995). Based on the quantificational pattern demonstrated by –*saai*, the paper argues that quantification should be considered as including two independent processes: the selection process and the mapping process. The selection process selects the item for association and should be separated from the mapping process which maps the relevant syntactic structure to the semantic tripartite structure. The quantificational pattern in the lexical quantifier –*saai* supports such a separation, where the selection of a constituent for association is determined solely by a grammatical function hierarchy to be proposed in this paper, which is then followed by the mapping process, determined either by the lexical semantics of the quantifier in question, or by focal mapping, and focal mapping only comes into play when the constituent selected from the hierarchy is in focus.

**Keywords:** syntax-semantics mapping, lexical quantification, selection process, mapping process, grammatical function hierarchy

## 1. The Problem

Partee (1987, 1991) differentiates D-quantification from A-quantification, where D stands for “determiner” and A for the cluster of adverbs, auxiliaries, affixes and argument-structure adjusters. Partee (1995) further divides A-quantification into two subtypes: true A-quantifiers, including both preverbal A-quantifiers and adverbs of quantification (Q-adverbs), along the lines of Lewis (1975) and Heim (1982), and lexical quantifiers which have an operator, quantificational in nature, applying to the verb or other predicate at a lexical level, with (potentially) morphological, syntactic and semantic effects on the argument structure of the predicate.

The distinction between A- and D-quantifiers is significant, as they represent different mechanisms of how surface syntax is mapped to semantic representations. In the case of D-quantification, the tripartite structure is syntactically determined: the determiner (D) as the operator, the noun phrase (NP), the restrictor and the VP, the nuclear scope (the matrix). Hence, we may say that the entire partition of D-quantification is not affected by semantic factors, and relies crucially on syntax. Unlike D-quantification, quantification by adverbials like *always*, *often* is less

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syntacticised. Except in some explicitly structured case where there exists an explicit operator or an explicit marking to indicate a division into restrictor and nuclear scope, e.g. *if*-clause and topic-focus structure (cf. von Stechow 1994, Berman 1994 and among others), in simple clauses, syntax is not the sole and crucial factor in determining its tripartite partition, as it is obvious that a positional variability in focus will affect the partition of the tripartite structure. The non-focused part will be selected to be the domain of quantification, with the focus being mapped to the matrix for A-quantifiers, thus, determining the mapping triggered to be focal mapping. Despite this important distinction, they do share one common feature: there is no differentiation between the selection of the item for association with the quantification in question (henceforth, *the selection process*) and the mapping process which determines the mapping from surface structure to semantic tripartite structure. The question now is whether all quantifications share the same pattern, that is having the above-mentioned selection process and the mapping process integrated with each other, particularly those subtypes which fall under A-quantification.

In this paper, adopting a syntax-semantics mapping approach, we study quantification performed by Cantonese verbal particle *-saai* ‘all’ which gives a universal or “all” interpretation to its associated constituent. We will argue for the separation of the selection process from the mapping process, in order to interpret all the *saai*-sentences correctly. *-Saai* as a verbal particle, which by its morpho-syntactic characterization, would be categorized as a subtype of A-quantifiers, “lexical quantifiers”, under Partee’s classification. However, the direct association of *-saai* with verbal arguments and its partial sensitivity to focus make its quantificational property distinct from true A-quantifiers. The quantificational pattern of *-saai* is spelt out as follows: the selection of a constituent for association is determined solely by a grammatical function hierarchy to be proposed in this paper, which is then followed by the mapping process, determined either by the lexical semantics of the quantifier or by focal mapping. Focal mapping comes into play only if the constituent selected by the grammatical function hierarchy is in focus; otherwise, the relevant mapping will be determined by the lexical semantics of *-saai*. The quantificational pattern of *-saai* thus leads us to arrive at an important theoretical claim --- the selection process needs to be separated from the mapping process, hence the necessity of a two-step process approach to quantification in natural language.

The remaining part of this paper is organized as follows: in Section 2, we will first show that Cantonese verbal particle *-saai* ‘all’ is a quantifier. In Section 3, we will briefly introduce the semantics of *-saai*. In Section 4, we will propose a grammatical function hierarchy from which *-saai* selects its item for association, and examine whether focus will affect such a selection. In Section 5, we will demonstrate the mapping of *-saai*, with and without the presence of focus. The theoretical claim resulted from the quantificational pattern demonstrated by *-saai* will be discussed in this section. Finally, Section 6 comes the conclusion.

## 2. Cantonese *-saai* ‘all’ as a Lexical Quantifier

Although only a few suffixes or particles can follow the resultative verb compound to form the construction “V + R + suffix/particle” like *chi-wan-le* ‘eat-finish-Perf’, *da-si-guo* ‘beat-dead-Exp’ in Mandarin Chinese, there are many such suffixes or

particles in Cantonese. Cheung (1972/2007) who is the first one having conducted a comprehensive study on Cantonese grammar includes 19 verbal suffixes in his study (cf. 7 aspectual verbal suffixes in Gao (1980) and 16 aspectual verbal suffixes and complements in Yue-Hashimoto (1993)). Cheung's verbal suffixes are referred to as "verbal particles" in M&Y (1994) who include 6 aspect markers and 29 verbal particles in their study. Most importantly, the rich inventory of Cantonese verbal suffixes or particles interacts among the four linguistic domains, namely quantification, focus, modality and aspect. Since this paper examines quantification, we will simply focus on quantifying verbal particle *-saai*, in order to examine its quantification structure and how it is related to current quantification theories.

Studies on Cantonese quantificational verbal suffixes/particles are sparse, with most of them descriptive in nature (cf. Cheung 1972, Gao 1980, Yuan 1993, Yue-Hashimoto 1993, Matthews & Yip 1994, etc.). Several studies have been conducted on *-saai* (cf. Mo 1993, Au Yeung 1996, Shi 1996, Teng 1996, etc.), which have given a solid foundation for future theoretical studies. Lee (1994) is the first who have adopted a quantificational approach to study *-saai*, and he points out that *-saai* functions as a universal quantifier, as illustrated in the example below.

- (1) (a) Ngo wui sik godi pinggwo.<sup>2</sup>  
 I will eat those apple  
 "I will eat those apples."  
 (b) Ngo wui sik-saai godi pinggwo.  
 I will eat-SAAI those apple  
 "I will eat up all those apples."

The presence of *-saai* in (1b) has given *godi pinggwo* 'those apples' a universal interpretation, which is otherwise absent in (1a) where *-saai* is not included. Hence, (1a) does not require all the apples denoted by the object to be eaten. Hence, based on sentences like (1), Lee considers *-saai* as a universal quantifier which gives a universal or "all" interpretation to its associated element.

In fact, the contrast between (1a) and (1b) leads to another question. Although *-saai* carries a quantificational meaning as suggested by Lee, besides being a quantifier, there still exist several possibilities, making it not necessarily a quantifier. Out of these possibilities, the most prominent one is considering its performing predication over events, which is a potential argument against the quantificational approach. If this were really the case, it would be predicted that the relevant meaning conveyed by *-saai* will be applied to the event in question. Such a prediction can be easily ruled out by examples like (2) below.

- (2) Keoi sik-saai di je.  
 s/he eat-SAAI the food  
 a. "S/he has completed the event of eating."  
 b. "S/he has finished all the food."

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<sup>2</sup> All Cantonese Romanization in this paper follows the Romanization proposed by the Linguistic Society of Hong Kong in 1993.

Predication over events will give sentence (2) the interpretation in (2a), where *-saai* gives a completion sense to the event in question. Hence, what is required in (2a) is the eating event has completed, and it is not necessary that the food is completely consumed. On the other hand, following Lee, *-saai* can be taken as a universal quantifier, which quantifies over the object NP. What is required in (2b) will then be the total consumption of the food, and the eating event is thus completed. The interpretation of the sentence confirms that only (2b) not (2a) gives the correct interpretation to (2), and hence, along the lines taken by Lee, it is thus reasonable to treat *-saai* as a universal quantifier instead of its performing predication over events. Based on this, in the remaining part of this paper, *-saai* will be glossed as “all”, and *-saai* will be taken as a particle attached to the verb, and based on Partee’s classification of A-quantifiers, a lexical type, hence a lexical quantifier, a treatment which is on a par with Tang (1996).

Considering *-saai* as a lexical quantifier, the following three questions thus need to be answered.

- i. What exactly does *-saai* quantify over? In other words, what are the factors determining the selection of items for association?
- ii. How is the syntax of the sentences involving *-saai* mapped to its semantic representations?
- iii. How many steps does quantification involve?

### 3. The Semantics of Universal Quantifier *-saai* ‘all’

While adopting Lee’s analysis of *-saai* as a universal quantifier, Tang (1996) considers *-saai* as a lexical quantifier, and functions as a marker which makes distributivity obligatory. According to him, in quantification of *-saai* the event is marked as the distributee and the argument associated with *-saai* is selected to be the distributor distributing over the event. As *-saai* marks the event as the distributee having a scope under the distributor, Tang considers *-saai* to be an anti-quantifier, in the sense of Choe (1987). His proposal of *-saai* as an anti-quantifier is mainly to explain the following properties of *-saai*: (i) the divisibility requirement, (ii) the definiteness/specificity requirement, (iii) the telicity requirement; and (iv) the aspectual constraint, with the first two also mentioned in Lee (1994). Since the focus of this paper is to derive the mapping mechanism of *-saai*, we will not go into the details concerning its semantic properties. We will simply base on the *saai*-properties mentioned in Tang, and focus on the two which will affect the selection of *-saai* over its associated item, namely the definiteness/specificity requirement and the divisibility requirement. For a detailed description of properties of *-saai*, readers are referred to Tang (1996).

Following Lee (2004), we consider that as a universal quantifier, there exist two selectional restrictions for *-saai*: (i) based on Tang’s definiteness/specificity requirement, *-saai* requires its quantified constituent to be specific, and hence, it only selects definite NPs and NPs indefinite in form but specific in meaning (cf. (3ab)); and (ii) based on Tang’s divisibility requirement, being a universal quantifier, *-saai* requires its quantified constituent to be divisible (cf. (4abc)) (also cf. de Swart (1991) who is the first to propose a plurality condition on quantification).

(3) a. Keoi sik-saai go loeng wun faan.

- s/he eat-all those two bowl rice  
 “S/he has eaten all those two bowls of rice.”
- b. Luk go jan lei-saai.  
 six CL person come-all  
 “All those six people have come.”
- (4) a. \*Keoi maai-saai nei bun syu.  
 s/he buy-all this CL book
- b. Ngodei maai-saai nei bun syu.  
 we buy-all this CL book  
 “All of us have bought this book.”
- c. Ngo jam-saai bui seoi. (cited from Tang 1996)  
 I drink-all CL water  
 “I have drunk the whole cup of water.”

(3a) and (3b) involve definite NPs and NPs indefinite in form but specific in meaning, respectively, and the interpretation of the sentences show that *-saai* is able to select both, illustrating that *-saai* requires its selected NP to be specific in meaning, be it definite or indefinite in form. On the other hand, *-saai* selects neither the singular subject nor the singular object in (4a), and the grammaticality of the sentence can be improved by replacing the singular subject with a part structure in (4b), illustrating that *-saai* requires its quantified constituent to be divisible. The divisibility requirement of *-saai* is even more obvious in (4c) which involves a mass noun. According to Tang, (4c) shows that mass nouns can also be associated with *-saai*, as the mass noun *bei seoi* ‘the cup of water’ is divided into proper parts, in the sense of Krifka (1992), and the divisibility requirement is thus satisfied.

Regarding the scope of *-saai*, Lee (2004) proposes that the scope of *-saai* is IP, hence having the widest scope possible to be taken by these quantificational verbal particles. We will not go into the details concerning the relevant arguments, and simply adopt the scope interpretation proposal in Lee (2004). Considering the IP scope taken by *-saai*, we will assume that (i) the grammatical functional hierarchy derived from *-saai* represents the default hierarchy when all arguments and adjuncts are possible candidates to be selected by the quantifier, and (2) the same applies to other lexical quantifiers or quantificational verbal particles, as long as it is within their quantificational scope.

#### 4. The Selection of Items for Association by the Grammatical Function Hierarchy

In the following, we will demonstrate that the constituent with which *-saai* associates is selected by a grammatical function hierarchy, namely that *-saai* will select a constituent within its scope according to the hierarchy to be proposed below, under the condition that the selectional restrictions of *-saai* are not violated.

##### 4.1 Quantification over Subjects or Objects

It is argued in Tang (1996) that *-saai* demonstrates a locality effect, which suggests that *-saai* will associate with the direct argument if there is one; otherwise, it will associate with other elements in the argument structure, for instance, the external or spatiotemporal argument. A similar claim is made in Lee (1994, 1995) who thinks that *-saai* will only associate with the subject if the object is non-divisible and

non-referential. Along the same line, we think that the interpretation of *-saai* demonstrates a hierarchical order of objects over subjects, as shown below.

- (5) Keoidei maai-saai di syu.  
 they buy-all the book  
 “They have bought **all** the books.”  
 > “**All** of them have bought the books.”

In (5), when both the subject and the object satisfy the selectional restrictions of *-saai*, that is, with both being [+specific] and [+divisible], *-saai* selects the direct object (DO) over the subject, hence suggesting the following order: [+divisible] & [+specific] DOs > [+divisible] & [+specific] subjects

#### 4.2 *-Saai* Quantification with Verbal Compound Predicates

(6) involves a [-divisible] subject *nei* ‘you’ and a verbal compound predicate *fangaau* ‘sleep’.

- (6) Tausin soeng tong, nei ting dou fan-saai-gaau wo.  
 Just-now up class you listen arrive fall-all-asleep SFP  
 “In the class just finished, you felt so bored and fell asleep **completely**.”

The well-formedness of (6) demonstrates that when there is no appropriate argument or adjunct for *-saai* to associate with in the sentence, *-saai* can quantify over constituents other than arguments, namely the degree triggered by the predicate in question. In the example above, *-saai* quantifies over the degree to which the relevant event denoted by the verbal compound predicate *fangaau* is incurred, giving a meaning that the relevant event is realized to its fullest degree. In fact, the quantification of *-saai* over the degree denoted by the verbal compound predicates can be considered on a par with that of adjectival predicates, which will be discussed later. While the former describes the maximum degree or extent the event can be realized, the latter indicates the highest degree the property can be attained.

The question now is when we have a [+specific] and [+divisible] subject, will *-saai* associate with the subject or the verbal compound predicate?

- (7) Keoidei fan-saai-gaau laa.  
 they fall-all-asleep SFP  
 “**All** of them have fallen asleep.”  
 > “They have fallen asleep **completely**.”

The sentence above suggests a priority of [+specific] and [+divisible] subjects over verbal compound predicates, with *-saai* associating with plural subjects rather than verbal compound predicates. (7) simply requires all individuals denoted by the subject to have fallen asleep, and whether they have fallen asleep completely (or to their fullest degree) or not is not crucial. The reading here thus suggests that verbal compound predicates are less preferred than subjects. Hence, the above reveals an association order of the following: [+divisible] & [+specific] subject > degrees denoted by verbal compound predicates

Incorporating the above results into the hierarchy, we can arrive at the following.

- (8) [+divisible] & [+specific] DOs > [+divisible] & [+specific] subjects > degrees denoted by verbal compound predicates

#### 4.3 A Priority of DOs over IOs/Postverbal PPs/Preverbal PPs

-*Saai* demonstrates a hierarchical order of direct objects (DOs) over postverbal prepositional phrases (postverbal PPs).

- (9) Ngo fong-saai ngaamngaam maai godi syu hai go gei zoeng dang dou.  
 I place-all just buy those books on those few CL chair location  
 “I have placed **all** the books I just bought on those chairs.”  
 > “I have placed the books I just bought on **all** of those chairs.”

From the interpretation of the above sentence, we can see that quantifiers like *-saai* will select the DO instead of the postverbal PP, since (9) only requires all the books to be placed in a particular location as indicated by the postverbal PP, namely on those chairs, but it is not necessary the case that each of the chairs denoted by the NP within the postverbal PP must have the book(s) in question on it. This demonstrates a hierarchical order of DOs over postverbal PPs. Now consider the examples of indirect objects (IOs) and DOs.

- (10) a. Ngo sung-saai jicin di VCD bei keoidei.  
 I give-all old those VCD to them  
 “I have given **all** my old VCDs to them.”  
 > “I have given my old VCDs to **all** of them.”  
 b. Ngo sung-saai-faa bei keoidei.  
 I give-all-flower to them  
 “I have given flowers to **all** of them.”
- (11) a. Ngo bei-saai ngaamngaam maai godi syu keoidei.  
 I give-all just buy those book them  
 “I have given **all** the books I have just bought to them.”  
 > “I have given the books I have just bought to **all** of them.”  
 b. Ngo bei-saai-zin keoidei.  
 I give-all-money them  
 “I have given money to **all** of them.”

(10) and (11) involve IOs introduced by either a covert or an overt dative marker. When both the DO and the IO are [+specific] and [+divisible], the preferred reading is to associate with the DO, as shown in (10a) and (11a). On the other hand, when we have a bare noun DO and a [+specific] and [+divisible] IO, as exemplified in (10b) and (11b), the readings of the sentences show that *-saai* associates with the [+specific] and [+divisible] IO, due to the non-specificity of the bare noun DO. (10) and (11) reveal that when both IOs and DOs in PDC and IDOC constructions are possible candidates, quantification of *-saai* demonstrates a hierarchical order of DOs over IOs, hence a hierarchical order of direct arguments over indirect ones.

How about cases where we have a bare noun DO and with both IOs and postverbal directional PPs being possible candidates for *-saai*?

- (12) Ngo sung-saai-faa heoi di gungsi dou bei keoidei.  
 I send-all-flowers to the companies location to them  
 a. “I have sent flowers to **all** the companies for them.”  
 b. “I have sent flowers to the companies for **all** of them.”

The interpretations of (12) demonstrate that, when both postverbal PPs and IOs are present in the sentences, the relevant interpretations are ambiguous between (a) and (b). This suggests that it is reasonable to consider postverbal PPs and IOs logically occupying the same position in the hierarchy, leading to the two being possible to take scope over one another.

Based on all the above, we then come up with a hierarchical order of *-saai* as follows: DOs > IOs/postverbal PPs > subjects > degrees denoted by verbal compound predicates.

Regarding the hierarchical order between preverbal prepositional phrases (preverbal PPs) and subjects, the examples below show that the former have a higher priority over the latter.

- (13) a. Ngodei gei go tung keoi faan-saai-min.  
 We few CL with him/her over-all-face  
 “**All** of us are in bad terms with him/her.”  
 b. Ngo tung keoidei gei go faan-saai-min.  
 I with they few CL over-all-face  
 “I am in bad terms with **all** of them.”  
 c. Ngo tung keoi faan-saai-min.  
 I with him/her over-all-face  
 “I am **totally** in bad terms with him/her.”  
 d. Ngodei tung keoidei gei go faan-saai-min.  
 we with they few CL over-all-face  
 “We are in bad terms with **all** of them.”  
 > “**All** of us are in bad terms with them.”

(13a), (13b) and (13c) demonstrate that *-saai* will select either the [+specific] and [+divisible] subject or the preverbal PP with a [+specific] and [+divisible] NP, if there is one, with the degree denoted by the verbal compound predicate being the last option. (13d) demonstrates that when both subject and the NP in the preverbal PP are [+specific] and [+divisible], *-saai* will quantify over the NP in the preverbal PP instead of the subject.

Finally, the interpretation of (14) below demonstrates a hierarchical order of IOs over preverbal PPs.

- (14) Ngodei hai gogei go deifong sung-saai-syu bei keoidei.  
 We at those CL places give-all-books to them  
 “We have given books to **all** of them in those places.”  
 > “We have given books to them in **all** those places.”

Both preverbal PPs and dative arguments are possible candidates of *-saai*, since the bare

noun DO in the sentence is [-specific], thus not a possible candidate for *-saai*. *-Saai* is found to select the dative argument instead of the preverbal PP in the sentence, supporting a hierarchical order of IOs > preverbal PPs.

From the above, we arrive at the conclusion that the association of *-saai* demonstrates the following hierarchical order in eventive sentences.

(15) The Hierarchy for Association of *-saai* in Eventives

DOs > IOs/postverbal PPs > preverbal PPs > subjects > degrees denoted by verbal compound predicates

#### 4.4 *-Saai* with Statives

Previous analyses argue that when *-saai* occurs with adjectival predicates, the predicates are required to denote a change of state (cf. Lee 1994, Teng 1996, Tang 1996, etc). However, this requirement is too strong. Following Pan&Man (1998), we consider that *-saai* can quantify over the degree denoted by adjectival predicates, and hence, it can co-occur with any adjectival predicate as long as it is possible to trigger a degree set for quantification. Consider the occurrence of adjectival predicates and *-saai* below.

- (16) Nei co-saai. (from Pan & Man 1998)  
 you wrong-all  
 “You are **completely** wrong/**all** wrong.”

(16) demonstrates that *-saai* can quantify over the degree denoted by an adjectival predicate, giving a reading that the relevant property has reached its maximum degree. The predicate above does not necessarily indicate a change of state, as the individual may have entered into the relevant state long before.

However, when there is an appropriate argument for *-saai* to quantify over, *-saai* will select such an argument, instead of the degree associated with the predicate.

- (17) Keoidei co-saai.  
 they wrong-all  
 “**All** of them are wrong.”  
 > “They are **completely** wrong/**all** wrong.”

- (18) Ngodei suk-saai godi jan.  
 we familiar-all those person  
 “We are familiar with **all** those people.”  
 > “**All** of us are familiar with those people.”  
 > “We are **completely** familiar with those people.”

(17) shows that *-saai* will associate with the [+divisible] and [+specific] subject, instead of the degree denoted by the adjectival predicate. *-Saai* will only associate with the degree denoted by the adjectival predicate when the subject is not a possible candidate for quantification, showing a hierarchical order of subjects > degree denoted by adjectival predicates. On the other hand, with *suk* ‘familiar’ taken as an adjective in (18), there are three candidates possible to be associated with *-saai*, namely the subject *ngodei* ‘we’, the object *godi jan* ‘those people’ and the degree triggered by the

adjectival predicate *suk*. The preferred reading of (18) is having *-saai* associated with the object, giving the object a universal interpretation. Hence, (18) is interpreted as “We are familiar with all those people”, instead of “All of us are familiar with those people” with *-saai* associated with the subject and “We are completely familiar with those people” with *-saai* associated with the degree triggered by the adjectival predicate.

Based on the above, we can see that when there is an appropriate argument for *-saai* to quantify over, *-saai* will select the argument, instead of the degree associated with the predicate, and like eventives, direct object is still preferred over the subject. Despite the fact that NP-quantification is still the preferred interpretation in the case of *-saai*, the possibility of *-saai* quantifying over the degree triggered by the adjectival predicates does exist, and hence, empirical problems would exist if the claim that *-saai* cannot occur with adjectival predicates without a change of state were true. Moreover, (17) and (18) demonstrate the following hierarchical order: [+specific] and [+divisible] objects > [+specific] and [+divisible] subjects > degrees denoted by adjectival predicates. Such a hierarchical order is along the same line as that of the eventives.

Furthermore, the same hierarchical order between postverbal PPs and subjects can be found in adjectival predicates, as shown below.

- (19) a. Keoi lek-saai hai nei lam-dak-dou ge sei je dou.  
 s/he smart-all at you think-can-arrive POSS bad thing location  
 “S/he is smart at **all** the bad things you can think of.”
- b. Keoidei lek-saai hai nei lam-dak-dou ge sei je dou.  
 they smart-all at you think-can-arrive POSS bad thing location  
 “They have their talent spent on **all** the bad things you can think of.”  
 > “**All** of them have their talent spent on the bad things you can think of.”

While (19a) shows that *-saai* can select the postverbal PP, (19b) clearly shows that *-saai* will select the postverbal PP over the subject. The above thus reveals the following hierarchical order.

- (20) [+specific] and [+divisible] objects > Postverbal PPs > [+specific] and [+divisible] subjects > degree denoted by adjectival predicates

For the case of stative verbs, no matter whether they are individual-level or stage-level, the quantificational pattern is similar to that of eventive predicates, and hence, the details will not be repeated here.

Generalizing from the above discussions on *-saai* with statives and eventives, we can now come up with the following hierarchy.

(21) The Hierarchy for the Association of *-saai* ‘all’

DOs > IOs/postverbal PPs > preverbal PPs > subjects > degrees denoted by verbal compound predicates/stative predicates

(21) represents the hierarchical order of association for the lexical quantifier *-saai*, and the relevant association is subject to the selectional restrictions of *-saai*, namely the divisibility condition and the specificity condition. The hierarchy simply shows that

when all verbal arguments and the degree triggered by the predicate within the IP-scope are possible candidates for *-saai*, the hierarchical order of association will be that of (21), i.e. the candidate at a relatively higher position in the hierarchy will be selected. In other words, when all the candidates in the hierarchy satisfy the selectional restrictions of *-saai* and possible to be selected by it, the one occupying the higher position in the hierarchy will always be the preferred reading without appealing to any contextual accommodation; on the other hand, if those occupying the lower positions in the hierarchy are selected, the lower the position in the hierarchy, the less preferred will be the reading, and more contextual accommodation may be needed then.

#### 4.4 Can Focus Affect the Selection Determined by the Grammatical Function Hierarchy?

In (21) above, we have shown that when there is no focus, the selection of items for association from the grammatical function hierarchy demonstrates that association of *-saai* is determined by grammatical relations. If grammatical relation is an important factor in determining *saai*-quantification, a crucial question now is whether the lexical quantifier *-saai* behave like other A-quantifiers in the way that semantic factors like focus will influence the selection determined by the grammatical function hierarchy.

In the following, we will show that an introduction of focus fails to affect the selection determined by the grammatical function hierarchy. All focused constituents in this paper are marked by the notation of boldfaced [ ]f. Since prosodic focus or phonologically stressed focus is not that easy to be recognized in Cantonese, the presence of the copula *hai* ‘be’, a kind of established focus construction in Cantonese or Chinese (cf. M&Y, Liu & Xu 1998 and among others), will be used wherever necessary, so as to make the discussion more convincing in cases where the interaction of *-saai* with focus is studied.

Concerning the interaction of *-saai* with focus, we will first consider the case of subjects and objects.

(22) Hai [**keoidei**]f lo-faan-saai zigei di je.

Be they take-back-all own plural stuff

a. “They (not others) have taken **all** their own stuff.”

b. Not “**All** of them have taken their own stuff (but not necessarily all).”

According to the grammatical function hierarchy, when both the subjects and the DOs are [+divisible] and [+specific], *-saai* selects the DO over the subject. When focus is placed on the subject, there are two possibilities: *-saai* associate (a) with the [+divisible] & [+specific] DO or (b) with the focused subject. If it is case (a), those denoted by the subject, as a group, have completed the action or finished the quantity denoted by the DO. The relevant sentence will be true as long as the quantity denoted by the DO have all been finished. If it is case (b), the reading will be “all individuals denoted by the subject have performed the event”, and it is not necessarily true that they have completed the action or finished the quantity denoted by the DO. The relevant sentence will be true as long as all individuals denoted by the focused subjects are involved in the action denoted by the predicate.

The interpretation of (22) shows that when the subject is in focus and the DO is

[+specific] and [+divisible], *-saai* still associates with the DO, giving (22) the reading of (22a) instead of (22b). With *-saai* quantifying over the DO, (22a) requires all the quantity denoted by the DO “their own stuff” to be taken by the subject, which gives the desired interpretation to (22). Hence, it seems that the grammatical function hierarchy is still the crucial factor in determining the quantification of *-saai*, and once the DO is selected according to the hierarchy, focus fails to override it.

Notice that unlike the prediction made by the grammatical function hierarchy, when focus is competing with the selection done by the grammatical function hierarchy, it is not possible for *-saai* to select the focus, which will lead to a misinterpretation of the sentence in question. Hence, the symbol “not” is used here to rule out the possibility of the relevant interpretation, instead of the symbol “>” which indicates a tendency.

Now, consider cases where we have focus placed on the postverbal PPs and preverbal PPs.

- (23) Ngo fong-saai ngaamngaam maai godi syu hai [go gei zoeng dang dou]f.  
 I place-all just buy those books on those few CL chair location  
 a. “It is on those chairs where I placed **all** the books we have just bought.”  
 b. Not “I have placed the books we have just bought on **all** those chairs.”
- (24) Keoidei hai hai [go gei gaan syuguk]f maai-saai godi syu.  
 they be at those few CL bookstores buy-all those books  
 a. “It is in those bookstores where they bought **all** those books.”  
 b. Not “They bought those books in **all** those bookstores.”

In (23) and (24), when there is no focus, *-saai* by default will select the [+specific] and [+divisible] DO instead of the preverbal and postverbal locative adjuncts. The discussion so far suggests that semantic focus fails to override the quantification of *-saai* determined by the grammatical function hierarchy, and hence, it is reasonable to predict that *-saai* will select the DO, as determined by the grammatical function hierarchy, instead of the focus. This prediction is in fact borne out in (23) and (24). Neither focus placed on postverbal PP nor on preverbal PP can override the selection determined by the grammatical function hierarchy, with *-saai* still associating with the [+specific] and [+divisible] DO, according to the grammatical function hierarchy, giving the interpretation of “It is on those chairs where I placed all the books we have just bought” and “It is in those bookstores where they bought all those books,” in (23a) and (24a), respectively. (23) does not give the reading as indicated by the association with focus, cf. (23b). It does not require the books to be placed all over those chairs, as it allows the possibility that the speaker has just placed the books on one or two of those chairs. Similarly, (24) only requires them to buy all the books in those bookstores, and whether the buying event occurred in all bookstores or simply one single bookstore is not an issue. This is what is given in (24a), since *-saai* in (24a) quantifies over “those books”, as long as all of them are bought, the sentence would be true, while (24b) requires the buying event to be preformed in all bookstores, which is not consistent with the fact. Both sentences reveal that the selection determined by the grammatical function hierarchy can’t be altered by focus.

Therefore, the above discussion confirms our claim that in the case of *saai*-quantification, the grammatical function hierarchy always comes into play first,

with focus failing to change the selection determined by the grammatical function hierarchy; otherwise it would lead to misinterpretation of the sentence.

## 5. The Syntax-semantics Mapping of *-saai*

In the above sections, we have shown that the selection of the item for association in quantification is determined by the grammatical function hierarchy, and focus fails to change such a selection. The question now is what are the factors which determine the mapping of *-saai*? In what ways does the selection by the grammatical function hierarchy determine the tripartite partition of *-saai*? If focus cannot change the selection by the grammatical function hierarchy, will focal mapping come into play at all?

### 5.1 The Syntax-semantics Mapping of *-saai* when there is No Focus

Assumed that the selected constituent is the DO, *-saai* will have the following two possible quantificational structures:

#### (25) Two Possible Quantificational Structures for Lexical Quantifier *-saai*

Assume that the constituent selected by the grammatical function hierarchy is the direct object (DO).

a.  $\lambda PQx [x \in [DO]] [P(\text{Subj}, x)]$

b.  $\lambda PQx [P(\text{Subj}, x)][x = DO]$

where Q is the lexical quantifier and under such a case, *-saai*, x is a member of the set denoted by the selected DO or other constituents selected, according to the grammatical function hierarchy.

For the sake of simplifying the formulation, (25) simply assumes the selected constituent to be the DO, and similar structures can be extended to other selected constituents. What is crucial here is that (25a) and (25b) differ in whether the selected DO or other selected constituents is mapped to the restrictor or the matrix. (25a) has the selected constituent mapped to the restrictor, in order to set up a domain for the quantifier to quantify over. Everything else within the scope of the quantifier in question will then be mapped to the matrix, such that all members who belong to the set denoted in the restrictor are related to the situation/event denoted by the matrix. On the other hand, (25b) has the selected DO mapped to the matrix, with everything else mapped to the restrictor to set up the domain for quantification. The quantificational structure represented in (25b) is in fact on a par with the focus-background partition, which has the focus mapped to the matrix, and everything else in the sentence to the background. The interpretation of (25b) will be for the members which have the property denoted in the restrictor, they must all be the selected DO.

In order to derive the syntax-semantics mapping of *-saai*, we will first consider the example with the selected item to be the subject.

(26) Go paai hoksaang fan-saai-gaau.

that row student fall-all-asleep

a. SAAIx  $[x \in [\text{that row of students}]] [\text{Fall-asleep}(x)]$

“For all x’s who are students sitting in that row, they have fallen asleep.”

b. %SAAIx [Fall-asleep(x)] [x = that row of students]

Lit.: “For all x’s who have fallen asleep, x is that row of students.”

In (26), according to the grammatical function hierarchy, since we have a verbal compound predicate *fangaau*, the [+divisible] and [+specific] subject will be selected. (26a) is the meaning represented by the possibility in (25a), and the reading is for the selected subject – ‘that row of students’ - all the members of the set denoted by the selected subject are involved in the situation “having fallen asleep”. The selected subject is mapped to the restrictor. In other words, *-saai* quantifies over the set of individuals denoted by the restrictor and each member of the set has the property P denoted by the matrix or is relevant to the event/situation described by the nuclear scope.

Assume the following scenario. 200 students are sitting in a lecture hall and attending a public lecture, and the students have occupied at least 20 rows of seats in the hall. Sitting at row 17, my friend has noticed a very interesting phenomenon. S/he points at a particular row in front of him/her, let’s say row 10, and utters (26). In order to make (26) true, what is required is all the students sitting in row 10 have fallen asleep, and whether other students in the lecture hall have also fallen asleep or not is not our concern. This is what is conveyed in (26a). On the other hand, if (26) is interpreted as (26b), since the subject is mapped to the matrix, what constitutes the restrictor is the set of students in the lecture hall who have fallen asleep, and (26) will be true under the condition that only students sitting at row 10 have fallen asleep. What is more important is it does not allow students sitting at other rows to have fallen asleep, and hence, an exclusive reading is imposed on the nuclear scope “that row of students”. This interpretation is too strong, since the sentence will be true, as long as all the students sitting at row 10 have fallen asleep, and it should allow such a situation having occurred to students sitting in rows other than row 10, too.

Consider another example where we have the selected constituent to be the DO.

(27) Ngo nei go jyut wui se-saai go gei pin man .

I this CL month will write-all those few CL paper

a. SAAIx [x ∈ [those papers]] [Write (I, x) within this month]

“Within this month, for all x’s which are those papers, I will write them.”

b. %SAAIx [Write(I, x) within this month]] [x = those papers]

Lit.: “Within this month, for all x’s which I will write, x is those papers.”

According to the grammatical function hierarchy, *-saai* will associate with the DO which is [+specific] and [+divisible] in (27). (27a) represents the correct meaning of (27), and it states that “for the things denoted by the DO, I will write them all”. Hence, what the sentence concerns is whether the subject will write the set of things denoted by the DO or not. It allows the case that the subject will write other things besides those papers. However, the interpretation in (27b) does not allow the case that the subject will write other things besides those papers within this month, since the representation in (27b) will give (27) the meaning that “for all the things which the subject will write during this month, they all have to be those papers”. Hence, only (27a) not (27b) gives the correct mapping for *-saai*.

Hence, both examples of the selected subject and the DO support the claim that selected constituents are mapped to the restrictor in the case of *-saai*. Finally, consider an example where we have *-saai* associated with the degree predicate triggered by the adjectival predicate.

(28) Nei co-saai.

you wrong-all

“You are completely wrong/all wrong.”

a. SAAIq [q ∈ Degree(Be-wrong)] [Be-wrong(you) at q]

“For all the degrees q of being wrong, you are wrong at degree q.”

b. %SAAIq [Be-wrong(you) at q] [q = Degree(Be-wrong(you))]

Lit.: “For all q’s which are the degrees of your being wrong, q is the degree of your being wrong.”

According to the grammatical function hierarchy, since the subject in (28) is [-divisible], *-saai* will select the degree denoted by the adjectival predicate as its last resort. Notice that what *-saai* quantifies over is the degree denoted by the adjectival predicate, since if *-saai* quantifies over the predicate directly, we will have the incorrect interpretation of “For all the properties the subject has, they are those denoted by the adjectival predicate”. That is, an exhaustive or “only” meaning will be given to the relevant properties. Under (28a), the degree denoted by the predicate is mapped to the restrictor, with everything else in the sentence mapped to the matrix. Hence, the interpretation of (28a) is “The individual realizes the property denoted in the matrix which is being wrong to a maximum degree”. However, if the degree predicate is mapped to the matrix, and with everything else in the sentence to the restrictor, as in (28b), the interpretation is simply semantically awkward.

Summarizing from the examples above, we propose the following syntax-semantics mapping for *-saai*.

(29) A Mapping Hypothesis for the Universal Lexical Quantifier *-saai* ‘all’

For the universal lexical quantifier *-saai*, the item selected from the grammatical function hierarchy will be mapped to the restrictor, in order to set up a domain for quantification such that the event/situation denoted by the remaining parts of the sentence is related to all the members in the set denoted by the selected constituent. Hence, the representation is simplified as follows:

SAAIx (x ∈ [[the selected constituent]]) (IP (including x))

OP                      RESTRICTOR                      MATRIX

where x is a member of the set denoted by the constituent selected according to the grammatical function hierarchy.

The mapping mechanism of *-saai* shows that whether the lexical quantifier demonstrates a quantificational structure (25a) or (25b) is determined by the lexical semantics of the quantifier in question. For *-saai*, as a universal quantifier, the selected constituent serves as setting the domain for quantification, hence mapped to the restrictor.

## 5.2 Can Focus Affect the Mapping of *-saai* if the Selected Constituent is in Focus?

However, the story does not end here, as one question still remains to be answered: can focus affect the mapping of *-saai* if the constituent determined by the grammatical function hierarchy is in focus? In other words, whether focus-background partition will be triggered or the relevant mapping is still determined by the lexical semantics of the quantifier in question. Consider the sentence below with the selected DO in focus.

- (30) Keoidei tai-saai hai [go gei bun syu]f laa.  
they read-all be those few CL book SFP
- a. %SAAIx [ $x \in$  [those few books]] [Read(they, x)] (mapping determined by the lexical semantics of *-saai*)  
Lit.: “For those few books, they have read them all.”
- b. SAAIf [They have read f] [f = those few books] (focus-background partition)  
“For the stuff they have read, they are all those few books (and nothing else).”

According to the grammatical function hierarchy, *-saai* interprets with the [+divisible] and [+specific] DOs. If focus does not affect the mapping, then the DO will be mapped to the restrictor, as shown in (30a), and the interpretation becomes “for those few books, they have read them all.” Does such an interpretation give the correct reading to (30)? The answer is no, as the correct reading for (30) should be (30b), which is “for the stuff they have read, they have to be those few books”, resulting in the exclusive reading on “those few books”. (30a) and (30b) correspond to two different restrictor sets, leading to two different readings: (30a) does not give any exclusive reading on the selected DO “those few books”, as long as the subject has read all of those few books, (30a) will be true; on the other hand, in (30b), since the selected DO is mapped to the focus part (matrix), an exclusive reading will be imposed on the selected DO due to the reason that the background (the restrictor set) has been made into the set of books which they have read. Comparing (30a) with (30b), we can see that having focus on the selected DO gives (30) an additional meaning of exclusiveness on the DO, and hence, (30b) not (30a) is the desired reading of (30). Therefore, (30) demonstrates that the tripartite structure mapping of *-saai* is determined by focal mapping when the constituent selected by the grammatical function hierarchy is in focus. Under such a case, the selected DO which is in focus is mapped to the matrix (the focus part), with the remaining of the sentence mapped to the restrictor (the background part), giving a meaning of “for all x’s which are involved in the event/situation described in the restrictor, it is the DO”. Such a mapping is the opposite to the non-focused case when the DO is not in focus, since the quantified DO will be mapped to the restrictor, with the remaining part of the sentence to the matrix, hence, lacking an additional meaning of exclusiveness on the selected DO. Hence, the crucial factor which contributes to the difference between the focused and non-focused cases is the different mechanisms that determine the mapping: the former case involves the focal mapping and the latter the particular mapping triggered by *-saai*.

A similar feature is found in the case where we have a focused IO and a verbal compound predicate.

- (31) Ngo sung-saai-syu bei [keoidei]f.

- I give-all-book to them
- a. %SAAIx [x ∈ [them]] [Give-books-to(I, x)] (mapping determined by the lexical semantics of *-saai*)  
Lit.: “For them, I have given books to them all.”
  - b. SAAI<sub>f</sub> [I give books to f] [f = them] (focus-background partition)  
“I have given books to all of them (and no one else).”

The grammatical function hierarchy selects the IO to be the associated constituent in (31). Assuming that all selected constituents which are in focus should trigger the same partition, one would predict that focus-background partition will be triggered under (31), since the selected IO is in focus. This prediction is borne out. Consider (31a) first. The representation in (31a) is the mapping determined by the lexical semantics of *-saai*, since the selected IO is mapped to the restrictor. Hence, the reading given by (31a) is “for them, I have given books to them all”, and there is no exclusive meaning on the selected IO “them”, since as long as all individuals denoted in the restrictor have received books from the speaker, (31a) would be true. (31a) allows individuals other than the IO to receive books from the speaker, which is in fact not the desired reading of (31). Making the selected IO in focus in fact has induced an additional reading of exclusiveness on the selected IO, and hence, (31) should be interpreted as “All of them (and only them) have received books from the speaker”. Only the focus-background partition in (31b) would give such an interpretation. Therefore, on a par with (30), when the selected IO is in focus, focus association will occur, with focus-background partition triggered. *-Saai* associates with the focused IO, which is then mapped to the matrix (the focus part), giving an additional exclusive meaning.

The same feature is found in cases where we have focus placed on the subject.

- (32) Hai [go gei go hoksaang]f lo-saai-tips.  
be those few CL student get-all-tips
- a. %SAAIx [x ∈ [those students]] [Get-tips(x)] (mapping determined by the lexical semantics of *-saai*)  
Lit.: “For those students, all of them have got tips.”
  - b. SAAI<sub>f</sub> [f have got tips] [f = those students] (focus-background partition)  
“All of those students (and no one else) have got tips.”

(32) involves no [+specific] DOs. The grammatical function hierarchy has determined *-saai* to associate with the [+specific] and [+divisible] subject. As the selected constituent is in focus, we would predict that like (30) and (31), it is focal mapping that is triggered under these cases. Such a prediction is again borne out. The contrast between (32a) and (32b) lies in whether an additional meaning of exclusiveness exists on the selected subject or not if it is in focus. The desired reading of (32) is “All those students and only they have got tips (from someone)”, which is what is conveyed by the representation in (32b). Therefore, focus-background partition in (32b) again gives the correct interpretation to (32) when the constituent selected by the grammatical function hierarchy, the focused subject in this case, is in focus. On the other hand, (32a) represents the mapping triggered by the lexical semantics of *-saai* and it gives an interpretation that as long as those students have got tips (from someone), whether there

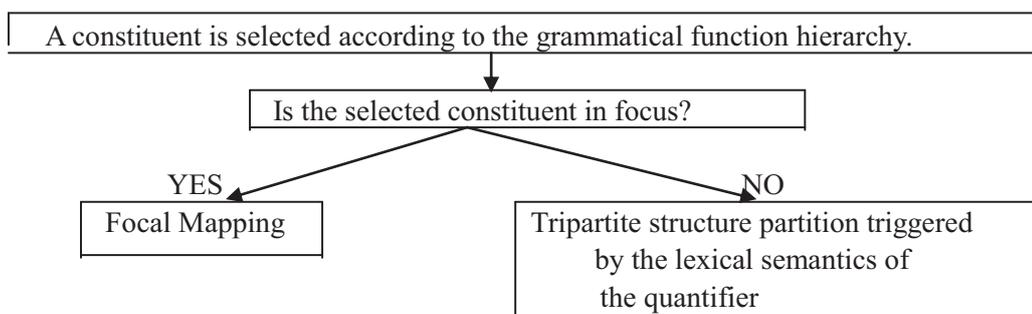
are other students or no students at all who got tips as well will not affect the truth value of (32), which is not consistent with the fact.

The above shows that in the case of *-saai*, when the constituent selected according to the grammatical function hierarchy is in focus, rather than using the mapping triggered by the lexical semantics of *-saai*, focal mapping will come into play instead. From the examples above, we can conclude that focus-background partition will be triggered if the selected constituent is in focus, and the focused selected constituent will then be mapped to the matrix (focus part). Since the lexical semantics of *-saai* suggests the selected constituent mapped to the restrictor, focus-background partition triggered by the selected constituent in focus gives a kind of mapping which is the opposite to the mapping triggered by the lexical semantics of *-saai*, and an exclusive reading on the focused selected constituent, which is absent when there is no focus, is found in the *saai*-sentence.

### 6. Theoretical Consequence: A two-step mechanism for quantification

From the discussion so far, we can see that in the case of the lexical quantifier *-saai*, focus fails to change the selection conducted by the grammatical function hierarchy: DOs > IOs/postverbal PPs > preverbal PPs > subjects > verbal compound predicates/stative predicates. *-Saai* can only associate with the focus when the constituent selected, according to the grammatical function hierarchy, is in focus, showing that the grammatical function hierarchy always comes into play first before focus association. When focus association occurs, what is triggered will be a focus-background partition, instead of the mapping triggered by *-saai*. The mapping regarding *-saai* can thus be summarized as follows:

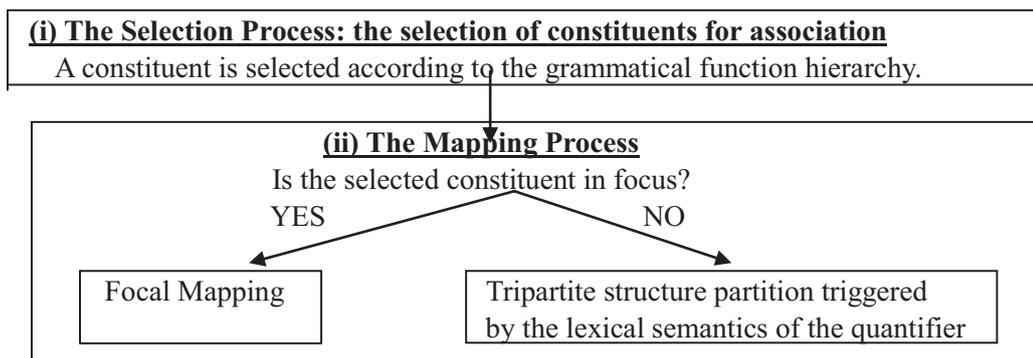
#### (33) Syntax-semantics Mapping of Lexical Quantifier *-saai* ‘all’



(33) clearly demonstrates that focus fails to change the constituent selected by the grammatical function hierarchy. This suggests that the selection process by the grammatical function hierarchy and the mapping process, no matter whether it is conducted by focal mapping or by the mapping determined by the lexical semantics of *-saai*, must be separated from each other. In other words, the quantificational pattern of *-saai* shown in (33) suggests that quantification involves two processes which are the selection of items for association (*the selection process*) and the mapping process, and the two must be separated. Since in the case of *saai*-quantification, focus fails to override the selection conducted by the grammatical function hierarchy, the selection of constituents for association according to the grammatical function hierarchy must be the

first step in quantification, and it is after the selection that the mapping process comes into play. Moreover, (33) also shows that the focal mapping will be triggered only if the selected constituent is in focus; otherwise, the mapping will be determined by the lexical semantics of the quantifier. Separating the selection process from the mapping process, we can have (33) reformulated as (34) below to reflect the two-step mechanism:

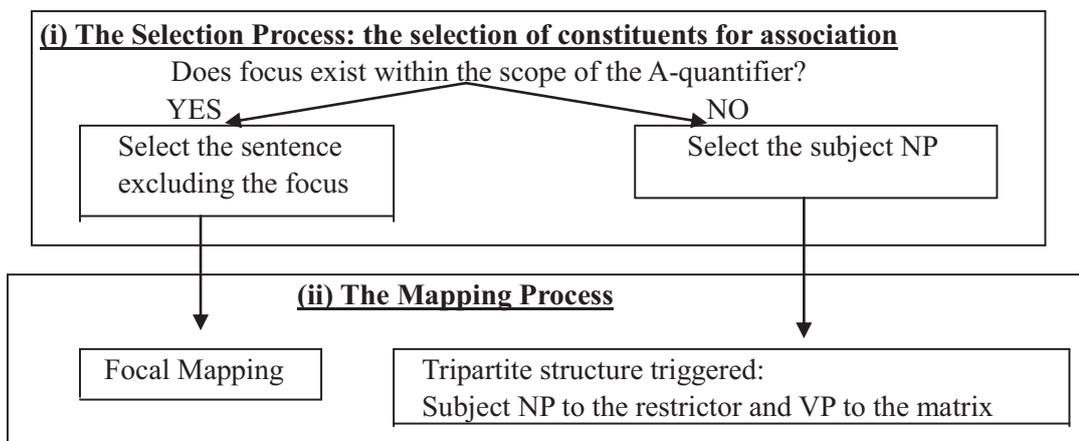
(34) A Two-step Mechanism in Lexical Quantifier –*saai* ‘all’



(34) differs significantly from (33) in that it demonstrates clearly that *saai*-quantification is divided into two steps, with the mapping process following the selection process.

Now the question is if the two-step mechanism applies to *saai*-quantification, we should be able to apply the same mechanism to D-quantifiers and other A-quantifiers. The difference lies only in that in the case of A-quantification, the selection of items is not determined by the grammatical function hierarchy, but by focus, and once focus is identified, the mapping process will be focal mapping. On the other hand, if no focus can be identified, the mapping will then be triggered by the lexical semantics of the A-quantifier in question. This is represented in (35) below.

(35) A Two-step Mechanism in Adverbial Quantification

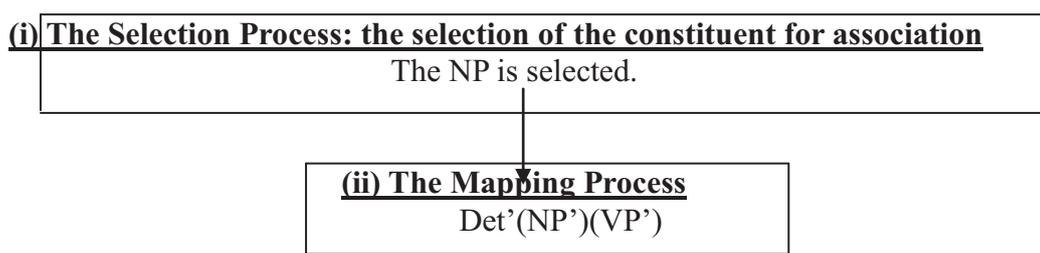


Comparing (35) with (34), we can see that the identification of focus has taken up the

role of the grammatical function hierarchy in *saai*-quantification, with the same two steps, which are the selection process and the mapping process, also existing in A-quantification.

Extending the same mechanism to D-quantification, we can see that unlike the case of *saai*-quantification and A-quantification, the selection of D-quantification will be determined by syntax, with the mapping then be triggered automatically. This is represented in (36).

(36) A Two-step Mechanism in Determiner Quantification



Comparing (36) with (34) and (35), we can see that a pure syntactic selection, that is the selection of NP, has taken up the role of focus in A-quantification and the grammatical function hierarchy in *saai*-quantification, with the same two steps, which are the selection process and the mapping process, also existing in D-quantification.

Having established the two-step mechanism for all three kinds of quantification, one final question is what are the differences among them regarding the role of focus in the two relevant processes? This can be captured by Table 1 below.

**Table 1: D-quantification, A-quantification and *Saai*-quantification under the two-step mechanism for quantification**

	<b>Selection process affected by focus</b>	<b>Mapping process affected by focus</b>
D-quantification	–	–
A-quantification	+	+
<b><i>Saai</i>-quantification</b>	–	+

The two plus values and the two minus values shown in D-quantification and A-quantification, respectively, suggest that the two processes are inseparable and merged, while the minus and plus values demonstrated by *saai*-quantification further reinstate that the two processes in question should be separated.

In the case of D-quantification, the NP is selected and mapped to the restrictor as the domain of quantification, with the VP to the matrix. Hence, selection is determined by syntax and focus cannot affect the selection or the mapping. Therefore, Table 1 demonstrates that D-quantification takes minus values in both the selection process and the mapping process, demonstrating that the two processes are not clearly separated and can be considered as being merged together. In the case of A-quantification, when there is no focus in the sentence, the NP subject is selected and mapped to the restrictor and VP to the matrix. When there is a focus in the sentence, selection will be determined by focus and the mapping will also be determined by focus, with focal mapping triggered.

Hence, focus can affect both the selection and mapping processes in A-quantification. Therefore, Table 1 shows that A-quantification takes plus values in both processes, again demonstrating that the two processes are not clearly separated and can be considered as being merged into one. This explains why in previous analyses, the selection process and the mapping process are simply integrated into one, without the need of separating them.

However, in the case of *saai*-quantification, selection is conducted by the grammatical function hierarchy, and focus cannot affect the selection, though it can affect the mapping. Mapping is determined by the lexical semantics of the quantifier or focus. When the selected item is in focus, focal mapping will be triggered. When the selected item is not in focus, the mapping will be determined by the lexical semantics of the quantifier. In other words, the two values, with one being minus and the other being plus shown in Table 1, support that the selection process and the mapping process cannot simply be considered as one, and must be separated from each other.

## 7. Conclusions

In this paper, on the basis of quantification performed by Cantonese verbal particle *-saai*, we have argued that quantification involves two processes which are the selection of items for association and the mapping process, and these processes must be separated. Such a claim has gained strong support in the case of quantification performed by *-saai*, as *-saai* selects its constituent for association, according to the grammatical function hierarchy proposed in this paper, and focal mapping will come into play only if the selected constituent is in focus; otherwise, the mapping will be determined by the lexical semantics of the quantifier. In other words, focus fails to change the constituent selected by the grammatical function hierarchy, showing that the selection process and the mapping process are indeed two separate processes. These two processes also exist in D- and A-quantifications claimed previously. In the case of A-quantification, the selection process is performed via focus instead of the grammatical function hierarchy, with focal mapping then triggered. In the case of D-quantification, the selection process is conducted by syntax, with the relevant syntactic partition then triggered.

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# Laryngeal Feature Drifts in Loanwords and Korean Lexicon

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## Abstract

We contend that word-initial tensification occurring amid Korean loanword adaptation is triggered to explicitly convey speakers' intimacy to the referents. We would say that it is a kind of phonological empathy. To reach out to the sound patterning, it is essential to meet two prior conditions: First, a certain threshold level of frequency with concerned words should be crossed; second, the semantic features geared to the empathic effects are compatible with the inherent connotative properties of the concerned words. With respect to laryngeal feature specification, we claim that every fortis consonant involved with the concerned data is specified in feature [spread glottis] while they are null in the case of lenis consonants. This idea sheds light on the question why aspiration of the fortis consonants in the source languages is allowable, while they strongly resist tensification.

**Keywords:** empathy, laryngeal feature, frequency, aspiration, tensification

## 1. Introduction

For the most part, discussion on the Korean tensification has concerned the operations arising in ideophones (Martin 1962, J.S. Lee 1992) and those at the medial positions of ordinary native words, e.g., Post-Obstruent Tensification (Kim-Renaud 1974, J. R. Oh 1987). Instead, this study will focus on the word-initial tensification happening at the word-initial position of loanwords.

Our position is somewhat unique in that we are going to achieve hybrid goals for the laryngeal drifts taking place at the specific position of those words hosted from English. First of all, we will try to seek a functional rationale for the sound patterning. In other words, we are going to disclose the functional factors which are going to play a role to trigger the consonant alternations. In this sense, we are interested in the frequency effect of concerned lexical items, semantic association of a word, paralinguistic or extra

aspects employed for the sake of efficient conveyance of speakers' intimacy towards what they are referring to. Second of all, we are concerned with modeling the modification of laryngeal properties by providing a proper phonological analysis in a formal way.

This work unfolds as follows: Section 2 tries to present the fundamentals to Korean word-initial tensification: data survey, introduction of the percept "empathy" originated by Kuno and Kaburaki (1977). Additionally, the exclusive allowance of tensification rather than aspiration, and the intermittent nature of tensification in loanword sound patterning will be discussed. In section 3, we try to provide a hybrid model for Korean word-initial tensification: we are going to give a formal analysis employing the laryngeal feature specification framework of Iverson and Salmons (1995) as well as a functional explanation in terms of phonological empathy and frequent effects of lexical items. As an addendum, section 4 discusses why word-initial tensification has ever slipped from our attention in Korean phonological analyses and orthographical conventions. Section 5 summarizes our discussion and draws implications of our suggestions to Korean lexical stratification.

## 2. Preliminaries

### 2.1. Data

Let us look at the emergence of tense consonants at the left edge of the following lexical items loaned from English:

(1)	[pənə]	~	[p'ana]	'burner'
	[kolp <sup>h</sup> i]	~	[k'olp <sup>h</sup> i]	'golf'
	[təbil]	~	[t'abil]	'double'
	[šyo]	~	[š'yo]	'show'

To obtain the empirical ground of the data, a questionnaire survey to Korean speakers was conducted. The subjects consists of 31 (10 male and 21 female), mostly in their early and mid twenties and come from central part of Korea. The test items consist of 51 loanwords from English, which initiate with plain obstruents (lenis consonants in the source language). They were paid and had a practice session before getting started into

the test session. Some tips for the test were given to the subjects: Considering that tensification is facilitated in the casual speech, a suggestion is given to them to figure out a “quite comfortably natural situation like conversing with a close friend” and to imagine to say themselves the words in a frame sentence “ige mueongahamyeon\_\_\_\_\_iya (This is \_\_\_\_\_, I would say). They are provided three choices for each entry: plain, tense and both. The final suggestion was to ignore the Korean spelling in the test sheets as much as possible. The test took 15 minutes or so. The test results are: Among 1,581 (51x31) tokens, we obtained 1,088 tokens for plain consonants (68.8%), 308 tokens for exclusively tense consonants (19.5%), and 218 tokens for marking both (13.8%). The combination of tense-only and plain-tense-both accounts for 33.2%. In this paper, aside from the statistical significance of the percentage of tensification, the phonological manifestation of tensification applied to loanwords will be considered

## 2.2. *Parallelism with Syntactic Empathy*

Kuno and Kaburaki’s (1977) seminal work on the role of syntactic empathy has enlightened us regarding speaker’s attitude toward discourse. Empathy is ‘the speaker’s identification, with varying degrees (ranging from degree 0 to 1), with a person who participates in the event that he describes in a sentence’ (p. 627). For example, the content of a sentence can be delivered in diversified forms:

- (2) a. John hit Mary.  
b. John hit his wife.  
c. Mary’s husband hit her.  
d. Mary was hit by John

In (2a) the speaker is neutral toward the event, and in (2b) he identifies himself with John more than Mary, while in (2c) merely the opposite, and in (2d) Mary is all the more identified with the speaker. Passivization is used to highlight the referent rather than the subject. This is the nutshell of syntactic empathy introduced by Kuno and Kaburaki (*ibid*). What we would like to claim here is that Korean word-initial tensification takes place to make explicit empathy of the speaker in a phonological sense. In other words, speakers imagine some objects as sharing their feelings like a movie or play actors tend to show their empathy with the characters they are cast to play

a role of. For the purpose, it is likely that they make use of not merely sentential structure, but also phonological patterning. Our claim is that depending upon empathetic strategies at hand, the content of a word or sentence gives different impressions to listeners. Let us take an example. Forms [pɛk] and [p'ɛk] 'back' are used in totally different contexts. The former is used in an ordinary context, and means 'rear, again' e.g. *back number, come back*. On the other hand, the form [p'ɛk] has pejorative or derogatory meaning 'illegal background, power.' We have tensification to Sino-Koreans as well, e.g., in a minimal pair [kwa] ~ [k'wa] 'department,' the latter form implies 'our department to the exclusion of others,' while the former is neutral. To break down the connotation conveyed by neutral and empathetic meaning, the following polarity table can be drawn in a quite sketchy manner:<sup>1</sup>

Neutral	Empathetic
-SUBJECTIVE	+SUBJECTIVE
-ENDEARING	+ENDEARING
-DEROGATORY	+DEROGATORY
-EXCITING	+EXCITING
-PRIVATE	+PRIVATE

<Table 1> Phonological Empathy: A Showcase

We assume that every word, nominal in particular, is equipped with connotative meaning of their own and the values of each semantic features are at variance: +, -, and ±. What we are going to claim is that the conflict between the connotative meaning of a lexeme with empathetic meaning results in blocking of employment of empathetic instantiation. This topic will be discussed in the following sections at length.

### 2.3. *Why just Tensification?*

As to the tensification at the left-edge of Korean ideophones, Martin (1962) proposes that the involved laryngeal features serve the semantic function to connote the degree of intensity on top of the denotative meaning of a word. In this sense, he employs ternary degree of intensity: [PLAIN] for plain series, [INTENSE] for tense series, and [PARAINTENSE] for aspirated series. The independent nature of feature-size morpheme is not startling at all and well-documented by Zoll (1996). Meanwhile,

<sup>1</sup> It is of no doubt that semantic primitives constituting empathy do not confine to the enumerated six features in <Table 1>, and thus the list can be extended *ad infinitum*.

criticizing the ternary scale of intensity in Korean sound symbolism, J. S. Lee (1992) tries to rectify the intensity relation between tense and aspirated series and introduces a revised model: each laryngeal feature has distinct semantic connotation to the effect that the single-feature morpheme {spread glottis} is decomposed into series of semantic primitives [DENSE, COMPACT, SOLID, TOUCH, HEAVY, SLOW...] and {constricted glottis} into [AIRY, CRISPY, SPARSE, LIGHT, SWIFT...]. Her idea is tantamount to say that phonological features [spread glottis] and [constricted glottis] exhibit independent semantic properties of their own right, denying hierarchical relationship between them. As we will see in the later on, this idea has some welcome consequences to our analysis.

Above all, her analysis is likely to shed light on some serious difficulties encountered in Martin's model. In other words, if laryngeal features are really adopted in Korean to manifest ternary degree of intensity in Korean onomatopoeic or mimetic words, it is hard to explain the gaps commonly encountered, e.g., *panc'ak-p'anc'ak-<sup>\*</sup>p<sup>h</sup>anc'ak*, *calluk-cs'alluk-<sup>\*</sup>c<sup>h</sup>alluck*. The hierarchical model predicts every tensed form has an aspirated counterpart. Conversely, our stance to regard tense and aspirated forms as a means to convey different connotations looks like quite promising to account for the asymmetry between tensification and aspiration derived from ideophonic alternations.

Let us turn our attention to the loanword situation. When it comes to asymmetry between tensification and aspiration, as illustrated in (3), it is not hard to notice that the lack of aspirated forms in loanwords is far more serious than in the case of ideophonic case:

### (3) Discrepancy between Tense and Aspirated Equivalents in Loanwords

[cəmp <sup>h</sup> i]	~	[c'əmp <sup>h</sup> i]	<sup>*</sup> [c <sup>h</sup> əmp <sup>h</sup> i]	'jump'
[ponəsi]	~	[p'onəsi]	<sup>*</sup> [p <sup>h</sup> onəs'i]	'bonus'
[pɛk]	~	[p'ɛk]	<sup>*</sup> [p <sup>h</sup> ɛk]	'bag'
[pɛk]	~	[p'ɛk]	<sup>*</sup> [p <sup>h</sup> ɛk]	'back'
[cɛdzɔ]	~	[c'ɛdzɔ]	<sup>*</sup> [c <sup>h</sup> ɛdzɔ]	'jazz'
[taun]	~	[t'aun]	<sup>*</sup> [t <sup>h</sup> aun]	'down'
[cip]	~	c[c'ip]	<sup>*</sup> [ts <sup>h</sup> ip]	'jeep'
[taibiŋ]	~	[t'aibiŋ]	<sup>*</sup> [t <sup>h</sup> aibiŋ]	'diving'
[pat'eri]	~	[p'at'eri]	<sup>*</sup> [p <sup>h</sup> at'eri]	'battery'
[pəs'i]	~	[p'əs'i]	<sup>*</sup> [p <sup>h</sup> əs'ɨ]	'bus'
[pɛt]	~	[p'ɛt]	<sup>*</sup> [p <sup>h</sup> ɛt]	'bat'

The pervasive lack of aspiration in loanwords gives an outstanding line of evidence to our idea that tensification has a fundamentally distinct *raison d'être* from that of aspiration.

#### 2.4. *Tensification as On-and-Off Process*

In above sections, we observed that tensification is a favorite to convey speakers' attitude towards what they are referring to. As suggested in section 2.2, another important issue to be incorporated in the discussion of Korean loanword phonology is that the concerned word-initial tensification is not applicable to relevant items across the board. As we compare the data in (1) and (3) with those in (4) below, it is easy to notice the differences:

#### (4) Forbidden Tensification

[pəbul]	~	*[pəbul]	'bubble'
[peik <sup>h</sup> on]	~	*[p'eik <sup>h</sup> on]	'bacon'
[tinə]	~	*[t'inə]	'dinner'
[teit <sup>h</sup> a]	~	*[t'eit <sup>h</sup> a]	'data'
[kei]	~	*[k'ei]	'gay'
[kɛgi]	~	*[kɛgi]	'gag'

We are going to discuss what is intervening factors to intercept the potential process of tensification in section 3.3.

### 3. Discussion

#### 3.1. *Laryngeal Feature Specifications*

With respect to laryngeal feature representation involved with Korean word-initial tensification, let us take a look at the presumption taken by Iverson and Salmons (1995), Iverson and A.R. Lee (2006). Militating against traditional views on Germanic languages including English, the feature model above claims that unmarked laryngeal feature in English is [voice] rather than [voiceless]. In the meantime, Korean obstruents

have ternary system and plain consonants are null and aspirated and tense consonants are specified with features [s.g.] and [c.g.], respectively

Here let us make sure our position on the controversial issue of the input identification in loanword adaptation. Essentially, we support the contention that the underlying feature structure of the source language is transferred as input, as LaCharité and Paradis (2005) claim. Another thing is that considering that English obstruents are not easy to jam into the straitjacket of voicing and voiceless distinction. Thus, instead of voiced and voiceless distinction, the distinction of fortis and lenis is adopted in our analysis. One more thing is that we assume that all the fortis obstruents of English are specified in feature [s.g.] underlyingly, while lenis obstruents are null in terms of laryngeal features, as shown in (5):<sup>2</sup>

(5) Representation of English Laryngeal Features

<p>a. Fortis</p> <p style="text-align: center;">p</p> <p style="text-align: center;"> </p> <p style="text-align: center;">[s.g]</p>	<p>b. Lenis</p> <p style="text-align: center;">b</p> <p style="text-align: center;">[ ]</p>
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3.2. Option for Feature Filling

Now, we are well prepared to give an account for the tensification occurring amid Korean loanword adaptation. As depicted in (5), laryngeal features involved with the lenis obstruents in English are empty while the concerned lexical items are transferring to Korean lexicon. Under the conceptualization, we can readily answer the prime question on Korean word-initial tensification: Why does the process apply to merely plain consonants? The answer is that the empty laryngeal nodes involved with lenis consonants come to be filled by feature [constricted glottis], which is believed to be employed in our analysis that as a single featured morpheme, it plays a role to convey the speaker’s attitude towards the referring objects at stake. On the contrary, in the case of fortis obstruents, relevant laryngeal features are already specified and for this reason, if we want to realize feature [c. g.], it needs a process of feature replacement rather than feature filling. However, it is obvious that the feature replacement process is more marked than a simple process of feature filling. The feature replacement is a composite

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<sup>2</sup> For the notion of fortis and lenis, we rely upon the phonetic tradition ever since Lisker and Abramson (1964): fortis sounds are produced with a greater force in articulation, whereas the opposite situation happens to lenis consonants.

of feature removal plus feature filling. As a means of phonological empathy, latter type of tensification is seldom opted for, as illustrated below of the example ‘back’:

(6) Laryngeal Layer	[c.g.]				
	⋮				
Supralaryngeal Layer	p	ε	k		‘back’

To deliver empathetic meaning to the English loanword ‘back’, signifying ‘illegal background,’ the empty space on the laryngeal tier is to be taken by the mono-featural morpheme [c. g.]. By contrast, in the case of ‘pack’, the word-initial fortis obstruent is already taken by feature [spread glottis] and additional laryngeal feature linking is disallowed:

(7) Laryngeal Layer	[s.g.]				
Supralaryngeal Layer	p	ε	k		‘pack’

An important strength of our analysis is that the present model is successful to explain why tensification of fortis stops is usually disallowed in ordinary speech.<sup>3</sup> In Korean loanword phonology, it is usual for fortis input to realize as aspirated consonants rather than other options, as we can see in (8):

(8)	[op <sup>h</sup> in]	*[op’in]	‘open’
	[sit <sup>h</sup> iraik <sup>h</sup> ]	*[si <sup>h</sup> t’iraik <sup>h</sup> ]	‘strike’
	[sip <sup>h</sup> un]	*[sip’un]	‘spoon’
	[sik <sup>h</sup> i]	*[sik’i]	‘ski’

To obtain a plausible answer to the question why Korean loanword adaptation prefer aspiration to tensification of fortis obstruents of the source language, the adoption of the

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<sup>3</sup> To my knowledge, forms like [t<sup>h</sup>ɛŋk<sup>h</sup>i] ~ [t’ɛŋk’i] ‘tank,’ [p<sup>h</sup>aip<sup>h</sup>i]~[p’aip’i] ‘pipe,’ [p<sup>h</sup>ents<sup>h</sup>] ~ [p’ants’] ‘pants,’ [p<sup>h</sup>irint<sup>h</sup>i] ~ [p’irint’i] ‘print’ challenge our current generalization. It is highly suspected that the exceptional occurrences are owing to the Japanese influence as a mediating language. Also recently it is not unusual to find tensified versions like [p’iano] ‘piano,’ [p’et] ‘pet.’ found in the current Internet dictions. Here I ignore the consciously warped forms of linguistic forms burgeoning lately in Internet blogs and other kinds of sites.

input representation on laryngeal features is sufficient without further ado: the laryngeal feature slot is preempted with feature [s.g.] and it cost more to resort to feature replacement. Ultimately, feature [s.g.] instantiates as aspiration at the surface.

In this regard, the analysis relying on orthographic information, proposed by M. R. Oh (1996) is misguided. As she suggests, if the realization of Korean loanwords from English fortis consonants is really due to the influence of orthography, that is, to substitute Korean aspirated for English fortis regardless positions, it is hard to answer the following question: Why not tense consonants rather than aspirated counterparts? It is not fair to ascribe the aspiration dominance effect to the orthographic influence. It is equally possible to evoke the tensification of the concerned consonants as much as aspiration. Under the idea, there is no reason to give a priority to aspiration, unlike our analysis.

### 3.3. Feature Incompatibility

As pointed out in section 2.4, there is a subset relation between words compatible with empathy and a loanword as a whole: e.g., [taiamond]/\*[t'aiamond] 'diamond', [paid]/paid 'bind', [paiə]/\*[p'aiə] 'buyer', [kaid]/\*[k'aid] 'guide', etc. For the explanation, we contend that the empathetic demand is merely applicable to words whose semantic connotation is not in conflict with semantic primitives required to instantiate the empathic meaning to the words at stake. Let us illustrate the case, 'guide.', which disallows word-initial tensification:

(9) guide

*connotation*

±SUBJECTIVE
-DEROGATORY
±ENDEARING
±EXCITING
±PRIVATE

*empathetic features*

+ SUBJECTIVE
+DEROGATORY
+ENDEARING
+EXCITING
+PRIVATE

We propose that the partial incompatibility between inherent and empathetic meaning is enough to prevent superimposing empathetic features. In the case (9), the multiple-

crashes among features lead Korean speakers are reluctant to permit tense forms during loanword adaptation. Conversely, in the case of ‘back’, signifying ‘illegal background’, inter-feature crash never occurs and for this reason, tensification is allowed.

(10) back (‘illegal background’)

<i>connotation</i>	<i>empathetic features</i>
<div style="border-left: 1px solid black; border-right: 1px solid black; padding: 10px; display: inline-block;">           +SUBJECTIVE            +DEROGATORY            +ENDEARING            +EXCITING            +PRIVATE         </div>	<div style="border-left: 1px solid black; border-right: 1px solid black; padding: 10px; display: inline-block;">           +SUBJECTIVE            +DEROGATORY            +ENDEARING            +EXCITING            +PRIVATE         </div>

### 3.4. Frequency Effect

Connectionist position would be the most *bona fide* example of modeling the frequency variable in phonology: Under the intricate network of neural nodes, each node has a numerical activation value and those associated with high frequent items have low thresholds of activation values. (McCarthy 2001: 59-61). More concretely, according to Bybee (2001), the role of frequency is integral to predict lenition like schwa deletion, e.g., *summary* (frequent: deleted) vs. *summery* (infrequent: retained); coronal stop deletion in the words with double past tense maker, e.g., *told* (frequent: deleted) vs. *meant* (infrequent: retained).

To prove the connection between the frequency or intimacy of loanwords and the likelihood of tensification, I conducted a pilot investigation employing a small group of arbitrary chosen loanwords having the English sources. The randomly chosen minimal pairs contrasting in light of word-initial tense features were explored at the website <http://kr.search.yahoo.com> and I gained the ratio between that of the readily tensified words over rarely tensified counterparts. During the Internet examination, the forms with homonymous with native Korean like *down* (다운), *ball* (볼), *gang* (갱) were expelled from our consideration from the outset.

No	Rarely Tensified (A)	Frequency	Readily Tensified (B)	Frequency	B/A (%)
1	gold	3,470,000	game	50,700,000	1461%
2	disk	4,690,000	diving	632,000	13%
3	gag	5,530,000	gas	5,210,000	94%
4	dinner	184,000	dance	7,030,000	3821%
5	bubble	2,450,000	band	3,070,000	125%
6	gay	878,000	gang	257,000	29%
7	bowling	439,000	boxing	1,220,000	278%
8	drive	2,590,000	dam	1,010,000	39%
9	bacon	412,000	bonus	2,380,000	578%
10	guide	9,170,000	gown	940,800	10%
11	Gypsy	171,000	jazz	2,200,000	1287%
12	gesture	275,000	jump	2,030,000	738%
13	zipper	385,000	jam	1,780,000	462%
mean					687%

<Table 2> Ratio of the Frequency of Tensified over the Lenis

The frequency mean value calculated from the ratio of the tense forms over plain forms amounts to 687%. Certainly it is necessary to take into account the haphazardness of variables intervening in examining the internet data during the calculation: e.g., individual tastes of site constructors, frequency of the terminology typical to specific fields, and so forth. Nonetheless, the percentage over 600% is still meaningful to us. The overwhelming percentage of tense forms in terms of frequency over plain-only forms is unlikely to be nullified by the property of precariousness of the uncontrolled data inherent to the data posted on the internet sites. This means that a certain amount of thresholds of frequency must be passed over to trigger tensification of the concerned words.

#### 4. On the Orthographic Conventions on Laryngeal Features

Orthographically, it is extremely rare to find empathetic forms of loanwords in written documents like dictionaries, textbooks, newspaper. The first reason can be conjectured that words involving tense consonants are statistically less in number than plain or

aspirated words. Notice that almost 70% of Korean word stock consists of Sino-Korean words, in which morphemes started with tensed obstruents take just tiny portion, attested in the morphemes like s'i (氏), s'aŋ (雙), k'ik (喫). So it would be surmised that Korean lexicographers have consciously or subconsciously avoided tensed forms as regular forms. The situation is the same in the loanword adaptation from English: sibilants are regularly spelled as plain consonants, even though they clearly perceived them as tensed ones in *solo, sofa, side, sea, soda, sauna, cycle, psychology, siren*, and so forth. We have never perceived the plain sibilants in the loanwords listed above, at least in informal and ordinary speech. Nonetheless, it is extremely rare to witness the tense consonants in the filed documents.

The second reason to skip tense forms in spelling as delivery of empathetic attitude of speakers is that empathetic meaning is a superimposed meaning on top of regular meaning of a word. The situation is similar to that of prosodic features like stress, pitch accent, tone. To my knowledge, it has been customary to omit the predictable prosodic features in the spelling convention of a language. For instance, in English, word stress, which could be arguably predictable, is never orthographically represented, and Spanish indicates merely unpredictable stress on the word by word basis in the lexicography.

The current Korean spelling convention employs an interesting criterion to designate tense feature on the spelling. The overt symbols to designate tense consonants merely show up when we need to tell apart two native lexical items constituting minimal pairs in terms of laryngeal features. The consonants that matter for minimal pairs are emboldened:

(11)	<b>t</b> aŋkida	'to pull'	ilkun	'to be plowed'
	<b>t'</b> aŋkida	'to be cramped'	il <b>k'</b> un	'worker'
	kaca	'let's go'	nalca	'let's fly'
	kac'a	'bogus'	nalc'a	'date'

Likewise, for the identification of loanwords from the existing native lexical items, tense forms are exceptionally reflected in the minimal pairs:

(12) a.	sauna	'sauna'	b.	s'ain	'autograph, signature'
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s'auna 'to fight (interrogative)      sain 'cause of death'

In (12a), considering that the existing native word *s'auna* initiated with a tense consonant and it is also represented in spelling, tense feature needs to be dropped in spelling to loan word 'sauna.' By contrast, in (12b), there is no available existing word, regardless of native or Sino-Korean, containing tense feature with the same segmental structure, so for the sake of distinction among word stock, the loanword has an orthographical tense feature.

### 5. Summary and Implications to Korean lexicon

So far we have tried to account for why and how word-initial tensification available in English loanwords to Korean takes place. The upshot is that the consonant mutation is motivated to empathize speaker's personal attitude towards the objects that they are referring to. Considering that Korean lacks phonologically valid word stress or tonal variation, Korean calls for other devices equivalent to the prosodic qualities. To identify the factors involved with the triggering the laryngeal feature drift, we have called for the frequency of the concerned lexical items. The allowance of lexical frequency in the determination of the shape of phonological words stands for the interplay of the lexicon and grammar. In other words, two components are not clearly separated as independent modules but they are interconnected to decide a word shape in the loanword adaptation. .

Lastly, let us examine the implications obtained from our analysis to the structure of Korean lexical strata. First of all, the separation of tense and aspirated forms of Korean ideophones in a functional sense proves to be effective to account for the asymmetric distribution concerning Korean tense and aspirated obstruents. The functional independency of two laryngeal features is further supported by another asymmetry between them: It is extremely rare to find aspirated counterparts of tense forms imported from English as a source language.<sup>4</sup> By contrast, the aspirated forms are not so sparse in Korean onomatopoeic or mimetic words, as exemplified below:

(13)	<i>plain</i>	<i>tense</i>	<i>aspirated</i>	
	piŋ	p'iŋ	p <sup>h</sup> iŋ	'turning round'
	kamkam	k'amk'am	k <sup>h</sup> amk <sup>h</sup> am	'dark'
	tantan	t'ant'an	t <sup>h</sup> ant <sup>h</sup> an	'hard'

<sup>4</sup> Aside from the single exception [kit<sup>h</sup>a] ~ [k<sup>h</sup>it<sup>h</sup>a] 'guitar,' the aspirated equivalents of lenis obstruents in loanwords are unattested.

Thus, the parallelism between ideophonic words and loanwords should be given up at this point. They are separate in their degree of allowance of aspirated forms corresponding to plain forms. The separation of native and Sino-Korean words is supported by the distant gap between them in light of the rate of word-initial tensification. On the other hand, both native and Sino-Korean words hardly lose their laryngeal features at the non-initial position, unlike in ideophones or loanwords, as noted by P. H. Lee (2005: 61). From the viewpoint of susceptibility to loss, let us arrange the pros and cons obtained from the proposed four subsectors of Korean lexicon:

(14)	Loss of aspiration	Examples	
Native	NAY	[pat <sup>h</sup> aŋ]	‘base’
Sino-Korean	NAY	[kits <sup>h</sup> o]	‘base’
Ideophones	AYE	[t <sup>h</sup> a-ta-ŋ]	‘bang-bang’
Loanwords	AYE	[pediro]	‘Peter’ (Biblical)

Ideophones and loanwords are identical in their generous allowance of laryngeal feature alteration in exquisite contrast to native and Sino-Korean. In this sense, our partitioning Korean lexicon is supported from the viewpoint of processes involving laryngeal features. To recapitulate, from the standpoint of laryngeal features, the substrata of Korean lexicon prove to have discernable asymmetry among them, as tabulated below:

	Aspiration		Tensification	
	loss	gain	loss	gain
Native words	no	no	no	yes
Sino-Korean	no	no	no	no
loanwords	yes	no	indeterminate <sup>5</sup>	yes
ideophones	yes	yes	yes	yes

<Table 3> Likelihood of Laryngeal drifts in Korean Lexicon

<sup>5</sup> Considering that we are concerned with borrowing from English, and it is hard to find the input possessing tense consonants, we leave the issue indeterminate.

Sino-Korean lexical items turn out to be the most resistant to the laryngeal alterations, while the ideophones are the most lenient to the changes. Loanwords from English belong to the second most generous group to laryngeal feature alternations. Native Korean words just allow newly generated tense features to the exclusion of other options.

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# Prolegomena to an Agent-Oriented Theory of Context

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**Abstract** Among the rule-based<sup>1</sup> approaches in linguistics, the most basic distinction is that between the sign-oriented and the agent-oriented analyses.<sup>2</sup> This distinction leads also to vastly different notions of context. While sign-oriented approaches such as the schools of Nativism define context as some background information which is attached to the grammatical analysis of language expressions (signs), the agent-oriented approach of Database Semantics (DBS) treats the context as an autonomous component within the cognitive agent.

This component consist of a memory and interfaces, as well as an algorithm mediating between the two. It (i) predates the language component in phylogeny (evolution) and ontogeny (child development) and (ii) provides the context of use relative to which the different natural languages are interpreted.

For the goal of Database Semantics, i.e., a computational model of natural language communication, the context component must be defined as the declarative specification for a suitable software. This requires solutions to highly technical issues, which have been presented elsewhere. Here, the context component is approached in a conceptual manner, leaving such issues as the definition of the data structure, the algorithm, memory-based pattern recognition, etc., aside.

The word “context” occurs not only frequently in everyday language, but also has many different technical interpretations. It has been used to refer to the previous sentences in a text, or to the domain of a text, such as medicine, law, architecture, etc. It has been used to refer to world knowledge (Grice 1975), or to knowledge shared between the speaker and the hearer (Leech 1983). In Artificial Intelligence, context has been treated in the form of schemata representing typical situations (Schank and Abelson 1977). In HPSG context is added as an attribute to lexical entries. The values of this attribute are called constraints, and express such knowledge as “the use of the name *John* is legitimate only if the intended referent is named *John*” or “the complement of the verb *regret* is presupposed to be true” (cf. Pollard and Sag 1994, Green 1997).

From the view point of Database Semantics, these notions of context are partial at best. What is required for an agent-oriented approach instead is a component serving

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<sup>1</sup> In addition to (i) the rule-based method there are the methods of (ii) statistics and of (iii) metadata-markup. These may be combined with a rule-based method.

<sup>2</sup> Related is the distinction between *language as product* and *language as action* of Clark (1996). However, while Clark counts Speech Act Theory (Austin 1962, Grice 1965, Searle 1969) among the language as action theories, Speech Act Theory is sign-oriented insofar as it is based on enriching the analyzed sign with performative clauses, such as *I declare*, *I promise*, etc. For a more detailed review of Ordinary Language Philosophy see FoCL’99, p. 84 f.

as the “context of use” for the interpretation and production of natural language by a cognitive agent with a body acting in the real world (e.g., a talking robot). Furthermore, this component must be suitable to integrate all the partial notions of context, such as the previous text, the domain, the shared knowledge, etc.

## 1 Context as a Cognitive Agent without Language

Faced with such a daunting task, we propose to simplify matters by taking evolution (phylogeny) and child development (ontogeny) as our guide. In other words, let us begin with a cognitive agent without language. Consider for example a squirrel: It has two eyes, two ears, a nose, etc., for recognition, and hands, hind-legs, a mouth, etc., for action. It can bury a nut, when needed retrieve it even after a long time, and eat it.

In the terminology of Database Semantics, the squirrel has a very good context component, but no language component.<sup>3</sup> If we could use the cognition of an artificial squirrel as our context, we would adapt the ears to hearing language, add synthesizers for speaking, provide ample computing power, and design a theory to use it for natural language communication. This theory is Database Semantics, presented in NLC’06.

That we begin our model of natural language communication with the context level may be motivated as follows:

### 1.1 SUPPORT FOR BUILDING THE CONTEXT COMPONENT FIRST

1. Constructs from the context-level may be reused at the language level. This holds for (i) the concepts, as types and as token, (ii) the external interfaces for input and output, (iii) the data structure, (iv) the algorithm, and (v) the inferences.
2. An agent without a context component could not report to us what it perceives (contextual recognition), and could not do what we tell it to do (contextual action).
3. The context is universal – in the sense of being independent of a particular language, yet all the different natural languages may be interpreted relative to the same kind of context component.
4. In phylogeny (evolution) and ontogeny (child development) the context component comes first.

To strengthen the empirical foundations of our model let us proceed from what can be seen and touched to what must be inferred. In other words, let us begin with the body of the cognitive agent and its external interfaces.

That natural cognitive agents have bodies<sup>4</sup> with interfaces for transporting cognitive content from the external world into the agent (recognition) and out of the agent into the external world (action) can be shown comparatively easily. The properties of the interfaces may be established externally by observing the interaction of other agents with their environment and with each other, and internally by observing the functioning

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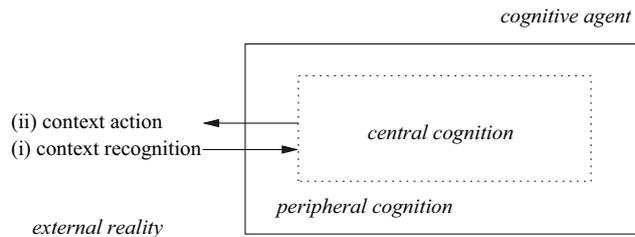
<sup>3</sup> Though this may be debated. See Hauser (1996).

<sup>4</sup> The role of the body has recently been reemphasized by Emergentism, cf. MacWhinney (1999).

of one's own interfaces through introspection. In addition, there is the analysis of the external interface organs involved, provided by the natural sciences such as physiology and anatomy, as well as the modeling of these organs in robotics.

The external interfaces of the context component correspond to those of a cognitive agent without language, and may be shown schematically as follows:

## 1.2 EXTERNAL INTERFACES OF A COGNITIVE AGENT WITHOUT LANGUAGE



For present purposes we deal with the interfaces at a very high level of abstraction, such that the distinction between recognition and action in general is sufficient.

The differentiation of the external interfaces into modalities such as vision, audio, variants of locomotion, manipulation, etc., is relevant here only insofar as peripheral cognition during recognition translates the heterogeneous modality-dependent data of the different interfaces into the homogenous coding of central cognition. During action, peripheral cognition translates the homogeneously coded commands of central cognition into the heterogeneous modality-dependent kinds of external action procedures.<sup>5</sup>

Starting the reconstruction of cognition with the agents' external interfaces determines the ontological foundations of Database Semantics in a way which makes it incompatible with the traditional sign-oriented theories. The reason is that the sign-oriented theories abstract the cognitive agent away, defining semantics as a direct relation between "language and the world." This may have advantages, yet without an agent there cannot be external interfaces, and a cognitive theory without external interfaces is unsuitable for modeling natural language communication in its most basic form.<sup>6</sup>

## 2 Concept Types and Concept Tokens

Having established the interfaces of the context component, we turn to the reconstruction of recognition and action. Our model of a cognitive agent should be able to recog-

<sup>5</sup> We know of two kinds of homogeneous coding: neurological in natural agents and electronic in computers. Functionally, the task of central cognition is the analysis and storage of modality-independent (homogenous) content, inferencing on the content, and turning the result of these inferences into action schemata.

<sup>6</sup> There remains the possibility of extending the sign-oriented theories without external interfaces into ones which have them. This is not a promising option, however, as shown by the analogy with software development: A piece of running software can practically never be extended to an interface which was forgotten in the initial design – except for ad hoc emergency measures cleverly adapting some accidental feature of the program. For a clean solution, the program has to be rewritten from scratch.

nize new objects of a known type, like a brand new pair of shoes. Thereby it should be forgiving in marginal cases, like clogs, but give a clear “no” when it comes to wheelchairs or shovels. This kind of classification is based on concepts which can distinguish between necessary and accidental<sup>7</sup> properties of an object.

The considerable literature on concepts presents the schema (Piaget 1926; Stein and Trabasso 1982), the template (Neisser 1964), the feature (Hubel and Wiesel 1962; Gibson 1969), the prototype (Bransford and Franks 1971; Rosch 1975), and the geon (Biederman 1987) approach. For simplicity, let us join the debate at a slightly higher level of abstraction by beginning with a distinction which should be common to all of these approaches, namely the distinction between concept *types* and concept *tokens*.<sup>8</sup>

For present purposes, we define concepts as feature structures, i.e., as sets of features, each defined as an attribute-value pair. The necessary properties of a type are represented by the attributes and certain constant values. These are shared with the tokens. The accidental properties are represented in the type by certain variable values, which are instantiated in different tokens as different constants. Thus, to a given type there corresponds an infinite number of tokens which differ from their type in that the type’s variables have been replaced by specific values (constants).

To simplify the explanation of the most basic notions, we use here a preliminary holistic representation, which will have to be replaced by the declarative specification of incremental, time-linear procedures for recognizing concepts based on geons, and geons based on features (described in L&I’05).<sup>9</sup> Consider the following example using the preliminary holistic representation, borrowed from CoL’89 and FoCL’99:

## 2.1 TYPE AND TOKEN OF THE CONCEPT *square*

<i>type</i>	<i>token</i>
$\left[ \begin{array}{l} \text{edge 1: } \alpha \\ \text{angle 1/2: } 90^\circ \\ \text{edge 2: } \alpha \\ \text{angle 2/3: } 90^\circ \\ \text{edge 3: } \alpha \\ \text{angle 3/4: } 90^\circ \\ \text{edge 4: } \alpha \\ \text{angle 4/1: } 90^\circ \end{array} \right]$	$\left[ \begin{array}{l} \text{edge 1: } 2 \text{ cm} \\ \text{angle 1/2: } 90^\circ \\ \text{edge 2: } 2 \text{ cm} \\ \text{angle 2/3: } 90^\circ \\ \text{edge 3: } 2 \text{ cm} \\ \text{angle 3/4: } 90^\circ \\ \text{edge 4: } 2 \text{ cm} \\ \text{angle 4/1: } 90^\circ \end{array} \right]$

<sup>7</sup> The term accidental is used here in the philosophical tradition of Aristotle, who distinguishes between the necessary and the accidental (or incidental – kata sumbebêkos).

<sup>8</sup> The notions of type and token were introduced by Peirce (CP, Vol.4, p. 537).

<sup>9</sup> The incremental time-linear recognition procedure described in L&I’05 is based on the data structure of DBS. The procedure begins with detecting some arbitrary feature of the object to be recognized, such as a line or an edge. Then all the previously encountered connections of this feature to other features are retrieved from memory and actively checked, beginning with the most frequent ones. If a match for such a combination is found in the external object, all previously encountered connections of this combination to other features are retrieved from memory and actively checked, etc. It is shown that this method converges very quickly at the level of features, resulting in the recognition of geons (cf. Biederman 1987, Kirkpatrick 2001). At the level of geons, the same incremental method can be used, resulting in the recognition of concepts.

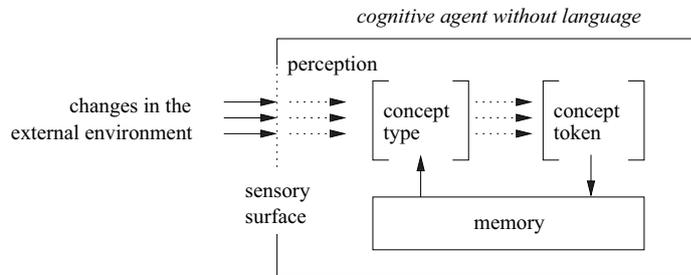
The necessary properties, shared by the type and its token, are represented by four attributes for edges and four attributes for angles. Furthermore, all angle attributes have the same value, namely the constant “90 degrees” in the type and the token. The edge attributes also have the same value, though it is different for the type and the token.

The accidental property of a square is the edge *length*, represented by the variable  $\alpha$  in the type. In the token, all occurrences of this variable have been instantiated by a constant, here 2 cm. Because of its variable, the type of the concept *square* is compatible with infinitely many corresponding tokens, each with another edge length.

### 3 Context Recognition

The type–token relation of concepts is central to the external interfaces at the context level. In contextual recognition, concept type and concept token function together as follows:

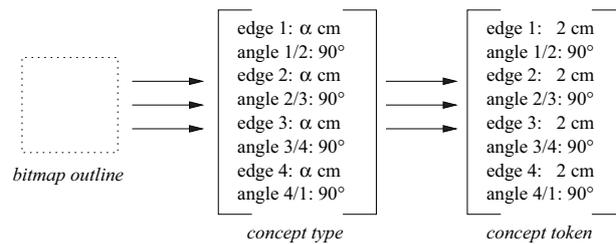
#### 3.1 CONCEPT TYPE AND CONCEPT TOKEN IN CONTEXTUAL RECOGNITION



The sensory surface produces incoming parameter values, for example, in the form of a bitmap, which are matched by a concept type provided by the database. Thereby, the variables of the type are instantiated by constants. The resulting concept token may be stored in memory.

The matching process shown in 3.1 is illustrated below in more detail with the recognition of a square:

#### 3.2 CONCEPT TYPE AND CONCEPT TOKEN IN RECOGNIZING A SQUARE



The type can be matched with the outline of all kinds of different squares, whereby its variables are instantiated accordingly.

Our preliminary holistic method of representing the concept **square** may be applied to other polygons, using the same recognition procedure based on matching concept types with bitmap outlines. The approach may also be extended to other kind of data, such as the recognition of colors, defining concept types as certain intervals in the electromagnetic spectrum and the tokens as particular constant values in such an interval (cf. CoL'89, pp. 296 ff.). The method is even suitable to implement the recognition of relations like "A is contained in B."

Today, there already exist pattern recognition programs which are quite good at recognizing geometric objects. They differ from our approach in that they are based almost completely on statistics. However, even if the terms of type and token may not be found in their theoretical descriptions, the type–token distinction is nevertheless implicit in any pattern recognition process. Furthermore, the rule-based, incremental procedures of pattern recognition presented in L&I'05 are well-suited to be combined with statistical methods.

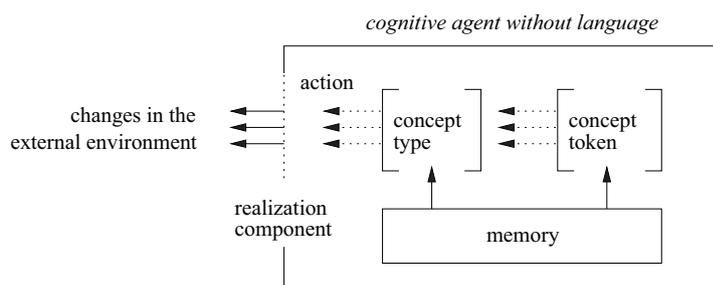
As shown by the work of Steels (1999), suitable algorithms can evolve new types automatically from similar data by abstracting from what they take to be accidental. For Database Semantics, the automatic evolution of types has to result in concepts which correspond to those of a language community. This may be achieved by presenting the artificial agent with properly selected data in combination with human guidance.

## 4 Context Action

Having examined incoming data in terms of perception and recognition, let us turn to the outgoing data, which are analyzed in terms of intention and action. Intention is the process of developing an action cognitively, while action is the mechanism of realizing an intention by changing the environment.

Like recognition, action is based on concept types and concept tokens, but in the inverse order: While recognition is based on the sequence *periphery–type–token*, action is based on the sequence *token–type–periphery*, as shown in the following schema:

### 4.1 CONCEPT TYPES AND CONCEPT TOKENS IN ACTION



The input to an action is an intention. Intentions (in the sense of wanting to act in a certain way) must be specific with respect to time and space as well as to the properties of the objects involved. Therefore, intentions are defined as concept tokens.

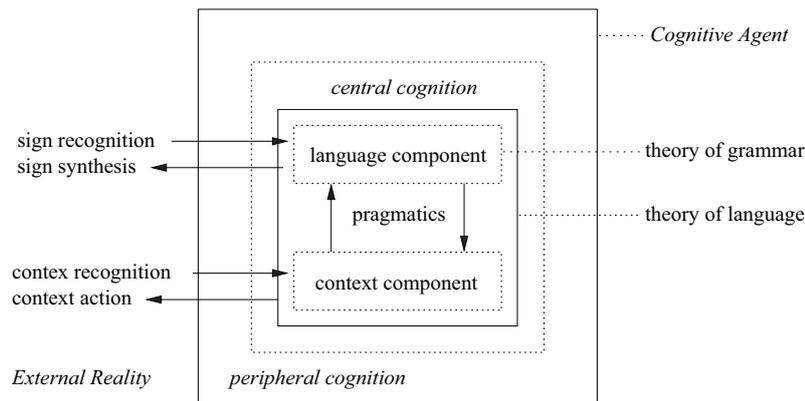
Actions, as the corresponding concept types, are defined as general realization procedures, for example, drinking from a cup. They are provided by the database for a given intention. The action procedure (type) is matched with the intention (token), whereby the variables of the action type are instantiated by the constants of the intention (specialization). The specialized action is realized by peripheral cognition as changes in the environment. Tasks for which no standard action is available, like the creative opening of a difficult lock in an unfamiliar door, are realized by trying different combinations of smaller standard actions.

## 5 Upscaling to Agents with Language

From the viewpoint of evolution, the step from agents without language to agents with language may be visualized as a doubling of the context component as described so far. Thereby the newly gained component is reutilized for the purposes of language in two fundamental ways.<sup>10</sup>

First, the existing interfaces for (i) context recognition and (ii) context action are reused by the new language component for (iii) sign recognition and (iv) sign synthesis, respectively.

### 5.1 STRUCTURING CENTRAL COGNITION IN AGENTS WITH LANGUAGE

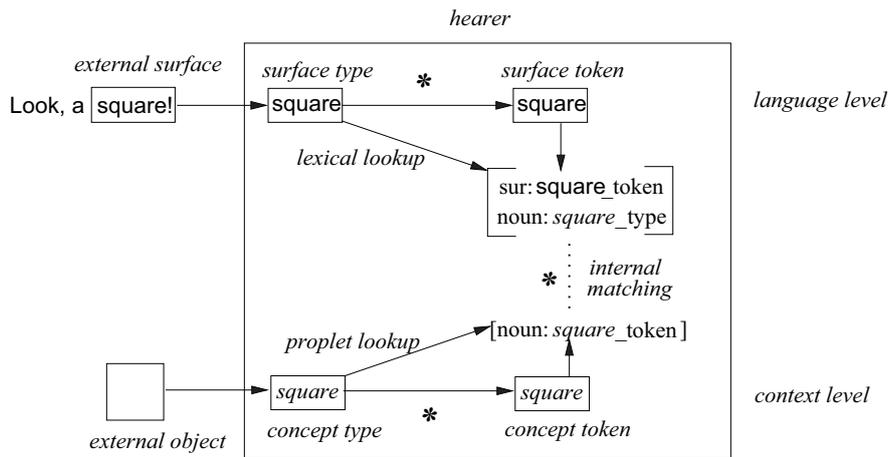


For example, just as the recognition of the *object* of a square at the context level is based on parameter values in a certain modality (here vision) which are matched by a concept type and instantiated as a concept token, the recognition of the *surface* of the word **square** is based on parameter values in a certain modality (e.g., hearing) which are matched by a surface type and instantiated as a token, and similarly for surface synthesis in language production. In short, the surface types and tokens used at the language level are a special kind of the concept types and tokens used at the context level.

<sup>10</sup> This is in line with the Emergentist view (MacWhinney 1999) of evolution reusing older forms for newer functions.

Second, the concept types used for recognition and action at the context level are reused as the basic language meanings. Thus the cycle of communication is based on three type-token relations: (i) between concept types and raw input at the context level, resulting in concept tokens (cf. 3.1), (ii) between surface types and raw input at the language level, resulting in surface tokens (cf. 4.1), and (iii) between concept types serving as word meanings at the language level and concept tokens serving as referents at the context level:<sup>11</sup>

## 5.2 THREE TYPE-TOKEN RELATIONS IN THE CYCLE OF COMMUNICATION



The three instances of a type-token relation are indicated by \*.

At the language level, recognition of the external surface **square** is based on matching it with a surface type and instantiating it as a token. The type triggers the lexical lookup of an appropriate proplet.<sup>12</sup> The surface token replaces<sup>13</sup> the original type value of the *sur* attribute (indicated as [sur: **square\_token**]). The lexical value of the core attribute *noun* is the concept type *square* (indicated as [noun: *square\_type*]).

At the context level, recognition of the external object is based on a concept type, which is instantiated as a concept token. The type triggers lookup of a corresponding context proplet. The token replaces the original type value<sup>14</sup> of the core attribute of

<sup>11</sup> As shown in FoCL'99, Sect. 23.5, there are altogether 10 different variants of 5.2, depending on different combinations of recognition and action at the language and the context level. In 5.2, the hearer mode is shown in a constellation of immediate reference (SLIM 8, cf. FoCL'99, 23.5.8).

<sup>12</sup> A proplet is a non-recursive feature structure representing the basic elements of a proposition.

<sup>13</sup> This is because the hearer remembers the pronunciation of a word. Also, we would like to maintain symmetry with the context level. The current JSLIM implementation simplifies the issue by turning language proplets into context proplets right after lexical lookup by deleting the surface values.

<sup>14</sup> In the current implementation, concepts are represented by placeholders. This is because without contextual interfaces (as in 6.1), concepts defined as effective procedures are not yet avail-

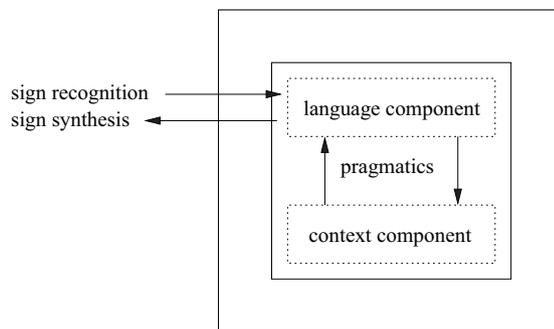
the context proplet (indicated as [noun: *square\_token*]). As a result, the feature [noun: *square\_type*] at the language level can be matched with the feature [noun: *square\_token*] at the context level.<sup>15</sup>

## 6 Immediate Reference and Mediated Reference

The relation between language expressions and the intended objects in the world is called reference.<sup>16</sup> From an ontogenetical and phylogenetical point of view, the most basic form of reference is *immediate reference*. It consists in referring with language to objects in the immediate task environment of the communicating agents, for example, to the book in front of them. Thereby, the agents' external interfaces are involved at the language as well as the context level (as in 5.1 and 5.2).

In addition, there is also the referring with language to referents which are not in the immediate task environment, but that exist solely in the databases of the communicating agents, for example, the historical figure of Aristotle. In this *mediated reference*, only the external interfaces of the language level, but not of the context level, are involved.<sup>17</sup>

### 6.1 USE OF EXTERNAL INTERFACES IN MEDIATED REFERENCE



able. In placeholders, the distinction between concept types and concept tokens is in name only.

<sup>15</sup> Apart from the vertical internal matching of types with tokens, there is also the possibility of matching types with types. This case arises in the interpretation of absolute, rather than episodic, propositions (cf. NLC'06, Sect. 5.2). For example, in the proposition *A square has four corners*, the context proplet *square* would contain the concept type rather than a token as its core value. This is no problem for matching with a corresponding language proplet, however, because matching a type with a type is structurally straightforward.

<sup>16</sup> In agent-oriented Database Semantics, reference is reconstructed computationally as a purely cognitive relation, based on the three type-token relation. This is in contradistinction to truth-conditional semantics, in which reference is defined as a direct relation between language expressions and objects of the world. Thereby, the world is defined by the logician as a set-theoretic model, and the relation between the language and the model is defined in terms of a metalanguage. In order to utilize metalanguage definitions computationally, they must be reconstructed procedurally. Most existing metalanguage-based systems, for example, modal logic, are unsuitable for a procedural reconstruction. See FoCL'99, Sect. 19.4.

<sup>17</sup> For further discussion of immediate and mediated reference see FoCL'99, Sect. 4.3.

Even though immediate reference is phylogenetically and ontogenetically primary, it is a special case of mediated reference from a theoretical point of view. This is because the cognitive procedures of mediated reference are used also by immediate reference. In other words, the functional difference between immediate and mediated reference consists in that immediate reference requires the additional external interfaces of the context level.

Cognitive agents without contextual interfaces but with language (and thus limited to mediated reference) are interesting for the following reasons. First, the contextual recognition and action capabilities of today's robots are still far removed from those of a squirrel, for example. Recognition and action at the language level, in contrast, can always be managed without principled loss of function by using the keyboard and the screen of today's standard computers. Thus, if we want to model natural language communication with today's technologies, i.e., without suitable robots, we must make due with cognitive agents which lack contextual interfaces and are therefore incapable of immediate reference.

Second, there are many tasks for which agents without contextual interfaces but with language are sufficient. In research, this applies to the modeling of cognitive operations which are based on stored data alone. In practice, it applies to such applications as the natural language interaction with databases and the Internet, involving the reading in of new content and the answering of queries.

In the long run, however, an absence of external interfaces at the context level (with the associated capabilities of recognition and action) has the following disadvantages:

## 6.2 DISADVANTAGES OF NOT HAVING CONTEXTUAL INTERFACES

### 1. *The conceptual core of language meanings remains undefined.*

Most basic concepts originate in agents without language as recognition and action procedures of their contextual interfaces, and are reused as the core of language meanings in agents with language.<sup>18</sup> Therefore, agents with language but without contextual interfaces use meanings which are void of a conceptual core – though the relations between the concepts, represented by placeholder words, may still be defined, both absolutely (for example, in the *is-a* or *is-part-of* hierarchies) and episodically.

### 2. *The coherence or incoherence of content cannot be judged autonomously.*

The coherence of stored content originates in the coherence of the external world.<sup>19</sup> Therefore, only agents with contextual interfaces are able to relate content “imported” by means of language to the data of their own experience. An agent without contextual interfaces, in contrast, has nothing but imported data – which is why the responsibility for their coherence lies solely with the users who store the data in the agent.

Due to the absence of suitable robots, the software development of Database Semantics is currently limited to standard computers. As soon the technologies needed for contextual interfaces become available, however, the theoretical framework of Database

<sup>18</sup> Cf. FoCL'99, Sect. 22.1.

<sup>19</sup> Ibid, Sect. 24.1.

Semantics will be ready for the extension. The reason for this is – roughly speaking – that immediate reference is a special case of mediated reference.

Thus, all the components developed for the version without contextual interfaces will be suitable to serve in the extended system as well. This holds, for example, for the components of the lexicon, the automatic word-form recognition and production, the syntactic–semantic and semantic–syntactic parsers, and the pragmatic inferences in the speaker and the hearer mode.

## 7 Conclusion

This paper takes a holistic approach to the analysis of natural language communication by designing a computational model of a cognitive agent. Replicating the development in phylogeny (evolution) and ontogeny (child development), the model begins with cognitive agents without language, i.e., agents which have only a context component. After reconstructing recognition and action based on the type-token relation, the language component is added as a specialized version of the original context component.

Thereby, (i) context recognition and action are reused for language recognition and synthesis and (ii) the concept types originally used for recognition and action at the context level are reused as language meanings. In this way the basic interaction between the language and the context component may likewise be based on the type-token relation. Formally, this relation is defined in terms of feature structures with variables and constants as values. It has a straightforward computational implementation and allows the agent to recognize and refer to items of a known kind, but never encountered before.

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# The system of graphemes in modern Korean

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## Abstract

The graphemics treats the written language as a linguistic system in its own right. The purpose of this treatise is to systematize the graphemes in modern Korean. This treatise is largely into two parts; one is a definition of grapheme and classification of graphemes, the other is a systematization of graphemes, focusing on Korean orthography. Consequently, the grapheme was to be defined as the smallest identifiable unit of the writing system of a given language which differentiates a meaning. And then, the writer classified graphemes into primary and secondary grapheme. As of these graphemes, the writer found that the graphemes in modern Korean were included phonemic grapheme in primary grapheme, and zero and punctuation graphemes in secondary grapheme.

**Keywords:** graphemics, grapheme, primary grapheme, secondary grapheme

## 1. Introduction

For a long time, the spoken language has been considered as a primary, and the written language a secondary. A spoken language is a human natural language in which the words are uttered through the mouth. Most human languages are generally spoken language. From the linguistic development, the spoken language is prior to the written language. The written language has been evolved or invented when we need the necessity of recording information and communicating from a long distance.

There are many letters in the world. But, the research works on these letters have been mainly studied in terms of spoken language. Until now, we have not differentiated between spoken and written language. For this reason, the written language has long been regarded as a replacement of spoken language and a secondary system of representation. Therefore, the consequences in the preceding works have been very confused with transcription and writing system. But, in recent works, we are able to see the written language is no longer described as a secondary system of spoken language.

For example, Vachek(1989) said that the spoken and written language have separately norms and have different utterances. He treated the relation between two languages, the written norm marked and the spoken norm unmarked.

We call the written language (also writing system) a graphemics. The graphemics treats written language as a linguistic system apart from phonemics which treats spoken language. Graphemics is mainly concerned with the properties which have its own domain and a structural description.

The purpose of this treatise<sup>1</sup> is to investigate the system of graphemes in modern Korean, focusing on Korean orthography<sup>2</sup>. To accomplish this purpose, this treatise is largely divided into two parts. Firstly, the writer is to define the grapheme which is the smallest unit in graphemics, and classify the graphemes. Secondly, based on graphemics, as comparing the linguistic level between the spoken and written language, the writer is to investigate into the system of graphemes of Korean orthography.

## **2. The system of graphemes in Korean orthography**

The graphemics has its own domain, apart from phonemics, the study of sound. But this graphemics has an analogy to phonemics. Graphemics is very often compared to phonemics. Phonemics is divided into segmental and suprasegmental phonemes.

Likewise phonemics, graphemics was constructed with letters and some features(Gleason, H. 1960:32). Every meaning in written language is expressed by visual means, either figural (shapes) or spatial(Mountford, J.D. 1990:704). That is to say, graphemics is not only made up of letters, which form the word, but also all visual means, such as symbol, number, punctuation marks, space and etc. More than anything else, the space is very important in interpreting the sentence in Korean. Therefore, the writer is to define graphemics as a writing system consisting of spelling system as well as non-spelling system expressed by visual means, besides the letters.

Graphemics has its own linguistic level by visual means. Just as phoneme is the smallest formal unit of phonemics, as grapheme is the smallest formal unit of graphemics. The phonemics is based on a system of phonic oppositions capable of differentiating meanings in the given community. As is well known, the system is called phonemic system and its units are known as phonemes. Analogously, graphemics must

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<sup>1</sup> In this treatise, Korean expressions are written in the Yale system of romanization except the proper noun

<sup>2</sup> Currently, the Korean orthography was established in 1988. The orthography is made up of 57 regulations and appendix for explaining the usage of punctuation marks.

be based on a system of graphic oppositions capable of differentiating meanings in the given community. The units of this system may be called grapheme. In this treatise, the writer is to define grapheme as “A grapheme is the smallest identifiable unit of the writing system of a given language which differentiates a meaning.”

And, the kinds of graphemes are as follows;

spelling grapheme : alphabet in forming the word

prosodic grapheme : the dot indicating the toneme in middle Korean

zero grapheme : space causing to separate the word in Korean

punctuation grapheme : punctuation marks causing a contrast in meaning

symbolic grapheme : the symbols which represent various meaning

numeric grapheme : number

The writer is to classify these graphemes above, whether graphemes are forming the word or not. Firstly, the writer is to call the graphemes of forming the word a primary grapheme, and the graphemes expressed by visual means a secondary grapheme.<sup>3</sup>

In this chapter, the writer is to investigate into the system of graphemes in Korean orthography, as explaining the difference between spoken and written language.

### *2.1. Primary grapheme*

The primary grapheme is the spelling graphemes forming the word. The spelling system is the central system in graphemics(Mountford, J. D., 1990:704). Spelling graphemes are classified into two main types, logographic and phonetic, on the basis of the ways they represent language. Logographic graphemes represent primarily the meaning of a word or morpheme. The writer is to call these graphemes a morphemic grapheme.

The phonetic graphemes are classified into two things; syllabic and phonemic graphemes. For example, the former is Japanese, the latter is Korean, and English. In a syllabic grapheme, one sign represents one syllable, and in a phonemic grapheme, an alphabet represents one phoneme.

The graphemes in Korean orthography includes in phonemic graphemes

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<sup>3</sup> These terms are analogized with phonemics. In phonemics, the segmental phoneme is called a primary phoneme, whereas the suprasegmental phoneme, such as pitch, stress and juncture is called a secondary phoneme.

There is a regulation of letters(camo, 字母) in the 4<sup>th</sup> regulation of Korean orthography. The cardinal letters are 24 letters; ㄱ *k*, ㄴ *n*, ㄷ *t*, ㄹ *l*, ㅁ *m*, ㅂ *p*, ㅅ *s*, ㅇ *ng*, ㅈ *c*, ㅊ *ch*, ㅋ *kh*, ㅌ *th*, ㅍ *ph*, ㅎ *h*, ㅏ *a*, ㅑ *ya*, ㅓ *e*, ㅕ *ye*, ㅗ *o*, ㅛ *yo*, ㅜ *wu*, ㅠ *yu*, ㅡ *u*, ㅣ *i*. And then, the other letters are combined with cardinal letters; ㄱㄱ *kk*, ㄷㄷ *tt*, ㅂㅂ *pp*, ㅅㅅ *ss*, ㅈㅈ *cc*, ㅏㅏ *ay*, ㅑㅑ *yay*, ㅓㅓ *ey*, ㅕㅕ *yey*, ㅏㅑ *wa*, ㅑㅓ *way*, ㅓㅕ *oy*, ㅓㅌ *we*, ㅌㅓ *wey*, ㅌㅣ *wi*, ㅓㅣ *uy*. These letters are compound letters. These letters is written to form a character.

The characteristic of Korean writing system is that except for a few grammatical morphemes in archaic texts, no letter may stand alone to represent elements of the Korean language. When *Hunminjeongeum* was created, the letters were combined into blocks which were called as a syllable. But we have been considered the same term with syllable and character. The writer suggested a new term *cacel*<sup>4</sup>(character, 字節) from the standpoint of written language as opposed to syllable of spoken language.(Kim, Sangtae 2008) That is to say, just as *umcel*(syllable) is a combination of phonemes, as *cacel*(character) is a combination of graphemes. Therefore, *umcel*(syllable) means the combination of onset, nucleus and coda, whereas *cacel*(character) means the combination of initial, medial and final.<sup>5</sup>

Let us consider the examples of explaining the difference between syllable and character in modern Korean.

For example, the grapheme <ㅇ> has two phonetic values. When ‘ㅇ’ is positioned in the initial of character, the phonetic value is zero, but when it is positioned in the final of character, the phonetic value is [ŋ]. For example, we consider 일어나다 *ilenata* [ilənata]. We are quickly able to know the number of syllable and think of the phoneme /ㅇ/ as the onset and the phoneme /ㄹ/ as the coda in the first syllable based on writing system. However, the phonetic value of <ㅇ> is actually zero in the first syllable, and the phonetic value of <ㄹ> in the final position of character is not the coda in the first syllable but onset in the second syllable. For this phenomenon, we should consider the principle of onset-first principle. Therefore, the /ㄹ/ of 일어나다 *ilenata* is not coda in the first syllable but the onset in the second syllable. Similarly, consider the 할머니 *halmeni* [halaməni] and 할아버지 *halapeci* [halabəci]. The unit of syllable in 할머니 *halmeni* corresponds to the unit of character. But, the /ㄹ/, // is not coda of the

<sup>4</sup> In most cases there is no difficulty in understanding, since the meaning is usually evident from context, but a terminological distinction would have given their exposition a clarity commensurated with their theory.(Gari K Ledyard 1998 : 194-195)

<sup>5</sup> I inferred this term, *cacel* from the excerpt *chocwucongsenghapisengca* (初中終聲合而成字) in the chapter of *Hunminjeongeum Congpepjang*. This means that the letters of initial, medial, and final are combined into *Ca*(character, 字).

first syllable but onset of the second syllable in 할아버지 *halapeci*. The phonetic value is closely connected with the position in the character. All the sounds are not positioned in the syllable. Of all the 19 consonants in modern Korean, the only [ŋ] is not located in the onset. Other consonants are located in the onset and actualized as a phonetic value of their own. And 27 letters are able to write in the final position of character. But the sounds of the coda are confined to 7 sounds; ㄱ[k], ㄴ[n], ㄷ[t], ㄹ[l], ㅁ[m], ㅂ[p], ㅇ[ŋ]. At this time, we find the fact that the spoken and written language is not always parallel.

The 19 consonants used in the Korean Standardization are as follows;

ㄱ[k] ㅋ[k'] ㄴ[n] ㄷ[t] ㄸ[t'] ㄹ[l] ㅁ[m] ㅂ[p] ㅃ[p'] ㅅ[s] ㅆ[s'] ㅇ[ŋ]  
 ㅈ[c] ㅉ[c'] ㅊ[ch] ㅋ[kh] ㅌ[th] ㅍ[ph] ㅎ[h]

The 21 vowels used in the Korean Standardization are as follows;

ㅏ[a] ㅑ[e] ㅓ[ja] ㅕ[je] ㅗ[ə] ㅛ[e] ㅜ[jə] ㅠ[je] ㅡ[o] ㅘ[wa] ㅙ[we]  
 ㅚ[we] ㅜ[jo] ㅛ[u] ㅜ[wə] ㅠ[we] ㅟ[wi] ㅠ[ju] ㅡ[i] ㅟ[ji] ㅣ[i]

And, let us consider the letters which were combined into character in Korean orthography. The letters used in Korean orthography are as follows;

the letters of the initial : ㄱ *k*, ㅋ *kk*, ㄴ *n*, ㄷ *t*, ㄸ *tt*, ㄹ *l*, ㅁ *m*, ㅂ *p*,  
 ㅃ *pp*, ㅅ *s*, ㅆ *ss*, ㅇ *ng*, ㅈ *c*, ㅉ *cc*, ㅊ *ch*, ㅋ *kh*, ㅌ *th*,  
 ㅍ *ph*, ㅎ *h*

the letters of the medial : ㅏ *a*, ㅑ *ay*, ㅓ *ya*, ㅕ *yay*, ㅗ *e*, ㅛ *ey*, ㅜ *ye*,  
 ㅠ *yey*, ㅡ *o*, ㅘ *wa*, ㅙ *way*, ㅚ *oy*, ㅜ *yo*, ㅛ *wu*, ㅜ *we*,  
 ㅠ *wey*, ㅟ *wi*, ㅠ *yu*, ㅡ *u*, ㅟ *uy*, ㅣ *i*

the letters of the final : ㄱ *k*, ㅋ *kk*, ㄴ *ks*, ㄴ *n*, ㄷ *nc*, ㄹ *nh*, ㄷ *t*, ㄹ *l*,  
 ㄷ *lk*, ㄹ *lm*, ㅂ *lp*, ㄷ *ls*, ㄹ *lth*, ㅍ *lph*, ㄹ *lh*, ㅁ *m*, ㅂ *p*,  
 ㅃ *ps*, ㅅ *s*, ㅆ *ss*, ㅇ *ng*, ㅈ *c*, ㅊ *ch*, ㅋ *kh*, ㅌ *th*, ㅍ *ph*, ㅎ *h*

These letters are combined to form a character. Therefore, these letters are called a grapheme. Of all the letters, the 19 consonantal letters are used in the initial of the character, 21 vowel letters are used in the medial of the character, 27 letters are used in the final of the character.

In the above letters, the letters which are written in both the initial and final at the same time are 16 letters; ㄱ, ㄴ, ㄷ, ㄹ, ㅁ, ㅂ, ㅅ, ㅇ, ㅈ, ㅊ, ㅋ, ㆁ, ㆆ, ㆏, ㆑, ㆒, ㆓. The letters which are only written in the initial are 3 letters; ㄸ, ㅃ, ㅆ. And, the letters which are only written in the final are 11 letters; ㄱ, ㄴ, ㄷ, ㄹ, ㅁ, ㅂ, ㅅ, ㅈ, ㅊ, ㅋ, ㆁ.

Now, we establish the system of graphemes in modern Korean orthography. The graphemes in Korean orthography are classified into two kinds. One is a simple grapheme, the other is a compound grapheme. The criteria are whether the letters are divided into two letters or not. That is to say, the criteria of classification are not phonetic but a system of letter. And then the simple and compound graphemes are classified into consonant and vowel letters. For example, although the letter ‘ㅋ kh’ is phonetically complex sounds [kh], the letter is included in a simple grapheme. Likewise, the consonant letters, ㆁ, ㆆ are phonetically aspirated derivatives of ㄷ, ㅂ, respectively, formed by combining the unaspirated letters with an extra stroke. This extra stroke does not solely function as a grapheme. And, the double letters are, ㄸ, ㄸ, ㅃ, ㅃ and ㅆ, ㅆ do not represent geminate consonants, but rather a “tense” phonation.

And, the vowel letters, ㅏ, ㅑ, ㅓ, and ㅕ are derived by means of short stroke to signify iotation (a preceding i sound before ㅏ, ㅑ, ㅓ, ㅕ). These four vowel letters are phonetically diphthong vowels, but graphically are going to include simple grapheme, because the iotating stroke taken out of these letters does not represent [y]. In fact, there is no separate grapheme for [y].

Also, in modern Korean, the vowel sounds, ‘ㅗ, ㅛ, ㅜ, ㅠ’ are included in simple vowels. But these sounds were originally diphthongs, but have evolved into simple vowels. But in this treatise, the writer is going to include these letters in compound vowel letters graphically.<sup>6</sup>

Therefore, the letters which are written in the medial are classified into two classes. One is simple vowel letters; ㅏ, ㅑ, ㅓ, ㅕ, ㅗ, ㅛ, ㅜ, ㅠ. The other is compound vowel letters; ㅝ, ㅞ, ㅟ, ㅠ, ㅡ, ㅢ, ㅣ, ㅤ, ㅥ, ㅦ, ㅧ.

The results are as follows;

### Simple grapheme

- Consonant letters : ㄱ, ㄴ, ㄷ, ㄹ, ㅁ, ㅂ, ㅅ, ㅇ, ㅈ, ㅊ, ㅋ, ㆁ, ㆆ, ㆏, ㆑, ㆒, ㆓
- Vowel letters : ㅏ, ㅑ, ㅓ, ㅕ, ㅗ, ㅛ, ㅜ, ㅠ

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<sup>6</sup> Cf. In Korean orthoepy,  
 simple vowel : ㅏ [a] ㅑ [ɛ] ㅓ [ɔ] ㅕ [e] ㅗ [o] ㅛ [we] ㅜ [u] ㅠ [wi] ㅡ [∅] ㅣ [i]  
 diphthong vowel : ㅝ [ja] ㅞ [jɔ] ㅟ [jo] ㅠ [ju] ㅡ [je] ㅢ [je] ㅣ [wa] ㅤ [we] ㅥ [wɔ] ㅦ [we] ㅧ [∅j]



The results of compound grapheme are as follows;

#### Consonant letters

digraph double letters : ㄲ, ㄸ, ㅃ, ㅆ, ㅉ

double clusters : ㄱㅅ, ㄴㅌ, ㄴㅇ, ㄹㅇ, ㄹㅁ, ㄹㅂ, ㄹㅅ, ㄹㅆ, ㄹㅇ, ㅁㅂ

#### Vowel letters

digraph double clusters : ㅏ, ㅑ,

iotated letters : ㅓ, ㅕ, ㅗ, ㅛ, ㅜ, ㅠ, ㅡ, ㅟ

trigraph letters : ㅛ, ㅜ

## 2.2. Secondary grapheme

The secondary graphemes are not concerned with forming the word. These are classified into two kinds. One is a figural grapheme, the other is a spatial grapheme. The figural graphemes function as letters do. These graphemes include punctuation, symbolic, numeric and prosodic graphemes. The prosodic grapheme is marked by a dot in middle Korean. This grapheme indicates the toneme. But these marks have disappeared in most dialects of Korean. And the spatial grapheme is called zero grapheme in this treatise.

In this part, the writer is to investigate into the secondary grapheme used in Korean orthography.

### 2.2.1. zero grapheme

The 2<sup>th</sup> regulation in Korean orthography is that the space should be inserted between the words. This means that it is impossible to insert a space and another word within a word. In running texts, space is placed before each free word. Thus, all suffixes are attached to the respective stems, and all particles to the heads. Therefore, a word is defined as the minimal free form and consists of one or more morphemes, which is to say ‘나라 *nala*, 사랑 *salang*, 손톱 *sonthop*’, and also cannot be separated. The space is very important in understanding the sentence.

Let's take examples such as ‘작은아버지 *cakunapeci*’ and ‘작은 아버지 *cakun#apeci*’. As the former means a younger brother of father's, another word cannot be inserted into the former. Whereas, we can insert another word between ‘작은 *cakun*’ and ‘아버지 *apeci*’. This is made up of two words, hence forming a phrase. The meaning of this phrase is changed by the word of inserting between two words. In Korean orthography, the spacing marks the boundary of word.

Another example, the sentence, “아버지가 방에 들어 가신다 *apecika pangey tule kasinta*” means *Father enters the room*. But “아버지 가방에 들어가신다 *apeci kapangey tule kasinta*” means *Father enters the bag*. The meaning of two sentences is differentiated by space. The writer is to call space a zero grapheme.

The space in written language corresponds with pause in spoken language. So, the space does not always agree with a pause. The writer proposed the phonological word in terms of phonology(Kim, Sangtae 2006b). The morphological word is separated from other words by way of a space, whereas the phonological word is separated from other words by way of a pause. Phonological word is marked by the potential pause which can be realized. And the morphological word can be strongly divided because the abundance of phonological separation, in this case the morphological word is two phonological words. For example, And the forms such as ‘한 *han*, 맨 *mayn*’, have two functions as a determiner and a derivational affix. When two forms were used as a determiner, the space should be inserted between two words; for example, ‘맨 꼭대기 *mayn#kkotayki* (on the highest)’, ‘한 개 *han#kay*(a piece)’. But when these forms were used as a derivational affix, especially prefix, these prefixes were forced to attach to roots; for example ‘한핏줄 *han-phicwul*(one blood)’, ‘맨몸 *mayn-mom*(a naked body)’. When these forms are used as a prefix, the pause is inserted into two characters. Therefore, we could know two phonological words, though the forms are visually a morphological word. Also when two morphological words can be pronounced without a pause, this phrase could be one phonological word. For example, the phrase ‘할 수 있다 *hal#swu#issta*(can do)’ is morphologically three words, but phonologically one word because there is no pause between the forms.

Therefore, the zero grapheme is very important in understanding the texts in written language as opposed to a pause in spoken language.

### 2.2.2. Punctuation grapheme

The punctuation marks are very important in communicating with letters as opposed to suprasegmental phonemes in spoken language. That is to say, the spoken language has an emphasis on the suprasegmental features such as intonation, stress, pitch and accent, whereas the written language has an emphasis on punctuation marks(Chang, Sowon 1986:198-199). These punctuation marks carry the message which is necessary to communicate. Also, the spoken language is varied in its meaning according to length, pitch, stress, and etc(Sin, Jiyoung 2004:5).

Therefore, the writer is to include the punctuation marks into a grapheme. And this grapheme is to call a punctuation grapheme.

The usage of punctuation marks is regulated in the appendix of Korean orthography established in 1988. The punctuation is a method of interrupting periodically in reading a text and providing punctuation marks in writing a text. The punctuation marks in Korean orthography made up of a period, question, exclamation, comma, middle point, colon, quotation, parenthesis, slash, dash, emphasis and veiling marks<sup>7</sup>.

### 3. Conclusion

The writer was to investigate into the system of graphemes in modern Korean, focusing on Korean orthography. Until now, we have very confused with spoken and written language. For this reason, the written language has been considered as a secondary system of spoken language and has not been acknowledged as its own linguistic system. And the terms are very confused with phoneme and grapheme.

In conclusion, this treatise tries to establish the system of grapheme as concentrating on the difference between spoken and written language in modern Korean. The starting point of this treatise was that the spoken and written language has its own domain and system separately.

The summary discussed in this treatise is as follows.

First, the writer defined the graphemics, the study of writing, as a writing system consisting of spelling system as well as non-spelling system expressed by visual means, besides the letters. And the writer defined the grapheme, the smallest unit in graphemics, as a smallest identifiable unit of the writing system of a given language which differentiates a meaning, and then classified into two things; primary and secondary grapheme in analogous with phonemics.

Second, based on graphemics, this treatise is to systematize the graphemes in Korean orthography. Firstly, the writer is to systematize the graphemes which form a word. This grapheme is concretely into phonemic grapheme. Especially, the writer is to establish the system of grapheme in comparing the character with the syllable which is combined with phonemes in spoken language. Secondary, the secondary graphemes used in Korean orthography are zero and punctuation graphemes. The zero grapheme is a space in written language and is opposed to a pause in spoken language. Just as a space functions of separating the morphological word, as a pause functions of

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<sup>7</sup> The emphasis mark is a ‘, °’. These marks put a stress on the letter to indicate a important part. And the veiling mark is a ××, ○○. These marks are intentionally to disclose the point.

separating a phonological word. The morphological word does not always coincide with a phonological word. Therefore, we could know that the zero grapheme is very important in understanding texts. Another secondary grapheme is punctuation grapheme. This grapheme is opposed to suprasegmental phonemes. That is to say, the punctuation marks are a means for communicating message in written language, whereas the suprasegmental phonemes are very important in conveying a message. At this point, we also realized the importance of punctuation marks.

To sum up, the writer thinks that it is very important to recognize the difference spoken and written language. And when graphemics and phonemics develop together with at the same time, this is very helpful in teaching language to the students and foreigners. Also, this study is expected to contribute to transform speech-to-grapheme in Korean Natural Language Processing in Computer.

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# L'inchoativité en japonais dans le cadre du TAM

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## Résumé

Le présent article a pour objectif d'examiner l'inchoativité en japonais, notamment les valeurs du verbe <なる naru> (devenir) dans le cadre de la typologie linguistique du Temps Aspect Mode (TAM) et de mettre en lumière la construction d'inchoativité, en observant l'association aux marqueurs marginaux dans la phrase et en comparant <なる naru> avec les deux marqueurs d'inchoativité comme <始める hajimeru> (commencer) et <ところ tokoro> (endroit).

**Mots clés : inchoativité, aspect, naru (devenir), japonais, typologie, achèvement**

## 1 なる naru

La forme <なる naru> est utilisée en japonais comme suivant.

non-passé	なる na-ru
passé	なった nat-ta
connecteur	なって nat-te

(1) 彼は大統領になった。

Kare-wa daitooryoo-ni nat-ta

Il-nom président-à devenir-passé

Il est devenu président.

En japonais, il y a une construction des verbes composés grâce à la grammaticalisation de certains verbes. Ce type de construction se caractérise par deuxième verbe final (V2) avec marqueur définitif et premier verbe connectif (V1) ou premier nom connectif (N1). Dans les exemples suivants, le deuxième verbe final n'a plus son sens littéral. En plus, il devient l'auxiliaire, qui marque l'aspect temporel.

食べるようになる taberu-yoo-ni-naru

V1	nom	particule	V2
食べる	よう	に	なる
taberu	yoo	ni	naru-non-passé
(manger)	(état)	(à)	(devenir)

(2) 毎日、肉を食べるようになった。(ibid.)

mainichi niku-o taberu-yoo-ni-nat-ta  
tous les jours viande-acc manger-état-ni-NARU-passé  
J'ai commencé à manger de la viande tous les jours. (je constate)

Lorsque <なる naru> est utilisé en tant que l'inchoativité, <なる naru> joue un rôle comme « j'ai constaté que » « j'ai vu que » discuté par Tournadre (2004 : 53). C'est une différence entre <なる naru> et <始める hajimeru> (commencer) dans la situation suivante. Dans les verbes composés, <なる naru> est difficilement compatible avec l'adverbe <juste maintenant>, tandis que <始める hajimeru> est bien associé.

(3) a この子は本を読むようになった。

(capacité acquise) (graduel, de plus en plus) (on peut continuer et répéter)

kono-ko-wa hon-o yomu-yoo-ni-nat-ta  
Cet enfant-nom livre-acc lire-état-à-NARU-passé  
Cet enfant a commencé à lire le livre. (le locuteur constate)  
/-----R/----- T。 →

b この子は\*ちょうど今本を読むようになった。

Kono-ko-wa \*choodo-ima hon-o yomu-yoo-ni-nat-ta  
cet-enfant-nom juste-maintenant livre-acc lire-état-à-NARU-passé  
Cet enfant a commencé à lire le livre. (juste maintenant)

c この子はちょうど今本を読み始めた。

kono-ko-wa choodo-ima hon-o yomi-hajime-ta  
cet-enfant-nom juste-maintenant livre-acc lire-commencer-passé  
Cet enfant a commencé à lire le livre. (voici)  
/-----R T。 / →

## 2 Marque-Pucheu (1999)

Marque-Pucheu (1999: 240-241) présente deux catégories d'inchoativité. La première « l'inchoativité instantanée », indique une transition vers un état ou vers une action, la seconde « l'inchoativité graduelle » indique le début d'une transformation. L'adverbe « longuement » (J.-C. Ascombe 1990) nous permet de séparer ces deux catégories de verbes.

- (4) a Le papier est en feu. (l'inchoativité instantanée : état)  
b Le papier prend feu/Max endosse son pardessus.  
(l'inchoativité instantanée : action)  
c Le papier noircit.  
(Le papier (commence à être + devient) de plus en plus noir)  
(l'inchoativité graduelle)  
d Le papier noircit longuement.  
e \*Le papier prend longuement feu/\*Max endosse longuement son pardessus.

## 3 Bourdin (1999)

Bourdin (1999: 208-209) propose la notion de la « récence » en analysant typologiquement beaucoup de langues (japonais inclus). Cependant, Bourdin n'analyse pas la « récence » en tant que l'inchoativité.

- (5) これから勉強するところだ。  
kore kara benkyoo suru tokoro da  
maintenant abl études faire lieu/moment copule : PRES  
Maintenant je suis sur le point de me mettre à étudier.  
T<sub>o</sub> → -----R/-----

## 4 Cohen (1989) et Tournadre (2004)

Concernant « l'accompli », Cohen (1989 : 62) ajoute la précision suivante :

« la délimitation de la relation prédicative met en œuvre dans de nombreuses langues

des éléments divers qui focalisent l'attention sur l'achèvement (du procès) certes, mais sur son début. »

Tournadre (2004 : 32) remanie cette définition, donnant l'exemple ainsi que le schéma illustrant « l'accompli » « l'inchoatif ».

(6) Claude a marché à l'âge de deux ans. (Claude a commencé à marcher)

/-----R/----- T<sub>o</sub> → Passé accompli

Dans cette situation, on peut continuer et répéter le procès de marcher comme « capacité » acquise. Je définis cette notion comme « inchoativité de capacité acquise ».

## 5 Redéfinition d'inchoativité

Je redéfinit la notion « inchoativité » comme suivant : une action et un état vers le commencement (pré-processuelle), ou une action et un état déjà commencé, soit en cours, soit raté.

Nous pouvons diviser cette notion en trois catégories. La première « inchoativité de faillite (tentative) » indique le seuil final d'une action ou d'un état, qui tend vers l'achèvement, mais échoue juste avant. La deuxième, « inchoativité juste avant l'achèvement », indique le seuil final d'une action ou d'un état en cours, et qui est sur le point de s'achever, sans l'être encore. Le troisième « inchoativité pré-processuelle » indique qu'une action ou un état est sur le point de commencer, sans que cela soit encore le cas.

(7) a J'ai failli être tué. (être sauvé, échapper à la mort) (faillite)

/----- seuil final ----- échoué R/----- T<sub>o</sub> →

b Le chien est sur le point de mourir.

(le chien commence à mourir, mais pas encore)

(juste avant l'achèvement)

/----- seuil final T<sub>o</sub> → ----- R/

c Maintenant je suis sur le point de me mettre à étudier.

(pré-processuelle) (pas encore commencé)

T<sub>o</sub> → -----R/-----

## 6 Les marqueurs <こと koto> <よう yoo> <そう soo>

Il existe en japonais trois marqueurs : <こと koto> (projet ou résultat), <よう yoo> (changement de manière vers un état de faisabilité), et <そう soo> (conjecture fondée sur l'observation d'une réalité extérieure ou une impression). Ces trois marqueurs sont bien associés à <なる naru>.

(8) a 彼女は若い弁護士と結婚することになった。

(c'est pas l'inchoativité) (prévu)

Kanojo-wa wakai bengoshi-to kekkonsuru-koto-ni-nat-ta

Elle-nom jeune avocat-avec se marier-projet-ni-devenir-passé

Elle va se marier avec un jeune avocat.

/-----R projet /----- T。 → -----R marier /

b この子は2歳で歩けるようになった。(capacité acquise)

Kono-ko-wa ni-sai-de aru-keru-yoo-ni-nat-ta

Cet-enfant-nom deux-ans-à marcher-capable-YOO-à-devenir-passé

Cet enfant a marché à l'âge de deux ans. (capable de marcher)

/-----R/----- T。 →

c 犬が死にそうになっている。(juste avant l'achèvement)

inu-ga sini-soo-ni-nat-te-iru

chien-nom mourir-SOO-ni-devenir-connecteur TE-prog

Le chien est sur le point de mourir.

/----- seuil final T。 → ----- R/

'soo-ni-naru' n'est pas utilisé en tant que verbe de volition résultatif, lorsque le sujet est première personne. En revanche, avec 'tokoro' (endroit), cela marche bien en japonais.

(8) d \*僕は出かけそうになっている。

\*boku-wa dekake-soo-ni-nat-te-iru

je-suj sortir-SOO-ni-devenir-connecteur TE-prog

Je suis sur le point de sortir.

(8) e 僕は出かけるところだ。

boku-wa dekakeru-tokoro-da

je-suj sortir-endroit-copule

Je suis sur le point de sortir.

## 7 L'association de *なる* *naru* aux différents types de procès

Cette section analyse l'association de *<なる naru>* (devenir) au procès d'achèvement en observant les différences parmi les trois marqueurs dans la phrase et en comparant *<なる naru>* avec un autre marqueur d'inchoativité *<始める hajimeru>* (commencer). Un classement des types de procès est proposé par Vendler (1967 : 106) et revu et corrigé par Recanati C. et Recanati F. (1999 : 167). Tournadre (2004 : 23) y ajoute la distinction entre achèvement et procès ponctuel.

### 7.1 L'association de *<なる naru>* au verbe « se marier »

*<なる naru>* associé à *<結婚する kekkonsuru>* (se marier) signifie le projet du sujet. Dans ce cas, *<なる naru>* est utilisé dans un contexte prévu.

Le procès de *<se marier>* est difficilement compatible avec le marqueur *<よう yoo>*. Le marqueur composé *<ようになる yoo-ni-naru>* est essentiellement bien associé au procès d'état ou d'habituel. Normalement, on ne peut pas continuer et répéter le procès d'achèvement *<se marier>* sauf le divorce.

(9) \*彼女は若い弁護士と結婚するようになった。

Kanojo-wa wakai bengoshi-to \*kekkonsuru-yoo-ni-nat-ta

Elle-nom jeune avocat-avec se marier-YOO-à-devenir-passé

\*Elle commence à se marier avec un jeune avocat.

Cependant, *<ようになる yoo-ni-naru>* est associé à *<結婚する kekkonsuru>*, lorsque le sujet s'est marié avec plusieurs avocats.

(10) 彼女は次々と若い弁護士と結婚するようになった。(itératif)

Kanojo-wa tugitugito wakai bengoshi-to kekkonsuru-yoo-ni-nat-ta

Elle-nom l'une après l'autre jeune avocat-avec se marier-YOO-à-devenir-passé

Elle commence à se marier avec plusieurs jeunes avocats l'un après l'autre

/-----R/.../-----R/.../-----R/... T。 →

avocat avocat avocat

*<始める hajimeru>* n'est pas associé à *<結婚する kekkonsuru>*, lorsque le sujet est singulier. En revanche, deux sont compatibles lorsque le sujet est pluriel dans la

situation « itératif ».

(11) a 彼女は若い弁護士と\*結婚し始めた。

Kanojo-wa wakai bengoshi-to \*kekkonshi-hajime-ta  
Elle-nom jeune avocat-avec se marier-commencer-passé  
\*Elle a commencé à se marier avec un jeune avocat.

b 彼女たちは次々と結婚し始めている。

Kanojo-tachi-wa tugitugito kekkonshi-hajime-te-iru  
Elle-pluriel-nom l'une après l'autre se marier-commencer-te-continuatif  
Elles commencent à se marier l'une après l'autre. (itératif)

/-----R/.../-----R/.../-----R/... T。 →  
                  elle                    elle                    elle

## 7.2 L'association de <なるnaru> au verbe « mourir »

<なるnaru> associé à <死ぬshinu> (mourir) est utilisé dans un contexte imprévu.

(12) a 彼は死にそうになった。(faillite)

kare-wa shini-soo-ni-nat-ta  
il-nom mourir-SOO-ni-NARU-passé  
Il a failli mourir. (être sauvé, échapper à la mort)  
/----- seuil final ----- échoué R/----- T。 →

b 彼は死にそうになっている。(juste avant l'achèvement)

kare-wa shini-soo-ni-nat-te-iru  
il-nom mourir-SOO-ni-NARU-conjec-continuatif  
Il me semble que/J'ai bien l'impression qu'il va bientôt mourir.  
/----- seuil final ----- T。 → pas encore R/

Cependant, <なるnaru> associé à <死ぬshinu> (mourir) est utilisé dans un contexte « prévu » comme suivant.

(13) 患者は病気でもうすぐ死ぬことになっている。(juste avant l'achèvement)

Kanja-wa byooki-de moosugu shinu-koto-ni-nat-te-iru  
Patient-nom maladie-caus bientôt mourir-projet-à-devenir-conjec-continuatif  
Ce patient va bientôt mourir à cause de maladie. (prévu)  
/----- seuil final T。 ----- → pas encore R/

<mourir> n'est pas compatible avec le marqueur <よう yoo>. Le marqueur composé <ようになる yoo-ni-naru> est essentiellement bien associé au procès d'état ou habituel. On ne peut absolument pas continuer et répéter le procès d'achèvement « mourir ».

(14) 彼は事故で\*死ぬようになった。

Kare-wa jiko-de \*shinu-yoo-ni-nat-ta

Il-nom accident-caus mourir-médiatif-ni-devenir-passé

Il commence à mourir dans un accident.

En revanche, deux sont compatibles lorsque le sujet est pluriel dans la situation « itératif » comme suit.

(15) 多くの人々が事故で死ぬようになった。

Ookuno-hito-ga jiko-de shinu-yoo-ni-nat-ta

Beaucoup-gens-nom accident-caus mourir-médiatif-à-devenir-passé

Beaucoup-gens commencent à mourir dans des accidents.

/-----R/.../-----R/.../-----R/... T。 →

Également en cas de <始める hajimeru> (commencer), deux sont compatibles lorsque le sujet est pluriel, tandis que le sujet singulier n'est pas compatible.

(16) a 患者は病気で\*死に始めた。

kanja-wa byooki-de \*shini-hajime-ta

patient-nom maladie-caus mourir-commencer-passé

\*Le patient a commencé à mourir à cause de maladie.

b 患者たちは次々と病気で死に始めている。

Kanja-tachi-wa tugitugito byooki-de shini-hajime-te-iru

Patient-pluriel-nom l'un après l'autre maladie-caus mourir-commencer-te-iru

Les patients commencent à mourir l'un après l'autre à cause de maladie.

/-----R/.../-----R/.../-----R/... T。 →

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# A propos des noms de propriété en coréen

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## Résumé

Le présent article se propose de mettre en évidence les propriétés syntactico-sémantiques des noms de propriété en coréen comme *yonggi*(courage), *chameulseong*(patience), *seongkyeok* (caractère), *muge*(poids), etc. et de montrer la nécessité de répartir ces noms en deux groupes : noms de propriétés « identifiantes » et noms de propriétés « attributives ». Les premiers, qui sont du type *seongkyeok*(caractère) et *muge*(poids), permettent de cerner le type de propriétés dont on veut parler, alors que les seconds, représentés par les noms du type *yonggi*(courage) et *chameulseong*(patience), « parlent » eux-mêmes des propriétés. Pour justifier cette idée, nous mettons en lumière la différence des comportements syntaxiques de ces deux types de noms : les noms de propriétés « identifiantes » peuvent apparaître en position de N1 dans la construction *N0-ga N1-ga (N2-ida + Adj)* alors que ce n'est pas le cas pour les noms de propriétés « attributives » ; ceux-ci n'apparaissent en effet qu'en position de N2. Par ailleurs, nous montrons diverses sous-classes de ces deux types de noms et, ce faisant, nous révélons également la corrélation syntactico-sémantique de ces deux types de noms : si, dans la construction *N0-ga N1-ga (N2-ida + Adj)*, N1 relève de la classe <Pr. identifiantes de X>, N2 et Adj. appartiennent à la classe < Pr. attributives de X >.

**Mots-clés :** noms de propriété, propriétés « identifiantes », propriétés « attributives », noms prédicatifs.

## 1. Introduction

La présente étude se propose de mettre en évidence les propriétés syntactico-sémantiques des noms de propriété en coréen comme *yonggi*(courage), *chameulseong* (patience), *seongkyeok*(caractère), etc. et de montrer la nécessité de répartir ces noms en deux groupes : les noms de propriétés « identifiantes » et ceux de propriétés

« attributives ».

Avec le développement de l'industrie langagière, le souci de décrire les phénomènes linguistiques n'a cessé d'augmenter. Ce qui a conduit les linguistes, quelle que soit la théorie qu'ils adoptent, à tenter de faire la description linguistique la plus systématique et la plus formelle possible. Les travaux menés dans le cadre du lexique-grammaire ou des classes d'objets s'inscrivent dans ce courant de recherche. Les travaux sur le lexique-grammaire, partant de l'idée que l'unité minimale de sens n'est pas un mot isolé mais une phrase simple – celle-ci étant définie comme un prédicat muni de ses propres arguments – consiste à construire le lexique d'une langue en décrivant de façon exhaustive les propriétés syntaxiques – distributionnelles et transformationnelles – d'un prédicat au niveau de la phrase simple.<sup>1</sup>

Quant aux travaux concernant les classes d'objets qui s'inscrivent dans la même perspective, ils consistent à compléter le lexique en renforçant l'aspect sémantique, autrement dit en fournissant au lexique autant d'informations sémantiques que syntaxiques. Ainsi les travaux sur les classes d'objets proposent-ils de décrire les mots, que ce soit des prédicats ou bien de simples arguments, en les classifiant selon leurs propriétés sémantiques et syntaxiques. C'est-à-dire que, du point de vue des classes d'objets, construire le lexique d'une langue revient à construire les classes sémantiques des mots à partir de leurs propriétés syntaxiques : leurs classes d'objets.<sup>2</sup>

C'est dans cette perspective que notre étude se situe et qu'elle se concentre sur la construction des classes d'objets en coréen. Pour construire les classes des prédicats, en particulier celles des prédicats nominaux, il nous faut différencier, au sein des classes des noms d'états, les classes des noms de propriétés de celles des noms d'autres types ; ce faisant, nous sommes également amenés à distinguer ces noms de propriété en deux groupes, et cela pour mettre en évidence la corrélation existant entre les classes des prédicats nominaux et celles des prédicats de types verbaux et adjectivaux. C'est cette démarche qui sera présentée dans ce qui suit.

Pour cela, nous allons tout d'abord présenter la motivation de cette étude et définir les noms de « propriétés » en nous fondant sur leurs propriétés syntactico-

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<sup>1</sup> Voir notamment Gross, M. (1975, 1981).

<sup>2</sup> Voir entre autres Le Pesant, D. & Mathieu-Colas, M. (1998) ; Gross, G. (1992, 1994, 1996).

sémantiques. Ensuite, nous allons montrer qu'il y a deux types de noms de propriétés qui se distinguent par des comportements syntaxiques différents : noms de propriétés « identifiantes » et noms de propriétés « attributives ». Pour finir, nous présenterons différentes sous-classes appartenant à ces deux types de noms ainsi que l'intérêt de leur établissement.

## **2. Classes d'objets en coréen**

### *2.1. Construction des classes d'objets en coréen*

Depuis 2001, nous travaillons sur l'établissement des classes d'objets des noms coréens en vue de représenter de façon formelle et systématique les informations sémantiques dans le Dic *Sejong*. Le Dic *Sejong* est le dictionnaire électronique du coréen qui a été construit en 10 ans (1998~2007) et qui contient 600 000 entrées : 150 000 entrées dans le Dic « détaillé » et 450 000 entrées dans le Dic « élémentaire ».<sup>3</sup>

Les classes des noms servent dans le Dic *Sejong* à discriminer et représenter les différents sens (ou emplois) des entrées nominales et à coder les restrictions sur la sélection des arguments pour les entrées d'emploi prédicatif : les entrées verbales, adjectivales et nominales d'une part et, d'autre part, les entrées syntagmatiques comme les collocations, les expressions figées et différents types de syntagmes nominaux.

Actuellement, une étude est en cours pour établir les classes d'objets des adjectifs et des verbes, une étude qui consiste à comparer les classes des noms avec les différents types de procès représentés par les adjectifs et les verbes et à élaborer les classes des adjectifs et des verbes en complétant et réorganisant les classes des noms qui existent.

### *2.2. Problèmes soulevés lors de la construction des classes d'objets en coréen*

En menant les travaux desquels nous venons de parler, nous avons constaté deux choses. La première est qu'il y a une corrélation entre les classes des noms prédicatifs et

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<sup>3</sup> Voir pour plus de détails Hong, C.-S. & Lee, S. H.(2003) ; Lee, S. H. & Hong, C.-S.(2008).

celles des verbes et des adjectifs : les classes de <valeurs des propriétés> et d'<états> établies pour les substantifs sont en grande partie également valides pour les adjectifs prédicatifs, tandis que les classes d'<actions> sont de leur côté valides pour les verbes prédicatifs. La seconde constatation est qu'une grande partie des classes d'<objets (noms) abstraits> révèlent des caractéristiques difficiles à traiter.<sup>4</sup> Ces classes n'ont pas de classes correspondantes représentées par les adjectifs et elles contiennent des noms qui sont étroitement liés aux types de procès « propriétés ».

A partir de ces constatations, nous avons été amenés à nous poser deux questions : quelles sont les « propriétés » et comment traiter les noms de ce type qui ont été répartis sous l'hyperclasse d'<objets (noms) abstraits> ? Pour ce qui est de la première question, elle revient à se demander lesquels des noms présentés en (1) sont vraiment des noms de propriétés :

- (1) a. *saek* (couleur) vs *parang* (bleu)  
b. *banghyang* (direction) vs *dong* (est)  
c. *seongyeok* (caractère) vs *chameulseong* (patience)

Pour ce qui est de la seconde question, elle revient à demander s'il ne faudrait pas intégrer ces classes aux hyperclasses de prédicats qui représentent différents types de procès ; et si oui, comment les répartir en fonction des classes <valeurs des propriétés>.

### 3. Noms de propriétés

#### 3.1. Propriétés vs Etats

A l'heure actuelle, il est bien connu qu'il existe des noms fonctionnant comme

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<sup>4</sup> L'hyperclasse d'<objets(noms) abstraits> renvoie à une hyperclasse regroupant différents noms abstraits dont la prédictivité n'a pas été suffisamment attestée et qui sont par exemple : *gili*(longueur), *geori*(distance), *gyumo*(dimension), *muge*(poids), *yang*(quantité), *jeongdo*(degré), *banghyang*(direction), *saek*(couleur), *seongkyeok*(caractère), *bangbeop*(méthode), *gyeongchi*(paysage), *sangwhang* (situation). Les noms de ce type sont couramment utilisés pour étiqueter des classes alors qu'ils se différencient - par leurs comportements syntaxiques - des noms appartenant aux classes en question :

- *saek*(couleur) vs *parang*(bleu), *ppalgang*(rouge), etc.  
- *banghyang* (direction) vs *dong*(est), *nam(sud)*, etc.

des prédicats et que ces noms peuvent représenter différents types de procès en composant la phrase à l'aide des verbes supports. Les types de procès ainsi représentés se distinguent en gros en trois catégories : les états, les actions et les événements.

- (2) a. *Paul a de la patience.*  
b. *Paul a fait une étude sur la vie des immigrants.*  
c. *Il y a eu un grave accident sur l'autoroute A6.*

Ainsi, ces distinctions servent de point de repère lorsque l'on classe les noms prédicatifs en vue de la description de leurs propriétés syntaxiques et sémantiques. A titre d'exemple, Anscombe (1995 :45), voulant décrire les noms de sentiment et d'attitude, distingue avant tout les états en deux types : les états « permanents et constitutifs » et les états « accidentels et transitoires ».

D'après lui, les premiers renvoient à un type de procès non processifs comme à des qualités attribuées à des personnes ou à des choses ou des jugements portés sur elles qui sont représentés par des noms tels que *blondeur, mineur, gentillesse, intelligence, méchanceté*, etc. En revanche, les seconds dénotent un type de procès processifs comme des états ayant une certaine durée qui sont représentés par des noms tels que *maladie, ivresse, absence, silence*, etc. C'est ainsi que seuls les seconds sont susceptibles de se combiner avec les expressions de temps et de se soumettre à une interprétation événementielle :

- (3) a. *\*Pendant la blondeur de ses cheveux, Léa avait un succès fou auprès des hommes.*  
b. *\*A peine deux minutes après la gentillesse, il a changé brusquement d'attitude.*

- (4) a. *Pendant sa maladie, Léa ne voyait aucun de ses amis.*  
b. *A peine après deux minutes de silence, les enfants ont recommencé à faire du bruit dans la classe.*

En tenant compte de ces caractéristiques, Anscombe nomme respectivement ces

deux types d'états : propriétés intrinsèques et propriétés extrinsèques.

Nous admettons, nous aussi, l'existence des deux types d'états (ou de propriétés) différents. Mais nous qualifions, quant à nous, les propriétés intrinsèques seules de *propriétés* et appelons *états* les propriétés extrinsèques. Cela pour éviter une éventuelle confusion terminologique mais aussi pour suggérer qu'il vaudrait mieux donner le nom d'*états* que celui de *propriétés* aux états transitoires qui sont processifs.

### 3.2. Définition des noms de propriétés

Nous définissons donc les noms de propriétés en coréen comme ce qui suit : sur le plan sémantique, il s'agit de noms prédicatifs dénotant un type de procès qui s'analyse comme représentant des états « permanents et constitutifs » tels que des qualités attribuées à des personnes ou à des choses ou des jugements portés sur elles ; sur le plan syntaxique, ces noms se caractérisent par leur apparition en position de  $N_1$  dans la construction à support *issda* (= : *il y a* ou *avoir*) :  $N_0-i/ga + N_1-i /ga issda$ .

Il faut dire ici qu'il existe, en coréen, deux types de prédications représentant les propriétés : prédication adjectivale et prédication nominale. Pour ce qui est de la prédication adjectivale, elle est assumée par la seule construction du type *N0-ga+Adj.*, où l'adjectif se conjugue comme un verbe :

- (5) a. *Minu-ga chakha-da.* [= : Minu est gentil]  
Minu-Nom (être gentil)-Pré-Déc  
b. *Mina-ga yeppeu-da.* [= : Mina est jolie]  
Mina-Nom (être jolie)-Pré-Déc  
c. *Insu-ga yonggamha-da.* [= : Insu est courageux]  
Insu-Nom (être courageux)-Pré-Déc

En revanche, la prédication nominale est assumée par deux constructions à support : construction à support *issda* (= : *il y a* ou *avoir*) *N0-ga+N1-ga+issda* et construction à support *ida* (= : être) *N0-ga+N1-ida*. En voici quelques exemples :

- (6) a. *Minu-ga chameulseong-i iss-da.*

Minu-Nom patience-Nom il y a-Pré-Déc

[=: Minu a de la patience < Minu est patient.]

b. *Mina-ga jaeneung-i iss-da.*

Mina-Nom talent-Nom il y a-Pré-Déc

[=: Mina a du talent.]

c. *Insu-ga yonggi-ga iss-da.*

Insu-Nom courage-Nom il y a-Pré-Déc

[=: Insu a du courage.]

(7) a. *Minu-neun geopjaingi-ida.*

Minu-Nom peureux(n.)-être-Pré-Déc

[=: Minu est un peureux.]

b. *Mina-neun miin-ida.*

Mina-Nom (belle personne)-être-Pré-Déc

[=: Mina est une belle femme.]

c. *Gyeonggi-ga yudongjeok-ida.*

Situation économique-Nom fluctuation-être-Pré-Déc

[=: La situation économique est fluctuante.]

Cela étant, les noms *yonggi*(courage) et *chameulseong*(patience) qui dénotent des qualités attribuées à des personnes apparaissent tous deux en position de N<sub>1</sub> dans la construction à support *issda* (= *il y a* ou *avoir*) :

(8) a. *Minu-ga chameulseong-i iss-da.*

Minu-Nom patience-Nom il y a-Pré-Déc

[=: Minu a de la patience.]

b. *Insu-ga yonggi-ga iss-da.*

Insu-Nom courage-Nom il y a-Pré-Déc

[=: Insu a du courage.]

En revanche, les noms *joreum*(sommeil) et *piro*(fatigue) qui dénotent des états physiques passagers apparaissent difficilement dans cette construction :

- (9) a. \**Minu-ga joreum-i iss-da.*  
 Minu-Nom sommeil-Nom il y a-Pré-Déc  
 [=: Minu a sommeil.]
- b. \**Insu-ga piro(fatigue)-ga iss-da.*  
 Insu-Nom fatigue-Nom il y a-Pré-Déc  
 [=: Insu a de la fatigue.]

Ces noms apparaissent plutôt dans la construction à support *oda* (=venir) :

- (10) a. *Minu-ga joreum-i wat-da.*  
 Minu-Nom sommeil-Nom venir-Pass-Déc  
 [=: Minu a sommeil.]
- b. *Insu-ga piro(fatigue)-ga wat-da.*  
 Insu-Nom fatigue-Nom venir-Pass-Déc  
 [=: Insu a de la fatigue.]

Les propriétés syntaxiques et sémantiques des noms de propriétés que nous venons de voir permettent ainsi de les distinguer des noms d'états qui ont en effet des caractéristiques différentes.

#### 4. Noms de propriétés « identifiantes » vs Noms de propriétés « attributives »

##### 4.1. Noms de propriétés du type *seongkyeok*(caractère)

Une fois définis les noms de propriétés, il reste encore à les distinguer en deux groupes. En fait, il existe des noms comme *seongkyeok*(caractère), *muge*(poids), etc. qui peuvent eux aussi s'analyser comme relevant des noms de propriétés.

- (11) a. *Insu-ga seongkyeok-i iss-da.*  
 Insu-Nom caractère -Nom il y a-Pré-Déc

[=: Insu a du caractère.]

b. *I gabang-i muge-ga iss-da.*  
CE sac-Nom poids-Nom il y a-Pré-Déc

[=: Ce sac pèse lourd.]

Comme nous le voyons dans les exemples en (11), les noms *seongkyeok* (caractère) et *muge*(poids) apparaissent sans difficulté dans la construction à support *issda* et représentent, tout comme les noms *yonggi*(courage) et *chameulseong*(patience), des qualités ou des jugements à une différence d'intensité près.

En effet, dans les exemples en (11a) et (11b), le support *issda* fonctionne plus comme un support aspectuel intensif que comme un support de base. Autrement dit, avec le support *issda*, les phrases composées avec les noms *seongkyeok*(caractère) et *muge*(poids) représentent l'intensité de la « propriété » que ces noms dénotent. C'est ainsi que le support *issda* en (11a) et (11b) peut être remplacé dans chaque cas par des adjectifs d'intensité : *se-da*(=: être fort) en (11a) et *mugeop-da*(=: être lourd) en (11b).

(12) a. *Insu-ga seongkyeok-i (iss + se)-da.*

Insu-Nom caractère-Nom (il y a + être fort)-Pré-Déc

[=: Insu a du caractère.]

b. *I gabang-i muge-ga (iss + mugeop)-da.*

CE sac-Nom poids-Nom (il y a + être lourd)-Pré-Déc

[=: Ce sac pèse lourd.]

Mais cela n'empêche pas d'analyser ces deux phrases comme représentant bien des propriétés. Le problème qui se pose alors est de savoir comment traiter les noms du type (11) qui sont respectivement analysés comme des noms classifieurs ou des noms de mesure (ou de grandeur) ?<sup>5</sup> ; et aussi de savoir si les deux noms *seongkyeok*(caractère) et *chameulseong*(patience) représentent la propriété de la même façon.

Pour répondre à ces questions, nous proposons de distinguer les propriétés « identifiantes » des propriétés « attributives ». Les premières sont représentées par les

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<sup>5</sup> cf. Giry-Schneider, J. (1996) et Le Pesant, D. (1996) respectivement.

noms du type *seongkyeok*(caractère) et *muge*(poids) qui permettent de cerner le type de propriétés dont on veut parler, alors que les secondes sont représentées par les noms du type *yonggi*(courage) et *chameulseong*(patience) qui « parlent » d’eux-mêmes des propriétés. En effet, cette idée peut être justifiée par les comportements syntaxiques différents de ces deux types de noms.

#### 4.2. Différence des comportements syntaxiques

Les comportements des noms de propriétés « identifiantes » et « attributives » se différencient entre autres selon les trois points suivants :

- la fonction sémantique du support *issda*(il y a) qui se combine avec ces noms
- la possibilité d’apparaître dans la question en *otteohani*(être comment)
- l’existence des prédicats nominaux ou adjectivaux en corrélation sémantique.

D’abord, avec les noms de propriétés « identifiantes », le support *issda* peut être remplacé par des adjectifs d’intensité comme cela a été montré en (12) alors que ce n’est pas possible avec les noms de propriétés « attributives ». En effet, lorsque le support *issda*(il y a) apparaissant, par exemple, avec les noms *yonggi*(courage) et *chameulseong*(patience) en (8a)-(8b) est remplacé par des adjectifs d’intensité appropriés respectifs le sens des phrases n’est plus le même :

(13) a. *Minu-ga chameulseong-i (iss ≠ manh)-da.*

Minu-Nom patience-Nom (il y a≠il y a beaucoup de)-Pré-Déc

[=: Minu a (de la ≠ beaucoup de) patience < Minu est patient.]

b. *Insu-ga yonggi-ga (iss ≠ manh)-da.*

Insu-Nom courage-Nom (il y a≠il y a beaucoup de)-Pré-Déc

[=: Insu a (du ≠ beaucoup de) courage.]

Ensuite, les noms de propriétés « identifiantes » comme *muge*(poids) doivent être précisés dans la question en *otteohani*(être comment) pour que l’on obtienne la réponse concernant les propriétés qu’ils dénotent :

(14) *I gabang-eun (?? E + muge-ga) eotteoha-ni ?*  
 CE sac-Top poids-Nom (être comment)-Pré-Int ?  
 [=: Quel est (??E + le poids de) ce sac ?]

⇒ *Geu gabang-eun muge-ga (iss + mugeop)-da.*  
 CE sac -Top poids-Nom (il y a +être lourd)-Pré-Déc  
 [=: Ce sac pèse lourd.]

Sinon, on risque d'avoir différentes réponses inattendues mais pas impossibles :

(15) *I gabang-eun eotteoha-ni ?*  
 CE sac-Top (être comment)-Pré-Int ?  
 [=: Comment est ce sac ?]

⇒ *Geu gabang-eun (yeppeu + keu + bissa + ...)-da.*  
 CE sac-Top être (joli+grand+cher+...)-Pré-Déc  
 [=: Ce sac est (joli+grand+cher+...).]

Mais il n'en est pas de même pour les noms de propriétés « attributives ». Ces derniers sont difficilement précisés dans la question en *eotteohani*(être comment) :

(16) *Insu-ga (E + ?? yonggi-ga) eotteoha-ni ?*  
 Insu-Nom courage-Nom (être comment)-Pré-Int ?  
 [=: Comment est (E + ?? le courage de) Insu ?]

⇒ *Insu-ga yonggi-ga (iss + manh)-da.*  
 Insu-Nom courage-Nom (il y a+il y a beaucoup de)-Pré-Déc  
 [=: Insu a (du + beaucoup de) courage.]

Par ailleurs, les noms de propriétés « identifiantes » peuvent se combiner avec

différentes expressions spécifiques à la propriété qu'ils dénotent (ou cernent). Ainsi, le nom *muge*(poids) dispose de noms d'unités spécifiques à la propriété qu'il dénote tels que *geuraem* (gramme), *kilograem* (kilogramme), *ton* (tonne), etc., et il se combine avec eux pour préciser la propriété qu'il dénote :

- (17) *I gabang-i muge-ga 30 kilograem-ida.*  
 CE sac-Nom poids-Nom 30 kilogrammes-être-Pré-Déc  
 [=: Ce sac pèse 30 kilogrammes.]

Il en est même pour les noms *moyang*(forme) et *saek*(couleur) qui s'analysent eux aussi comme des noms de propriétés « identifiantes » :

- (18) a. *I sangja-neun moyang-i (semo+nemo+weonhyeong +...)-ida.*  
 CE boîte-Nom forme-Nom (triangle+carré+rond+...)-être-Pré-Déc<sup>6</sup>  
 [=: Cette boîte a une forme (triangulaire+carrée+ronde+...).]  
 b. *I chima-neun saek-i (parang+norang+ppalgang +...)-ida.*  
 CE jupe-Nom couleur-Nom (bleu+jaune+rouge+...)-être-Pré-Déc<sup>7</sup>  
 [=: Cette jupe est d'une couleur (bleue+jaune+rouge+.....).]

En plus, les noms de propriétés « identifiantes » disposent de différents adjectifs précisant diverses valeurs de la propriété qu'ils dénotent :

- (19) a. *I gabang-i muge-ga (mugeop+gabyeop)-da.*  
 CE sac-Nom poids-Nom être (lourd+léger)-Pré-Déc  
 [=: Ce sac pèse (lourd+léger).]  
 b. *I sangja-neun moyang-i (dunggeul+giljjukha)-da.*  
 CE boîte-Nom forme-Nom être (rond+long)-Pré-Déc  
 [=: La forme de cette boîte est (ronde+longue).]  
 c. *I chima-neun saek-i (parat+norat+ppalgat)-da.*  
 CE jupe-Nom couleur-Nom (bleu+jaune+rouge)-être-Pré-Déc<sup>8</sup>

<sup>6</sup> Les mots *carré* et *rond* sont utilisés ici dans leur emploi nominal.

<sup>7</sup> Les mots *bleu*, *jaune* et *rouge* sont utilisés ici dans leur emploi nominal.

[=: La couleur de cette jupe est (bleue+jaune+rouge).]

Les noms de propriétés « identifiantes » se caractérisent ainsi par l'existence des prédicats nominaux ou adjectivaux en corrélation sémantique avec eux. Mais le cas n'est pas identique avec les noms de propriétés « attributives ». Ces derniers ne disposent pas de prédicats nominaux ni de prédicats adjectivaux en corrélation sémantique de ce type étant donné qu'ils ont eux-mêmes la fonction d'attribuer diverses valeurs aux propriétés simplement cernées ou évoquées par les noms de propriétés « identifiantes ».

Ainsi, les noms de propriétés « identifiantes » se différencient des noms de propriétés « attributives » par leurs comportements syntaxiques. Ce qui revient à justifier notre idée de distinguer les deux classes de noms de propriétés.

#### 4. 3. Corrélation syntactico-sémantique des deux classes des noms de propriétés

Une fois faite la distinction des deux classes des noms de propriétés, nous sommes en mesure d'établir de nombreuses sous-classes dans lesquelles seront répartis différents noms qui ont été mal classifiés jusqu'à présent. Voici quelques exemples de sous-classes de noms de propriétés « identifiantes » :

**Table 1.** Exemples de sous-classes des noms de propriétés « identifiantes »

- <gili>-*ga gilda/jjalpda* =: <longueur>-Nom être long/court  
ex. : *gili*(longueur), *gijang*(longueur), *jireum*(diamètre), *bangyeong*(demi-diamètre), *jeonjang*(longueur totale), *garo*(largeur), *sero*(longueur), etc.
- <nopi>-*ga nopda/natda* =: <hauteur>-Nom être haut/bas  
ex. : *nopi*(hauteur), *pago*(hauteur des vagues), *godo* (degré de hauteur), etc.
- <geori>-*ga meolda/gakkapda* =: <distance>-Nom être loin/proche  
ex. : *geori* (distance), *gangyeok* (intervalle), *gyeokcha* (écartement), etc.
- <neolbi>-*ga neolpda/jopda* =: <largeur>-Nom être spacieux/étroit, resserré

<sup>8</sup> Les mots *bleu*, *jaune* et *rouge* sont utilisés ici dans leur emploi adjectival.

ex. : *neolbi*(largeur), *myeonjeok*(étendue), *pyomyeonjeok*(superficie), etc.

- <keugi>-*ga keuda/jakda* =: <grandeur>-Nom être grand/petit  
ex. : *keugi*(grandeur), *gyumo*(envergure), *chawon*(dimension), *bupi*(volume), etc.
- <yang>-*i manta/jeokda* =: <quantité>-Nom il y a beaucoup de/peu de  
ex. : *yang*(quantité), *jeokseolyang*(quantité de neige), *undongyang*(quantité de mouvement), etc.
- <him>-*i seda/yakhada* =: <force, énergie>-Nom être fort/faible  
ex. : *him* (force), *suryeok* (énergie hydraulique), *apryeok* (pression), *jeonap* (pression électrique), *akryeok* (poigne), etc.

Comme on le voit dans la table 1, les sous-classes des noms de « propriétés identifiantes » sont diverses et elles se distinguent notamment par leurs adjectifs appropriés respectifs : par exemple la sous-classe <*nopi*(hauteur)> se caractérise par ses adjectifs appropriés comme *nopda/natda* (=: être haut/bas) tandis que la sous-classe <*geori*(distance)> se caractérise par des adjectifs appropriés tels que *meolda/gakkapda*(=: être loin/proche).

Il faut noter ici que les adjectifs appropriés à chacune de ces sous-classes relèvent des classes des prédicats dénotant les propriétés « attributives » qui sont en corrélation avec ces sous-classes de propriétés « identifiantes ». A titre d'exemple, les adjectifs *nopda/natda* caractérisant la classe de propriétés « identifiantes » <*nopi*(hauteur)> constituent la classe de propriétés « attributives » <*nopi*(hauteur)>. Nous pouvons allonger la liste de ce type de corrélation. En voici un autre exemple :

**Table 2.** Les deux classes de *moyang*(forme)

- < Pr. identifiantes de *moyang* (forme) > :
  - Noms : *moyang*(forme), *hyeongtae*(forme), *oehyeong*(apparence), *moseup*(figure), *oogwan*(physionomie), *poungmo*(air), etc.
- < Pr. attributives de *moyang* (forme) >
  - Noms : *wonhyeong*(forme ronde), *seonhyeong*(forme linéaire),

*semo*(triangle), *nemo*(carré), *jangbanghyeong*(rectangle), etc.

- Adj : *dunggeulda*(être rond), *giljjukhada*(être long), etc.

C'est ainsi que nous pouvons mettre en évidence la corrélation syntactico-sémantique entre les classes de propriétés « identifiantes » et « attributives ». Cette corrélation peut être représentée comme dans la table 3.

**Table 3.** La corrélation syntactico-sémantique des deux classes de propriétés

- Soit la construction *N0-ga N1-ga (N2-ida + Adj)*
- Si  $N1 = \langle \text{Pr. identifiantes de } moyang \text{ (forme)} \rangle$   
 $\Rightarrow N2, \text{ Adj.} = \langle \text{Pr. attributives de } moyang \text{ (forme)} \rangle$

En tenant compte de cette corrélation et des caractéristiques des deux classes de propriétés, nous sommes en mesure d'analyser les noms de propriétés « identifiantes » comme des prédicats du second degré qui sélectionnent un argument sujet et un prédicat apportant des précisions sur la propriété cernée. Quant aux noms de propriétés « attributives », ils s'analysent, tout comme les adjectifs prédicatifs, comme des prédicats du premier degré qui apportent eux-mêmes de nouvelles informations au sujet de la phrase.

## 5. Conclusion

Nous avons ainsi mis en évidence les propriétés syntaxiques et sémantiques des noms de propriétés et montré la nécessité de les distinguer en deux groupes : noms de propriétés « identifiantes » et noms de propriétés « attributives ». Ce faisant, nous avons également mis en lumière la corrélation syntactico-sémantique des deux classes de propriétés.

Nous avons vu en effet que les propriétés « identifiantes » servent à cerner le type

de propriétés dont on veut parler tandis que les propriétés « attributives » ont comme fonction de « parler » elles-mêmes des propriétés ; cette différence sémantique a été révélée par les comportements syntaxiques distincts des noms qui dénotent ces deux types de propriétés. Nous avons vu en effet que les noms de propriétés « identifiantes » comme par exemple *seongkyeok*(caractère) et *muge*(poids) peuvent apparaître en position de N1 dans la construction *N0-ga N1-ga (N2-ida + Adj)* alors que ce n'est pas le cas pour les noms de propriétés « attributives » tels que *yonggi*(courage) et *chameulseong* (patience) ; ceux-ci n'apparaissent qu'en position de N2. Ce qui en revient à justifier notre idée qu'il fallait distinguer ces deux types de noms.

La distinction des deux classes des noms de propriétés a permis ainsi de mettre en évidence la corrélation entre les classes de « propriétés identifiantes » et celles de « propriétés attributives ». Ce qui laisse deviner que cette distinction permettra également de faire les choses suivantes : traiter de façon adéquate des noms comme *seongkyeok* (caractère), *ireum*(nom), *sanghwang*(situation) qui devraient également être répartis dans les classes de <propriétés identifiantes> ; mettre en bon ordre les classes qui ont été organisées de la manière inadéquate, autrement dit répartir sous l'hyperclasse de <propriétés> les différents prédicats du second degré qui ont été faussement regroupés sous l'hyperclasse non prédicative d'<objets abstraits> ; et enfin élaborer de façon cohérente et systématique les classes des adjectifs et des verbes.

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# How do we capture the Persian core vocabulary of Iranian primary school students?

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## ABSTRACT

This paper is a brief report of a national project which was launched by the Organization of Educational Research and Programming (OERP) as the official body in Iran for curricular programming and developing course materials. Considering the fact that curricula developer must know the extent of vocabulary in order to accelerate the learning process the project titled "Identification of Iranian Primary School Students Core Vocabulary" was launched. In this project through a massive field study, accurate first hand data have been collected from 20,000 students and 1,885 teachers in all provinces of the country. Three tests were developed and 40 test managers and 350 test conductors were trained in order to collect data. Then after 4 years a big vocabulary corpus was established and the most frequent words were introduced in the framework of semantic fields.

**Key words:** core vocabulary, primary school students, Persian, Iran

Research had shown that due attention has not been given to mutual linguistic understanding between educators and those who receive it (Javadi, 1998; Sharifi, 1997; Tayyebi, 1999, Dadsetan, 1999). With a glance at the Persian course books in Iran we can see that their linguistic content is far from the needs and capabilities of students. Many words and phrases used in these books have nothing to do with the daily life of students or what they use to express their feelings and thoughts. In all these books we face a phrase bombardment, most of them used once. One can ask himself when student cannot fully differentiate green and blue at age 8 what is the logic behind using the term turquoise? Or this question can be posed that what is the percentage of adults or even university graduates that know what kind of flower a Susan (name of a Persian rare flower) is?

This becomes a critical issue in multicultural/multilingual societies with centralized education system, where textbooks are prepared in center and distributed throughout country, like the situation we have in Iran. This situation ignores linguistic differences of a great number of students and makes serious problems for bilingual students. Therefore it is necessary for curricula developers to know the extent of children's vocabulary.

Vocabulary is one of the matters of concern in the children language. Systematic basic /core vocabulary studies have 80 years of background in the world, but in Iran less than 30 years. These 30 years of studies have several weak points. To mention a few, it had not enjoyed a logical continuation, it lacked a critical eye on basic vocabulary estimating projects in other countries, and the last but not the least, it has not been taken seriously. As a result children book writers and curricula developers have applied intuition, humor and experience in using their own mental basic vocabulary.

Considering the fact that any programming should be based on valid data and core vocabulary is an essential data for curricula programmers and developers, OERP (Organization for Educational Research and Programming) launched a national project for identification of "Iranian Primary School Students Core Vocabulary". In this project appropriate methods for estimating basic vocabulary were identified. Then through a massive field study, real, first hand data has been collected from 175 schools. These schools were sampled using systematic stratified cluster PPS method. This sample included 46 girl schools, 64 mixed schools and 65 boy schools and 20,000 students 1,885 teachers in 875 classrooms, in 28 provinces. By descriptive research and interviewing children, teachers, literature experts, psychologists, and linguists this basic vocabulary is listed. These principles are applied to the research outcomes:

- Core vocabulary can not be determined but estimated
- There is no upper limit for it
- And this list should be updated from time to time

## Programme strategy

We designed and implemented a field research to capture the core vocabulary of Iranian students in primary schools (grade 1-5).

For this purpose we developed the following research tools.

## **Checklists**

Four checklists were developed in the course of this project:

### **Concrete nouns checklist**

1641 concrete nouns were extracted from “ the Persian Dictionary of School Children” and classified on the basis of semantic criteria. In this way 45 semantic domains/fields for the concrete nouns were determined.

### **Verbs checklist**

2700 verbs were extracted from “ the Persian Dictionary of School Children” and classified on the basis of semantic criteria. In this way 22 semantic domains for the verbs were determined.

This classification form 15 verbs files proposed by “WorldNet” and such lexical semantic criteria as sense relations and especially hyponymy among verbs. Each class represents one underlying lexical concept, which is often realized as a hyponym word for that class.

### **Adjectives checklist**

Categorizing the adjectives from a lexical point of view has not a long and rich tradition. Concerning the objectives of the above project the Persian adjectives were extracted from the above mentioned Dictionary and classified on the basis of the semantic factors. In this way more than 100 adjectival categories were determined.

### **Vocabulary trace checklist**

A chart containing 5 boxes was developed to make vocabularies traceable. The first box shows the grade level that the vocabulary belongs to. The second box shows whether it is a vocabulary used by students or printed in the textbooks. The third box shows types of vocabulary. The fourth box shows parts of speech. The fifth box shows semantic fields. Each semantic field will have a table containing words.

### **Content analysis**

A vocabulary card was developed for collecting the needed information items such as lexical entry, part of speech, semantic field, type of vocabulary, etc. Using these cards content of the primary school (grades 1-5) textbooks of Iran, UK, Germany, France, and United Arab Emirates were analyzed to extract the size and type of core primary vocabulary. Also from 108 children literature books published in Iran, a list of most frequently used words was extracted.

### **Questionnaires**

Three vocabulary tests were developed with consultation of famous children literature writers, educationists, linguists, psychologists, teachers, children books’ designers and picture designers, computer graphists, etc. and they were modified by site observation of how children behave. Each test booklet contains school and student information including grade, sex, urban, rural, semi-urban

*Teacher questionnaire.* It contained 1950 nouns, 2331 verbs, 612 adjectives which were obtained through the previous stages applying the data gathered by checklists and content analysis.

*Student questionnaire.* there are two student questionnaires. Productive test and perceptive test.

*Productive test.* A list of core situations were compiled with the help of educationists and handed to Hushang Moradi Kermani; internationally praised Iranian children literature writer. He wrote short stories for each situation, according to them up to four pictures were drawn. Students were asked to list all the words that a picture represents in one minute and in other instance to write a story for the pictures in three minutes.

*Perceptive test.* It contained 800 illustrations of nouns, adjectives and verbs. After test conductor pronounced the word, students were asked to put number in or color the box at the top right corner of related picture.

### **Observation**

In order to know how children behave with regard to the instructions in the questionnaires a researcher went to several schools in Tehran to observe their attitude to direction words (up / down).

### **Interview**

Since first grade students cannot read and write at that time of the year their voices were recorded individually using tape recorders given to the test conductors.

Other groups that had been interviewed were experts and high-ranking authorities. Their opinions were collected using open interview in several sessions.

### **Pilot study**

In order to afford culturally, socially, linguistically (dialects) and economically unbiased tests, pilot studies were conducted.

### **Implementation**

Each province has a program executor (province manager) whose role was to find the necessary number of qualified test conductors. Each school had two test conductors; one for productive and one for perceptive test. Since 175 schools were tested, 350 conductors were employed. MoE (Ministry of Education) had given us one week to carry out this test; therefore two conductors were necessary to complete the tests in due time. (The schools were closed during this time).

It was critical to find local conductors to assure full comprehension of students' responses. 40 test managers were trained by the project director in Tehran (capital of Iran). These 40 managers trained and monitored the 350 test conductors. The test nationally took long 45 days and up to 10 days at each school.

*Budget:* 1,500,000,000 Rials (about 17000 \$)

### **Human resource management**

Staff employed

20 full time researchers (12 in phase one , 8 in phase 2), 40 test managers, 29 province managers , 350 test conductors, 12 research staff, 4 teacher consultants, 10 part time staff, 1 accountant.

### **Special characteristics**

- Collecting information from experts and students
- Collecting unbiased data
- Collecting traceable data
- Collecting and Preserving linguistic differences of the sample
- Collecting and Preserving ethnic culture of the sample

- Applying systematic stratified cluster PPS sampling model for the first time in MoE.
- Making a model for nationwide successful projects – sampling
- Making a model for nationwide successful projects – management
- Providing a collection of classified pictures with educational orientation - Teachers are asking for the test booklets to use them in teaching writing

### **Achievements (in brief)**

Quantitative assessment of the results of the undertaking such as:

Training 40 test manager, 350 test conductor; developing 3 questionnaires and 4 checklists; distributing 20,000 student perceptive and productive questionnaires and collecting 19,974 productive and 17,864 perceptive ones, also 1,885 teacher questionnaire; collecting more than 10 million records in teacher questionnaire, 16 million record in perceptive questionnaire, 12 million record in productive questionnaire, 266 million basic information records, 76 million record basic data for vocabularies, transferring four thousand hours voice of students (grade 1) recorded on tapes .

Now according to the corpus we know that the most frequent productive words of first grade students are: machine, school, tree, fish, shoes, spoon, game, ball, house, boy, child, and train. And the first frequent jobs in grade 5 students are: teacher, doctor, worker, postman, engineer, driver and painter.

### **Problems encountered**

- Money shortages made us to confine our sample to 175 schools
- Dialect differences. Although we tried to employ ethnic test conductors, still in some parts of Kurdistan the dialect of Kurdish that students spoke were different with the Kurdish that of the test conductor.
- Some of the province managers to get to the school site first used airplane, then car, and for some distances walking along the road.
- Since no graphist specialized in making pictures for the tests was available, we trained some of the Printing and Publication staff for this purpose.

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# Theories of parts of speech in the major early French and English grammars (I): Renovations of the traditional theories for vernacular languages

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## Abstract

From antiquity to the classical period, grammarians raised questions about the enumeration of the parts of speech and the assignment of some specific words to these parts of speech, and their specific assignments were, at times, very different. The disagreements between grammarians on these questions were often due, on the one hand, to the nature of the analysed language, and on the other hand, to the criteria of analyses. For the classification of words, they applied sometimes their meanings and morphological characteristics, and sometimes their roles in a sentence or relationships to the thought. The present article has the purpose to clarify the influence between some early French and English grammars until the middle of the 18<sup>th</sup> century, and what was the change of the grammatical description during this period.<sup>1</sup>

**Keywords:** Parts of speech, French grammar, English grammar, History of grammar.

## 1. Adaptations of the traditional classification

Traditional classification is based on the logical and morphological criteria and gives 8 parts of speech divided into two groups as follows: words with inflection (noun, pronoun, verb and participle) and words without inflection

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<sup>1</sup> This first part (from the 16<sup>th</sup> century to the Port-Royal's grammar) treats the renovations of the traditional theories for vernacular languages. The attempts of a proper theory for vernacular languages in Wilkins' *Essay* (1668), Buffier's *Grammaire françoise* (1709), Girard's *Principes* (1747) and Harri's *Hermes* (1751), which was orally presented in CIL 2008 (Seoul), will be treated in another occasion because of the space limit. The first part is a renewal of the article, which was presented in the 2004 International Conference on English Linguistics: In Commemoration of Otto Jespersen's Scholarship (June 18-19, 2004) of the English Linguistics Society of Korea.

(adverb, conjunction, preposition and interjection). This classification, with some modifications, is applied in the first French and English grammars.

### Greek Classification

	categoremata		syncategoremata
Aristoteles	onoma	rhema	syndesmos
Dionysius Thrax	onoma epirrema	rhema metoxe	prothesis syndesmos antonymia arthron

### Latin Classification

Varro , Priscian	Flexiles nomen pronomen verbum participium	Inflexiles adverbium coniunctio praepositio interiectio
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### English Grammar and French Grammar

Lily 1567	Declined Noune Pronoune Verbe Participle	Undeclined Adverb Conjunction Preposition Interjection
Chiflet 1659	<i>Déclinable</i> <i>nom</i> <i>pronon</i> <i>verbe</i> <i>participe</i> <i>article</i>	<i>Indéclinable</i> <i>adverbe</i> <i>conjonction</i> <i>préposition</i> <i>interjection</i>

In French grammars, the article presents difficulties because this category of Greek origin and replaced by the interjection in Latin grammars, needs again to be mentioned. Palsgrave (1530) and Estienne (1557) admit 9 parts of speech regarding the article. Meigret (1550) admits 8 parts of speech but lays out an independent chapter for the article. Maupas (1607) and Oudin (1632) continuously treat the 9 parts of speech without overtly stating the allowed number of parts of speech. Chiflet (1659) admits 9 parts of speech divided into two morphological groups.

The article raises fewer problems in the first English grammars because it is not regarded as an independent part of speech until much later. For Lily (1567), Greaves (1594), Hume (1612), Wharton (1654), Newton (1669) and Saxon (1737), the article is only assigned to the noun. Miège (1688) admits 8 parts of speech and treats the article as a "short word" (particle). Greenwood (1711) accepts it as an "adjectival expletive," and Duncan (1731) defines it as "kind of adjectival pronoun." Jonson (1640) seems to be the first English grammarian who accepts the article as the 9th part of speech and especially since Wilkins introduces the article into his *Essay* (1668), this category is more frequently noted. Maittaire (1712) replaces the interjection by the

article in his 8 parts of speech and Jones (1724) accepts it among his 9 parts of speech.

<i>French Grammar</i>	<i>English Grammar</i>			
<i>article</i>	<i>article</i>			
1530 Palsgrave 1550 Meigret 1557 Estienne 1607 Maupas 1632 Oudin 1659 Chiflet . . .	1640 Jonson 1668 Wilkins . .			
	<i>part of noun</i>	<i>short word</i>	<i>adjectival expletive</i>	<i>adjectival pronoun</i>
	1567 Lily 1594 Greaves 1612 Hume 1654 Wharton 1669 Newton 1712 Maittaire 1737 Saxon	1688 Miège	1711 Greenwood	1731 Duncan

## 2. The first attempt of a new classification

### 2.1. Ramus' Gramere

Rejecting the Latin traditional distinction between variables and invariables,<sup>2</sup> Pierre de la Ramée proposes as a basic distinction the opposition between words with number and without number<sup>3</sup>:

“Elę’ (efpeę) fon’ deus, l’unę avec nombre, l’autre fan’ nombre” (1562: 40).

<sup>2</sup> Lily was the first to transmit the Medieval Latin tradition to English grammarians. Many English grammarians followed Lily’s work. The adjectives are here considered as noun, and articles as nominal signs. For the Greek and Latin traditions, see Poldauf (1948: 151-152), Vorlat (1975: 42-48).

<sup>3</sup> According to Padley, Ramée takes “Aristotle’s semantically based dichotomy of *categoremata* and *syncategoremata* turns it... into a formally based one” (1983: 34). Pricien first used the term *syncategoremata* for the semantically dependent class (cf. Ibid, note 116).

Thus, he reacts against the Latin grammatical traditions of the 16<sup>th</sup> century. Noun and verb have number, whereas adverb and conjunction are without. Noun has gender, and verb has person and tense. An adverb is a word which joins to another word, and by conjunction, the composed parts of speech are joined:

“Lę mot aian’ nōbre e’ nom ou verbę. Nom et un mot dę nombr’ avec jenrę (ibid 41).

Lę verbę et un mot dę nombrę perfonel avec tam (ibid 49).

Lę mot fan’ nombrę, e’ est fęlui ci n’a aucune diferensę dę nombrę, par lacleę il puisę etrę varie, comę l’Averb’ e la Conjonxion. L’Averb’ et un mo’ fan’ nombrę ci et ajoint a un autrę (ibid 72).

Conjonxion et un mot fan’ nombrę par lęcel le’ partię dę l’orezon cōpozeę son’ conjointęs” (ibid 74).

He discerns, as subsets of the words with number, words with finite number, in which morphological changes denote number, and words with infinite number, where this is not the case.<sup>4</sup>

“Le mot de nōbre est finit ou infinit. Finit quād il signifie son nombre par certaine terminaifon: cōme les cerfs courent. L’infinit au cōtraire, cōme Courir, Aimer” (1572: 58).

This distinction between finite number class and infinite number class is an advantage for the English grammarians who apply Ramée’s classification to a language so poor in flexional endings as English. Number, as criterion of word class, was applied in the English grammars during a half century, from the end of 16<sup>th</sup> century to the middle of 17<sup>th</sup> century. Some grammarians mix Ramée’s principle with elements from the Greek and the Latin school, and others make a personal adaptation.<sup>5</sup> But Ramée’s

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<sup>4</sup> Ramée applied it for the division of verb, finite verb (*aime*) vs. infinite verb (*aimer*). See also Ramée (1562: 50).

<sup>5</sup> Writing their English grammar in Latin, two grammarians apply Ramée’s principle. Paul Greave (*Grammatica Anglicana*, Cantabrigiae, Johannis Legatt, 1594) offers an incomplete copy of the Rameian classification. He treats first the words with number (noun and verb), then the adverb and the conjunction one after the other, without grouping the latter together as words without number: “CAP. 3. *De Substantivo*. Vox numeri est nomen aut verbum” (1594: 175). “CAP. 7. *De Adverbio*. Adverbium est quod aliis vocibus adiicitur (...) CAP. 8. *De Coniunctione*. Copulativa: ut *And, also, neither, nor*” (ibid 184). He defined the adverb with Ramée’s words, but the conjunction has no definition. The article is treated as a kind of adjective, which constitutes an independent chapter (CAP. 4). Alexandro Gil (*Logonomia Anglica*, Londini, Iohannes Beale, 1621) divides words in 3 parts: “Partes orationis sunt tres. Nomen, Verbum, Quorum est numerus, Singularis, Pluralis. Consignificatiua dictio, ubi sunt Articulus, Aduerbia, Proepositiones” (1621: 49). Noun and verb are defined on a formal basis, as variable words with number, but the term

influence was restricted to one particular moment when the grammarians needed another criterion than Latin. No grammarian after the middle of 17<sup>th</sup> century adheres to the Rameian division. The classification of some invariable words (adjectives) among words with number, and of others (adverbs) among the words without number was for the English grammarians arbitrary from the beginning.

## 2.2. *English Grammars in the Rameian Tradition*

In the English grammar of Alexander Hume (1612), the dichotomy personal-impersonal replaces Ramée's contrast between words with and those without number.<sup>6</sup>

“OF THE PERSON. Cap. 1. 1. Al wordes *quhilk* we use to expresse our mynde are personal and impersonal. 2. A personal word is *quhilk* admittes diversitie of person” (1612: 27).

“OF THE DETERMINATION OF THE PERSON. Cap. 3. 1. A personal word is a noun or a verb. A noun is a word of one person with gender and case” (ibid: 28).

“OF THE VERB'S PERSON AND NUMBER. Cap. 7. 1. (...) The verb is of al persones declined with mood and tyme (ibid: 30)

“OF THE ADVERB. Cap. 11. 1. A word impersonal is *quhilk* in al formes of speach keeps one face, and this is adverb or conjunction” (ibid: 32).

In other words, a personal word is an inflected word and an impersonal word is invariable. Personal words are nouns and verbs; impersonal words are adverbs and conjunctions. Thus, he mixes the Latin definition with Rameian division. The articles *a*, *an* and *the* are the words of determination of person and, as such, they do not constitute a separate word class:

“OF THE DETERMINATION OF THE PERSON. Cap. 3. (...) 3. The determined person is noted with the, and it is determined either be an other substantive; as, the king of Britan ; or be an adjective ; as, the best king in Europ ; or be a relative ; as, God preserve the king quhom he hath geven us. 4. The undetermined noun is noated with an before a voual ; as, an ald man sould

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*consignificativa dictio* reminds one of Greek classification. This heterogeneous classification based on two criteria, form and signification, reveals Greek and Rameian influences. In fact, Ramée did not separate the article from the noun, and the preposition and the interjection were classified as subsets of adverb. For Greave and Gill, see Vorlat (1975: 57-58).

<sup>6</sup> According to Vorlat, the Rameian influence for Hume is obvious. Hume admits reading Ramée's work but far from copying it, he reflects on it and defends his own viewpoint (cf. 1975: 61).

be wyse ; and with a before a consonant ; as, a father sould command his son” <sup>7</sup>(ibid: 28).

### Ramée -1562

<b>mots avec nombre</b> (words with number)		<b>mots sans nombre</b> (words without number)	
<b>avec genre</b> (with gender)	<b>avec temps</b> (with tense)		
<b>nom</b> substantif adjectif article pronom participe	<b>verbe</b>	<b>adverbe</b> interjection préposition	<b>conjonction</b>

### Hume -1612

<b>Personal Words</b>		<b>Impersonal Words</b>	
<b>Gender &amp; Case</b>	<b>Mood &amp; Time</b>		
<b>Noun</b> (article as note of noun)	<b>Verb</b>	<b>Adverb</b>	<b>Conjunction</b>

Butler (1633) distinguishes 2 groups of word classes: words with number and case and *words without number and case*. *The noun and the verb constitute the former and the preposition and the adverb, the latter:*

“A Woord is eider wit number and caſe, as Noun and Verb ; or witout, as Prepoſition and Adverb” (32).

In Butler’s grammar, case means the different terminations of the same word. In other words, Nominal cases are the nominative and the genitive and verbal cases are tense morphemes:

“Caſe is the different termination of the ſame word, in the ſame Number and Perſon; as *man mans*<sup>8</sup>, *loov looved*” (32).

<sup>7</sup> Hume did not consider the articles as an independent word class, but his description of determination is very modern. It is based on a syntactical criterion. The grammarians of Port-Royal will, a half century later, show a theory of determination. For the theory of article of Port-Royal grammar, see Swiggers (1985) and Shin (1994).

<sup>8</sup> *Mans* means here *man’s*. Butler explains in the footnote that “*men* is no caſe of *man*” (1633: 32, note ★).

So, the form *loved* is the oblique case of *love*<sup>9</sup>. Common to verb and noun is that they have endings other than those of number and person. That is what Butler called *case* and is his original point of view. A difference of time distinguishes two categories of the words with number and case:

“A Noun is a woord of Number and Caf<sup>e</sup>, witout differenc<sup>e</sup> of tim<sup>e</sup>” (33). A Verb is a word of number and caf<sup>e</sup> wit differenc<sup>e</sup> of tim<sup>e</sup>” (42).

Butler was inspired by Ramée but he introduces two additional concepts, case and difference of time. For the words without number, Butler discerns prepositions and adverbs while Ramée discerns adverbs and conjunctions. Butler considers the article as a nominal sign :

“A Noun abfolut<sup>e</sup> is de nam<sup>e</sup> of a ting : \ie der<sup>e</sup>for<sup>e</sup> may hav<sup>e</sup> de article A or De befor<sup>e</sup> it. And it is eider Substantiv<sup>e</sup>, or Adjectiv<sup>e</sup>. A Substantiv<sup>e</sup> is dat, \ie, witout an Adjectiv<sup>e</sup>, may hav<sup>e</sup> de Articles befor<sup>e</sup> it : as a man, de man” (33).

Ben Jonson (1640) gives two contradictory classifications of the word classes. He is inspired by the Lilyan model and introduces a Latin classification:

“In our English speech, we number the same parts with the Latins.

*Noune, Adverbe.*

*Pronoune. Conjunction.*

*Verbe. Praeposition.*

*Participle. Interjection.”* (50).

But he adds the Rameian dichotomy to this traditional Latin classification:

“A word is of *number*, or *without Number*. Of *number* that word is termed to be, which signifieth a number *singular*, or *plural*” (48). “Moreover, a word of number is a *noun*, or a *Verb*” (49). “A *word* without number is that which without his principal signification noteth not any number. Whereof there be two kinds, an *adverb*, and a *conjunction*” (67).

Ben Jonson treats the article first as the ninth part of speech, and after as pronoun.

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<sup>9</sup> The oblique forms of *fall*, *confess* is *fallen*, *confessed*. For the verbal case, see Butler (1633: 42).

But he introduces the distinction of the finite and infinite articles which is very pertinent in that time:<sup>10</sup>

“CHAP. IX. OF THE PARTS OF SPEECH. ... Only we add a ninth, which is the *article* : and that is two-fold ;

*Finite, i. e.* relating to both numbers ; as *the*.

*Infinite*, relating only to the *singular* ; as *a*” (50).

“ CHAP. XV. OF PRONOUNS. (...) Two articles, in gender and number infinite, which the Latins lack : *a, the*” (57).

### Butler - 1634

Words with Number & Case		Words without Number & Case	
without Time	with Time		
<b>Noun</b> Substantive Adjective Pronoun (article <i>as nominal sign</i> )	<b>Verb</b>	<b>Preposition</b>	<b>Adverb</b> Conjunction Interjection

### Ben Jonson - 1640

Words with Number		Words without Number	
<b>Noun</b> Article	<b>Verb</b>	<b>Adverb</b>	<b>Conjunction</b>

## 3. The new logical classifications

### 3.1. Port-Royal's *Grammaire générale et raisonnée* (1660)

The theory of the word class in the Port-Royal grammar has a logical basis. Language is said to express, by means of words, the ideas, chronologically prior to the word. Once humans have well-formed ideas in their minds, they recur to words.

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<sup>10</sup> This distinction of finite and infinite articles is earlier than Port-Royal grammar which introduces the modern concept and distinction of article in French grammar.

Therefore, an insight into the human mind must underlie a classification of those words:

“(Ainsi) l'on peut définir les mots, des sons distincts & articulés dont les hommes ont fait des signes pour signifier leurs pensées. C'est pourquoy on ne peut bien comprendre les diverses sortes de significations, qui sont enfermées dans les mots, qu'on n'ait bien compris auparavant ce qui se passe dans nos pensées, puis que les mots n'ont été inventés que pour les faire connaître” (Arnauld et Claude Lancelot 1660: 27).

According to the *Grammaire générale et raisonnée*, there are three operations of the mind, Perception, Judgment and Reasoning. Perception is the simple apprehension of anything or quality of a thing. Judgment affirms that the thing we perceive is so, or not so as having the ideas of the *earth* and *roundness*, I affirm that the earth is round. The third operation of the mind, reasoning is an extension of the second, a concatenation of judgments. It will therefore be sufficient to consider the first two operations:

“Tous les Philosophes enseignent qu'il y a trois opérations de notre esprit : CONCEVOIR, JUGER, RAISONNER. CONCEVOIR, n'est autre chose qu'un simple regard de notre esprit sur les choses, soit d'une manière purement intellectuelle; comme quand je conçois l'être, la durée, la pensée, Dieu : soit avec des images corporelles, comme quand je m'imagine un carré, un rond, un chien, un cheval. JUGER, c'est affirmer qu'une chose que nous concevons, est telle, ou n'est pas telle. Comme lors qu'ayant conçu ce que c'est que la *terre*, & ce que c'est que *rondeur*, j'affirme de la *terre* qu'elle *est ronde*. RAISONNER, est se servir de deux jugemens pour en faire un troisième (...) D'où l'on voit que la troisième opération de l'esprit, n'est qu'une extension de la seconde” (ibid: 27-28).

The judgment made of things, as when said, *the earth is round*,<sup>11</sup> is called a proposition. This proposition naturally includes two terms, one called the subject, which is the thing, of which the affirmation is made, as *the earth*, and the other is called the attribute, which is the thing, that is affirmed of the subject, as *round*. And then, *is*, which is the connection between these two terms:

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<sup>11</sup> Finally, every verb can be analyzed as *be+participle*. This is one of the common points between Port-Royal's general grammar and Wilkins's universal grammar (cf, Arnauld et Lancelot 1660: 91 and Wilkins 1668: 303). In fact, this kind of analysis (*amat=est amans*) was a medieval practice (cf. Padley 1983: 307). For the theories of the French verb in that period, see Swiggers (1984: 29-32), and Shin (2000).

“Le jugement que nous faisons des choses, comme quand je dis; *la terre est ronde*, s'appelle PROPOSITION; & ainsi toute proposition renferme nécessairement deux termes : l'un appelé *sujet*, qui est ce dont on affirme, comme *terre* ; & l'autre appelé *attribut*, qui est ce qu'on affirme, comme *ronde*; & de plus la liaison entre ces deux termes, *est*” (ibid 28-29).

The two terms belong to the first operation of the mind because that is what we conceive, and are the objects of our thought. The connection belongs to the second operation, which may be called the action of the mind, and the manner in which we think. Thus, the most general distinction of words must be of those, which signify the objects and manners of our thought:

“Or il est aisé de voir que les deux termes appartiennent proprement à la première opération de l'esprit, parce que c'est ce que nous concevons, & ce qui est l'objet de notre pensée : & que la liaison appartient à la seconde, qu'on peut dire être proprement l'action de notre esprit, & la manière dont nous pensons. Et ainsi la plus grande distinction de ce qui se passe dans notre esprit, est de dire qu'on y peut considérer l'objet de notre pensée ; & la forme ou la manière de notre pensée, dont la principale est le jugement. (...) Il s'en suit de là que les hommes ayant eu besoin de signes pour marquer tout ce qui se passe dans leur esprit, il faut aussi la plus générale distinction des mots, soit que les uns signifient les objets des pensées, & les autres la forme & la manière de nos pensées, quoiqu'ils ne la signifient pas seule, mais avec l'objet” (p. 30).

Words expressing the objects of thoughts are noun, pronoun, participle, preposition, adverb and article. Words expressing the manner of thoughts are verb, conjunction and interjection:

“Les mots de la première sorte sont ceux que l'on a appelé *noms, articles, pronoms, participes, prépositions, & adverbess*. Ceux de la seconde, sont *les verbes, les conjonctions, et les interjections*” (ibid: 30).

Thought in <b>Logic</b> (Ideas)		Speech in <b>Grammar</b> (Words)	
<i>PENSÉE</i>		<i>LANGUE</i>	
<i>LOGIQUE</i>	<i>Percevoir</i> (Perception)	<i>objet</i>	<i>nom</i> <i>pronom</i> <i>participe</i> <i>adverbe</i> <i>préposition</i> <i>article</i>
	<i>Juger</i> (Judgment)	<i>forme</i>	<i>verbe</i> <i>conjonction</i> <i>interjection</i>
	<i>Raisonner</i> (Reasoning)		
			<i>GRAMMAIRE</i>

### 3.2. *The Port-Royal grammar and Brightland*

Some of the English grammarians follow Port-Royal's method even though they do not adapt their word classes.<sup>12</sup> John Brightland (1711) translates the Port-Royal grammar and takes it over without critical sense. *A grammar of the English Tongue* is composed by a juxtaposition of two texts, a text of the translation and the comments of the author. But he transformed the original text at the end of speech parts theory, and introduced his own theory:

“The Words of the first Class, are those which we call *Names, Personal Names*; QUALITIES deriv'd from *Words of Affirmation, or Verbs* (call'd in the *Latin Participle*), *Foreplac'd Words*, (or *Prepositions*), and *added Words*, (or *Adverbs*). Those of the second, are *Words of Affirmation*, (or *Verbs*), *Joining Words*, (or *Conjunctions*) and *Interjections*, as the old *Grammarians* call'd them Absurdly, distinguishing them into a peculiar Part of Speech, which

<sup>12</sup> Priestley's definitions of the verb and the adverb are, for example, dependent upon the Port-Royal definition. For the definitions of verb and adverb, see Donzé (1967: 27-34) and Swiggers (1994: 47-48, notes 34, 39).

are plainly only *added Words of Passion*”<sup>13</sup> (1711: 79, [71]).

Brightland does not mention the article as a separate part of speech and treats the interjection rather as an adverb than as an independent word class. And thus, he establishes his original four word classes, names, qualities, affirmations and manners:

“Words are naturally to that End, to be divided into four Original classes or Orders, i. e. *Things*, or rather the *Names of Things*; the *Qualities* of these Things, the *Circumstances*, *Action*, *Passions*, and *Beings* of Things; with their *Relations*, *Regards*, and *Connections* to, and with each other in Sentences. According to this, there are four Parts of Speech, or four Heads, to which every Word in all Languages may be reduc’d” (ibid: 76-77, [68]-[69]).

Participles and articles are included among the qualities, pronouns among the names. For the first time in the history of English grammar, the adjectives are separated from the substantives and constitute an independent word class. During the next century, the English and French grammarians follow this distinction of Brightland, and the adjective definitely acquires its grammatical status.<sup>14</sup>

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<sup>13</sup> Compare this citation to the text of p.30 of Port-Royal’s grammar.

<sup>14</sup> Priestly (1769) is, for example, proud of his innovation about the adjectives: “All the innovation I have made hath been to throw out the *Participle*, and substitute the *Adjective*, as more evidently a distinct part of speech” (1769: 20). According to Poldauf (1948: 155), Richard Johnson (*Grammatical Commentaries*, 1706, quoted by Poldauf) is the first grammarian who suggested the separation of two categories, but we know that Brightland is earlier than Johnson on this topic. We remember also that the adjectives constitute an independent chapter in *Grammatica Anglicana* de Greaves (see this article, note 5). In France, Girard (1747) carried out this separation in practice. For Girard, see Swiggers (1982).

Brightland	<i>Port-Royal</i>
<b>The Words of the first Class</b> Names (noun) Personal Names (pronoun) Qualities ( <b>adjective, article</b> , participle) Fore-plac'd Words (preposition) Added Words (adverb, <b>interjection</b> )	<i>Les mots de la première sorte</i> <i>article</i> <i>nom</i> <i>pronom</i> <i>participe</i> <i>préposition</i> <i>adverbe</i>
<b>The Words of the second Class</b> Words of Affirmation (verb) Joining Words (conjunction)	<i>Les mots de la seconde sorte</i> <i>verbe</i> <i>conjonction</i> <i>interjection</i>

William Loughton (1734), in his question-answer form grammar, copies Brightland's four parts of speech but changes the name of the fourth part into *particles* instead of *manners of words*:

“Q. What Things are properly the Subject of our Speech or Discourse ?

A. Whatever is the Object of our Senses, Reflection, or Understanding, may be the Subject of our Discourse, and this may be either a Thing or Substance, or the Manner or Quality of a Thing, or the Action of a Thing, or the Manner or Quality of that Action.

Q. Have we Words adapted to, and expressive of, these Things ?

A. Yes, and these are of four Sorts, which are sufficient to express all our Ideas or Notions of Things, and are therefore call'd the four Parts of Speech ; as 1. Names which express Things or Substance ; 2. Qualities which express the Manners, Properties, or Affections of Things ; 3. Affirmations expressing the Actions, Passions, or Being of Things. 4. Particles showing the Manner or Quality of Actions, Passions or Being, &c” (1734: 47).

He recognized the article as a quality of things and distinguished definite and indefinite articles:

“Q. What Part of Speech are *a* and *the* ?

A. Qualities being joined to Names, as other Qualities are, but they are usually called Articles.

(...)

Q. What is the Difference between *a* and *the* ?

A. *A* is called the indefinite Article, because it leaves the Sense of the Word to which it is prefix'd undetermined to what particular you mean (...) *The* is called a Demonstrative or definite Article, because it points out and determines the Sense of the Word, it is put before, to some particular” (ibid: 67-68).

Brightland's four parts of speech are taken by Samuel Saxon (1737) with other labels. The class of adnoun which was the Brightland's class of qualities consists of adjective, participle and pronoun. The pronoun was taken as a noun in Brightland's grammar:

“The Words or Parts of Speech are Four, viz. *Noun, Adnoun, Verb, and Particle*. Under the *Adnoun* are comprehended *Pronoun* and *Participle*, commonly called two distinct Parts of Speech. Under the *Particle* (by reason of its different Use and Signification) is comprehended *Adverb, Conjunction, Preposition* and *Interjection*, said to be four distinct Parts of Speech too” (1737: 34-35).

But Saxon links his four word classes to the traditional idea of declinable-indeclinable:

“Note, The *Noun, Adnoun, Verb* are termed declinable Parts of Speech ; but the *Particle* is an Indeclinable Part (i.e. it varies not it's Ending)” (1737: 34-35).

The article is a nominal sign for Saxon while it was treated as a quality in Brightland's grammars:

“*Of a Noun, &c. the first Part of Speech.* (...) The Particles usually placed before the Noun, are *a, an, or the* ; and distinguish it from an Adnoun” (ibid 35).

## Brightland (B)-1711, Loughton-1737, Saxon-1737

Brightland (B)		Loughton		Saxon (A)	
Names	Words of Affirmation	Names	Affirmations	Noun (Article as nominal particle )	Verb
Qualities	Manners of Words	Qualities	Particles	Adnoun Adjective Pronoun Participle	Particle Adverb Conjunction Preposition Interjection
<b>Saxon (B)</b>					
			Declined Noun Adnoun Verb	Undeclined Particle	

### 4. Conclusion

Some of the English grammarians at the beginning of the vernacular grammar tried to apply the French grammatical theories of parts of speech for English language but they did not obtain a more satisfying result than the English grammarians who followed Greek or Latin traditions. However, the grammatical analysis was becoming more and more discerning with their attempts.

The Port-Royal grammarians clearly distinguished the adjectives from the substantives, but these two parts of speech remained within the same category, noun. Brightland who introduced the Port-Royal grammar into England, definitely separated these two categories for the first time in the history of English and French grammars. Several English grammarians immediately followed Brightland's division, but more than half a century was necessary for the French grammarians to accept the separation of the adjectival category from the substantives. The French adjectives, which reflect nominal inflexions, might have prevented the French grammarians from reaching an agreement to the separation of the two categories.

The independence of the adjectives has shaken the entire division of parts of

speech because the grammarians tried to retain the same number of speech parts as before. The participle, which generally had stayed as a separate part of speech or had been treated as a noun in England and in France, was becoming a topic whether or not it should be considered as a part of the verb category but only from the middle of the 18<sup>th</sup> century.

The article was recognized as an independent part of speech in the beginning of the 17<sup>th</sup> century in France by grammarians such as Maupas and Chiflet and acquired the modern definition and subdivision of this category in the Port-Royal's Grammar. But the majority of the English grammarians described the article as a nominal sign or particle, and some of them defined the article as an adjective. The English grammars generally deemed the article a separate word class in the middle of the 18<sup>th</sup> century. The English articles which, compare to the French ones, have reduced forms and usages, did not attract enough attention of the grammarians of that time. Here too, their concern with the 8 parts of speech would have exercised an influence. Curiously, neither the French grammarians nor the English grammarians paid attention to the original and pertinent analysis of one of the first grammarians of vernacular language, Palsgrave who, writing a first French grammar in 1530, not only recognized the article as an independent part of speech but also denied the existence of case in the article. Would this English gentleman not have been considered as an authentic grammarian of French language in England? And, in France, would he have been a grammarian who hurt the pride of French grammarians by his first French grammar?

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# Effects of Morphological Transfer in prepositions of Spatial Reference on Korean Learners of English

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## Abstract

This study aims to find out whether there exists a morphological transfer in using English preposition of the spatial expressions by Korean Learners of English at a different level and what kinds of process is under surface of the transfer. Since it was widely accepted that prepositions and other linguistic entity that plays what prepositions are severely difficult for second language learners to attain, there have been a lot of studies on exploring the nature of learning difficulty in prepositions. Among various uses of prepositions, the study focused on the spatial reference with three different levels of Korean learners. Two different types of verbs that require either location or direction preposition were used to see the possible transfer effect. The learners were given several pictures and six descriptions for each picture using different preposition, and were asked to judge grammaticality of each sentence. The result of the experiment showed that in directional preposition, learners showed a strong tendency to choose a preposition that corresponds to the literal translation of the Korean. In location preposition, *on*, frequently translated to Korean correspondence *-e*, are much easily understood by Korean learners that *in*. Moreover, Korean learners showed similar patterns in using prepositions with the different verb types. That is, literal translations, or semantic features of preposition play more important role in learners' choice on preposition of spatial reference

## 1. Introduction

Prepositions are generally known to be the most difficult part for foreign learners to attain. (Celce-Murcia and Larsen-Freeman, 1999; Lindstromberg, 1996) One of the reasons suggested is the interference from the learner's first Language(L1). The issue of language transfer has been researched upon from many aspects in the fields of second language acquisition (SLA). However, transfer effects in prepositions have remained relatively unnoticed. This is partly because prepositions are included in a domain that is usually believed to be free of transfer.

Prepositions or any other linguistic unit that is compatible to the English prepositions play a many different roles in a sentence and assume a critical part in morphology that varies cross linguistically. For instance, Korean has abound, agglutinative (postpositional) morphology whereas English has a free, prepositional morphology. Since bound morphology is regarded as a domain where transfer effects do not occur, it has be has rarely been researched whether there exist transfer effects among languages that have difference morphological system.

The issue of transfer on prepositions between Korean and English was being researched by Kim& Kim (1999). They proved that Koreans have difficulty in acquiring prepositional system due to the absence of the corresponding system in their L1. They conducted a cloze-test with which should be filled with one of the five kinds prepositions *at*, *on*, *in*, *for*, and *with*. Korean learners at the beginner level tend to accept the sentence with no preposition (Null preposition) in an obligatory context, and such

phenomenon decreases with participants' increased proficiency. They did not specially divide the functions of prepositions.

Jarvis & Odlin (2000) also have investigated on transferability of bound morphology. They especially focused on one of the main functions of prepositions, a spatial reference. They have classified the English morphemes of spatial reference system into three categories: source, location (place) and direction (goal). The English prepositional system was compared with corresponding L1 spatial reference system with participants of Swedish learners and Finnish learners of English. The study found out that L1 influence is at play in the morphological system. It showed that the semantic transfer in learner's spatial reference and simplification in the area of SLA occurs.

Another study of Eng et al. (2004) also has asserted that learners' L1 seems to have an effect on acquisition of preposition system of English with Chinese learners of English. The study specifically investigated the acquisition of prepositions of locational and directional reference with participants at different levels. It showed that the English preposition of location seemed more problematic than preposition of direction for L1 Chinese Speakers on account of cross-linguistic influence. Furthermore, it proved that age and proficiency levels have an effect on the acquisition of English prepositions.

Along with researches above that considered the nature of prepositions themselves, Inagaki (2000, 2001) has focused on interpretations of verbs and prepositional phrases (PP) following them. It was unique in a sense that taking types of verbs into consideration. The study asserted that in English, manner-of-motions verbs with location PPs can be interpreted in either location or directional meaning in English. However, such interpretation is not possible in Japanese due to the difference in argument structure. It is this difference between Japanese and English in motion verbs that allows different ways in interpretations. Hence, while native speakers of English interpret certain sentences to be directional and location, Japanese fails to interpret the sentence in both way, but likely to involve the sentence with location meaning only. The study suggests a possibility of different process regarding the acquisition of prepositions according to the verb type and yet another possibility of L1 effects. Kim (2005) has replicated Inagaki's experiment with the Korean learners and proven that Korean learners as well tend to interpret the manner-of-motions verbs with location PPs in location meaning only, also possibly attributable to the L1. These studies imply that different types of verb would affect the use of prepositions in spatial reference in Korean.

Given that Korean is somewhat close to the language system of Finnish, it might be noteworthy to see if language transfer in morphology does take place between English and Korean as well. In addition, with different kinds of verbs being observed, it is possible to find out what kind of and how the process of language transfer is occurring whether it's semantic similarity or the argument structure. Moreover, the use of English preposition of spatial reference is observed with the participants of different level, so as to identify the possible differences to what degree L1 effect is applied.

To sum up, this study aims to find out whether there exists a morphological transfer in using English preposition of the spatial expressions by Korean Learners of English at a different level and what kinds of process is under surface of the transfer. As will be seen, the patterns of spatial reference preferred by the Korean learners are quite different from the native speakers of English and such results reflect the influence of their L1, Korean. Before the procedure is introduced, some of the theoretical

background is discussed for the better understanding. First, it includes the concept of morphological transfer, and secondly a comparison of morpho-syntax of spatial reference between Korean and English. Finally, the different types of motion verbs and PPs and their interpretations are explained briefly. Then, the research method used in the study is described with the information of participants and data collection. Finally, the result of the experiment is presented with possible explanation suggesting a possibility of semantic transfer to English spatial reference system.

## **2. Theoretical Background**

### *2.1. Morphological Transfer*

"Transfer" is defined as a learner making an interlingual identification and applying one's knowledge of one language to another. Morphological transfer means a cross-linguistic influence involving any free or bound morpheme. (Jarvis&Odlin, 2000) Bound morpheme itself can be classified into two types of morphology; that is, derivational morphology and inflectional morphology. It has been asserted by many researchers that "overt inflectional morphology generally does not transfer from NL to L2"(Eubank, 1993/1994). However, according to Jarvis&Odlin, the transfer can take place in bound morphology as well in two ways. It is possible that the transfer could occur both on semantic and phonological structures, or it can occur purely on semantic basis. Although the effect of transfer in the domain of bound morphology has been laid unnoticed, there are certain possible effects that have become manifest due to cross linguistic differences. For example, word order errors in English produced by Finnish learners might have arisen due to the difference in morphology system between two languages, in that Finnish have highly flexible word order with a highly developed bound morphology. Therefore, the transferability of bound morphology can be investigated by observing the use of prepositions of spatial reference of two languages.

### *2.2. Typological Comparison*

English and Korean are different in several aspects by typological comparison. One of the main characteristic of Korean that is different from English is that Koreans have rich suffix systems (postpositional systems) that express its nominal case, whereas English does not overtly realize its Case. Rather Cases are given structurally in English. English instead have richer systems in grammatical article and prepositional systems.

English prepositional systems function as to represent spatial, temporal, and other grammatical and semantic relations (Jarvis&Odlin, 2000). Koreans, on the other hand, only have two or more postpositions that are used to realize its nominal case system. That is, most of the spatial and temporal relations that are expressed in English with prepositions are expressed in Finnish through the nominal case system, and all others are expressed with postpositions.(Jarvis&Odlin, p.542) Spatial reference expressed with prepositions include three functions; location, direction, and source.

However, since prepositions referring to source are quite distinct from the location and direction prepositions, and because of aim of the study is to investigate the

use of preposition usage in directional and locational sentence, prepositions of source have been excluded in the observation of the paper.

Korean Locative cases			English basic spatial prepositions	
	goal	goal/location	goal	goal/location
Internal	<i>~an-i-ro</i>	<i>~an-e(seo)</i>	into	in
External	<i>~ui-ro</i>	<i>~ui-e(seo)</i>	onto	on
Neutral	<i>~ro</i>	<i>~e(seo)</i>	to	at

Table 1. Typological Comparison on spatial reference between Korean and English

In Korean, there are two main corresponding postposition which assume what prepositions do in English is *~e* and *~ro*. *~e* fundamentally assume location reference, and *~ro* takes a directional reference.

*~e*, however, is used in many different functions as well such as [location] [place of action] [goal] [place of arrival] [adjacency] [source]. Thus *-e* is used both locationally and directionally. When used as [location], *-e* can alternate with *-eseo*, while it can be substituted by *-ro* when used as [goal] or [place of arrival]. Since [goal] and [place of arrival] both refer to direction, *-e* refers to both location and direction.

On the other hand, when *-ro* is used as directional reference, it is also replacable with *-e*. Thus, *-e* and *-ro* is conflated as directional reference. Thus, *-e* is used to describe both the [location] and the [landing site], or [goal] in Korean as shown following.

(1) na-u bang-un echug-e itta.  
My room second floor-at/on/in placed.

(2) ilyoil- mada kyohoi-e kanta  
Sunday-every Church-to go.

*~e* in the context of the sentence in (2) can be substituted to *-ro* in Korean, and has a contrastive meaning.

(2)' ilyoil-mada kyohoi-ro kanta.  
Sunday-every Church-to go.

The factor that decides which postposition is used depends on the semantic factors of verbs, the NPs before them, and a given context.

### 3. Research Questions

- (1) Do learners show gradual development in using both direction and location prepositions?
- (2) In what way the learners' L1 have an effect on the use of prepositions of spatial reference?

- (2-1) Do learners show a semantic and phonological transfer or semantic transfer only?  
 (2-2) Which preposition do learners have more trouble in judging grammaticality?

## 4. Research Method

### 4.1. Participants

The participants were forty nine university students who were selected from different majors. They were classified by their TEPS score. A group of students that has less than 500 was classified to the beginner group, and a group of students who got between 501 and 700 was classified into an intermediate group. Finally, the rest of the participants, who had received more than 700 were classified to advanced group. The indicator basically reflects the minimum guideline suggested by College English Center, which is used to help students to take the English class according to their level. All of them at the time of experiment were attending one of the three English classes which are recommended as an obligatory by College English Committee.

	Beginners	Intermediate	Advanced
TEPS	below 500	501~700	above 701
Number	15	14	20

Table 2. Number of Participants by their level

None of the beginner and intermediate group students have had stayed in English-Speaking country and 4 students from advanced group had an experience of receiving formal education in English-speaking countries no more than three years. Additionally, four native speakers of English participated in the research as a control group. They did the same questionnaire with the instruction in English.

### 4.2. Material

A grammaticality judgment task, with pictures and descriptions which contain 6 types of preposition and 3 types of verbs, was used. In each picture there was a "figure"(an object that moves) and the "ground"(an object with respect to which the figure moves) (Talmy, 1985). Both the figure and the ground was labeled to ensure that participants were familiar with the vocabulary and the scene. There was also an arrow in each picture, which participants were told was being used to indicate the direction and endpoint of the motion depicted in the picture. (See Appendix) Prepositions and Verbs included in the questionnaire are as following:

#### 4.2.1. prepositions

The target items in the questionnaire had a picture and 7 sentences, among them six contained one English preposition from 6 prepositions in Table 1, and one more sentence without a preposition(null preposition). Thus, a picture had 7 sentences below

it. The 7 sentences were randomly distributed to minimize any possible ordering effects.

#### 4.2.2. *verbs*

The number of verbs used in questionnaire is four, one of them being a distractor. Among the three verbs, two of the verbs were adapted from the study of Jarvis&Odlin(2000) and one from Inagaki(2001).

In study of Jarvis&Odlin(2000), participants were asked to write down a description of a silent movie and analysis was done with the three verbs each corresponding to location, direction, and source respectively. The result has shown that all of the native speakers involved the verb *sit* with the location preposition, and *take* with direction preposition. Since this study aims to find out the comprehensibility or acceptability as well as their actual production, the grammaticality judgment test containing two types of verbs were adopted rather than actual writing task.

In addition, the study of Inagaki suggested that the certain ambiguous verbs , combined with the conflation of goal/location prepositions, make certain English sentences have either location or direction meaning. The study used a picture matching task. It first provided a sentence that is ambiguous by itself, and provided a picture as a multiple-choice. In this study, as the aim is to observe the L1 transfer in use of spatial reference, the method is other way around; the picture is shown first and then the grammaticality judgment scale for learners to choose is given. By doing so, more detailed elaboration on learners' preference can be shown more clearly. Thus, the three verbs being researched on are as following.

1. location - sit
2. goal(direction) - take
3. goal/location - jump
4. distracter - enter

#### 4.2.3. *Data collection*

Participants were asked to judge to what degree each sentence sounded natural or grammatical as a description of the situation depicted in the picture. Judgments were given on a five-point scale ranging from -2(completely unnatural) through 0(not sure) to +2(completely natural). In addition, participants were asked to write a short description of the picture in Korean so as to observe any possible transfer effect from L1. The experiment was done within 10 minutes for all participants.

#### 4.2.4. *Data Analysis*

Firstly, the mean value of prepositions used with each verb was calculated and compared by the learner groups. Then picture description in Korean was analyzed. The morphemes used in spatial reference was sorted and counted.

## 5. Result

### 5.1. *Location verbs*

5.1.1. *sit*

5.1.1.1. *results* First of all, the mean value of prepositions used with *sit* and *grass* was calculated. The value for each preposition is clustered by learners' proficiency level.

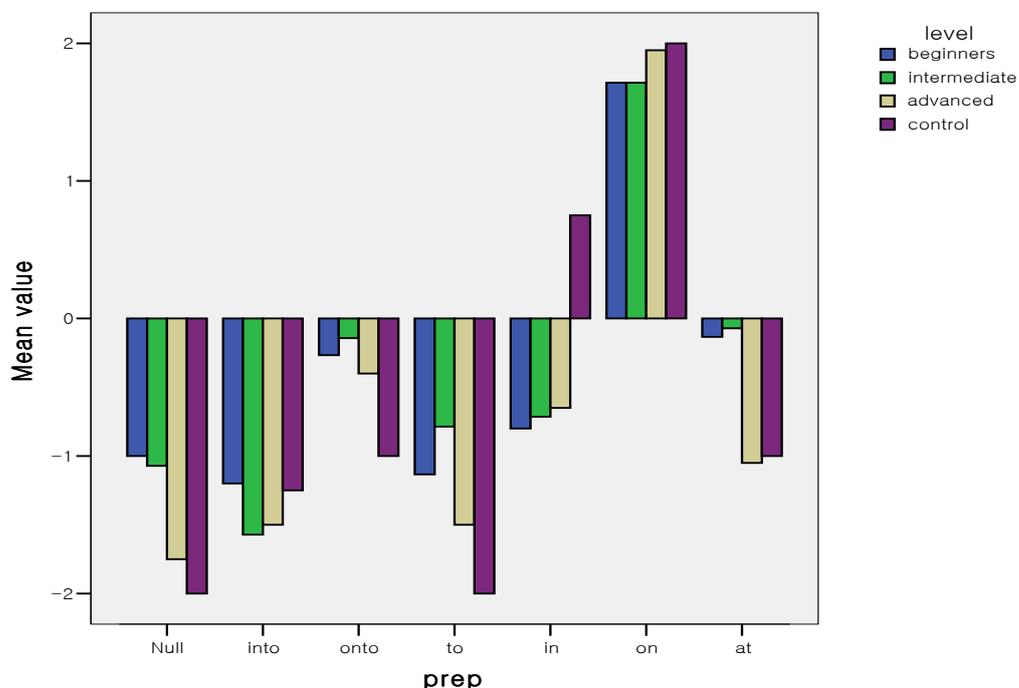


Figure 1. The mean value of prepositions used with *sit*

As for goal/location prepositions, *on* is most preferred by both learner and control groups. *in* is judged as natural by control group, but not by all three learner groups. Finally, *at* is judged as unnatural by control and advanced learner group, but the other was unsure. For goal prepositions, it was quite significant that *to* and *onto* was regarded unnatural for control group, but was more natural for learner groups, and they showed gradual development for with proficiency level except for intermediate group. Note that use of *at* is quite different between groups and it is confirmed by One way ANOVA result. (  $F=5.406, p=.003, <.05$ )

Then Korean morphemes were counted. Table 3 shows the count and percentage of Korean postposition morphemes used by each group. It is shown that Korean postposition used in the description test was mostly ui-e and e. e is especially preferred by intermediate group.

	beginners		intermediate		advanced	
	Count	%	Count	%	Count	%
ui-e	9	60.0%	5	35.7%	11	55.0%
e	5	33.3%	8	57.1%	9	45.0%
etc	1	6.7%	1	7.1%		

Table 3. Frequencies for Korean morphemes for *sit*

5.1.1.2 Analysis Location prepositions in English, *at*, *on*, and *in*, is altogether can be translated to *e* in Korean. Direction preposition *-to* also can be translated into *~e*, since *~e* can refer to either location or direction. Thus, relatively high acceptance of *to* and *onto* by learner groups can be explained in terms of overgeneralization of *at*.

5.1.1. jump [location]

5.1.1.1. results The result shows similar pattern as in *sit*. Figure 2 represents the mean value of prepositions used with jump as a location reference. For goal/location prepositions, it is clear that *on* is regarded as most natural by both the learner groups and the control group. While *at* is completely unnatural for control group, learner groups judged is to be slightly natural, and the naturalness decreases with increased proficiency. *in* is judged to be slightly unnatural for all four groups, with intermediate group being prominent among 4 groups.

In goal prepositions, *to* is judged to be completely unnatural by control group. On the other hand, learner groups' judgment of the sentence shows gradual increase in unnaturalness. That is, more advanced learners are, the more likely they will judge the jump to be unnatural. *into* is regarded to be completely unnatural for control group and more unnatural by learner groups, too. Advanced groups, however, is significantly different from the two other learner groups in that they judged the sentence to be less unnatural. In addition, *onto* is by all four groups regarded as rather unsure to judge naturalness. Use of *into* is significantly different between groups. The Kruskal-wallis test was conducted instead of ANOVA because the results failed to satisfy prerequisite qualifications to conduct ANOVA (into : Chi-Sq.=8.371, p=.015) In addition, though found to be statistically insignificant, *at* is also interesting to note. (Chi-Sq.=5.052, p=.062)

Next, the kind and number of Korean morphemes was looked into. Table 4 shows actual count and percentage for each Korean Morpheme used by learner group.

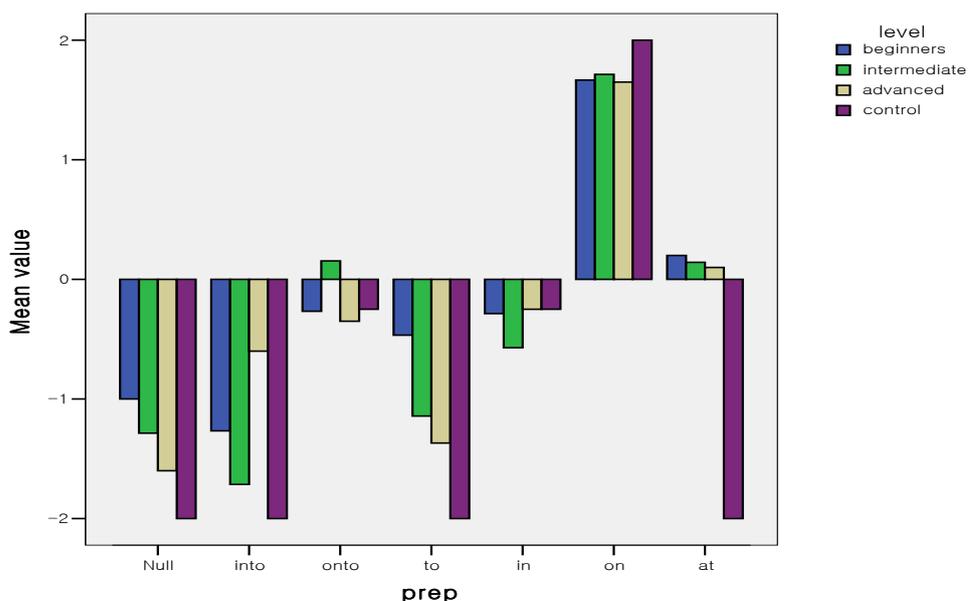


Figure 2. The mean value of prepositions used with jump (location)

	beginners		intermediate		advanced	
	Count	%	Count	%	Count	%
ui-eseo	12	85.7%	8	57.1%	14	70.0%
eseo	1	7.1%	6	42.9%	6	30.0%
etc	1	7.1%				

Table 4. use of korean morphemes with jump(location)

Note that *eseo* is prevalent in the description test. As mentioned, *e* used as [location of action] can be replaced with *eseo*.

5.1.1.2. Analysis Since, *eseo* can be translated to all three locative prepositions in English; *at*, *on*, and *in*. learners are left with much wider choices when referring to locational reference. However, Learner groups tend to prefer only one preposition, *on*, for referring to one spatial reference.

Learner groups have difficulty in deciding grammaticality of other locative prepositions. Among three directional prepositions, onto which share *on* phonologically and semantically, is regarded as least unnatural.

## 5.2. Directional Verbs

### 5.2.1. take

5.2.1.1. results The mean value of prepositions used with *take* and *car* is clustered by learners' proficiency level, illustrated in figure 3.

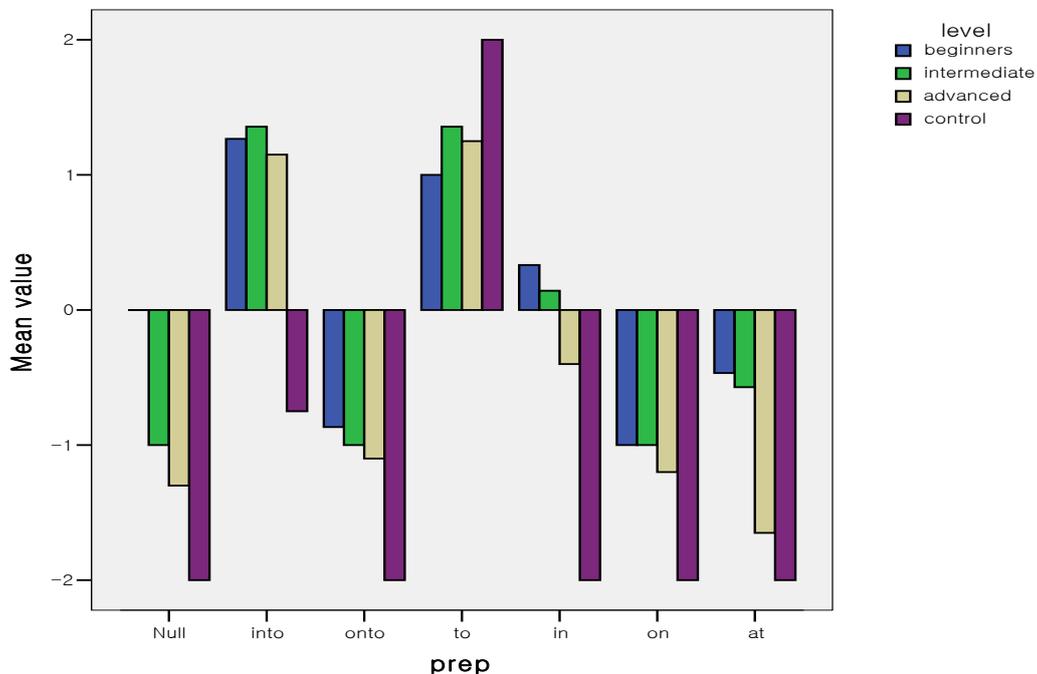


Figure 3. The mean value of prepositions used with take(directional)

	beginners		intermediate		advanced	
	Count	%	Count	%	Count	%
ro	9	60.0%	3	21.4%	10	50.0%
e	3	20.0%	8	57.1%	6	30.0%
an-i-ro	1	6.7%			2	10.0%
etc	2	13.3%	3	21.4%	2	10.0%

Table 5. Use of Korean Morphemes of take (directional)

All three location prepositions are judged to be completely unnatural by the control group. Learner groups' judgment tend to accept these prepositions; *at*, *on*, and *in*, by the order of difficulty. For goal prepositions, the result shows that *to* used with take is accepted as most natural by all four groups. However, while *onto* is judged as completely unnatural by the control group, and learner group show gradual similar aspect in grammaticality judging with increased proficiency. Likewise, *into* is judged to be unnatural by the control group; on the other hand, all learner group replied it to be quite natural. Use of preposition *at* is again significantly different between groups..(Ch-Sq=12.631, p=.003)

The result of Korean description test is shown in table 5. *-ro* and *an-i-ro* takes up the most of the Korean morpheme used to describe the scene. What is significant is that unlike location verbs which only one kind of preposition was used, *e* is quite frequently used in the description.

5.2.1.2. *Analysis* Learner of all levels have no problem in making *to* as the directional spatial reference. Learners tend to judge *into* to be natural, and this tendency is consistent with the low rate of unnaturalness of *at* by learner groups. It is likely that learner groups show difficulty in judging the ungrammaticality of sentences with location prepositions.

### 5.2.2. *jump [direction]*

5.2.2.1. *results* Goal/location prepositions were observed first. It has been already shown that because of semantic features of *jump*, it can be connected with goal/location preposition and refer direction. Such case is represented with low mean score of unnaturalness of *on* by control group while other two goal/location prepositions are judged to be completely unnatural. *at* and *in* shows similar patterns; learners show gradual decrease in score in judgment. For goal prepositions, it clearly shows that *onto* is preferred most by the control group while all learners group prefer *to* more. *into* is judged to be unclear by all groups except advanced learner group . Use of *on*, *into*, and *at* are found to be significantly different between groups.(into:Chi-Sq=8.926, p=.012; on:Chi-Sq=7.875, p=.02; at:Chi-Sq=5.871, p=.05)

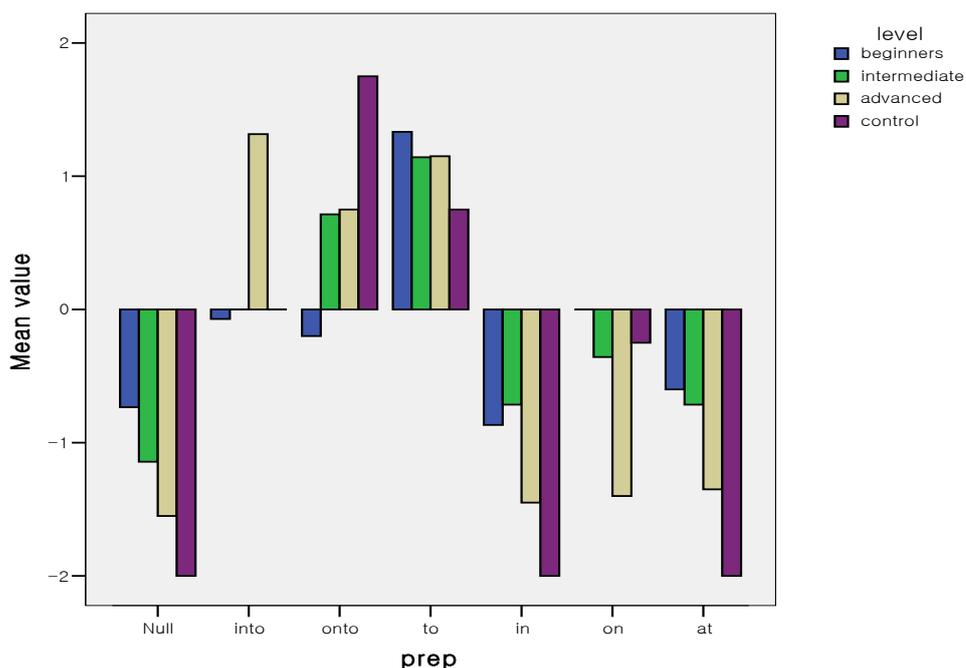


Figure 4. The mean value of prepositions used with jump(directional)

	beginners		intermediate		advanced	
	Count	%	Count	%	Count	%
ui-ro	5	33.3%	6	42.9%	3	15.0%
ro	9	60.0%	5	35.7%	14	70.0%
e	1	6.7%	2	14.3%	2	10.0%
etc			1	7.1%	1	5.0%

Table 6. use of korean morphemes with jump(directional)

Similar with *take*, *-ro* was most frequently used, but the number of alternations is noticeably low.

## 6. Discussion

- (1) In all levels of learner groups, the phenomena of Null preposition decreases with increased proficiency, bolstering the result of Kim&Kim(1998). Given that advanced groups show the similar aspects in using spatial reference to the control group, it can be assumed that the advanced group has reached a certain level in the acquisition development of prepositions of spatial reference. Then, by comparing the mean value of advanced group and the control group could possibly suggest the degree of attainment Korean learners can attain. In the respect, the difference between the advanced group and the control group is the greatest with the *take(directional)*, and similar in *jump(locational)* and *jump(directional)*, and finally

sit(locational). This result can suggest that Korean learners of English have more difficulty in using spatial reference with directional verbs than with locational verbs.

- (2) In location verbs, learners have trouble with judging location prepositions partly due to semantic transfer.
  - (2a) Because of the similarity in translation, *to* is regarded as less unnatural than other directional prepositions.
  - (2b) *at* and *to*, the neutral prepositions, show similar patterns.
- (3) In location verbs, learners make intralingual generalization besides of L1 transfer.
  - (3a) Learners tend to choose only one preposition for one scene.
  - (3b) Learners conflate the two categories of prepositions. *onto* is more preferred in both location verbs with which *on* is usually used; on the other hand, *into* is regarded as unnatural *in* proportion to *in* by learner groups. That is, if learners once judge one preposition to be grammatical, the prepositions morphologically similar to the one chosen is also regarded natural to the degree the chosen preposition is considered grammatical. Since learners make generalization in scope of English, intralingual application is at play.
- (4) In directional verbs, learners have more trouble in discriminating *to* and *into*. In other words, Korean learners, In referring to the directional verb *take* and *jump*(directional), Korean learners of English show a strong tendency to use consistent preposition with the similar semantic meaning. The two directional verbs in fact show different preference on prepositions, however they show a consistent pattern on their preference. *take* is preferred and accepted as natural with prepositions *into*, *to*, *in*. verb *jump*(directional) is preferred with *onto*, *to*, *on*. *to* is also considered natural by native speakers but the other two prepositions are not. Their translation test confirms that their misuse of spatial reference is closely associated with their understanding. This possibly means that Korean learners primarily consider semantic meaning before the grammatical function in using spatial reference.
- (5) Between verbs that can be interpreted in either location and direction and those that can be interpreted in both ways, learners seem to have no difference in using spatial reference. This also supports that learners use their semantic knowledge of prepositions prior to the grammatical functions.

## 7. Conclusion

Taking the research questions into account again, the following conclusion can be made.

- (1) The use of preposition in spatial reference shows a gradual development regardless of its type; location and direction.

(2) L1 semantic transfer is at play. Korean learners show similar aspect with the different verb types, which means literal translations, or semantic features of preposition play more important role in learners' choice of preposition. In direction verbs, learners show a strong tendency to choose a preposition that corresponds to the literal translation of the Korean. In location preposition, *at* is preferred in location reference that can be translated into *~e* in Korean. In addition, *in* is more difficult for learners than *on* or *at*. That is because *on* is more easily translated to *-e* in Korean and more frequently used in English while the use of *in* is restricted to specific context.

These conclusions need to be revisited with more semantic analysis of Korean. Also why and how the learner groups differ, especially what happen in development between beginner group and intermediate group is a part that needs a further research.

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# Perception of the quotative ‘be like’ by Korean learners of English<sup>1</sup>

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## Abstract

This study is a sociolinguistic investigation on the use and perception of the quotative ‘be like’ by local Koreans, with analyses from various perspectives. The paper is a combination of the following; a) an examination on the ongoing diffusion of the globally spread English quotative ‘be like’, taking one step further to hardly researched regions where English is not spoken as L1 (in this particular study, South Korea), and b) perception of the quotative ‘be like’ by Koreans especially indicated by their awareness in terms of differentiating the quotative ‘be like’ from focuser ‘like’. 37 informants were voice-recorded as they were engaged in casual conversation. Every instance of quotative including ‘be like’, together with other kinds of ‘like’ as well, was incorporated in the data set and analyzed. Retrospective interview was followed afterwards in order to examine the perceptual information. The results ascertain ‘be like’ having been incorporated into the English quotative system in Korea, even though the distribution of quotative indicates that traditional quotative ‘say’ represents the highest proportion. Comparing ‘be like’ to focuser ‘like’, utterances of the latter distinctively exceed the former in number. An attempt to account for this ramification is made regarding Koreans’ perception of ‘be like’. The majority of informants, though not all, does not differentiate the quotative ‘be like’ from the focuser ‘like’. While both the function and style of focuser ‘like’ are discerned by them, those of ‘be like’ are not. In terms of how the style of ‘be like’ is recognized and how it has transmitted, the concept of linguistic spatiality is discussed in relation to the issue of world Englishes.

**Key Words:** *be like*, quotative, focuser *like*, language diffusion, linguistic spatiality, world Englishes.

## 1 Introduction

Quotatives<sup>2</sup>, or ‘dialogue introducers’ (Johnstone 1987) in English encompass a wide variety of verbs which are used to report previous discourse whether it was indirect or direct speech, or inner monologue. Traditionally, ‘say’, ‘think’, ‘go’, ‘call’, and etc. have been regarded as lexical items used when quoting previous utterances or thoughts. Some of the examples are given in the following sentences.

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<sup>1</sup> A shorter and pre-revised version of this paper was presented at the Cil18 conference in Seoul, Korea (21st – 26th July 2008). I would like to express my gratitude to my advisor, Professor Hikyoung Lee, for her fruitful comments and feedback on this research. I also wish to thank Nari Lee for her help in collecting data and insightful suggestions, to all of my informants for bearing thirty minutes of recording and for being continuously patient with the following interview.

<sup>2</sup> Compared to other equivalent terms suggested in the literature such as *verbs of saying*, *dialogue introducer*, *constructed dialogue introducer*, the term *quotative* is the most encompassing in that it is ‘semantically transparent and neutral’ as pointed out by Blyth et al. (1990), Ferrara and Bell (1995) and many others.

- a. 'Donald,' Bech said, 'we would never eat any candy without telling you'. (Urdike 1965: 111, excerpted from Meyerhoff 2006)
- b. He was getting upset. So I thought, 'uh oh, this is not going well'.
- c. I said, 'hi, can I help you?' and she goes, 'oh, I was just getting some lemons'. (Buchstaller 2001b)

More recently, however, the newcomer 'be like' has been highly paid attention in the English speaking regions among sociolinguists because of its noticeable characteristics; another case of grammaticalization and its remarkable versatility and dynamic diffusion in terms of its usage. Unlike other existing quotatives, 'be like' is able to perform almost all the possible discourse functions from dramatic reports of previous utterances(d), dynamic actions or gestures(e) to inner monologue(f) (Blyth et al. 1990).

- d. I'm like, 'Can I please speak with Antonio?' And his mom's like, 'Oh no sorry! He's not home.' (Tagliamonte & D'Arcy 2004, excerpted from Meyerhoff 2006)
- e. And I was just like, '[making a face].' (Blyth et al. 1990)
- f. She was acting so strange again. We were like, 'oh no, what's she gonna do now?'

For the last two decades since it was first documented in scholarly literature (Butters 1982), 'be like' has been delved into from many different angles of research. Studies on 'be like' so far investigated a number of issues ranging from historical origin mainly in relation with its pragmatic shift with the concomitant process of grammaticalization (Romaine & Lange 1991; Buchstaller 2001a/2001b), constraints on the use of 'be like' such as tense, grammatical person, or content of the quote (Blyth et al. 1990; Tagliamonte & D'Arcy 2004; Barbieri 2005) to sociolinguistic distributions and frequencies (Blyth et al. 1990; Ferrara & Bell 1995; Tagliamonte & Hudson 1999; Dailey-O'Cain 2000; Macaulay 2001; Baird 2001; Winter 2002; Cukor-Avila 2002; Levey 2003; Tagliamonte & D'Arcy 2004; Barbieri 2005; Buchstaller 2006a; Tagliamonte & D'Arcy 2007) and attitudinal studies (Dailey-O'Cain 2000; Buchstaller 2006a/2006b). Some of these studies also explored the relationship between the quotative 'be like' and focuser 'like', a term suggested by Underhill(1988), indicating the use of particle 'like' with a function of introducing new information.

- a. Well, it's not like wonderful, but it's okay.
- b. Do we have to read like the chapters covered on the midterm for the final?  
(both excerpted from Underhill 1988)

As one might have noticed, proportion of the literature is concentrated on documenting the sociolinguistic distribution and frequency of 'be like'. This is due to the keen interest among sociolinguists in that this newcomer has been dynamically diffused in many varieties of English with or without spatial discontinuity. For example, Cukor-Avila observed the prevalent use of 'be like' within African American Vernacular English (AAVE) (2002). Outside of America, Tagliamonte and Hudson ascertained global diffusion of 'be like' across the British and Canadian corpora (1999) and Macaulay (2001) also documented the usage of 'be like' by adolescents in Glasgow. The spread did not stop there and further paved its way into Australian English (Winter 2002), New Zealand English (Baird 2001), and even into some countries where English is not used as L1, such as Singapore (Singler & Woods 2002 as cited in Buchstaller 2008) and Germany. For instance, Müller (2005) conducted a comparative study on the overall use of 'like' both as a discourse marker and a quotative between American native speakers and German EFL speakers with reference to age, gender, and linguistic factors. This study proves the diffusion of 'be like' into the countries which belong to the 'expanding circle', the outermost circle among the three concentric circles

schematization (namely, inner circle, outer circle, and expanding circle) in terms of the global situation of English, i.e., countries where English is used as a foreign language (Kachru & Nelson 1996).

The evidence of nonnative speakers' use of 'be like', though not altogether missing, is exiguous. Before the cases of Germany and Singapore mentioned above, it was first noted in Ferrara and Bell (1995) as they analyzed the corpus collected in Texas from 1992 in terms of ethnicity of 'be like' users. Nonnative speakers were categorized as 'Foreign students' among other ethnicities of Anglo, Black, and Hispanic. The result indicated that only 2 foreign students out of 200 people from diverse ethnic background used 'be like' in their narrative. Granted that the sparse use of 'be like' by nonnative speakers was at least documented, it was still very briefly covered with no significance. Thus, the following inquiries are yet to be definitively answered due to the lack of substantial empirical data: How far this global linguistic item 'be like' has traveled? Do speakers<sup>3</sup> of English as a foreign language use this non-standard innovation in speech? If so, in what percentage 'be like' is incorporated in their narrative? How is 'be like' perceived by them?

The present study is an attempt to provide some answers for the inquiries above. In general terms, the study sets out to probe the ongoing dispersion of the globally spread English quotative 'be like' in the EFL setting of Korea, and tries to explore the perception of 'be like' by Koreans. Elaborated research questions are as follows.

- 1) Has 'be like' been incorporated into the quotative system of Korean speakers of English? If it has, in what degree of frequency is it observed in their narrative?
- 2) Are there any localized features of 'be like', or other types of English quotative, manifested in their narrative?
- 3) Do they perceive 'be like' as a quotative, separately from the focuser 'like'?
- 4) Do they recognize the style of 'be like' or any kinds of 'like'?
- 5) How was 'be like' transmitted if it is observed?

Detailed explanation regarding the research method will be presented in the following section.

## **2 The Data and Method**

### **2.1 A preliminary study**

Investigating English language item in the region where English is rarely used is an extremely convoluted matter. The case becomes even more challenging to look into when the particular linguistic item under scrutiny belongs to the inventory of most casual speech, which is not overtly instructed in the EFL or ESL classroom setting. In order to ascertain the potential informants whose English competence exceeds the four walls of classroom, questionnaire sheets<sup>4</sup> which asked informants to paraphrase five sentences containing quotative 'be like' and focuser 'like' were distributed to 27 Korean learners of English stratified by proficiency, namely, beginner, low-intermediate, high-intermediate, and advanced. This grounding study showed that beginners and low-intermediates are generally confused about the word 'like' unless its referential meaning is used as the basic verb

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<sup>3</sup> This term will be used interchangeably with the term 'learner'.

<sup>4</sup> The questionnaire sheet for the preliminary study is provided at the end (Appendix 1).

meaning, ‘to be fond of’. Based on this preliminary finding, subsequent research selectively took the high-intermediate and advanced as informants, excluding beginners and low-intermediates. The rationale for this exclusion is twofold; firstly the probability increases substantially in terms of eliciting ‘be like’ or focuser ‘like’ from the informants who are high-intermediate and advanced, and secondly according to ACTFL(American Council on the Teaching of Foreign Languages) proficiency guidelines for speaking, the evidence of ‘simple narration and/or description’ emerges for the first time when speakers of foreign languages come to reach the high-intermediate level (ACTFL 1986). Therefore, in order to elicit narratives displaying various quotatives with solid probability of occurrences of ‘be like’, informants for the present study are selectively chosen according to their proficiency level. The informants who had been engaged in the preliminary study were not further included in the subsequent research.

## 2.2 Procedure

In the winter of 2007, 40 informants<sup>5</sup> were voice-recorded as each of them informally conversed with the interviewer (the author) for approximately half an hour in English. Out of 40 informants, three were excluded from the data since their speaking proficiency turned out to be below high-intermediate, not capable of eliciting narratives with proper use of quotatives. After 30 minutes of recording session was over, a follow-up interview was utilized in order to investigate overall perception of the quotative ‘be like’ by the informants, including their recognition of its style, the route from which ‘be like’ was transmitted to each informant if ever used, and their awareness in terms of differentiating the quotative ‘be like’ from focuser ‘like’. The off-record session was administered in Korean for thorough analysis about perceptual information of ‘be like’. All the informants were university students between 20 and 32 years of age and quite evenly distributed in terms of gender (16 males and 21 females). The data mainly consists of narratives of personal experience of each informant regarding family, friends, and their school life. The total of 37 recordings were analyzed with reference to the frequency of occurrence of ‘be like’ in comparison with other quotatives, and to the correlation between the occurrences of ‘be like’ and the focuser ‘like’. Informants’ overall perception of ‘be like’ was concomitantly analyzed based on the follow-up interview.

## 2.3 Analysis

All tokens of reported speech including direct, indirect, or inner thought were taken into consideration with regard to their introducers, i.e., quotatives. Most of the previous literature on ‘be like’ included five other major quotatives – say, go, think, zero, and others – when investigating the distribution and percentage of quotatives. The present study also adapted this inventory of six quotatives, plus another newcomer quotative ‘all’(Rickford et al. 2007 among others). In terms of non-quotative occurrences of ‘like’, the data revealed two other usages of ‘like’; one as a focuser and the other as a hedge. In a sentence, ‘like’ can be used as a focuser whereby the ‘new information’ of the sentence is conveyed (Underhill 1988), or as a hedge which expresses hesitancy or unsureness of the speaker (Johnstone 2002). All three different ‘like’ were counted and categorized.

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<sup>5</sup> The mean score of TOEIC(Test of English for International Communication) is 911.9, indicating that all the informants are securely placed above the level of high-intermediate.

### 3 Results and Discussions

#### 3.1 Partitioning of the quotatives

Table 1 shows the overall distribution of the quotatives used by Korean speakers of English. The total number of quotatives is 732 and the table below displays anomalous distribution of competing variants of quotative, compared to the result of other literature such as Tagliamonte and Hudson(1999), Tagliamonte and D’Arcy(2004), or Macaulay(2001).

**Table 1.** Descriptive statistics for the distribution of quotatives used by Korean speakers of English (Ratio statistics for each quotative/total n of quotatives drawn from 37 informants)

	M	SD	N
<b>say</b>	.406	.164	305
<b>be like</b>	.081	.152	68
<b>think</b>	.046	.070	32
<b>zero</b>	.244	.145	170
<b>others*</b>	.224	.130	157
<b>go</b>	.000	.000	0
<b>all</b>	.000	.000	0
<b>Total</b>	1.000	-	732

\* This category contained *tell, ask, advise, shout, call, be, be just, answer, and talk.*

As indicated in table 1, only ‘say’, ‘zero’, and ‘others’ significantly contribute to the total sum. There are 68 occurrences of ‘be like’, representing less than 0.1 percentage at most. Also, the standard deviation appears to be high (.152), suggesting the number of times ‘be like’ is used varies drastically; out of 37 informants, 25 of them did not use it at all while two speakers used it more than ten times. Another noteworthy result is that of ‘go’ and ‘all’. Among 37 informants, literally none of them uttered either ‘go’ or ‘all’. ‘Say’, however, almost takes up 40 percent of all the quotatives. Some of the samples are provided below.

- (1a) I’ve been worried about job applying these days and she said, “Don’t worry. You are qualified enough.”
- (1b) What they said was, (pause) “No, you can’t.”
- (1c) “Ten years is long enough for a couple to get divorced”, she said that.

Most occurrences of ‘say’ were similar to (1a), featuring the most ‘unmarked’ form of dialogue introducer (Tannen 1986, as cited in Romaine & Lange 1991), or less clear-cut as in (1b) and (1c) though all categorized into the quotative ‘say’. In accounting for the choice of quotatives, Romaine and Lange (1991) mentioned that it represents a significant communicative option, affecting styles and genres of a particular discourse. In the same vein, Givón (1980) characterized ‘say’ as a quotative ‘with no commitment’<sup>6</sup>(as cited in Romaine and Lange 1991). In keeping with these ideas, ‘say’ indeed has proved to be the most frequent form of quotative in many other studies as well (Blyth et al. 1990; Baird 2001; Tagliamonte & Hudson 1999 and many others). In addition to this, it may be surmised that the highest concentration on ‘say’ in the current data has something to do with interlanguage feature of L2 speakers in general. For example, one of the important interlanguage characteristics is the reduced system, both in form and function, resulting in one-to-many correspondence. Assumingly, this asymmetric relation between ‘say’ and various intentions to report previous

<sup>6</sup> Clark and Gerrig mentioned that the choice of quotative when demonstrating previous speech is influenced by ‘increased subjectivity’ (1990).

utterances may attribute to the highest percentage of ‘say’ among the inventory.

The second-highest quotative is ‘zero’ quotative, totaling 170 tokens, followed by almost the same number of quotative categorized as ‘others’, totaling 157 tokens. The allotment of ‘zero’ or ‘others’ represents an exceptionally high ratio, particularly with reference to other studies. For instance, in Tagliamonte and Hudson (1999), there are only a small number of others (*decide, tell, yell, ask, scream, shout, call, laugh, venture, feel, be just, and to be*); 4% in the British corpus and 5% in the Canadian corpus of all the quotatives. Among the category of ‘others’, the result also shows an uneven proportion, highly focalized on certain quotatives such as ‘tell’ and ‘ask’. More specifically, ‘tell’ and ‘ask’ consist of over two-thirds of all quotatives used in the ‘others’ category. Some of the samples are as follows.

(2a) He told me that, (pause) “Hey, I broke up with my girlfriend.”

(2b) Yesterday my mom asked me that, (changing intonation) “Do you know where that church is?”

(2c) My mom is really strict and uptight but my dad is the opposite. He is, “Don’t worry and relax.”

Here, the deviation from the standard use of English is manifested. Grammatically, ‘that’ in (2a) and (2b) requires a subordinate clause with subject and tense agreement, so that the sentence could be completed (e.g. He told me that he broke up with his girlfriend). Yet, the quoted dialogue introduced after certain cues such as the pause or changed intonation is clearly a direct quotation, which again brings up the issue of interlanguage, or speaker’s lack of proficiency. Also, a smattering number of ‘be’ or ‘be just’ as in (2c) were observed.

The effect of interlanguage may have caused another high concentration on ‘zero’ quotative as well. The following examples show that the speakers are operating ‘avoidance strategy’, one of the interlanguage features.

(3a) Every time we fight, he always touches emotional sides. (zero) “Don’t you have to accomplish something by now?”

(3b) Then I have no choice but lying to my friend. (zero) “Of course you look good today! I like your dress.”

(3c) I particularly emphasized it. (zero) “Please make sure the route before going out tomorrow.”

(3d) 20 minutes ago, I called my friend and (zero) “where are you?”

(3a-d) suggests that the informants chose to report previous utterances without further complicating the sentence, thereby avoiding the risk of potential ungrammatical utterances. Even though they did not utilize any overt quotative, the discourse flows smoothly facilitated by changed intonation and non-verbal expressions accompanied by the quotations.

As briefly mentioned earlier, the fact that literally none of the informants uttered either ‘go’ or ‘all’ is quite remarkable. The quotative ‘go’ has been existent since the 1980s (Butters 1980). Subsequent observations of ‘go’ as a quotative have continuously followed from many geographically separated regions including Canada, England, Scotland, Australia, and so forth (Blyth et al. 1990; Ferrara & Bell 1995; Winter 2002 among others). ‘All’, relatively new quotative, also appeared around the 1980s apparently originating in California. According to the current data, it might be safe to conclude that ‘all’, as well as ‘go’, did not enter the EFL setting of Korea for now.

The mean ratio of ‘be like’ to the total number of quotative, as shown in Table 1, indicates the low frequency of occurrence (N=68 out of 732). However, it has to be pointed out here that some direct quotations introduced by ‘say’ displayed a notable pattern. This is

illustrated in the following examples.

- (4a) She said, “You went too far and wreck the whole situation.”, or something like that.  
(4b) One of my friends hated that movie. (laugh) She said, “<sup>#</sup>I want to break the theater screen<sup>7</sup>”, or something.

These samples are categorized into the sector of ‘say’ for obvious reason, and yet this calls for further analysis. In (4a) and (4b), two different intents clash within an utterance. That is, ‘say’ and ‘or something like that’ contradict with each other since ‘say’ is a choice of quotative when a narrator wishes to report the verbatim of previous utterance whereas the tailed ‘or something (like that)’ has an intention of weakening former rendition. Because ‘or something like that’ at the end completely negates the effect of ‘say’, quotative expressions in (4a) and (4b) are eventually equivalent to the effect of ‘be like’ per se. Nevertheless, many informants insisted on using ‘say’ which reports an ‘accurate rendition’ of what may have been ‘explicitly lexicalized’ at the time of the event (Romaine & Lange, 1991, p.238), and tried to compensate this heavy verbatim rendition by adding a lighter element ‘something like that’ before or after the quote. Furthermore, the frequency of ‘accurate rendition’ in speech cannot be possibly higher than that of modulated speech in actuality. Unless all the lexeme of a particular utterance is carved into one’s brain for some sentimental reason, it is usually the case that previous utterances are stored in our memory with preserving only the overall meaning and the nuance of it, not the verbatim<sup>8</sup>.

Arguing that the use of ‘say’ with ‘or something (like that)’ at the end of the utterance might be considered a localized form of ‘be like’ is not very cogent. There are multilayered factors affecting the use of ‘be like’, or any other quotatives for that matter, by Korean speakers of English, in all probability mainly due to their imperfect English proficiency. Rather, the outstripping use of ‘say’ as a quotative and that of ‘other’ verbs of saying such as ‘tell’ or ‘ask’ can be seen as particularly localized feature of quotative usage in Korea. Even if the occurrences of ‘be like’ are not statistically telling compared to other variants and there are whatsoever no specifically localized feature of ‘be like’ observed, the study at least corroborated the diffusion of ‘be like’ traveling far enough to Korea. In the next section, the use of ‘be like’ by Korean speakers of English will be discussed in relation with the focuser ‘like’ and hedge ‘like’.

### 3.2 Magnifying the occurrences of ‘like’

With the evidence of diffusion of ‘be like’ in mind, further elaboration of ‘be like’ was followed. Concomitantly, data of non-quotative ‘like’ was examined in order to understand the status of ‘be like’ more fully, and in a more holistic perspective. Analyses in the present section are based on the number of occurrences of each ‘like’, and the number and percentage of informants who used it according to the types of ‘like’.

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<sup>7</sup> The superscripted symbol ‘#’ indicates a less-conventional English expression uttered by nonnative speakers of English. Native speakers of English might find the sentence awkwardly put, although the meaning may be understood.

<sup>8</sup> According to empirical research such as Issacs 1989, Hjelmquist & Gidlund 1985, Lehrer 1989, and Stafford & Dali 1984, people cannot remember an utterance word for word, even after a few seconds, with no painstaking endeavor to memorize it (as cited in Clark & Gerrig 1990).

Table 2. Descriptive statistics in terms of different uses of ‘like’

Types of ‘like’ and the number of each token from the data	The number of informants who used it	% of informants who used it
<b>‘be like’</b> (N=68)	12	.324
<b>focuser ‘like’</b> (N=193)	21	.567
<b>‘like’ as a hedge</b> (N=65)	20	.540

Table 2 shows the number and percentage of informants in terms of different uses of 'like'. Out of 37 informants, 12 of them used 'be like' when reporting previous dialogue and 21 of them forming over 50 percent uttered 'like' as a focuser. Similar number of informants (N=20) inserted 'like' during utterances as a hedge. In total, out of 37 informants, 25 of them (taking up to 67%) used the token 'like' at least once whether as a quotative, a focuser, or as a hedge.

As mentioned in the previous sections of the paper, the non-quotative particle ‘like’ can function either as a focuser, the introducer of new information in an utterance, or as a hedge, the effect of which is seemingly to ‘leave the statement slightly open’ (Underhill 1988, p.241). Refer to the following example in (5a).

- (5a) After I’d go to like college ... then get into a like computer program.  
(Underhill 1988)

In terms of actual counting of utterances, 'be like' has 68 cases and hedge 'like' has 65, almost the same as 'be like'. However, there are 193 cases of focuser 'like' in number, which is nearly three times as many as the cases of 'be like', or that of hedge ‘like’. What, then, would be the logical and cogent explanation for the oversubscribed usage of focuser ‘like’ by L2ers?

Unraveling the reason for this disparate use of ‘be like’ and ‘like’ seems to be a complicated matter. Perhaps the difference between the quotative ‘be like’ and focuser ‘like’, along with the definition given above by Underhill(1988), might be better understood by considering the process of grammaticalization. The use of ‘like’ as a quotative appeared later in time compared to the focuser ‘like’. This newly gained function of ‘like’ accompanied by stative verb ‘be’ as a quotative is seen as a prototypical example of grammaticalization, a process by which grammatical morphemes develop out of formerly lexical items (Romaine & Lange 1991; Ferrara & Bell 1995; Tagliamonte & Hudson 1999). The result of the present study indicates that ‘like’ as a focuser, and thereby a lexical item, is widely spread in use among those whose English proficiency suffice communicative goal, whereas quotative ‘like’, a grammaticalized item with a new grammatical function, is yet to be settled in.

Further examination on whether this is attributed to the weaker degree of grammaticalization on ‘be like’<sup>9</sup> or not had better be delimited in order to prevent the discussion at hand from running off the track. For now, it should be briefly pointed out that more traditional meaning of ‘like’ as a conjunction or a preposition, expressing ‘approximative’ seems to contribute to the increasing use of focuser ‘like’ in Korea. Examples (6a) and (6b) illustrate typical usage of ‘like’ as a purely syntactic particle, functioning as a conjunction(6b) or a preposition(6a).

- (6a) He looks like his father.  
(6b) Winston tastes good like a cigarette should. (Romaine & Lange 1991)

<sup>9</sup> For example, another typical example of grammaticalization is that of ‘be going to / be gonna’. The grammaticalized use of ‘go’ here had been stably conventionalized over time, even losing some of the original meaning of ‘go’; specifically motion and directionality (Hopper & Traugott 2003).

As Romaine and Lange argued, the ‘natural outgrowths of existing uses and functions of ‘like’ even in an EFL setting is ascribed to this ‘approximative’ meaning of ‘like’ (1991, p. 245).

The remaining question at this point, then, is to examine how the set of ‘like’ is perceived in terms of the function, style, and usage by Korean speakers of English. This perceptual information on different kinds of ‘like’ provides another rationale for the disparate use of ‘be like’ and ‘like’.

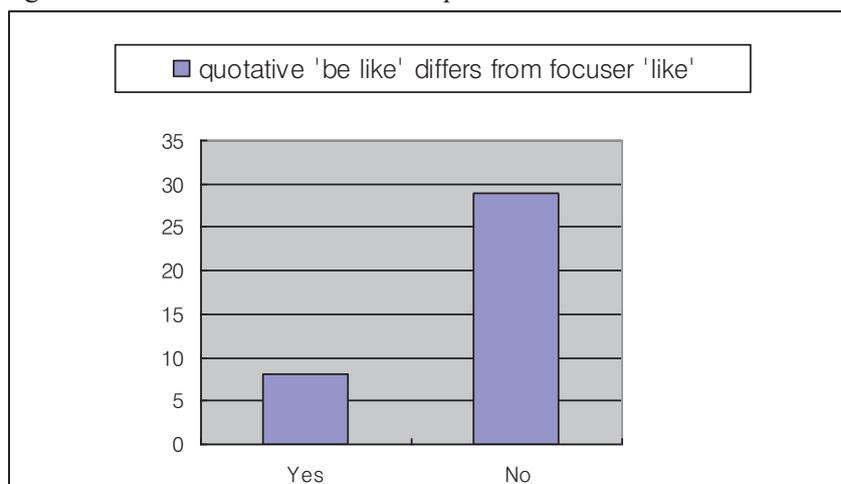
### 3.3 Perception of ‘be like’

#### 3.3.1 Differentiation between the quotative ‘be like’ and focuser ‘like’

In order to investigate the perceptual information of ‘be like’ by the informants, ‘think-aloud’ protocol was utilized in the follow-up interview by overtly casting questions on whether they were aware of the phenomena of ‘like’. The interview was conducted in Korean with each informant immediately after 30 minutes of recording session was over. Before asking about the difference between ‘be like’ and focuser ‘like’, the interviewer (author herself) demonstrated both uses of ‘like’ in a casual manner with a scripted dialogue<sup>10</sup> containing both ‘be like’ and focuser ‘like’.

Figure 1 illustrates the difference awareness over quotative ‘be like’ and focuser ‘like’ among 37 informants.

Figure 1. Difference awareness over quotative ‘be like’ and focuser ‘like’



8 informants out of 37 answered they do differentiate ‘be like’ from focuser ‘like’, while the remainder of 29 informants said they do not know the difference. All 8 of them who answered ‘yes’ to the question also used quotative ‘be like’ themselves. One common response from these 8 is their direct mentioning of the word ‘quote’ while explaining the difference between ‘be like’ and focuser ‘like’ to the interviewer. Also, grammaticality was another factor in determining both uses of ‘like’. For example, 2 informants out of 8 who answered ‘yes, they are different’ said that whereas ‘be like’ is grammatically indispensable, focuser ‘like’ is not.

However, the majority of the informants answered that there are no differences, comprehending the quotative ‘be like’ as a traditional meaning of ‘like’ as in ‘That cake is

<sup>10</sup> Refer to the appendix 2 for the script.

like Sam's birthday cake' (excerpted from Meyerhoff 2006), that is, an approximation of an event or a thing. Even 4 among 12 who used 'be like' during the recording in their discourse did not distinguish 'be like' against focuser 'like'. To the informants who did not differentiate the two 'like', more direct question was cast; with demonstration, the interviewer asked if they knew 'be like' could substitute 'say' or 'think', quoting previous remarks. Again, all the 29 informants are not aware of its quotative function. Considering the argument that it has to be noticed and processed for input to be incorporated into spontaneous speech of L2ers (Gass 1988 as cited in Ellis 1994), it might well be the case that those who do not perceive 'be like' as a quotative are not yet ready to integrate 'be like' into their storage. This line of thought provides an explanation for the small occurrences of 'be like' in the data. Because the informants do not distinctively recognize 'be like' as a quotative, the frequency of 'be like' appears low, which is not at all surprising.

### 3.3.2 Influence of perception on 'like' utterances

Out of 37 informants, 21 of them used 'like' as a focuser and the number of occurrences of it reached almost 200 (N=193). In the follow-up interview, the informants who used 'like' were particularly reminded of their own use of 'like' as a focuser by the interviewer and subsequently asked if they were aware of its usage. Unlike the unawareness of 'be like' as a quotative, they were aware of the feature of focuser 'like' to some extent; they perceived 'like' as an approximative with an emphasizing effect.

The overlap between quotative 'be like' and focuser 'like' has been succinctly pointed out by Buchstaller(2001b). The point she makes is that the quotative 'be like' is a subset of focuser 'like'. Based on Underhill(1988) and Blyth et al.(1990), she asserts that 'if 'like' co-occurs with quoted material, it focuses on the most significant information in a sentence', hence the quotation can be interpreted as 'a variant of that focus' (Buchstaller 2001b, p. 3). This, in turn, implies a partial awareness of 'like' by Korean speakers of English; since they do not perceive the quotative 'be like' whereas they do recognize the function of focuser 'like', more specialized subset of 'like' as a quotative is not as clearly delivered and activated as the encompassing set of 'like' as a focuser. Thus, perception as an influential factor for actual utterance of 'be like' or 'like' is ascertained. The follow-up interview revealed the overall perception of the quotative 'be like' and focuser 'like', which respectively accounts for the sparse use of 'be like' and spread use of 'like' as a focuser among Korean speakers of English.

Among 37 informants participated, 20 of them used 'like' as a hedge, or a filler. While this takes up over 50 percent of all the informants (.540), the number of occurrences ceases to go over 65. This means that on average term each of the informants uttered hedge 'like' only twice in their whole thirty-minute narrative. For nonnative speakers of English, hedge 'like' is the easiest to acquire due to its status as a discourse marker, functioning like other fillers such as 'well, now, you know, I mean, etc.'. This is because the designated location for fillers is not syntactically fixed. Yet, the number indicates a small number of occurrences of hedge 'like'. A possible conjecture for this could be established during the interview, when several informants mentioned that 'like' as a hedge seems to be an indicator of one's unclearness or unsureness and that they consciously tried to avoid using 'like' as a filler even though their speech might come to a halt.

### 3.3.3 The channel of 'be like' transmission into an EFL setting

Two questions were given to the informants in order to examine their recognition of the style regarding 'be like', and the source of their exposure to it. Specifically, the questions were 'do you think 'be like' is formal or informal?' and 'if you have heard or learned the use of 'be

like' before, how and where?' To the first question, their answers were strikingly unanimous; all 37 informants were not at all reluctant asserting that 'be like' is informal. To the sub-question of why, two of them shrewdly pointed out the formal setting of English education in Korea, saying they have never been taught the use of 'be like' formally (or in school). Some other informants mentioned that they have been trained not to use 'be like', or any kinds of 'like' in an academic setting. This is a feasible answer considering they are all university students with some extent of knowledge in academic writing or academic presentation.

Second question of 'how and where' yielded only two types of answers; interpersonal contact and media. Some informants were formerly exposed to colloquial English when they stayed in English-speaking countries<sup>11</sup>, and became the carriers of the innovation 'be like'. For those with no such experience, and yet being aware of the usage of 'be like', the only channel for them to have acquired colloquial English is media; movies and television show programs. Media as a channel of intercontinental transmission of 'be like' was noted by some researchers as well (Macaulay 2001 among others). In particular, movies and television programs are often utilized as authentic teaching material in Korean EFL setting. If media is the only source of authentic English, and in turn, Korean speakers of English acquired the innovation 'be like' from the media, both in its usage and also its style as ascertained in the previous paragraph, then the role of media in terms of the global diffusion of 'be like' in progress can be rightly claimed. In other words, since they know the proper context in which 'be like' can occur, the influence of media on the diffusion of linguistic innovations, or on SLA, at least, proves to be more significant than it has been acknowledged before.

As globalization has been accelerated for decades around the world, Euclidean concept of space is regarded as less deterministic than ever in terms of the spread of linguistic resources (Buchstaller 2008). This is especially the case when the linguistic item is mainly sustained by younger people, whose 'mediated' forms of contact including e-mail, blogs, web messengers, etc. might well be just as active, or even more so, than face-to-face communication. Then, the forum of language contact is by no means Euclidean or physical any longer. A growing body of sociolinguistic research, therefore, pursues the investigation on the globalization of sociolinguistic phenomena with emphasis on the reconceptualization of linguistic spatiality. The importance of linguistic spatiality is even more evidently acknowledged in the field of world Englishes and SLA as noted above. Along with the purely linguistic factor of L2, demarcating the boundary of a subsequent language learner in that they can hardly reach the level of native speaker proficiency, supra-linguistic factors also affect the way they speak. For example, if a new language is acquired through a particular channel, say, media (TV, movies, etc.), not only the language itself but a particularly attached style of that language becomes a non-negligible feature in the eyes of L2ers. Since a learner cannot distinguish the idiosyncrasies of the target language with the general aspect when first exposed to any types of language learning material, they tend to incorporate the input they receive with the existing L2 knowledge. Both the Americanization of English in Korea in a broad sense, and the spread of 'be like' or focuser 'like' in a narrower sense, are attributed to the channel of English transmission, in all probability mainly via the media especially

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<sup>11</sup> All the informants were controlled in terms of the staying abroad experience; learners of English who have stayed more than two years were excluded from the study. Among 37 informants, only three of them lived in English speaking countries up to two years and the remainder lived less than a year.

regarding casual and informal English.

#### 4 Conclusion

So far the study examined the use and perception of quotative 'be like' in an EFL setting of Korea. It holds its significance in that the present study is one of the sparse attempts to document the ongoing diffusion of 'be like' in an 'expanding circle' in terms of the world of English, where English is learned as a foreign language (Kachru 1985). The number of occurrences of 'be like' is albeit small compared to the traditional quotative 'say' which represented the highest proportion among all the quotatives, the number of informants who used it in their narrative reaches over one third of all the informants participated in the recording (12 among 37). This suggests that even though the frequency of 'be like' is low, the evidence of the diffusion of 'be like' is indeed manifested. Comparing 'be like' to focuser 'like', the latter distinctively exceeds the former in number. This is because the traditional meaning of 'like', expressing 'approximative', is closer to the use of focuser 'like' and subsequently affecting the increase in the use of 'like' as a focuser. In terms of perceptual information of 'be like', the majority of Korean speakers of English, though not all, could not differentiate the quotative 'be like' from the focuser 'like'. Regarding how the innovation has transmitted, the role of media was discussed in particular. Large amount of the media source mainly originates from America, resulting in Americanization of English in Korea. While the evidence of indigenous adaptation of the global English quotative 'be like' is revealed in many studies (Macaulay 2001; Winter 2002; Meyerhoff & Niedzielski 2003; Buchstaller 2008), it is still true that the 'English levelling' has taken place along with the global disperse of 'be like'. Further investigation on the use of quotative 'be like' by a variety of people from diverse linguistic and cultural background would shed light on the issue at hand, ideally when examined both in macro and micro perspective.

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### **Appendix 1. Questionnaire sheet**

Paraphrase the following sentences. (Try to switch the words as much as you can)

1. My mom was so angry. She was like, 'you are grounded for a month!'

→

2. It skinned us. It was like 'whoosh!'

→

3. He was getting upset. I was like 'uh oh, this is not going well'

→

4. Well, it's not like wonderful, but it's okay.

→

5. Do we have to read like the chapters covered on the midterm for the final?

→

### **Appendix 2. Script with 'be like' and 'like'**

A: I stayed at Lucy's last night.

B: You did? That's cool.

A: Yeah... but this morning my mom was so upset about it. She was like, 'you are grounded for a month!'

B: (laughing) Oh no! well, that's bad. Though the same thing happened to me before. Once I was sneaking into my house at about 5 a.m., and there was like my mom standing right in front of me as I turned the doorknob!

A: (laughing) She got you.

B: Yeah! So I was like 'Uh oh, this is not going well'

A: So what did you tell her?

B: Nothing. I just had to let her nag for hours... I was like, 'I'm sorry mom' (both laughing)

# FINDING LINGUISTIC PUBLICATIONS ON AND OFF THE WEB -requirements for an ideal search tool-\*

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## Abstract

The present paper discusses prospects and desired developments of the three major online bibliographies in the field of linguistics: *Linguistic Bibliography (LB)*, *Linguistics and language behavior abstracts (LLBA)* and *MLA International Bibliography (MLAIB)*. First of all it is argued that the best way to retrieve linguistic publications is the use of specialized bibliographical tools, because general search engines do not find everything available and the results they give are not precise enough; in addition, a great number of relevant linguistic publications are only retrievable in bibliographies as they are not represented on the internet otherwise. However, a comparison of the three bibliographies shows that none of them can claim full coverage of the field, each having a different focus. On the technical side, the online version of *LB* offers less sophisticated facilities than the other two, which hampers its usability. To enhance both the coverage and the usability of the three bibliographies, a number of improvements is suggested: for *LB* a rapid technical upgrading is needed; web harvesting combined with a form of automated indexing could guarantee a better coverage; possibilities for cooperation between the three and with other, more specialized bibliographies should be explored; and existing tools for adding entries, tagging and discussion could be applied to linguistic bibliographies, giving the users the opportunity to build user communities.

## 1. Introduction

In this paper I wish to discuss the continued need for and possible developments of special bibliographical tools for linguists. I will do this from the point of view of an involved user, compiler and editor of the *Linguistic Bibliography*, which has been published since 1949 under the aegis of CIPL, the *Comité international permanent de linguistes*. In my discussion I will refer to three important bibliographies in the field: *Linguistics and language behavior abstracts (LLBA)*, the *MLA International bibliography (MLAIB)*, both compiled and published in the USA, and, of course, the *Linguistic Bibliography (LB)* based in The Netherlands.

In the next section I will discuss why linguistic bibliographies are still needed at all. In section three I compare the present situation of the bibliographies discussed and give some suggestions for technical improvements. Section four describes some possible new developments and in section five I summarize the improvements suggested.

## 2. Why use a bibliography?

At present, the first question regarding bibliographies in general seems to be: do we still need them? Why turn to a bibliography when the World Wide Web offers us access to the full text of

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the publications we need? James Kelly, in his preface to a volume of essays devoted mainly to the future of the *MLAIB*, gave the following answer (Kelly 2003: 2):

“While computer hardware and software have been of unarguable benefit in easing and streamlining the work of data collection, they have in no way obviated the need for the judgment, discernment, education, and experience of the bibliographer in covering materials to be indexed”

and regarding the users of the kind of on-line services I just mentioned, he remarks: “... they may then fall into the trap of assuming that the limited number of full-text linkages represents the universe of scholarship...” (ibidem). Let me illustrate this last point with a few examples.

I searched the internet using two general search engines (*Google Scholar* and *MetaCrawler*), a search engine specialized in scholarly websites (*Scirus*), and a database of scientific journals (*Web of Science*). In their own words, *Google Scholar* “provides a simple way to broadly search for scholarly literature”, *MetaCrawler* combines results from “the Internet’s top search engines, including Google, Yahoo! Search, MSN Search, Ask Jeeves, About, MIVA, LookSmart and more”, while *Scirus* is a search engine which “...searches over 450 million science-specific Web pages”, and *Web of Science* gives access to “...information gathered from thousands of scholarly journals...” With each of these I tried to find documents dealing with phonological aspects of Basque consonants. In *Google Scholar* I restricted my search to the subject area “Social sciences, arts, and humanities” and excluded “Basque” as an author name, in order to make the search as specific as possible. With these restrictions, searching for the combination of the terms “consonant\* + phonolog\* + Basque” resulted in 24 hits. Of course, each of them contained all the terms given, but at closer scrutiny only one hit turned out to be relevant for my question; and this seemingly relevant hit did not lead to any document at all because the link was dead. Among the other hits were ones only distantly related, such as a dissertation on Northern Sotho, where the Basque language turned out to be mentioned in the context of syntax. Compared to *Google Scholar*, the search engine *MetaCrawler* offers considerably less sophisticated limitation options: in particular, it is not possible to define a search area or to exclude a search term when functioning as a personal name. Although, in consequence, my search was broader, it resulted in only 15 hits, none of which was really relevant to my question. My third and fourth experiments were even more disappointing: searching the subject area “language and linguistics” in *Scirus* for the combination of my three terms in the context of “complete document” gave 2 identical hits, dealing with Egyptian Arabic and not with Basque. The last one, *Web of Science*, gave no hits at all, even when I deliberately broadened the search by leaving out the phonology part of it.

These searches were performed on June 17, 2008 and, although an identical search may now produce other results, this case illustrates that not even the use of multiple search engines guarantees the retrieval of any relevant publication from the internet. Results such as these could lead one to think that publications on this subject do not exist, at least not on the internet. This, however, is far from true. Using a bibliographical database dedicated to linguistics, one will easily find what one is looking for. On the same June 17, 2008, the same search terms yielded 16 hits in *MLAIB*; 12 hits in *Linguistic Bibliography Online*, and 1 in *LLBA*. As might be expected, the results were partly overlapping so that these searches together gave 22 different titles. This remarkably better result is due to the fact that in these bibliographical databases descriptors are

added which will not necessarily be found in the title or even in the text of the publication, for example because they were published in languages other than English, such as Spanish, French or Basque. And indeed, none of the general search engines came up with titles in Spanish or French, whereas both *LB Online* and *MLAIB* did.

Yet, there are other developments which seem to make the need for bibliographies questionable. In the first place, the *Open Archives Initiative* (OAI) makes more and more data and documents easily accessible. More than 1,000 universities and other academic institutions give access to research material and publications through OAI. An important tool to search these archives is *OAIster*. Furthermore we have the digital archive *JSTOR*, which archives scholarly journals and other sources in digitized form, and the *Project MUSE*, a cooperation between libraries and publishers (predominantly not-for-profit publishers). Journals in *JSTOR* are stored from their first issue onward, up to a date as recent as agreed upon with the publisher. Usually it keeps pace 3-5 volumes behind current publication. The *Project MUSE* gives fulltext access to nearly 400 scholarly journals, in this case including the latest issues. Table 1 gives the number of journals from the field of languages and linguistics stored in *JSTOR* and *Project MUSE* in June 2008, compared with the number of journals listed in *LB* and *LLBA* in the same month. For *MLAIB* such a number could not easily be computed, due to the broader subject field of this bibliography.

Source	Journals
JSTOR (disciplines “language and literature” + “linguistics”)	23
Project MUSE (subject “language and linguistics”)	9
LB Online	2,661
LLBA	1,536

Table 1: number of journals covered by journal archives and bibliographies

Table 2 compares the number of records related to linguistics which *OAIster* found in open archives in June 2008, with the number of linguistic records retrievable in *LB*, *LLBA* and *MLAIB* at the same time.

Source	Records
Open archives	12,011
LB Online (1993-...)	237,419
LLBA (1973-...)	406,405
MLAIB (1925-...)	±473,000

Table 2: number of linguistic records in open archives and bibliographies

As these tables show, the number of journals in *JSTOR* and *Project MUSE* and the number of linguistic records in open archives constitute only a fraction of the number of publications available. It is clear, therefore, that this kind of archive is far from replacing linguistic bibliographies. And that is not what they pretend, either: witness the close cooperation between *JSTOR* and the *MLA* bibliography (Chen, 2008).

There is at least one more reason for the continued use of specialized bibliographies. Although we tend to think that everything relevant is retrievable online, it is by no means unusual for a scholarly journal still to appear in print only. To give just a few examples, this is true for *Agan*

*yeth: Cornish language studies* from Wales, *Akkadica: périodique bimestriel de la Fondation Assyriologique Georges Dossin* from Belgium, *English linguistics* from Japan, *Mongolovednye issledovanija* from Russia, *Working papers in the theory of grammar* from Hungary, and there are many more. In addition, there is a considerable number of journals which do maintain a website, but use this only to publish a table of contents without any further details. The site of the *MIT Working papers in linguistics*, for example, shows Tables of contents in pdf-format, without any information concerning subject matter, apart from the article titles themselves – no keywords or abstracts are given.

The facts mentioned above, in my view, provide a convincing argument for the statement that, at least in the humanities, scholars cannot do without bibliographies to retrieve all the relevant publications they need for their research.

### **3. How to improve linguistic bibliographies**

Returning again to the three bibliographies under consideration, *LB*, *LLBA*, and *MLAIB*, I will now consider what exactly they offer to the user and what improvements, if any, would be desirable for the short term.

The three bibliographies have much in common. Each of them covers the field of languages and linguistics but each with different limitations. Each of them appears both in print and in one or more digital formats – this paper will be concerned mainly with the online versions. The basic search facilities are more or less the same for all: every relevant field of bibliographic description may be searched, separately or in combination by means of Boolean operators. One desirable improvement for *LLBA* and especially for *MLAIB* would be to add some explanatory text to the many different descriptors. At present, the *MLAIB* user who wishes to search the database with the Search tools option is confronted with a long list of browsable indexes, not all of which have self-explanatory names, at least not in the version of *MLAIB* which is provided by CSA's Illumina. In this case, trial and error is the only way to find out the difference between descriptors such as 'language', 'subject language' and 'specific language'. Short pop-up texts explaining the scope of each index would be very helpful.

At other levels there are three main differences between the three bibliographies: viz. coverage, commercial vs non-commercial distribution, and technical facilities. First, although the coverage of the bibliographies is overlapping to a great extent, it is not identical: the focus of the *MLA* bibliography is on literature and history, and it covers the field of linguistics less extensively than the other two bibliographies. There is also a difference in bibliographical type: whereas *LB* and *MLAIB* are enumerative bibliographies, *LLBA* is an abstracting service, evaluating a list of journals which is much more selective than the one found in *LB* (there is no separate list of linguistic journals indexed in *MLAIB*). A very global comparison of the extent of bibliographic coverage may be gained from table 3, which gives the total number of linguistic records for each bibliography and the average annual increase since the year 2000.

Bibliography	records in print only	records online	increase per year
LB 1939-1992	±550,000		
LB 1993-...		237,419	±18,000
MLAIB 1925-... Linguistics		±473,000	±13,000
LLBA 1973-...		406,405	±14,000

Table 3: Number of records in three linguistic bibliographies, June 2008

Furthermore, both USA-based bibliographies show a clear focus on the Anglo-American world, paying less attention to publications in languages other than English. *LB*, on the other hand, used to claim full coverage of all linguistic publications, but changed its policy in 2006. Nowadays, the emphasis is on non-Indo-European languages and lesser known Indo-European languages. As regards the place of publication, it now focuses particularly on linguistic works published outside Western Europe and North-America. The differences in focus are clearly reflected in search results as exemplified in table 4.

Records on the English language 1993-present		
LB	15,081	6.4%
LLBA	13,866	6.6%
MLAIB	26,069	13.6%
Records on Mongolian languages 1993-present		
LB	1,300	0.55%
LLBA	54	0.02%
MLAIB	14	0.007%
Records on the Welsh language 1993-present		
LB	702	0.29%
LLBA	218	0.1%
MLAIB	243	0.13%
Records on the Macedonian language 1993-present		
LB	2,194 (in Macedonian: 1,737)	0.93%
LLBA	116 (in Macedonian: 15)	0.05%
MLAIB	203 (in Macedonian: 73)	0.1%

Table 4. Number of records on specific languages compared

For the sake of comparability, in this table I have limited my searches to post-1992 publications, the period covered by *LB Online*. In the third column the absolute figures are represented as a percentage of the total number of records for the given period. Rather than the absolute figures, it is the percentages that make the difference here. The *MLA* bibliography, especially, shows a clear focus on publications dealing with the English language, their share in *MLAIB* being twice as large as in the other two bibliographies. On the other hand, when we look at a non-Indo-European language such as Mongolian, the picture is totally different. For a “smaller” Indo-European language such as Welsh, the difference is not that great, but still remarkable. The differences are the more telling, when we also take into consideration the number of publications in a language other than English, exemplified here by Macedonian. At the same time these figures make it clear that none of the three can claim full coverage of the field of linguistics.

One way to make up for the incompleteness signalled above would be by offering to the user the possibility to carry out a federated search of the three databases simultaneously, a point to which I will return later. But even then there is little chance that together they will offer a really complete coverage, even if only because of a sheer lack of staff. A quite natural suggestion would seem to be to combine forces and financial resources and create one all-encompassing bibliographical database of linguistics. However, this does not seem to be a feasible solution, given the completely different organizational settings and scope of the bibliographies involved. In my view, a more promising solution would be, that each concentrate on their own strong points and extend their coverage by applying existing tools for automated harvesting of online resources. UKOLN (*UK Office for Library and Information Network*) is one organization developing this kind of tool. Apart from gaining a better coverage with less effort, there is another advantage connected with automated harvesting of metadata: the harvesting need not be restricted to the core bibliographical metadata (author, title, source). Further data such as abstracts and author's keywords, anything available in the free domain, could be harvested at the same time. This would broaden the set of searchable data in the bibliographical database and enhance the retrievability of the publications.

Another way to guarantee universal coverage to a higher degree than is possible now would be to establish cooperation with national or regional bibliographies of linguistics, as exist for example in Bulgaria, Finland and The Netherlands, and bibliographies on specific linguistic topics. This would be of importance especially for *LB*, as it focuses on non-Anglo-American regions and languages. Furthermore, the possibilities should be explored of facilitating federated searching of *LB* and as many specialized bibliographies as the user wishes, even of bibliographies not present in or subscribed to by the user's library. One way to achieve this could be to combine *LB* with mirror sites of this kind of specialized bibliography. Thus, optimal use could be made of local expertise for the benefit of the linguistic community at large.

A central, but also the most time-consuming part of the bibliographer's work is describing content by means of classification and/or keywords. This may be facilitated by applying tools for automated full-text indexing as developed by enterprises as Wordmap in the US, Collexis in The Netherlands and many others. It should be born in mind, however, that any automated system needs to be controlled, corrected and supplemented by the human expert to stay in tune with new developments and to prevent unforeseen mistakes.

The other two differences between the bibliographies under review are of a more technical nature. Both *LLBA* and *MLAIB* are commercially offered services, at prices affordable for libraries and other institutions only. *LB* is, at least until the end of 2008, a free service available to any interested person, independently of a library network. This partly explains the third difference: both *LLBA* and *MLAIB* fully facilitate a library's linking services, both to full text resources and to library catalogues. *LB* still lacks this function, just as *LB* cannot yet offer an alerting service as offered by *LLBA* and *MLAIB*. Many libraries make use of tools to facilitate federated searching over multiple databases, such as Metalib, provided that the databases support this function. The reason that these functions, which are rather standard, do not yet exist in *LB* lies in the hitherto non-commercial character of this bibliography as a result of which there have been no opportunities to find financial resources for further development after *LB Online* was first constructed around 1995. However, *LB*'s new publisher, Brill, announced plans to launch the

*Linguistic Bibliography Online* in a new form with enhanced functionalities and interface, bringing it completely up-to-date. This new version, expected to become available by mid-2009, will not be accessible free of charge any more, but licences will be sold to libraries and institutions much under the same conditions as now are valid for *LLBA* and *MLAIB*. All features now missing in the free *LB* will then become available: coverage of electronic publications, direct linking to libraries and online sources based on OpenURL and DOI, export facilities, alerting services and facilities for federated searching. On the other hand, a service offered by *LB* but lacking with *LLBA* and *MLAIB* is the possibility of submitting missing items directly to the editors. The new *LB* will, of course, preserve this function and I think *LLBA* and *MLAIB* should consider adding this facility, too.

#### 4. New developments

Developing linguistic bibliographies should not end, however, with adding up-to-date facilities. New ways and possibilities have to be explored in order to render optimal services to the user. One substantial innovation would be the application of ‘Web 2.0’ facilities to bibliographical databases. For users of social websites such as YouTube for pictures and videos or LibraryThing for book collections “tagging” has become a familiar concept. In the same vein I think it should be possible to add personal keywords to bibliographical records in the databases under review. At present, bibliographers decide which keywords apply to a given entry but necessarily their decisions are restricted by the limitations of the thesaurus used and by their personal view. When I put a picture of my garden on a public web-album, I do that perhaps because I am proud of my grapes and therefore give it the keywords “Grapes in Holland”. A professional grape-grower could add “Ill-treated Boskoop Glory”. Someone else, however, may not be interested in these grapes at all, but find the picture remarkable because it shows a specific kind of fence. So he or she adds the keyword “Dutch fence”, which I never would have thought of. Similarly, a linguistic article written by a syntactician may be characterized adequately by keywords like “conjunction” and “subordination” but it may be interesting for a psycholinguist for other reasons, too. When psycholinguists add keywords which are specific for their field of research, the publication will become more easily retrievable for their colleagues. Of course, the editors of a linguistic bibliography cannot be held responsible for these externally added keywords, so it should be made explicit not only that these keywords were added by a user, but also from which point of view they were added. But as soon as we arrive at that point, we could even go further and apply wiki-tools to create facilities for the discussion of these external additions, e.g. in the form of user communities.

In section 3 I have mentioned several times the subject of federated searching. Although a very convenient method in principle, there still are problems to be solved. One that should be solved by bibliographers themselves is that of the diverging use of keywords. To give only one example I am familiar with: the language indexes of *MLAIB* and *LLBA* have both “Flemish language” and “Dutch language” as descriptors, while *LB* correctly only has “Dutch”, for both variants of my mother tongue, cross-referring from “Flemish” to “Dutch”. In other words, to make federated searching as effective as possible, some kind of concordance should be established between different keyword indexes. This would become highly important, if my proposal to include several regional bibliographies in a federated search were realized, because certainly not all of

them apply English keywords. Perhaps the international organization behind both the CIL congresses and the *Linguistic Bibliography*, CIPL, could be the appropriate initiator of this kind of international cooperation between the bibliographers of linguistics.

## **5. Conclusion**

In sum, I see a number of short term and longer term desiderata for the development of linguistic bibliographies. For the short term, the upgrading of *LB* is the first thing to be realized. *MLAIB* and *LLBA* may easily improve their usability by adding short explanatory texts to the different kinds of descriptors and by creating the contact facilities already existing in *LB*. For the longer term five important innovations should be explored: enhanced coverage through web harvesting; automated full-text indexing; cooperation with specialized and national/regional linguistic bibliographies; facilities for the user to add specific or personal keywords; and cooperation between the large linguistic bibliographies to establish a keyword concordance. And, of course, we should never stop discussing new improvements.

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# What Determines the Prosodic Structure?<sup>1</sup>

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## **Abstract**

This paper explores the syntax-phonology interface with respect to prosodic structures. The prosodic structure for wh-interrogatives in Kyungsang Korean exhibits different characteristics from other dialects of Korean. The wh-phrases does not receive the highest pitch in Kyungsang Korean, which is against the traditional assumption that a wh-phrase is a inherently focus element. This fact indicates that it is not the wh-phrase that determines the prosodic structure, but it is the operator that creates the prosodic structure. One of the consequences of this approach is that the operator-variable relation must be available for generating the prosodic structure at some level of PF. Following Seidl's (2001) approach, which there are two levels of representation at PF, the operator-variable relation is interpreted at PF.

**Keywords:** wh-operator, variable, operator-variable relation, prosodic structure.

## **1. Introduction**

It has been observed that in languages like Korean wh-phrases may have either a wh-interrogative interpretation or an existential indefinite interpretation. For instance, the following sentence in (1a) may have two different interpretations, and each interpretation receives different answer respectively.

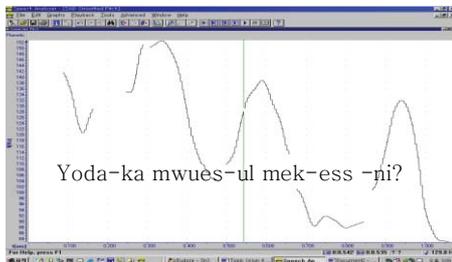
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<sup>1</sup> I am grateful to the audience of the Spring Conference of the Generative Grammar Circle 2007, the audience of the 18th International Congress of Linguists, and three anonymous reviewers for comments and suggestions. Special thanks to Kim, Kitaek and Choi, Yuna at Seoul National University for helping me obtain the crucial and valuable data. All the remaining errors are, of course, of my own.

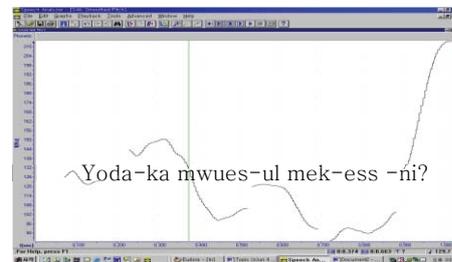
- (1) A: Yoda-ka mwues-ul mek-ess-ni?  
 Yoda-nom what-acc eat-past-Q  
 WH-interrogative: 'What did Yoda eat?'  
 WH-indefinite: 'Did Yoda eat something?'  
 B: Frog.  
 B': Yes.

This ambiguous sentence, however, is unambiguous in actual usage. Each interpretation triggers a distinctive prosodic structure, as illustrated below.<sup>2</sup>

(2) a. What did Yoda eat?

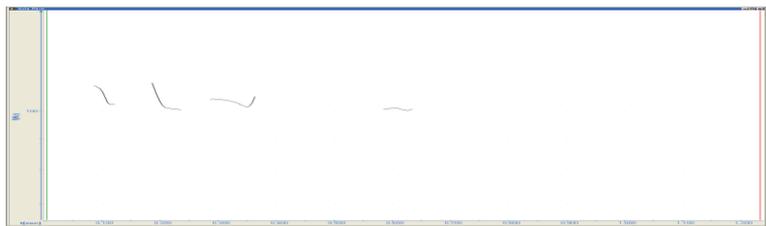


b. Did Yoda eat something?



The two prosodic structures in (2) disambiguate the sentence in (1), otherwise ambiguous. In (2a) the F0 peak of mwues 'what' is realized as the highest pitch, and the F0 peaks of the material after mwues 'what' is lowered. In contrast, the highest pitch falls on the right-most element, the question morpheme -ni, in (2b), and the wh-indefinite mwues receives a normal pitch just like the one in the declarative counterpart of (1), as shown below.

- (3) Yoda-ka pap-ul mek-ess-ta.  
 Yoda-nom meal-acc eat-past-decl  
 'Yoda ate the meal.'



<sup>2</sup> The sound was recorded and analyzed using Speech Analyzer version 2.7.

Based on the fact that the wh-phrase receives the highest pitch in wh-interrogatives, it has been assumed that a wh-phrase is inherently a focus element at PF. Semantically a wh-phrase is understood as new information and focus. This parallelism observed at PF and at LF seems to account for the unique prosodic structure of wh-interrogatives.

However, there is evidence against the traditional assumption that wh-phrases are inherently focus elements. The data from North Kyungsang Korean and South Kyungsang Korean show that wh-phrases do not receive the highest pitch. Rather the highest pitch falls on the penultimate syllable of a sentence, which corresponds to the tense morpheme. This prosodic pattern of Kyungsang Korean casts a doubt on the traditional assumption that a wh-phrase determines the prosodic structure.

This paper is organized as follows. Section 2 summarizes the semantic and phonological characteristics of wh-phrases and wh-indefinites. Section 3 presents the unique prosodic structure observed in Kyungsang Korean, in which the wh-phrase does not undergo focalization process. Section 4 investigates the prosodic structure and its determinant, and reveals that the operator determines the prosody. Section 5 explores the model in which the operator-variable structure is interpretable at PF. Section 6 summarizes the paper.

## 2. The Operator-Variable Structure

This section presents the semantic and phonological facts and assumptions for wh-phrases, and wh-indefinites.

### 2.1. *Wh-phrases*

It has been claimed that all the grammatical properties of the Universal Grammar are derived from the interface of syntax and extra grammatical systems such as logical interpretation (LF) and phonetic production (PF). One of the important instantiations of the requirement that grammatical principles derive from properties of the interface is the principle of Full Interpretation (FI). FI requires that all elements necessary for semantic interpretation must be present at LF and that all elements present at LF must participate in assigning an interpretation.

Given the basic assumptions about the semantics of questions, FI requires that a WH-interrogative must have an operator-variable structure at LF.

(4) The Operator-Variable Structure

OPx [ . . . x . . . ],  
where OP is a question operator binding a variable, x.

Furthermore, it has been argued that the question operator is universally generated as a (null) operator and that the WH form is universally a variable (Cheng 1991, Aoun and Li 1993, Watanabe 1993, Tsai 1994, Chung, D.H. 2000, among others). Languages, however, differ with respect to whether or not the operator and the variable are joined in the lexicon into a single word.

(5) The combination of the WH variable and the operator

Option 1

An OP is base generated in the lexicon as a single unit with the wh-word (the variable).

Option 2

An OP is generated separately from the WH word, with the WH word acting as a variable bound by OP.

Languages like English choose the first option, and the OP and the variable are lexicalized as a single word. Languages like Korean, in contrast, choose the second option, and thus, the question operator is morphologically realized apart from the variable, as illustrated below.

(6) Yoda-ka    **mwues**-ul    mek-ess-**ni**?  
Yoda-nom    what-acc    eat-past-Q  
                  thing(x)    Wh-operator  
'What did Yoda eat?'

In relation to PF, it has been assumed that a Wh-phrase is an inherently focus element, and thus, receives the highest pitch. This wh-focalization affects the prosodic structure in that the material that comes to the right of a focused constituent is phonologically reduced. This phenomenon is known as down-stepping (Lieberman and Pierrehumbert, 1984), deaccenting (Ishihara 2000), eradication (Deguchi and Kitagawa 2002), or

compression (Hirotani 2003). In order to account for the prosodic structure of WH-questions, Nagahara (1994) proposes the following rules.

(7) a. FOCUS-LEFT-EDGE

Left edge of focus = left intermediate phrase edge

b. FOCUS-TO-END

No intervening intermediate phrase boundary between focused phrase and the end of sentence.

The focus-left-edge constraint requires that a focused constituent be located at the left edge of an intermediate phrase. According to the focus-to-end constraint, there is no intermediate phrase boundary between the focused material and the end of the sentence unless there is another focused material. Therefore, this constraint enforces that the material that comes to the right of a focused constituent be phonologically reduced (Tomioka 2007), as illustrated in (8):

(8) Syntax: [..... [ ] .....]#

H\*L

Phonology: [ ] [ Xfocus ]

☞ This part is phonologically reduced.

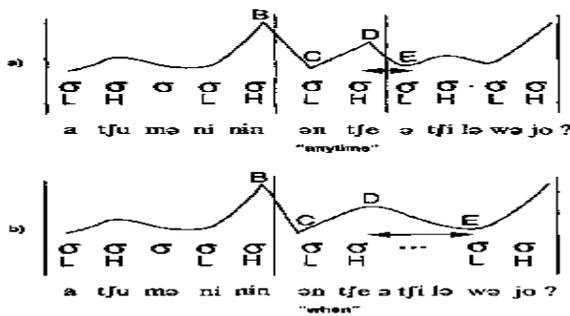
It is also noteworthy that the rules in (7) creates two phonological phrases: one to the left of a wh-phrase, and the other from the wh-phrase and to the right edge. This fact is reported by Jun & Oh (1996). They show that a wh-interrogative forms a single phonological phrase from the wh-phrase to the right edge, while a yes-no counterpart forms two phonological phrases<sup>3</sup>:

(9) a. “Madam, is there any time that you feel dizzy?”

b. “Madam, when do you feel dizzy?”



<sup>3</sup> Jun & Oh (1996) call this phonological phrase as 'Accentual Phrase'.



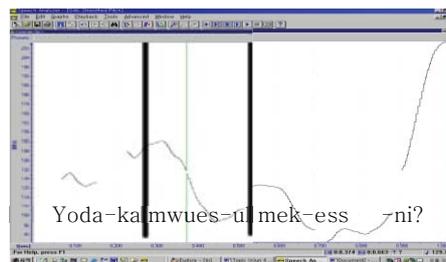
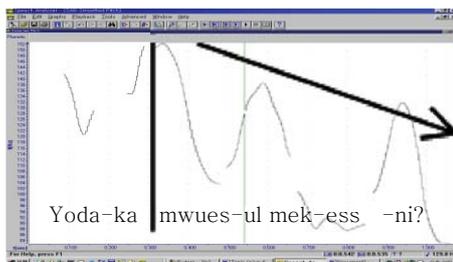
Jun & Oh (1996) p. 48

The vertical line marks the boundary of an phonological phrase. (9a) shows three phonological phrases: the pre-wh-phrase, the wh-word and the verb, while (9b) shows two phonological phrases: the pre-wh-phrase and the wh-phrase. The absence or presence sharp falling tonal transition in (9a) and (9b) indicates a general difference between wh-phrase and wh-indefinite.

The prosodic structures in (2), repeated as (10), show the facts that discussed so far. The wh-interrogative in (10a) has two phonological phrases; the subject part, and the wh-part. The wh-phrase is phonologically prominent and the rest material to the right edge is phonologically reduced. The wh-indefinite, on the other hand, forms three phonological phrases. Especially, the wh-indefinite forms a single phonological phrase of its own.

(10) a. What did Yoda eat?

b. Did Yoda eat something?



## 2.2. Wh-indefinites

It has been claimed that wh-indefinites are like variables, and thus, they are bound by an operator (Heim 1992, Li 1992, Aoun and Li 1993, Tsai 1994, among others). According to Heim's analysis, wh-indefinites are simply open predicates (e.g., mwues= thing(x)) and the variable can be bound by some operator in the sentence. For instance, Mandarin

Chinese exhibits wh-indefinites require some kind of licenser such as a yes-no question operator<sup>4</sup>.

(11) Bound by a yes-no question operator

Ta xihuan **shenme** ma?

He like what Q

'Does he like anything?' (Li 1992)

Following the proposal made in the literature, I assume that wh-indefinites are variable and can be bound by a yes-no question operator.

(12) Yoda-ka **mwues-ul** mek-ess-ni?

Yoda-nom what-acc eat-past-Q

thing(x) Yes-no operator

'Did Yoda eat anything?'

Phonologically wh-indefinites are just like ordinary DPs, and does not receive the highest pitch, and forms its own phonological phrase (Baek 1997).

### 3. Kyungsang Korean



In Kyungsang Korean questions exhibit two different properties from other dialects of Korean. First, as reported by Choe (1995), and Sohn (2004), two distinctive question morphemes are employed: *-na* for yes/no interrogatives and *-no* for wh-interrogatives.

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<sup>4</sup> Li (1992) shows that wh-indefinites in Madarin Chinese are like negative polarity items and can also be bound by a negation operator, a modal, a non-factive verb. If there is no other operator to bind the variable, it is bound by insertion of an existential quantifier (existential closure).

The types of licenser of wh-indefinite in Korean are slightly different from those of Chinese. For instance a negation operator cannot bind the variable, because the negative polarity items are morphologically realized. Since the purpose of this paper is not to investigate the licensers of wh-indefinites, I will leave this issue for further study.

(13) a. Wh-Question

Mwe mek-ess-no?  
what eat-past-Q<sub>wh</sub>  
'What did you eat?'  
\*'Did you eat anything?'

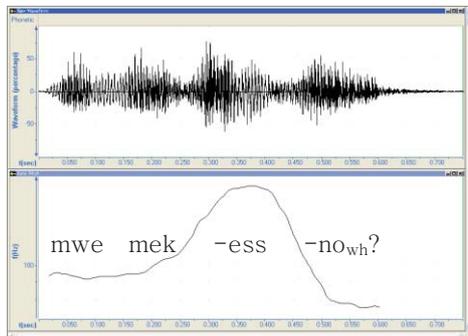
b. Yes-no Question

Mwe mek-ess-na?  
what eat-past-Q<sub>yes-no</sub>  
'What did you eat?'  
'Did you eat anything?'

Second, each question employs a distinctive prosodic structure. Sohn (2004) reports that the prosodic structure of wh-interrogatives in North Kyungsang Korean is not different from those of the rest of Korean. However, the current research reveals that both North Kyungsang Korean and South Kyungsang Korean employ quite unique prosodic structures, as illustrated below<sup>5 6</sup>.

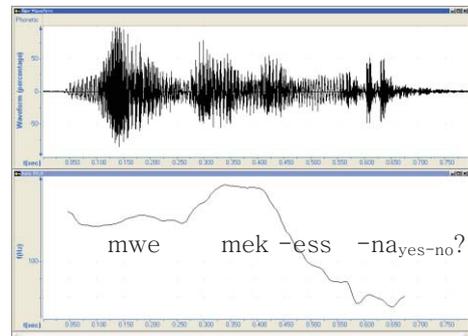
(14) North Kyungsang Korean

a. What did you eat?



mwe mek-ess -no<sub>wh</sub>?  
what eat-past-Q<sub>wh</sub>

b. Did you eat something?



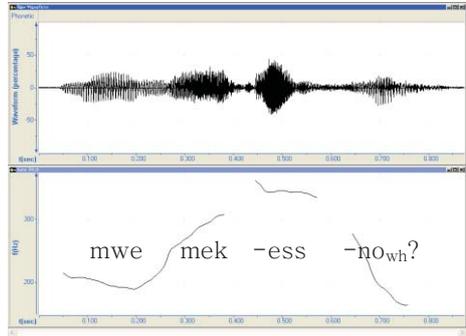
mwe mek ess -na<sub>yes-no</sub>?  
what eat-past-Q<sub>yes-no</sub>

<sup>5</sup> The informant for North Kyungsang Korean is 27-year-old male, who was born and raised in Taegu until 20, and the informant for South Kyungsang Korean is 27-year-old female, who was born and raised in Pusan until 20.

<sup>6</sup> It is well-known that the subject can be *pro* in Korean. When the subject is a second person singular or the subject is a discourse topic, *pro* is used. In order to obtain the most natural data, the current research employs *pro* unless it is required to use an overt subject.

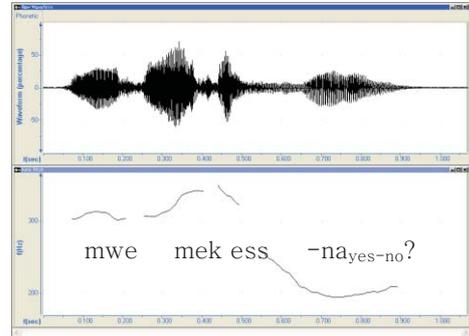
(15) South Kyungsang Korean

a. What did you eat?



mwe mek-ess -no<sub>wh</sub>?  
what eat-past-Q<sub>wh</sub>

b. Did you eat something?



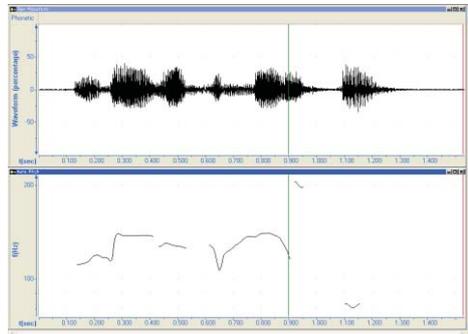
mwe mek-ess -na<sub>yes-no</sub>?  
what eat-past-Q<sub>yes-no</sub>

In (14a) and (15a) the highest pitch does not fall on the *wh*-phrase, but it falls on the past tense morpheme, *-ess*. In contrast, the *wh*-indefinite in (14b) and (15b) bears higher pitch than the *wh*-phrases and the highest pitch falls on the verb stem, *mek* 'eat'. It is also noteworthy that both of the question morphemes are phonologically compressed. Unlike Kyungsang Korean, the rest of Korean employs two homophonous Q-morphemes, *-ni<sub>wh</sub>* and *-ni<sub>yes-no</sub>*, while the prosodic structures reflect the binding relations, a single phonological phrase for *-ni<sub>wh</sub>* and two for *-ni<sub>yes-no</sub>* just like Kyungsang Korean. In addition, because of the lack of morphological distinction, phonological prominence is added to the left edge of the phonological phrase, which triggers deaccenting.

In declaratives, it has been observed that the pitch accent usually fall on the verb stem in Kyungsang dialect due to the lexical tone (Kenstowicz and Sohn 1997, Kim 1997, Sohn 2004). The tonal pattern of declarative sentences in (16) shows that two phonological phrases are formed (one for the subject, and the other for the VP) and the verb stem receives the pitch accent.

(16) North Kyungsang Korean

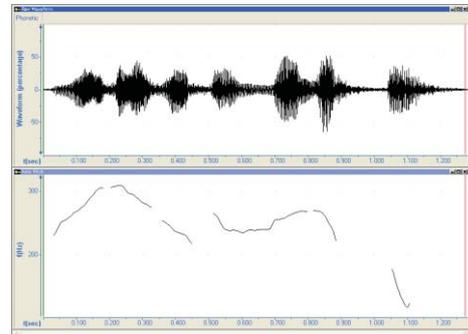
a. Yoda ate the meal.



Yoda-ka pap mek-ess -ta  
 Yoda-nom meal eat-past-decl

South Kyungsang Korean

b. Yoda ate the meal.



Yoda-ka pap mek-ess -ta  
 Yoda-nom meal eat-past-decl

The wh-phrases in both South and North Kyungsang Korean bears the similar F0 peak just like the object in the declaratives, and the tense morpheme bears the highest pitch. The wh-indefinite, in contrast, receives a higher pitch than wh-phrases or the object in declaratives, and the rest of the tonal contour is similar to that of declaratives. The fact that the wh-phrase does not exhibit phonological prominence is quite unexpected under the assumption that wh-phrases are inherently focus. This unexpected prosodic structure raises a question whether the assumption that a wh-phrase is inherently focus is correct.

#### 4. What determines the prosodic structure?

Since variables must be bound by an operator, the Q-morpheme, *-no<sub>wh</sub>*, in (14a) and (15a) binds the variable in the wh-phrase *mwe* 'what' and in (14b) and (15b) the Q-morpheme, *-na<sub>yes/no</sub>*, binds the variable in the wh-indefinite *mwe* 'something'.

Under the assumption that a wh-phrase is inherently focus, the difference must come from the types of variable such as a wh-variable and an indefinite variable. This analysis, however, incorrectly predicts that the wh-phrase would be focalized. Thus, the tonal pattern of wh-interrogatives in Kyungsang Korean shows that wh-phrases are not inherently focus and that wh-phrases are not responsible for determining the prosodic structure.

Then, what determines the prosodic structure of questions that are distinctive from that of declaratives? I argue that it is the operator that binds the variable. The variable in

both wh-phrases and wh-indefinites corresponds to information gaps whose range is restricted by features such as PERSON, THING, TIME, PLACE, etc., and the binder will range over 'open' propositions. If this is the case, there is no reason to believe that there are two distinctive variables in *mwe*. Thus, it is the operator that differentiates the two different operator-variable relations: a wh-operator-variable structure, and a yes-no operator-variable structure.

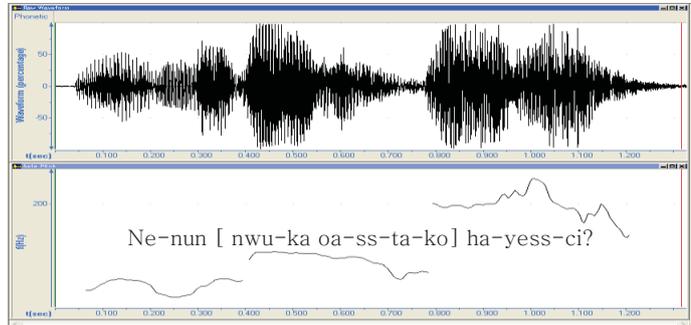
Now it is clear that the type of the operators determines the semantic interpretation and determines the prosodic structure. The wh-binder,  $-no_{wh}$ , binds the variable in *mwe*, and this binding relation is realized in terms of a single phonological phrase from *mwe* to  $-no_{wh}$ . The wh-indefinite binder,  $na_{yes/no}$ , binds the variable in *mwe*, whose binding relationship is represented by two phonological phrases, *mwe*, and the rest to the binder. The numbers of phonological phrases is the result of the phonological interpretation of syntactic structures. An interesting consequence of the current approach is that in order for the phonological component to parse the syntactic structure, especially the binding relations, the relevant features/properties must be available at some level of PF.

## 5. Syntax-Semantics-Phonology Interface

The current analysis makes it clear that not until the binder is found, the prosodic structure cannot be determined and that the operator-variable relation must be interpretable at some level of PF. Otherwise, one has to assume that there is a PF-LF interaction.

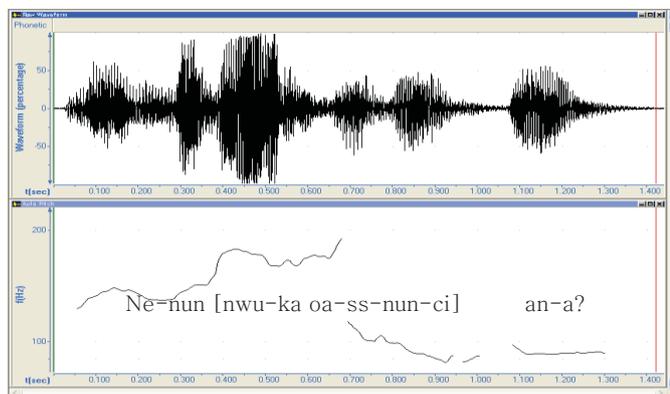
Since the binder is on C, the prosodic structure is determined after spell-out of CP. As shown below, the embedded wh-question forms a single phonological phrase and down-stepping is taken place from the wh-phrase to the binder *-ci*. This pattern is observed across all the dialects of Korean due to the homophonous nature of the binder *-ci*. Just like *-ni*, *-ci* can bind either the variable in a wh-phrase or in a wh-indefinite. Therefore, in order to distinguish the two binding relations, the variable-binder sequence requires a unique prosody.

- (17) Ne-nun [CP nwu-ka oa-ss-nun-ci] an-a?<sup>7</sup>  
 You-top who-nom come-past-NUN-Q<sub>wh</sub> know-Q<sub>yes/no</sub>  
 'Do you know who came?'



The similar phenomenon is observed in the matrix question. As shown in (18), the variable in the wh-phrase is bound by the wh-operator in the matrix clause, *-ci*. Again, due to the homophonous nature of *-ci*, the sentence in (18) exhibits wh-focalization and down-stepping.

- (18) Ne-nun [CP nwu-ka oa-ss-ta-ko] ha-yess-ci?  
 You-top who-nom come-past-decl-Comp do-past-Q<sub>wh</sub>  
 'Who do you know came?'

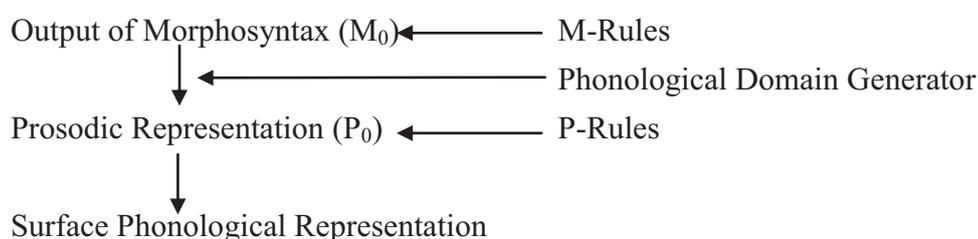


The examples in (17) and (18) show that the prosodic structure is determined after spell-out of CP. However, the operator-variable relation is understood as semantic information, which is not interpretable at PF, and thus must not be present at PF. These contradictory requirements can be mediated if there is a level that operates on the syntactico-semantic information directly.

<sup>7</sup> When the wh-phrase *nwukuw* is combined with the nominative case marker *-ka*, it is contracted as *nwu-ka*.

Seidl(2001) provides such an analysis. She argues that there are two levels of representation of post-syntactic structure: The first Morphosyntactic Representation ( $M_0$ ) is mapped from syntactic structure, and second Prosodic Representation ( $P_0$ ) is mapped from  $M_0$  by the Phonological Domain Generator. She further argues that there are rules that are specified in the grammar to operate at either of these two levels. Rules applying at Morphosyntactic Representation (M-rules) apply on edges of phases,  $\nu P$  and CP, while rules operating at the  $P_0$  (P-rules) can make reference only to theta-domains such as VP,  $\nu P$ , and DP. The architecture of Minimal Indirect Reference mode of Seidl is the following:

(19) Minimal Indirect Reference



While P-rules operate on the level of representation that is not purely syntactic in nature, M-rules operate directly on syntactic information. Under this approach, the contradictory requirement for the operator-variable relation at PF is solved. At  $M_0$  the operator-variable structure is interpreted in order to parse the phonological domain, i.e., the phonological phrases, and then, deletes. Thus, at  $P_0$  the operator-variable structure is not present.

The Phonological Domain Generator parses the morphosyntactic representation of wh-interrogatives, and generates a single phonological phrase from wh-variable to its operator, while it generates two phonological phrases for the wh-indefinite. P-rules apply on the prosodic representations, one of which is that the Q-morpheme triggers a focalization effect. At the absence of ambiguity as in Kyungsang Korean,  $-no_{wh}$  and  $-na_{yes-no}$ , the highest pitch falls on the verbal domain: on the tense morpheme in wh-interrogatives. When a homophonous Q-morpheme is employed, the highest pitch is put on the left edge of the phonological phrase, i.e., on the wh-phrase, and the materials from it are phonologically reduced.

## 6. Concluding Remarks

The current paper investigates the syntax-phonology interface with respect to prosodic structures. Contrary to the traditional assumption that a wh-phrase is an inherently focus element, the wh-phrases do not receive the highest pitch in Kyungsang Korean. Therefore, it cannot be the wh-phrase that determines the prosodic structure. Rather it is the operator that creates the prosodic structure. The pre-requisite for the prosodic structure is that the operator-variable relation must be interpretable at some level of PF. Adopting Seidl's (2001) model in which there are two levels of representation at PF, the operator-variable relation is interpreted at PF, specifically at  $M_0$ .

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# A Study on the Intonational Realization of Korean Children

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## Abstract

This paper examines the results of a study of the ability of preschool children ability to manifest intonations in different sentence types. It demonstrates how South Korean preschool children use intonation to distinguish declaratives, interrogatives, and imperatives, and whether the ability to deal with intonation varies with phonological acquisition. This study also examines whether the speech patterns of children show distinct features from those of adults.

The boundary tone demarcating the edge of the Intonation Phrase (IP) plays a significant role in deciding speech or sentence types. According to the K-ToBI (Jun, 2000), L%, a falling boundary tone, usually appears when stating facts, and in declaratives in reading. H%, a rising boundary tone, is expressed in yes/no questions. Previous studies on children's intonation contours indicated that for young children, rising tones are slightly more difficult to produce than falling tones (Snow, 1998).

Forty-five sentences were constructed in order to measure children's intonation ability and were divided into three categories: declarative, interrogative, and imperative. Although of identical segment structure, each can take on three different meanings or sentence types through variations in intonation. Ten four- to six-year-old preschoolers and ten adults participated in this experiment. All were speakers of the Seoul dialect of Korean.

The results suggest that although preschool children do not acquire all segments, they are able to distinguish different boundary tones for the three sentence types. Declaratives and questions show no significant difference in both preschool children and adults. However, in the case of imperatives, while adults show diverse boundary tones (falling, rising, and even flat), children exclusively prefer a falling tone.

**Keywords:** K-ToBI, Korean Intonation, Child Language, Ambiguous sentences

## 1. Introduction

The present study explores ways in which Korean children distinguish three sentence types -declaratives, questions, and imperatives- through intonation, as compared with native Korean adults. The issues addressed are intonational distinction among three types of standard Korean sentences and differences between Korean children and Korean adults in intonational realization.

### *1.1 Previous Studies*

Many experimental or theoretical linguistic studies of intonational patterns show that humans tend to express their feelings or intentions through intonation. The present study is based on three previous studies, Shin and Cha (2003), Jang, Song, and Lee (1998), and Show (1998). According to Shin and Cha (2003), the tonal pattern of the Seoul dialect of Korean is generally expressed in two to five syllables, most commonly in three or four. As a result, this study utilizes two kinds of materials for the experiment: utterances of three syllables and four syllables. The next study, Jang, Song, and Lee (1998), showed that intonation contour can be used as an important distinguisher in an automatic speech recognition system for Korean, particularly for ambiguous sentences. Based on this research, the sentences designed for this experiment have uniform segmental structures, but can move between three different meanings or sentence types through alteration of intonation. Third, Snow (1998) suggested that it is more difficult for four-year-old children to produce rising tones than falling tones. Therefore, this study is designed to investigate children's intonation preferences.

## **2. Experiment**

### *2.1 Methods*

#### *2.1.1 Subjects*

In this experiment, ten preschool-age children and nine adults participated in the production test. The mean age of the children was 5.4 years, 26 for the adults. All were Seoul dialect speakers who were born and grew up in Seoul, South Korea. The children were students at *Inwang Kindergarten* and *Koz School*, both located in Seoul. The children's parents were Seoul dialect speakers as well. Adults were undergraduate and graduate students at Korea University in Seoul, South Korea.

### 2.1.2 Stimuli

In Korean sentences, two distinct meanings can frequently be drawn from one segmental structure, both orthographically and phonetically. In some cases, a sentence may even contain a triple ambiguity.

Since according to Shin Jiyoung (2003) the tonal pattern of the Seoul dialect of Korean usually appear over two to five syllables, especially in three or four, this study makes use of two types of materials for the experiment. In addition, the materials are made up of two kinds of words. The first group (Set 1) is words that can be separated into smaller words. The second group (Set 2) is composed of words that cannot be separated. The following table lists examples.

**Table 1. Speech materials**

	Types	Suffix	Examples
3 syllables	Set 1	hA [h ε]	<b>goQbu-hA</b> (study) [koŋpuhε ]
	Set 2	E [ə]	<b>maNdIRE</b> (make) [mantilə ]
4 syllables	Set 1	hAyo [hæjo]	<b>goQbu-hAyo</b> [koŋpuhεjo ]
	Set 2	Eyo [əyo]	<b>dudIryEyo</b> [tut iljəjo]

As seen in Table 1, in Set 1 “goQbu-hA” can be separated into “goQbu” and “hA” and “goQbu-hAyo” can be separated into “goQbu” and “hAyo.” On the other hand, in Set 2 “maNdIRE” and “dudIryEyo” cannot be separated.

There are 2280 total tokens (19 subjects \* 120 sentences).

### 2.1.3 Procedure

The subjects produced the sentences in a recording studio. To ensure more natural speech, subjects were shown images on a laptop rather than given a script. Subjects were asked to describe pictures, to make a question, and to order someone to do something. The recordings were made on a SONY TCD-D100, also known as DAT, and were digitalized at a 44100 Hz and 16 bits accuracy. The acoustic measures reported in this study were analyzed by Praat.

### 3. Results and Discussion

#### 3.1 Results

##### 3.1.1 Declaratives

As the first syllables can be H or L by segmental features, alphabet T is assigned them regardless of the first syllables. Declaratives possess a significant discrepancy between children and adults. Figure 1 illustrates these findings.

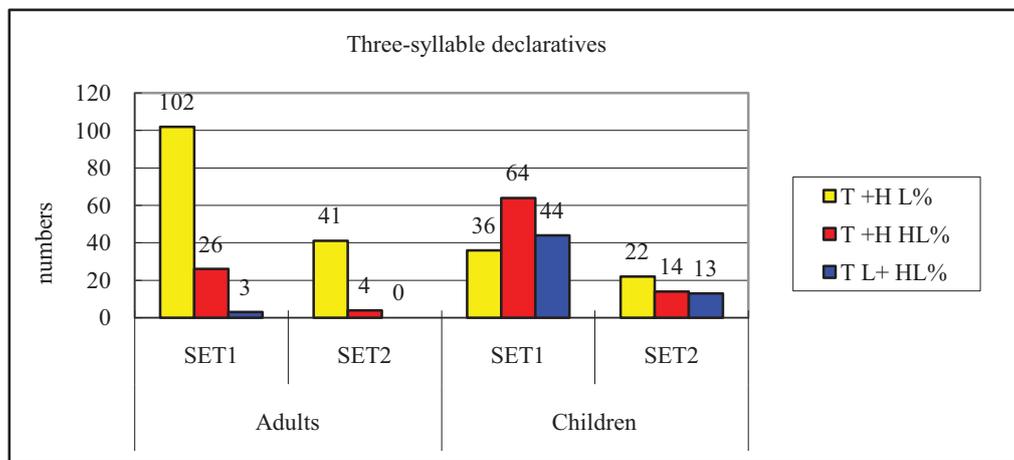
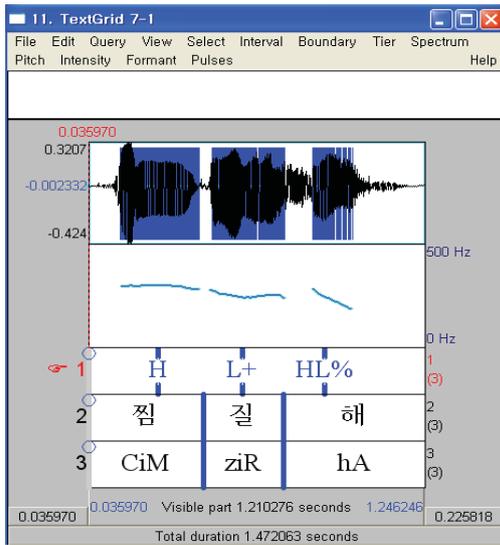


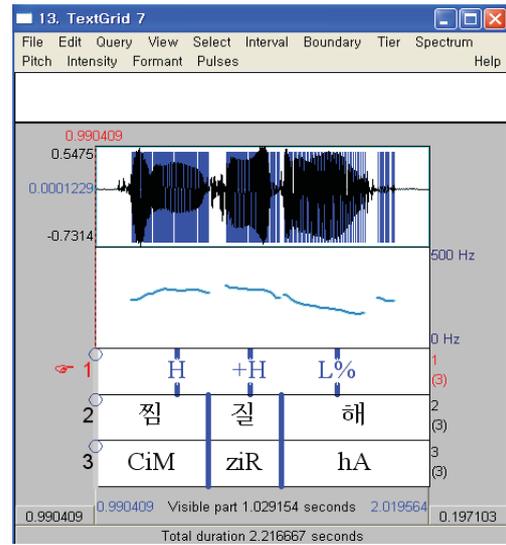
Figure 1. The number of intonational patterns in three-syllable declaratives

In Figure 1, the results of three-syllable declaratives show that adults' speech is generally T+H L%, but children's speech is T+H HL% in Set 1 and T+H L% in Set 2. That is, it seems that the children tend to emphasize the last syllable, "hA [hε]" in Set 1 or "E [ə] or ryE [ljə]" in Set 2.

The major fundamental frequency contours of three-syllable declaratives in both groups are presented in Figures 1.1 and 1.2.



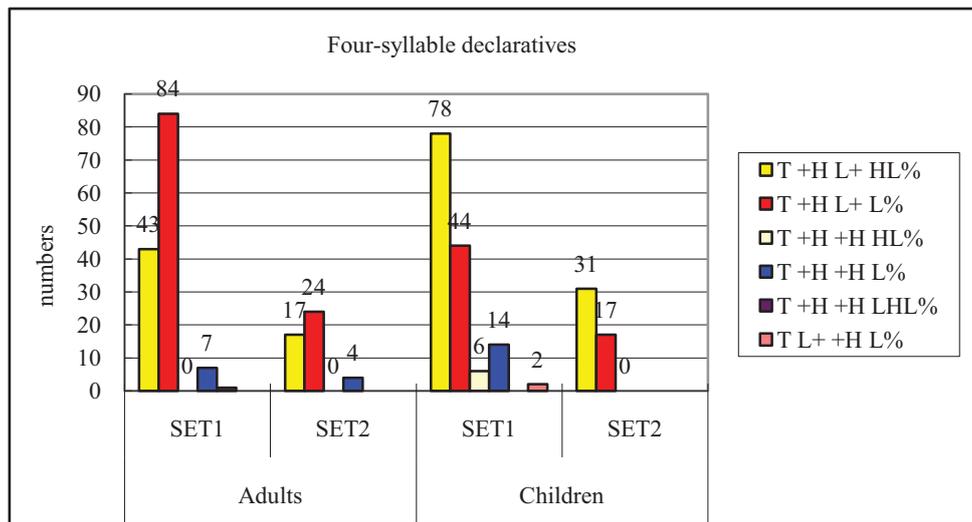
**Figure 1.1 Fundamental frequency contours of three-syllable declaratives of children**



**Figure 1.2 Fundamental frequency contours of three-syllable declaratives of adults**

As shown in Figure 1.1, HL% was found on the last syllable, “hA [hε],” in children’s speech. On the other hand, in adults’ speech, the last syllable is L% as shown in Figure 1.2.

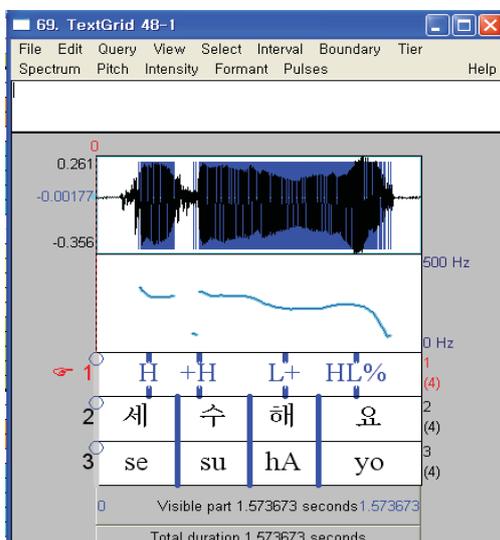
When the utterances are four syllables, their intonational contours are similar to those of three-syllable declaratives. Figure 2 presents these results.



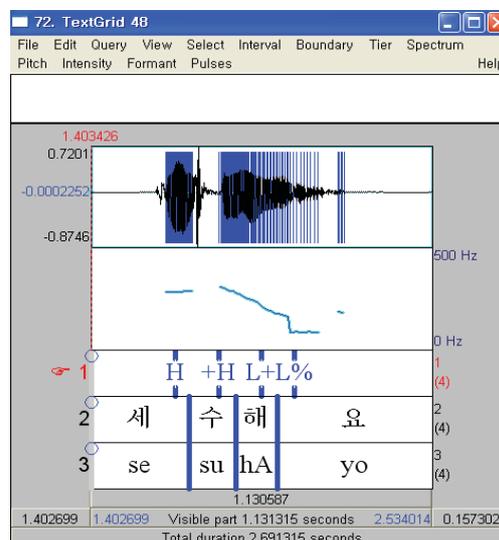
**Figure 2. The number of intonational patterns in four-syllable declaratives**

In Figure 2, most of adults’ speech shows T +H L+ L% but the major pitch contour of children is T +H L+ HL%. The intonational contours of four-syllable

declaratives are shown in Figure 2.1 and 2.2.



**Figure 2.1 Fundamental frequency contours of four-syllable declarative of children**



**Figure 2.2 Fundamental frequency contours of four-syllable declarative of adults**

As seen in Figure 2.1 and 2.2, while children’s last syllable is realized with HL%, L% is realized on the last syllable of adults’ speech.

### 3.1.2 Questions

When forming questions, no significant difference is found between children and adults. The results are presented in Figure 3.

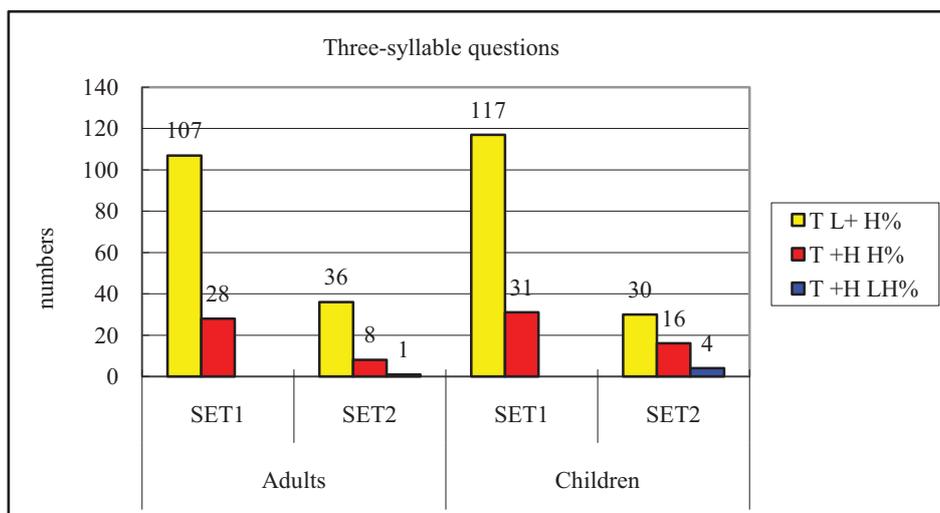


Figure 3. The number of intonational patterns in three-syllable questions

As shown in Figure 3, the major boundary tone is H%. This type of tendency is similar to the result for four-syllable questions presented in Figure 4.

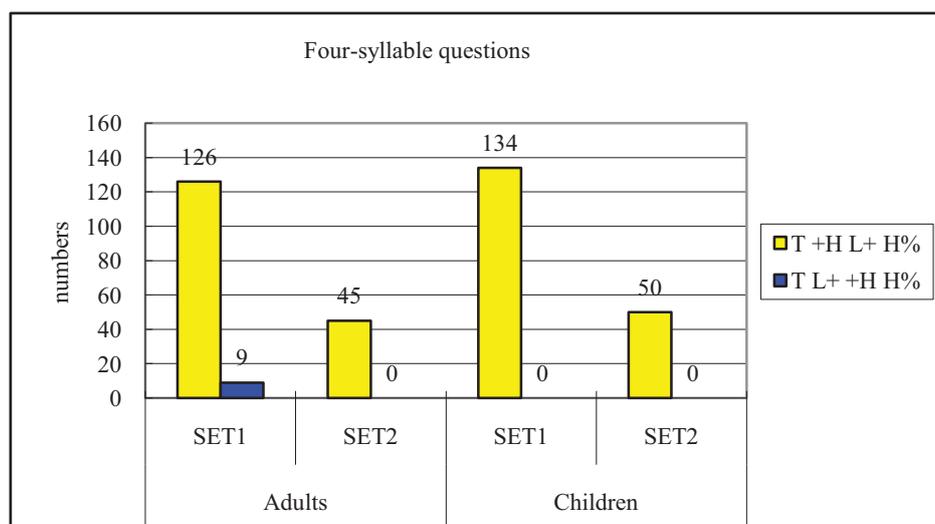


Figure 4. The number of intonational patterns in four-syllable questions

In Figure 4, most subjects among both groups show T+HL+H% for this sentence type. It can be seen that in questions all boundary tones are H% and there is no exceptional boundary tone.

### 3.1.3 Imperatives

In the case of imperatives, a greater variety of tonal patterns appeared than was

present among other sentence types, as shown in Figure 5.

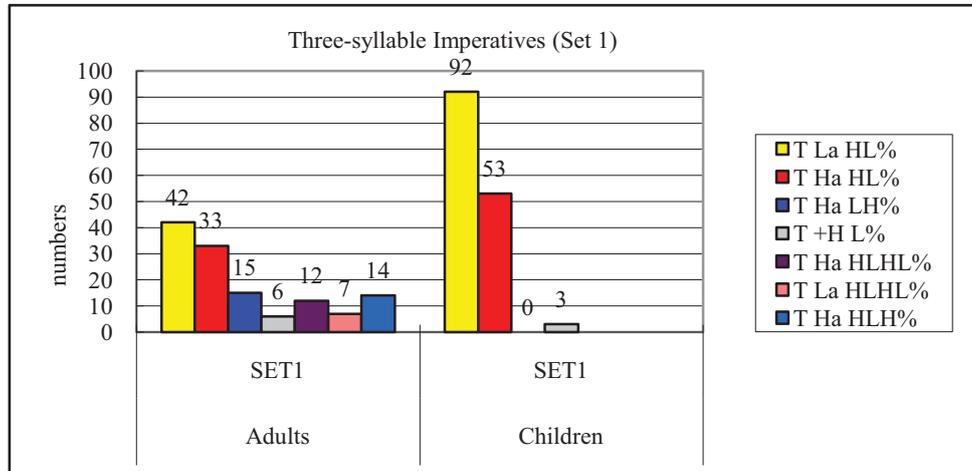


Figure 5. The number of intonational patterns in three-syllable imperatives (Set1)

Figure 5 shows that a variety of intonational patterns are realized by both groups. In addition, the two groups showed a similar tendency to divide the sentences into two APs in three-syllable imperatives. Unlike declaratives that have L% and questions that have H%, both H% and L% appear in imperatives.

The intonational contours are captured in Figure 5.1 and 5.2.

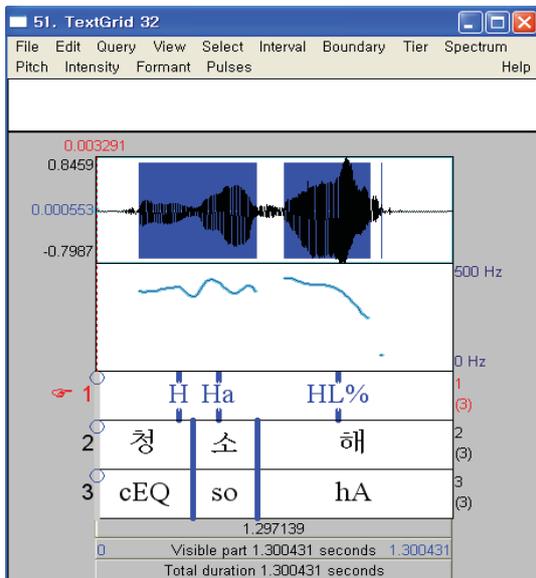


Figure 5.1 Fundamental frequency contours of three-syllable imperative of children

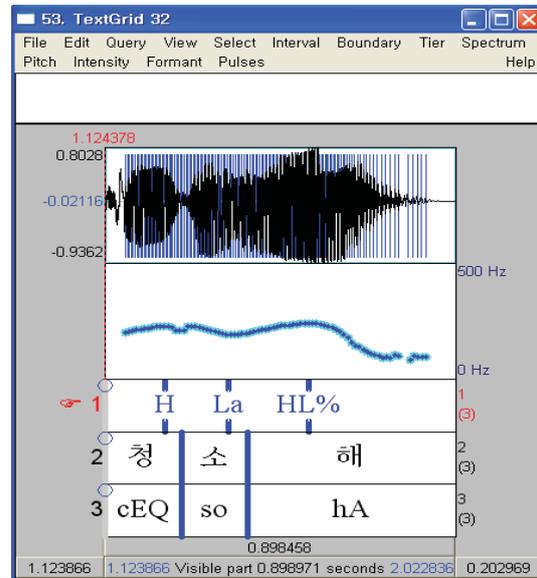


Figure 5.2 Fundamental frequency contours of three-syllable imperative of adults

As seen in Figure 5.1 and 5.2, three-syllable imperatives are split by Ha or La, AP final tones of an IP-medial AP.

In Set 2 of three-syllable imperatives, both groups' utterances have only a single AP. The results are depicted in Figure 6.

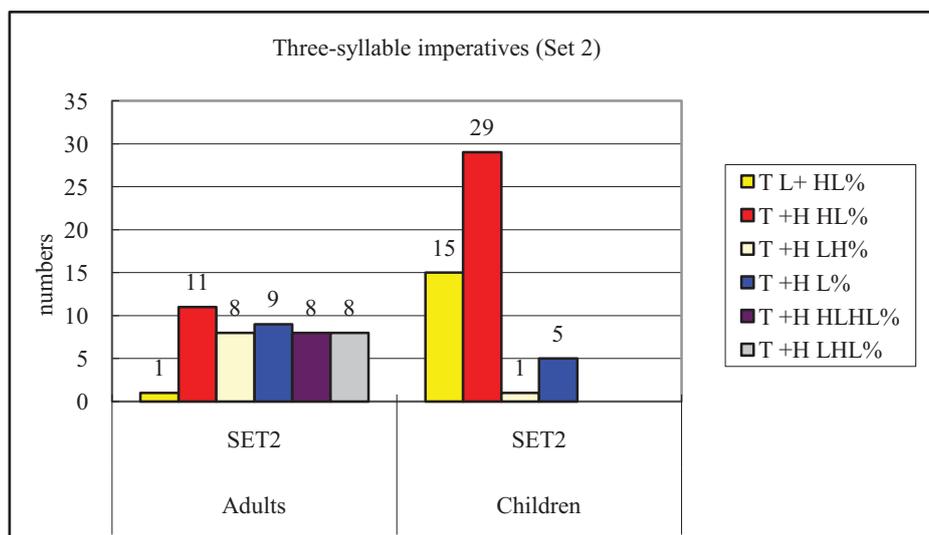
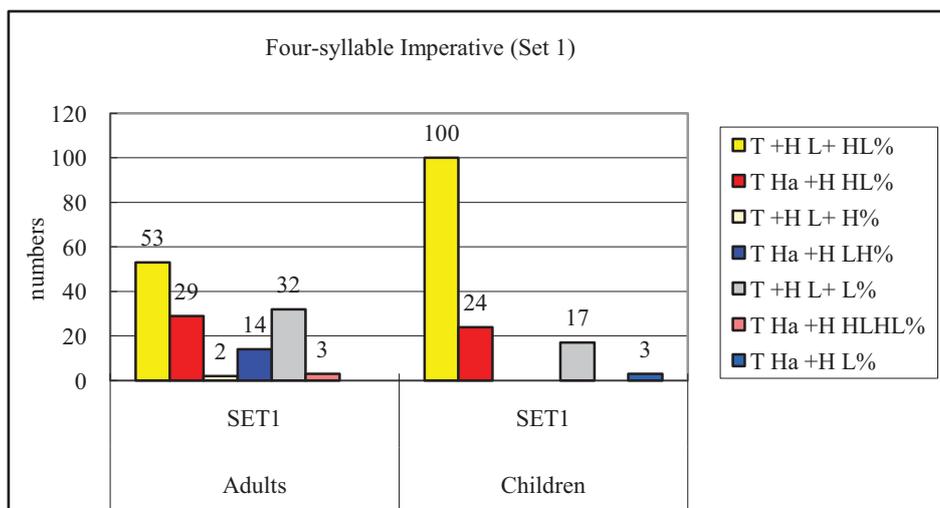


Figure 6. The number of intonational patterns in three-syllable imperatives (Set2)

As seen in Figure 6, adults tend to produce a wider variety of patterns than children. Unlike in Set 1, in Set 2, which cannot be separated into smaller words, three-syllable imperatives are realized as one AP.

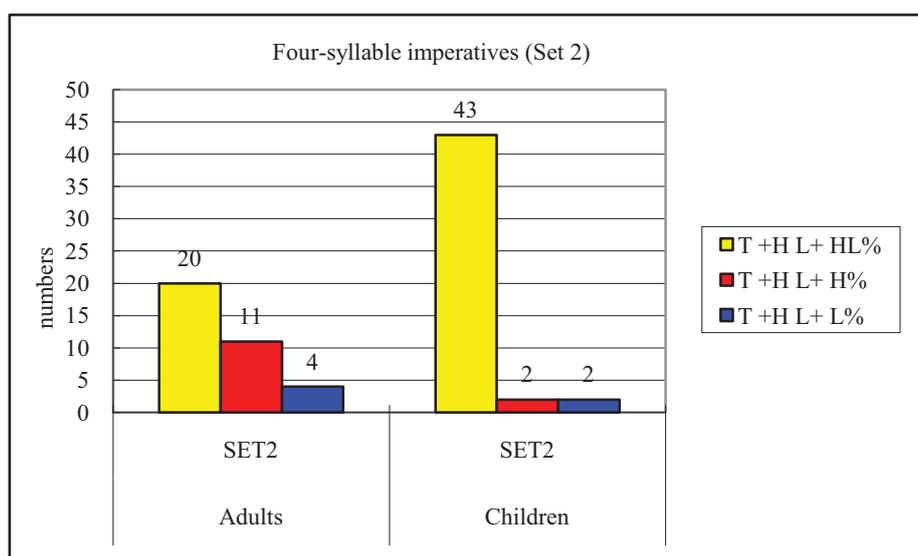
The results for four-syllable imperatives are similar to those for three-syllable imperatives. Figure 7 demonstrates these results.



**Figure 7. The number of intonational patterns in four-syllable imperatives (Set1)**

In the case of four-syllable imperatives in Set 1, which can be separated into smaller words, both groups show some with two APs. As for boundary tones, while children have HL% or L%, adults are not limited to HL% or L%, but also display H% or LH%.

The results of four-syllable imperatives of Set2 can be seen in Figure 8.



**Figure 8. The number of intonational patterns in four-syllable imperatives (Set2)**

As shown in Figure 8, while children's major intonation is T +H L+ HL%, adults' major intonation patterns are T +H L+ HL% and T +H L+ H%. Children generally use L% while adults use both L% and H%.

#### 4. Conclusion and Discussion

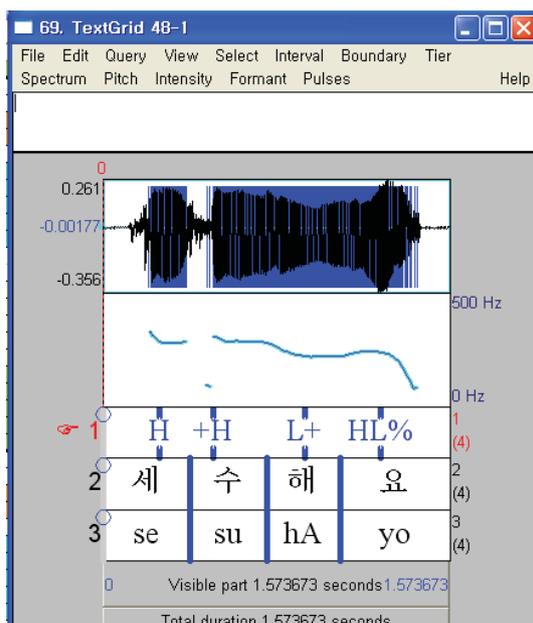
The results of this study offer insight into Korean children’s intonation patterns and the dissimilarities between children and adults, as presented in Table 2.

**Table 2. Major boundary tones**

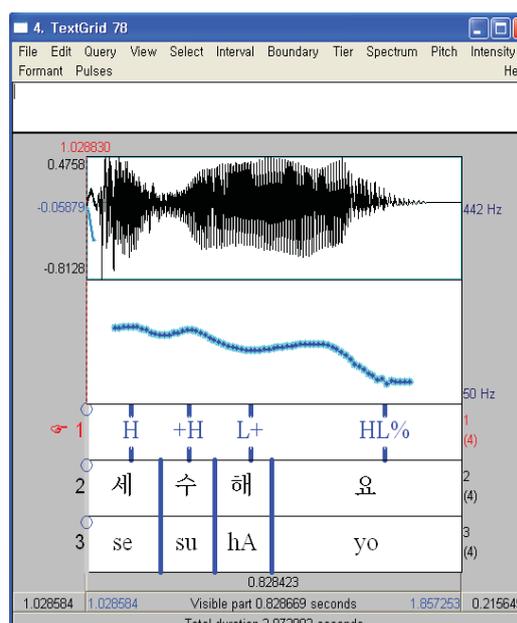
	Children	Adults
Declaratives	<b>HL%</b>	<b>L%</b>
Questions	H%	H%
Imperatives (Set 1)	Ha or La	Ha or La
Imperatives (Set 2)	<b>HL%</b>	<b>HL%</b>

Table 2 demonstrates that the boundary tone of children’s declaratives, HL%, is similar to adults’ imperatives. In the case of children utterances, there is no significant distinction between declaratives and imperatives. On the other hand, adults’ boundary tones are thoroughly dissimilar: L% in declaratives, HL% in imperatives.

Figure 9.1 and 9.2 illustrate a comparison between children’s declaratives and adults’ imperatives.



**Figure 9.1 Children’s typical declarative**



**Figure 9.2 Adults’ typical imperative**

As shown in Figure 9.1 and 9.2, the tonal pattern of children’s declaratives is almost identical to that of imperatives by adults. While adults usually use HL% in imperatives, children tend to use HL% in declaratives. As for adults, L% is typical boundary tone in declaratives.

With questions, most participants tend to use H% in the majority of sentences. Although angle or slope of intonational contours was not measured exactly, for the most part, children’s H% is lower and results in a gentler slope than that of adults.

In imperatives Set 1, AP phrasing such as preboundary lengthening or pausing occurs in front of “hA [hε]” and “hAyo [hæjo].” This phrasing caused imperatives in Set 1 to possess two APs in a single sentence. Moreover, adults show a wider range of tonal patterns than do children in Set 1 imperatives. In imperatives Set 2, even though the two groups use HL% without phrasing, adults’ tonal patterns are more diverse than those of children.

One additional finding is that Korean imperatives may possess a peculiar pitch contour, depicted in Figure 9.3.

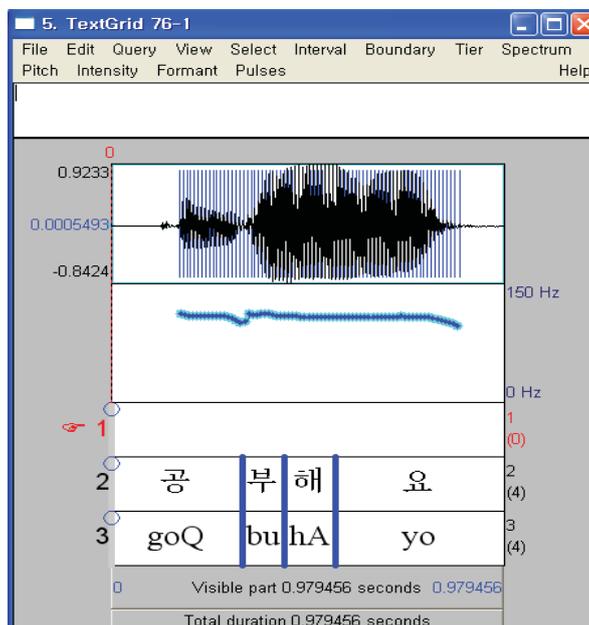


Figure 9.3 Adults’ (T+HL+L%) level tone

Figure 9.3 shows the overall level tone. Without the second syllable, “bu [bu],” there would be no salient part in this sentence. The even pitch extends entirely over the sentence. This type of pattern is classified as T+HL+L% in this study. However, it seems that the pattern is insufficient to label this level tone exactly.

Further study is still required to better identify children's intonational features. In addition, supplementary data from a greater number of subjects in combination with consideration of further prosodic features such as intensity and duration would result in a wider variety of patterns and clear results.

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## Appendixes

Set 1				
	3 syllables (-hA) Korean	4 syllables (-hAyo) Korean	Roman letters	English meaning
1	공부해	공부해요	goQbu-hAyo	Study
2	청소해	청소해요	cEQso-hAyo	Clean something
3	세수해	세수해요	sesu-hAyo	Wash one's face
4	요리해	요리해요	yorih-hAyo	Cook a meal
5	목욕해	목욕해요	moGyoG-hAyo	Have a bath
6	운동해	운동해요	uNdoQ-hAyo	Exercise
7	찜질해	찜질해요	CiMziR-hAyo	Have a sauna
8	화해해	화해해요	hwahA-hAyo	Make peace with someone
9	인사해	인사해요	iNsa-hAyo	Bow to someone
10	전화해	전화해요	zENhwa-hAyo	Make a telephone call

11	기도해	기도해요	gido-hAyo	Pray
12	씨름해	씨름해요	SirIM-hAyo	Have a Ssirŭm match
13	포장해	포장해요	pozaQ-hAyo	Wrap something
14	토론해	토론해요	toroN-hAyo	Discuss something
15	준비해	준비해요	zuNbi-hAyo	Prepare something

Set 2				
	3 syllables (E or ryE) Korean	4 syllables (Eyo or ryEyo) Korean	Roman letters	English meaning
1	만들어	만들어요	maNdIREyo	Make something
2	흔들어	흔들어요	hINdIREyo	Shake it
3	구부려	구부려요	guburyEyo	Bend something
4	다듬어	다듬어요	dadIMEyo	Trim something
5	두드려	두드려요	dudIryEyo	Beat something

# **An Alternative Analysis of the Retrospective tense marker ‘*te*’ in Korean**

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## **Abstract**

The retrospective morpheme ‘*te*’ has been considered as a tense-related morpheme; however, these previous analyses have been insufficient in explaining the various characteristics of the retrospective morpheme that are distinct from other general tense morphemes. This paper proposes an alternative analysis from the discourse and pragmatic perspective based on the facts that the appropriateness of the use of the retrospective morpheme is discourse-oriented, and that the retrospective morpheme occurs only in sentences with a defined hearer. This paper reveals that the retrospective morpheme expresses the speaker's psychological distance from the uttered information; this distance serves a function of showing politeness to the hearer by allowing the hearer in the conversation to acquire a sense of camaraderie and/or to protect his face-wants.

**Keywords:** retrospective morpheme, discourse-oriented, defined hearer, speaker’s psychological distance, hearer’s face-wants.

## **1. Introduction**

In Korean, various morphemes with grammar functions can appear following the verb stems. The example in (1) illustrates inflexible morphemes that can follow the verb stem.

- (1) *kkay-ttuli-si-ess-keyss-te-la*.  
break-EMP-HOR-PAST-PRESUMPTION-RETRO-DC  
(In retrospect, he) probably broke (it).

‘*kkay-*’ is a verb stem with a lexical meaning equivalent to ‘break’ in English, and the final ‘*-la*’ serves the function of closing a sentence. ‘*-ttuli-si-ess-keyss-te-*’, appearing

between the verb stem and the verb final, are classified as suffixes that express various grammatical functions. Let us examine the function of the individual suffixes. ‘*-ttuli*’ emphasizes the meaning of the verb with a force while ‘*-si-*’ expresses the speaker’s deference to the reference of subject nominal of the verb stem. ‘*-ess-*’ signifies that the described event took place in the past time, while ‘*-keyss-*’ expresses the speaker’s presumption of the described event.

Meanwhile, ‘*te*’ is traditionally called a retrospective tense suffix with which a speaker reports past events in retrospect. However, ‘*te*’ shows distributional restriction, which does not apply to the other general tense suffixes such as past, present, or future. This paper will point out that the analysis of ‘*te*’ with respect to the tense category cannot account for the distributional properties of ‘*te*’ and will show that the analysis from the functional perspective can properly account for the syntactic and semantic characteristics of ‘*te*’.

The following section will discuss about shortcomings of the analyses of ‘*te*’ as a tense morpheme. And the section 3 will provide the semantic analysis of ‘*te*’ from the discourse perspective. In section 4, the discourse effects of the retrospection will be examined. And the summary will follow in section 5.

## 2. Evidence against the previous analyses

We have empirical evidence showing that ‘*te*’ is distinguished from tense suffixes. First of all, ‘*te*’ is sensitive to the person of the sentential subject.

- (2) a. \**nay-ka cal ttuy-te-la.*  
       I-NM well run-RETRO-DC  
       ‘I retrospect that I ran well.’
- b. *ney-ka cal ttuy-te-la.*  
       you-NM well run-RETRO-DC  
       ‘I retrospect that you ran well.’
- c. *ku-ka cal ttuy-te-la.*  
       He-NM well run-RETRO-DC  
       ‘I retrospect that you ran well.’

The examples in (2) illustrate that ‘*te*’ cannot be used in sentences where the agentive and the speaker are co-referential. This is distinguished from the characteristics of the

general tense suffixes that are usually realized according only to the time of event described in a sentence with disregard to the person of the sentential subject as shown in (3).

- (3) a. Nay-ka cal ttuy-ess-ta/ttuy-keyss-ta/ttuy-n-ta.  
 I- NM well run-PAST-DC/run-FUTURE-DC/run-PRESENT-DC  
 ‘I ran well/ I will run well/ I run well.’
- b. Ney-ka cal ttuy-ess-ta/ttuy-keyss-ta/ttuy-n-ta.  
 you- NM well run-PAST-DC/run-FUTURE-DC/run-PRESENT-DC  
 ‘You ran well/ You will run well/ You run well.’
- c. Ku-ka cal ttuy-ess-ta/ttuy-keyss-ta/ttuy-n-ta.  
 he- NM well run-PAST-DC/run-FUTURE-DC/run-PRESENT-DC  
 ‘He ran well/ He will run well/ He runs well.’

Secondly, tense suffixes are not only required in sentences involving action verbs, but also must be consistent with the temporal adverbs in sentences as shown in (4-5).

- (4) a. Swuni-ka ecey tochakha-ess-ta.  
 S.-NM yesterday arrive-PAST-DC  
 ‘Suni arrived yesterday.’
- b. Swuni-ka nayil tochakha-keyss-ta.  
 S.-NM tomorrow arrive-Future-DC  
 ‘Suni will arrive tomorrow.’
- (5) a. \*Swuni-ka ecey tochakha-keyss-ta.  
 S.-NM yesterday arrive-PAST-DC  
 \*‘Suni will arrive yesterday.’
- b. \*Swuni-ka nayil tochakha-ess-ta.  
 S.-NM tomorrow arrive-Future-DC  
 \*‘Suni arrived tomorrow.’

In (4), past tense suffix ‘-ess-’ co-occurs with yesterday’s time of event while the future tense suffix ‘-keyss-’ co-occurs with tomorrow’s time of event. Meanwhile, (5) shows that the sentence becomes unacceptable when a tense suffix does not co-occur with a temporal adverb in a sentence.

However, as (6-8) shows, the retrospective morpheme can co-occur with time of past, present and future; moreover, this morpheme does not even have to necessarily appear as (a) sentences show in (6-8).

- (6) a. Swuni-ka ecey tochakha-ess-ta.  
 S.-NM yesterday arrive-PAST-DC  
 ‘Suni arrived yesterday.’
- b. Swuni-ka ecey tochakha-ess-te-la.  
 S.-NM yesterday arrive-PAST-DC  
 ‘In retrospect, Suni arrived yesterday.’
- (7) a. Swuni-ka cikum ili-lo o-ko iss-ta.  
 S.-NM now this way come-PROGRESS-DC  
 ‘Suni is coming this way.’
- b. Swuni-ka cikum ili-lo o-ko iss-te-la.  
 S.-NM now this way come-PROGRESS-RETRO-DC  
 ‘In retrospect, Suni is coming this way.’
- (8) a. Swuni-ka nayil tochakha-keyss-ta.  
 S.-NM tomorrow arrive-Future-DC  
 ‘Suni will arrive tomorrow.’
- b. Swuni-ka nayil tochakha-keyss-te-la.  
 S.-NM tomorrow arrive-Future-RETRO-DC  
 ‘In retrospect, Suni will arrive tomorrow.’

The examples in (6-8) prove that realization of the morpheme ‘*te*’ is irrelevant to the time of described event in the sentence. Then, what feature is ‘*te*’ triggered by?

We can assume that ‘*te*’ is triggered not on the sentence level but on the discourse level based on the fact that there is no difference in the acceptance of sentences whether ‘*te*’ appears or not in (6-8).

- (9) **Assumption**: The retrospective morpheme is triggered not on the sentence level but on the discourse level.

A piece of evidences supporting the above assumption can be found in the phenomenon regarding the subject restriction. Let us compare (2a) with the following sentence.

- (10) Kkwum sok-eyse po-nikka nay-ka cal ttuy-te-la.  
 Dream inside-LOC see-when I-NM well run-RETRO-DC  
 ‘In retrospect, I ran well in my dream.’

It has been states that ‘*te*’ is not allowed in first-person subject sentences where the agentive and the speaker are co-referential in (2a). However within the context of being in a dream as in (10), it is more natural for the retrospective morpheme to appear. That is, contextual situations play a crucial role in the distribution of ‘*te*’.

Another piece of evidence supporting the assumption that appearance of ‘*te*’ is discourse oriented comes from the fact that this morpheme is allowed only in dialogues in which the hearer is defined.

- (11) a. Swuni-ka pelse o-ass-ta.  
 S.-NM already come-PAST-DC  
 ‘Suni has already come.’  
 b. Swun-ka pelse o-ass-te-la.  
 S.-NM already come-PAST-RETRO-DC  
 ‘In retrospect, Suni has already come.’
- (12) a. apeci-ka hwa-ka na-si-ess-ta.  
 Father-NM anger-NM occur-HOR-PAST-DC  
 ‘My father got angry.’  
 b. apeci-ka hwa-ka na-si-ess-te-la.  
 Father-NM anger-NM occur-HOR-PAST-RETRO-DC  
 ‘In retrospect, my father got angry.’

The events or the states that the two pairs of sentences describe in (11-12) are identical. However, sentences in the first pair can be used with an uncertain hearer, while sentences in the second pair can be used only when the person listening to the speaker’s utterance is determined. Thus, we can state that the appearance of ‘*te*’ is closely related with the hearer participating in the discourse.

We can find more evidence supporting the discourse oriented characteristics of ‘*te*’ from the fact that the acceptability of ‘*te*’ depends on the hearer participating in the discourse.

- (13) a. wuli atul-i hapkyekha-ess-te-la. (to a friend)  
           my son-NM pass-PAST-RETRO-DC  
           ‘In retrospect, my son has pass the exam.’  
       b. ??wuli atul-i hapkyekha-ess-te-la. (to speaker’s wife)  
           my son-NM pass-PAST-RETRO-DC  
           ‘In retrospect, my son has pass the exam.’

In case that the speaker is relaying to his friend the news of his son’s acceptance, the use of the retrospective morpheme is appropriate. However, this very same sentence sounds awkward when the speaker addresses to his wife. These differences are not explained at the sentence- level.

As shown above, the distribution of ‘*te*’ is not always determined by elements found within the sentence, but instead by contextual situations and the relationship between the speaker and the hearer of dialogues. This supports the assumption that the semantic function of ‘*te*’ does not related to sentential meaning but instead to discourse meaning.

Thus, this paper will attempt to analyze the characteristics of discourse feature triggering ‘*te*’ in a sentence, and the semantic function realized by it.

### 3. Semantic analysis of ‘*te*’ from the functional analysis

Let us first examine the context in which the retrospective morpheme appears.

- (14) a. yay-tul-a,                   sensayngnim o-si-n-ta.  
           Guy-PL-Vocative teacher       come-HOR-PRESENT-DC  
           ‘Guys, the teacher is coming.’  
       b. \*yay-tul-a,               sensayngnim o-si-te-la.  
           Guy-PL-Vocative teacher       come-HOR-RETRO-DC  
           ‘Guys, in retrospect, the teacher is coming.’

The sentences in (14) are in a context where a student is alerting a boisterous classroom that the teacher is on the way. Previous analyses considered retrospective tense to possess the function of reporting an event that the speaker perceives at a different location in the past. That is, retrospective tense could be only realized with the satisfaction of the following three semantic features: ‘speaker’s past perception of the event, ‘locational or temporal interruption’, and ‘function of reporting’. Thus, since the speaker in (14) is reporting in the classroom an event that he saw in the hallway some time ago, the sentence satisfies the above conditions of retrospective tense as set forth by previous analyses. However, we can see that it is not appropriate to use ‘*te*’ in (14b).

In (14), the usage of ‘*te*’ makes the information that the teacher is coming seem irrelevant to the speaker, because the speaker shows her psychological distance from the information by use of ‘*te*’. However, in the given situation, the spoken information would elicit identical emotional response from both the speaker and the hearer.

Thus, we can say that ‘*te*’ retrospection is unacceptable in which the speaker and the hearer shows identical emotional response toward the given information. This can account for the distinction in felicity between the two sentences in (13), which are repeated in (15).

- (15) a. wuli atul-i hapkyekha-ess-te-la.(to a friend)  
 my son-NM pass-PAST-RETRO-DC  
 ‘In retrospect, my son has pass the exam.’  
 b. ??wuli atul-i hapkyekha-ess-te-la.(to speaker’s wife)  
 our son-NM pass-PAST-RETRO-DC  
 ‘In retrospect, our son has pass the exam.’

The news of the speaker’s son’s acceptance elicits identical emotional response from the speaker’s wife as it would from the speaker. However, this is not necessarily the case when the hearer is a friend. Thus the speaker does not speak with a sense of psychological distance to his wife, who shares his emotional response, but keeps this distance with the friend, who is not expected to share his emotional response. The discourse effect to the hearer that follows as a result of this psychological distance shall be discussed in the next section.

In this instance, we can tentatively hypothesize that retrospection is allowed when the hearer and the speaker share non-identical emotional response with regard to the uttered information.

- (16) **Hypothesis1 (tentative)**: The retrospection is allowed only when the listener and the speaker have different emotional responses to the uttered information.

However, retrospection is not always allowed just because of non-identical emotional response between the speaker and the hearer. The sentences in (17) are utterances that a speaker addresses to a friend.

- (17) a. \*wuli cip-ey        pul    na-ass-te-la.  
           My house-LOC    fire    occur-PAST-RETRO-DC  
           ‘In retrospect, my house caught on fire.’  
 b. \*wuli iwus        cip-ey        pul na-ass-te-la.  
           My neighbor    house-LOC    fire occur-PAST-RETRO-DC  
           ‘In retrospect, my neighbor’s house caught on fire.’

Both of the two sentences in (17) describe events that happened closer to the speaker than the hearers. Thus, the sentences elicit more emotional response from the speaker and we can consider there to be non-identical emotional response between the speaker and the hearer. However, while the speaker can talk about the fire in his neighbor’s house as if the event does not concern the speaker, he cannot do the same for a fire at his own house. That is, speaking as if the event has no concern to the speaker signifies a psychological distance, which is awkward when it is present while speaking about an event within one’s control.

Let us consider that retrospective morpheme is natural when a sentence such as (17a) is given within the context in (18).

- (18) Chwulcang-eyse tolao-e    po-ni        nay-ka eps-nun        sai-ey  
       Business trip    come back-see-when    I-NM    absent-MD    moment-LOC  
       wuli cip-ey        pul na-ass-te-la.  
       my house-LOC    fire occur-PAST-RETRO-DC  
       ‘In retrospect, I found that my house had caught on fire when I came back  
       from my business trip.’

The fire in (18) took place while the speaker was absent, thus implying that the speaker had no control over the event. As such, it is natural for the speaker to display signs of psychological distance. On the other hand, the awkwardness of the psychological

distance shown in (17a) occurs because the sentence can be interpreted in a way that the speaker did have control over the fire but did not do anything to prevent it.

Thus, we can hypothesize again that retrospective morpheme cannot appear in a context where speaker have control over the event described by the given sentence.

- (19) **Hypothesis 2 (tentative)**: The retrospective morpheme cannot appear in a context where speaker have control over the event described by the given sentence.

The hypothesis that the realization of the retrospective morpheme is relevant to controllable feature of the speaker can account for the phenomenon regarding person restriction.

- (20) a. \*nay-ka cal talli-te-la.  
I-NM well run-RETRO-DC  
'In retrospect, I ran well.'
- b. Kkwum sok-eyse po-nikka nay-ka cal ttuy-te-la.  
Dream inside-LOC see-when I-NM well run-RETRO-DC  
'In retrospect, I ran well in my dream.'

The running in (20a) occurs on the speaker's own volition and is thus an event that is under the speaker's control. However, if the event occurs in one's dream, the phenomenon is no longer under the speaker's control. Therefore, the difference in acceptance shown in (20) is explained by determining whether the event was under the speaker's control.

Let us now compare (20a) and the sentences in (21).

- (21) a. nay-ka maum-i aphu-te-la.  
I-NM heart-NM hurt-RETRO-DC  
'In retrospect, my heart was hurt.'
- b. nay-ka sulphu-te-la.  
I-NM sad-RETRO-DC  
'In retrospect, I was sad.'

Unlike action verbs, stative verbs carry non-volitional feature. That is, although sentences in (21) have subjects of first person, the speaker can express psychological distance about his emotion because the sentences do not show control of the speaker.

Usage of ‘*te*’ is more natural in 2<sup>nd</sup> and 3<sup>rd</sup> person subject sentences than in first person subject sentences. This can be easily explained by control features of the speaker. Sentences in (22) describe events that occurred under volition of 2<sup>nd</sup> and 3<sup>rd</sup> person subjects and thus are not events under control of the speaker. Therefore, it is possible for the speaker to describe the events with a sense of psychological distance.

- (22) a. ney-ka    cal    talli-te-la.  
          You-NM   well   run-RETRO-DC  
          ‘In retrospect, you ran well.’  
      b. ku-ka    cal    talli-te-la.  
          he-NM    well   run-RETRO-DC  
          ‘In retrospect, he ran well.’

However, the following sentences are often cited as examples proving that ‘*te*’ cannot be used when sentences have second or third person subject with psych-verbs.

- (23) a. \*ney-ka        sulphu-te-la.  
          You-NM    sad-RETRO-DC  
          ‘In retrospect, you were sad.’  
      b. \*ku-ka        sulphu-te-la.  
          he-NM        sad-RETRO-DC  
          ‘In retrospect, he was sad.’

The unacceptability of above sentences is not directly caused by the use of ‘*te*’. As can be seen in (24), these sentences are unacceptable even without ‘*te*’.

- (24) a. \*ney-ka        sulphu-ta.  
          You-NM    sad-DC  
          ‘You were sad.’  
      b. \*ku-ka        sulphu-ta.  
          he-NM    sad-DC  
          ‘He was sad.’

The inappropriateness of the above sentences must be explained by the violation of the restriction that psych-verb sentences require the speaker and the sentential subject to be co-referential in Korean. Thus, the person restriction of sentential subject with retrospective morpheme can be accounted for by controllable feature of the speaker. That is, retrospective morpheme expresses the psychological distance of the speaker to the events that are not under his control.

Based on what we have examined so far, we can revise the previous hypotheses as following:

- (25) **Hypothesis(revised)**: The retrospective morpheme expresses the speaker's psychological distance to events not under his control in context where the speaker and the hearer have non-identical emotional response to the uttered information.

Then for what does the speaker express his psychological distance to the describing event? Psychological distance can be interpreted as a tactic of politeness principles as set forth by Lakoff (1973) and Brown and Levinson (1987).

In the following section, let us examine how the speaker's psychological distance from the information produces discourse effects of politeness..

#### **4. Discourse effects of speaker's psychological distance from the information**

##### *4.1. First person subject and 'te'*

First, let us consider the semantic distinction displayed by declarative sentence and retrospective sentence in first person subject sentences in (26).

- (26) a. nay maum-i     sulphu-ess-ta.  
      My heart-NM    sad-PAST-DC  
      'I was sad.'
- b. nay maum-i     sulphu-te-la.  
      My heart-NM    sad-RETRO-DC  
      'In retrospect, I was sad.'

(26a) simply describes the speaker's emotional state but (26b) describes the speaker's emotional state with a sense of distance. In terms of psychological closeness, information on the speaker's emotional state is a close information to the speaker and distant to the hearer. When the speaker to express this with a sense of distance, it has an effect to adjust non-identical distance to be identical distance between the speaker and the hearer. This effect causes a feeling of camaraderie between the speaker and the hearer in relation to the information.

Let us examine again the two sentences in (27).

- (27) a. *nay-ka cinansihem-eyse iltung ha-ess-e.*  
 I-NM last test-LOC first score do-PAST-DC  
 'I got the first score on the last exam.'
- b. *nay-ka cinan sihem-eyse iltung ha-ess-te-la.*  
 I-NM last test-LOC first score do-PAST-RETRO-DC  
 'In retrospect, I got the first score on the last exam.'

Is achieving the top score on a test an event under the speaker's control? The effort in order to achieve the top score is an event under the speaker's control; however, every effort does not always lead to the desired results. As such, it cannot be considered an event under the speaker's control.

If information in (27) is uttered through a declarative sentence, the sentence can be interpreted in a way that the speaker is expressing his volition in this event of achieving the top score. However, in retrospective sentence where the speaker expresses psychological distance, the speaker implies that the event had a result that was not under his control. This attitude invokes a feeling of camaraderie with the speaker in the hearer, who also had no control over the result.

#### 4.2. *Second person subject and 'te'*

Next, let us examine the discourse effect of the speaker's psychological distance in sentences with second person subject.

- (28) a. *ne sang tha-ass-e.*  
 you prize get-PAST-DC  
 'You got a prize.'
- b. *ne sang tha-ass-te-la.*

you prize get-PAST-RETRO-DC  
'In retrospect, you got a prize.'

- (29) a. ne akka cip-ey eps-ess-e.  
you before house-LOC absent-PAST-DC  
'You were not at home before.'  
b. ne akka cip-ey eps-te-la.  
you before house-LOC absent-RETRO-DC  
'In retrospect, you were not at home before.'

The above sentences contain information relevant to the hearer. However, in declarative sentence, in which the speaker assertively relays the hearer's information to the hearer, the speaker implies that he knows more about the information than the hearer. This violates principle of politeness that honors participants of dialogues. According to Brown & Levinson, participants should not threaten the face-wants of the other party, and all participants have a positive face-want of having their information acknowledged. Thus, the speaker can acknowledge that the information about the hearer is closer to the hearer than the speaker by signifying his psychological distance from the information. Thus, the hearer can receive information regarding himself while retaining his face-wants, allowing for a more friendly discourse.

#### 4.3. Third person subject and 'te'

Let us finally examine the discourse effect of the speaker's distance in sentences with third person subject.

- (30) a. Swuni-ka cikum naka-te-la.  
S.-NM now go out-RETRO-DC  
(lit)'In retrospect, Suni is now going out.'  
b. Swuni-ka cikum naka-n-ta.  
S.-NM now go out-PRESENT-DC  
'Suni is now going out.'
- (31) a. Swuni-ka o-ass-te-la.  
S.-NM come-PAST-RETRO-DC  
'In retrospect, Suni has come.'

b. Swuni-ka o-ass-e.  
S.-NM come-PAST-DC  
'Suni has come.'

- (32) a. Nwu-ka chacao-ass-te-la.  
Somebody-NM visit-PAST-RETRO-DC  
'In retrospect, somebody was asking for you.'
- b. Nwu-ka chacao-ass-e.  
Somebody-NM visit-PAST-DC  
'Somebody was asking for you.'

In (30-32), both declarative and retrospective sentences can serve the function of reporting same information. However, in the dialogue with defined hearer, the delivery of information can be understood to expect a certain reaction from the hearer. (b) sentences express the speaker's assertive manner in reference to the given subject, which directly conveys the speaker's expectation of the hearer's reaction.

From the hearer's view points, however, the declarative sentences include elements that threaten the hearer's face-want of being free from compulsion because the delivery of information implies that the speaker expects a direct reaction from the hearer. At the same time, if the speaker can place psychological distance between himself and the information, the hearer does not feel compelled to react and thus interprets the information as a friendly discourse.

## 5. Summary

In sum, the retrospective morpheme has been considered as a tense-related morpheme; however, these previous analyses have been insufficient in explaining the various characteristics of the retrospective morpheme that are distinct from other general tense morphemes. Therefore, this paper proposes an analysis from the discourse and pragmatic perspective based on the facts that the appropriateness of the use of retrospective morpheme is discourse-oriented, and that the retrospective morpheme occurs only in sentences with a defined hearer. This paper reveals that the retrospective morpheme expresses the speaker's psychological distance from the uttered information; this distance serves a function of showing politeness to the hearer by allowing the

hearer in the conversation to acquire a sense of camaraderie and/or to protect his face-wants.

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# **Metacommunicative Functions of Address Terms and Fillers in Conversations between Husband and Wife in Korea and Japan —A Contrastive Study—**

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## **Abstract**

In conversations, Korean married couples use address terms frequently and variously in order to signal the speaker's intention to the hearer metacommunicatively as contextualization cues (Gumperz 1982, Yoon 2008b). As contextualization cues, Japanese married couples, on the contrary, use fillers in their dialogues as frequently and variously as address terms in Korean conversations (Yoon 2008c). Why are the means used for contextualization cues so different despite their similarities in grammar? It can be supposed that the reason is related closely to the difference in speech styles of the speakers of these two countries. To test this hypothesis, conversations of actual Korean and Japanese married couples under the same situations were analyzed. The hypothesis was verified positively: The frequent and various use of address terms by the Korean couples reflects the speech style of Korean communication because Korean speakers lead and control the conversation actively. Similarly, the use of fillers by the Japanese couples is linked to Japanese style of communication because Japanese speakers expect the hearers to interpret their intention from their little information in the utterances positively.

**Keywords:** contextualization cues, address terms, fillers, Japanese, Korean

## **1. Introduction**

In utterances in a conversation, a speaker can convey his intention to interlocutors metacommunicatively by adding linguistic and/or paralinguistic means like address terms, fillers, intonation, accent, prosody, etc. Gumperz (1982) described such means as contextualization cues. Especially, uses of address terms and fillers as linguistic means for suggesting the speaker's intention are different from one culture to another.

### *1.1. Use of Address terms in Korean and Japanese*

Address terms are linguistic expressions with which the speakers can call their interlocutors directly. Braun (1988) distinguished address terms into two categories: free forms and bound forms. The former is independent on the syntactic structure of a sentence and can appear freely in any places in utterances. On the other hand, the latter is restricted syntactically and conjugates a predicate verb in a sentence. For example, “Sumi” and “you” in the utterance “Sumi, how are you?” are a free form and a bound form, respectively. In the present research we are interested in free forms of the address terms because they can be selected and used freely by the speaker to signal his intention to the hearer metacommunicatively. So, in the present study, the term “address terms” may refer only to free forms.

Yoon (2008a) researched how address terms are used in conversations between Japanese and Korean married couples comparatively and demonstrated that Korean couples use them more frequently and more variously than Japanese couples. Furthermore Yoon (2008b) claimed that the reason is that address terms can function metacommunicatively as contextualization cues in a conversation.

### *1.2. Use of fillers in Korean and Japanese*

The definition of fillers is ambiguous because the term is used in the literature differently by researchers. In the present study fillers may refer to various interjections that can function metacommunicatively. For example, “well” in the utterance “Well, what do you think about that?” can be regarded as one of such fillers.

Park (2005) analyzed natural conversations between Japanese and Korean people and demonstrated that Japanese use fillers more often than Korean. Yoon (2008c) analyzed dialogues between married couples from a Japanese and a Korean drama and showed that Japanese couples use fillers more frequently and more variously than Korean couples. Furthermore Yoon (2008c) conducted an experimental research of dialogues between married couples in Japan and Korea under the same conditions. She demonstrated that fillers in Japanese conversations appear in the same places as address terms in Korean conversations and claimed that the both means can function similarly as contextualization cues.

### *1.3. Purpose*

Japanese and Korean are syntactically similar languages and they also have similar systems of address terms. However, linguistic means used as contextualization cues are fairly different between both languages. In Korean and Japanese, address terms and fillers are used as metacommunicatively, respectively.

Address terms are linguistic means with which the speakers can call their interlocutors directly as mentioned above. Therefore the speaker utters them directly to the interlocutor. On the other hand, fillers express emotional feelings of the speaker and are not always directed to the interlocutor. In other words, address terms are direct means as contextualization cues while fillers are indirect ones.

Why do Korean and Japanese use different metacommunicative means as contextualization cues? In the present study, we suppose that the reason is in different styles of conversations between Japanese and Korean. The purpose of this research is to verify the hypothesis by analyzing experimental dialogues of married couples in Japanese and Korean.

There have been presented several contrastive studies on conversational cooperation between the speaker and the hearer in Japanese and Korean. Yim (2005) compared relations of conversations and backchannels from a point of view of politeness and claimed that ambiguous topic lines in a Japanese conversation are not aggressive to the interlocutor because they are based on negative politeness. In a Korean conversation, however, Korean use aggressive but “transparent” expressions, which are namely based on positive politeness.

Park (2007) analyzed discourse markers like back channels, hesitations, overlapping, etc. in Japanese and Korean. According to the results of Park (2007), Japanese speakers use back channels and hesitations more often and more variously than Korean speakers, which showed that the hearers have more cooperative, but more indirect attitudes to the speaker in Japanese conversations. As for overlapping, they appear in Korean conversations more frequently than in Japanese so that the speaker can take a turn aggressively. Therefore Korean speakers behave actively, which seems to be non-cooperative.

## **2. Materials and Methods**

### *2.1. Materials*

#### *2.1.1. Materials*

Data for this study will be collected from experimental conversations of Japanese and Korean married couples. In the present research, namely, actual married couples shall talk to each other. It would be ideal and objective to tape-record how real married couples talk to each other in a secret manner, which is, however, not allowed ethically.

I selected four scenes of conversations of married couples from *At Home Dad*, a Japanese drama broadcasted by Fuji TV in 2004, and *Bulyang jubu*, a Korean drama broadcasted by SBS in 2004. Both the dramas are similar in plot since the Korean drama is a remake of the Japanese one.

#### *2.1.2. Informants*

The participants of this research are four Japanese and four Korean married couples in their 20's to 30's, living in the capital spheres Tokyo and Seoul respectively, junior college or university educated. The Japanese couples have no knowledge of Korean language and vice versa.

### *2.2. Methods*

The participants shall verbally react to the role play situations set up by the researcher. The sentences used to instruct the participants do not include any language that would suggest the use of fillers or address terms, for example “Make an apology for coming late”, not part of the conversation like “Sorry for coming late.” The researcher tape records the utterances of the participants and then transcribes them. Note that the participants are not told about the aims of this study and not suggested to use any fillers or address terms in the instructions.

## **3. Results and Discussion**

In this chapter, the results of the comparison of conversations of Japanese and Korean married couples are partly shown (see Appendixes below for the other examples) and

discussed. The following is a list of abbreviations:

- [ ]: Explanation of the situation of a scene
- JW: a Japanese wife
- JH: a Japanese husband
- KW: a Korean wife
- KH: a Korean husband

### 3.1. *Expressing a wish*

<Scene 1>

[A husband and wife are watching the home shopping network. When the wife sees a dishwasher that she wants, she tries to sweet talk her husband into getting it.]

(1) JW1: Kore doo omou?

(What about this one?)

All of the Japanese wives used interrogative sentences to get a dishwasher. Formally they asked their husbands what they think about it. By asking an opinion, however, they communicatively tried to let their husbands understand that they want it.

(2) KW4: Jeogeo jeogeo eoddae? Siggiseceoggi. Jeogeo hana salka? eoddae?

(How about that? The dishwasher. Shall we buy that? Shall we?)

Two of the Korean wives asked their husbands what they think about the dishwasher. Three of them used the word “buy” clearly to convey their wish to get a dishwasher.

The instruction for this utterance is to ask your husband what he thinks about the dishwasher model shown currently on the TV-shop. The informants know the situation of the scene well. Japanese wives want the dishwasher, but only ask the husbands what they think about it without conveying the wish directly to them. In the paralinguistic level, the prosodic pattern of the question uttered by the wives can be different from a usual question.

Korean wives not only ask their husbands what they think about the dishwasher but also explain to them verbally how they need it.

### 3.2. *Apology*

<Scene 2>

[The husband apologizes that he didn't tell his wife that he had been fired.]

- (3) JH1: Hontoni gomen.  
(I'm really sorry.)

All of the four Japanese husbands uttered only an apologizing expression to their wives.

- (4) KH2: Eo mianghada. Miri maleul haeteoya doineunde ireotge doiseo mianhada.  
(I am sorry. I should have told you in advance. I am sorry. I couldn't do that.)

Two of the four Korean husbands uttered only an apologizing expression once, the others apologized twice. One of the husbands used only a routine form for apology, two of the four referred to the reason for apologizing besides a routine formula for apology. One husband uttered an excuse.

The instruction for this utterance is to give a real apology. All the Japanese husbands uttered only an apologizing expression. Korean husbands added the reasons for apologizing. It can be said that Japanese husbands expected their wives to understand their feelings. On the other hand, Korean husbands explained their intentions for apologizing actively to ask their wives to understand their feelings.

### 3.3. *Announcing an intention*

<Scene 3>

[The wife gave up her career in order to take care of her mother-in-law.]

- (5) JW4: Datte okaasanga taiinshitarasa iedesa okaasanno mendoomitahooga iideshoo?  
(Because I think we should take care of your mother after she leaves the hospital, shouldn't we?)

Three of the Japanese wives uttered their opinions in tag-question forms to request an agreement with their husbands. One of them used "omotte" (I think) instead

of a tag-question form. Modality expression “omotte” is used to weaken an opinion. All of the utterances of Japanese wives tried to avoid expressing their opinions clearly.

(6) KW1: Meo daeune gamyoun deolgeotgatgo eomeoni teowonhasimyon ije Uriga mosyoyaji. Jasigirago uribate eobneunde.

(I think I will get another chance in the future. We have to take care of your mother when she gets out of the hospital. She doesn't have any other sons or daughters.)

All Korean wives uttered their opinions clearly. They didn't use any weakening means for their expressing their opinions unlike the Japanese wives.

The instruction for this utterance is to say the need of taking care of her mother-in-law in the house of the couple after her leaving the hospital. In the utterances in Japanese, Japanese wives used rhetorical questions as indirect forms in expressing their opinions. However, all of the Korean wives didn't use any question forms. They conveyed their opinions to their husbands directly with the expression “have to”.

### 3.4. Suggestion

<Scene 4>

[A dishwasher that the wife wanted is too big. So the husband suggested her to buy a smaller one.]

(7) JH1: Ya demo ookisugirunjanaikana. Mochotto chiichainode iinjanaino?

(Well, but it is too big, isn't it? Isn't a little bit smaller one good enough?)

All the Japanese husbands didn't express their evaluation directly by using tag-question form or interrogative sentences. They recommended their wives another model indirectly.

(8) KH3: Geuraedo keuda. Ya dareun model alaboara.

(But that is so big. Hey, find a different one.)

All the Korean husbands uttered their evaluation directly, and suggested their wives to buy another model clearly.

The instruction for this utterance is to ask your wife to select another model. All of the Japanese husbands used interrogative forms to give a proposal, not imperatives, i.e. they formally asked their wives to say their opinions. On the other hand, all of the Korean husbands requested their wives to select another model by using imperatives or invitation forms. Won (2008) compared invitational expressions in Japanese and Korean and showed that Korean use invitation forms for the interlocutor to do something on the basis of the positive politeness strategy. Japanese use request forms or interrogatives from a point of view of negative politeness.

#### **4. Conclusions**

The tasks imposed to the informants were the same: To verbalize what is explained in each scene. But in both languages the differences above were to be observed. The differences are ascribable to the different contribution of the speaker of both languages to the communication. The Korean speakers speak directly and clearly, give more information for persuasion and need not cooperation of the hearers. On the other hand the Japanese speakers speak indirectly and unclearly, give minimum information for persuasion and need active cooperation of the hearers. To sum up, the Korean speaker is mainly responsible for the understanding and leads the communication, while the Japanese speaker will lead the communication negatively and the hearer is expected to interpret the intention of the speaker actively.

The uses of address terms and fillers appear to parallel the styles of communication of Korean and Japanese. The use of address terms in conversation matches to Korean style of communication because Korean speakers lead and control the communication actively. The use of fillers in conversation is appropriate to Japanese style of communication, because a Japanese speaker expect the hearer to interpret the intention of the speaker from his little information in the utterance positively or actively.

In the present study, we compared functions of address terms in Korean and fillers in Japanese, even though address terms and fillers are different linguistic means. Then in the future, we have to discuss about the comparability of address terms and fillers. Furthermore paralinguistic devices functioning as contextualization cues in conversations of married couples are also to be analyzed contrastively in Korean and Japanese.

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## Appendixes

### <Scene 1: Expressing a wish>

JW1: Kore doo omou?

(What do you think about this?)

JW2: Umu ano ano syokusenki doo?

(What do you think about that dishwasher?)

JW3: Kore doo omou?

(What do you think about this?)

JW4: Ima kono terebide yatteruno doo omou?

(What do you think about the one that's on TV right now?)

KW1: Jeogeo jeogeo bwabwabwa jeogeo. Jeone naega mal haetdeon geo. Jotchi?

Halindo hadeonde.

(Look at that! That one! That is the one I told you before. Isn't it nice?

And it's on sale now.)

KW2: Oppa jeo siggisecheokgi eoddeonde?

(Honey, how about that dishwasher?)

KW3: Oppa jeo siggisecheokgi sago sipeunde jeogeo eoddae?

(Honey, I'd like to buy that dishwasher but what do you think?)

KW4: Jeogeo jeogeo eoddae? Siggiseceoggi. Jeogeo hana salka? eoddae?

(How about that? The dishwasher. Shall we buy that? Shall we?)

## <Scene 2: Apology>

JH1: Hontooni gomen.

(I am really sorry.)

JH2: Konkaino kotowa hontooni sumanakattato omotteiru.

(I feel really sorry about this.)

JH3: Warukattawa.

(I am sorry.)

JH4: Hontooi gomen.

(I am really sorry.)

KH1: Mianhae yujina. Angeuraedo naega mal haryeogo geuraetneunde.

(I am sorry, Yujin. I was going to talk to you.)

KH2: Eo mianghada. Miri maleul haeteoya doineunde ireotge doiseo mianhada.

(I am sorry. I should have told you in advance, I am sorry I couldn't do that.)

KH3: Mal anhaeseo jeongmal mianhada.

(I am really sorry that I didn't tell you.)

KH4: Seonhyeonga mianhae. Jinjja mianahada.

(Seonyoung, I am sorry. I am really sorry.)

**<Scene 3: Announcing an intention>**

JW1: Okaasanga taiin shitara uchide mendoo minakya ikenaideshyoo?

(Aren't we supposed to take care of your mother at our place when she gets out of the hospital?)

JW2: Un demo hora okaasanga taiin shitara iedene iede mendoo minakyaikenaito omotte. Un ano yameni shitanda.

(I thought we shall take care of your mother when she gets out of the hospital. So I decided to give up.)

JW3: E okaasan taiin shitara iede mendoo minakya ikenaikarasa.

Honkon ikenaideshyou?

(Since we shall take care of your mother when she gets out of the hospital, I can't just go to Hong Kong, can I?)

JW4: Datte okaasanga taiinshhitarasa iedesa okaasanno mendoomitahooga Iideshyoo?

(Because I think we should take care of your mother after she gets out of the hospital, shouldn't we?)

KW1: Meo daeune gamyoun deolgeotgatgo eomeoni teowonhasimyon ije Uriga mosyoyaji. Jasigirago uribate eobneunde.

(I think I will get another chance in the future. We have to take care of your mother when she gets out of the hospital. She doesn't have any other sons or

daughters.)

KW2: Eomeoni toiwonhasimyeon urijibeuro mosyeoyagetda. Geureotge haja.

(When your mother gets out of the hospital, we shall bring her to our place.  
We shall do so.)

KW3: Geunyang eomeoni toiwonhasimyeon uriga dolboa deuryeoya hanika  
jogeumman naega chamji meo.

(Since we should take care of your mother when she gets out of the hospital,  
I'll endure.)

KW4: Eomeoni toiwon hasimeyon urijibe gyeseyoya doijana.

(When your mother gets out of the hospital, she needs to stay at our place.)

**<Scene 4: Suggestion>**

JH1: Ya demo ookisugirunzyanaikana. Moochyotto chiichyaainode iinzyanaino?

(Well, but it is too big, isn't it? Isn't a little bit smaller one good enough?)

JH2: Ya sooittemosa hora uchino daidokoromo semaisisa. Sonnani ookiino iretemo  
damedeshyoo. moochyotto chiichyainonishitara?

(But look. Our kitchen is small. That big one shouldn't be at our place, don't you  
think? Why don't we buy a little smaller one?)

JH3: A demo ookiisine. Huraipan betsuni arawandemo iideshyoo.

Tede araeba iizyanai. moochyotto chiichyaiyatsude iinnzyanaino?

(But it's big. A frying pan doesn't have to be washed in a dishwasher, no?

I think it could be done by hands. Wouldn't it be better to buy a smaller one?)

JH4: Ma sorenisitemo dekaizyanai?

(Well, isn't it still big?)

KH1: Geuraedo jom keungeo gateunika dareungeo alaboa.

(But it looks little big. Look for other ones.)

KH2: Um geunde model maneunika meo igeobake eobneungeon anida.

Dareungeotdo jom alaboayaji.

(Well, there are other types too. This isn't the only one.

We have to look for other ones.)

KH3: Geuraedo keuda. Ya dareun model alaboara.

(But that is still big. Hey, find a different one.)

KH4: Geuraedo jigeum neomu keungeot gateunde gunyang dareun model alaboja.

(It still looks too big. Let's just look for other ones.)

# **Complex Roles of Similarity and Markedness on L2 Phone Acquisition: A Complementary Argument to the SLM and SDRH**

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## **Abstract**

The study attempted an investigation of Speech Learning Model (SLM), which claims that dissimilar phones can be acquired by establishing a new phonetic space, and that it is impossible to acquire authentic pronunciation of similar phones. It also investigated Major and Kim (1999)'s Similarity Differential Rate Hypothesis (SDRH), which maintains that differential rate affects the rate of acquisition, and, finally, provided a complementary argument to the two models. The study utilized the speech data of Kwon (2007b), results of speech production test on 7 Korean simple vowels produced by 16 Korean native speakers and three groups of Japanese learners of Korean (48 in total) who had different levels of learning or experiencing Korean, and of speech perception test on the 7 Korean simple vowels produced by the three Japanese groups, to verify the three hypotheses based on SLM and SDRH. Results suggested that SLM was partially falsified since similarity was closely related to the rate of acquisition, but it was not lineally related to ultimate competence or order of acquisition. On the other hand, SDRH seemed verified for the most part in that the most general principle involving similarity was rate, and markedness played a certain role as a mediating factor on the effect of similarity, although it was hard to find a definite proportional relationship between acquisition and similarity and markedness.

**Keywords:** L2 phone acquisition, similarity, markedness, SLM, SDRH

## **1. Introduction**

The goals of the study are to verify Flege's Speech Learning Model (SLM) by investigating the effect of the phonetic similarity of L1 (Japanese) and L2 (Korean) on L2 phone acquisition, and to verify the Similarity Differential Rate Hypothesis (SDRH) by investigating the significance of rate of acquisition as an effect of the phonetic

similarity and the effects of markedness as a mediator that slows down the rate of L2 phone acquisition.

Various research on L2 phone acquisition has dealt with the factors that make learners succeed or fail in acquiring native-like pronunciation. The factors that facilitate or impede the acquisition can be sorted out for non-linguistic factors such as neurological factors, age, L1 use, experience in L2, motivation, aptitude, and anxiety, as well as for the linguistic factor, which is L1. In this context, diverse hypotheses derived from contrast between L1 and L2 phone systems have been raised as follows: Contrastive Hypothesis Analysis (CAH), which regards interlingual “difference” as an obstacle in learning, Markedness Differential Hypothesis (MDH), which claims the relative degree of markedness affects the order of acquisition, SLM, which assumes new phones are easier to acquire compared to similar phones, and, finally, SDRH, which suggests both the roles of markedness and similarity.

There is something left to be desired in order to prove the notion of SLM, although a large amount of research results support SLM. A majority of the trials that attempted to validate SLM are problematic in assessing the similarity, a primary constituent factor of SLM. A small number of studies have been done for the cases in which the target languages are scarcely exposed to the learners before they began to learn them.<sup>1</sup> The majority investigated the learners whose target language was English, but English is one of those few languages to which learners are frequently exposed even before formal L2 learning begins. Furthermore, empirical research to prove SDRH tends to have been neglected to date. Hereupon the study constructs three hypotheses that accord with SLM and SDRH, and will analyze the validity of the two models by utilizing speech data produced by L2 learners.

## **2. SLM and SDRH: Roles of similarity and markedness**

SLM is a model that explains the interactions between L1 and L2 systems that occur during L2 phone acquisition. According to SLM, phonetic features that constitute phonetic structures exist in common phonological space, and hence L1 and L2 interact.<sup>2</sup>

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<sup>1</sup> There are a few none-English languages like French (Flege 1987, Levy and Strange 2007) and Spanish (Guion, Flege, and Loftin 2000) investigated, but it should be considered that they might be one of the widely spread languages.

<sup>2</sup> There are two mechanisms in the common phonological space of L1-L2: “Phonetic category assimilation” is thought to operate when a new category fails to be established an L2 speech sound despite audible differences between it and the closest L1 speech sound. By hypothesis, category formation will be blocked if instances of an L2 speech category continue to be identified as instances of an L1

SLM endeavors to make a prediction for success or failure in L2 phone acquisition by the similarity, and a range of studies have ascertained the SLM with the similar results that the more similar the L2 phone is, the more L1 affects the L2 learners' phone acquisition and impedes learning (Flege and Hillenbrand 1984, Flege 1987, Flege 1995, Best, McRoberts, and Gooddell 2001, Aoyama, Flege, Guion, Akahane-Yamada, and Yamada 2004, Baker and Trofimovich 2005).

There, however, are several limitations in the main arguments of SLM and the process of attesting them. First, there is a problem in judging similarity. The majority of the research adopted the International Phonetic Alphabet system for judgment, and they decided the presence of similarity in accordance with whether or not the L2 phones have counterparts in L1 in terms of IPA. Most research related to SLM presupposes that similar phones are L2 phones that have counterparts in L1 in terms of IPA, while new phones are L2 phones that do not have counterparts in L1 in terms of IPA. IPA, however, is a phonetic alphabet system, as its name denotes, and it cannot be a criterion for deciding whether two phones are similar or not, as Kwon (2007b) maintains.

The privative categorizing by IPA can fall into the fallacy of dichotomy (Kwon 2007b). Major and Kim (1999) indicate what constitutes similar or dissimilar is not always clear, and try to treat similarity from a comparative perspective. Flege himself admits the limitation of the judgmental method of similarity, questioning how much must an L2 vowel differ from vowels in the L1 to be regarded as new (Flege 1996:42). From the research on the Dutch learners of English, he made a prediction that Dutch speakers would be able to succeed in acquiring /æ/, since English /æ/ is a new phone to Dutch and easy to build a new category. Flege (1996), however, turned out to make a wrong estimate. He tried to explain the fault, revealing that Dutch speakers had been exposed to /æ/ in some imported words, and /æ/ actually was not a new phone to Dutch. The logical error begot from the fact that empirical research based on speech data was not performed in estimating similarity. Thus, experimental research on acoustic similarity needs to be performed, and, instead of referring to the IPA, the study should consider similarity or dissimilarity as a factor placed in the continuum so that relative describing may be possible.

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category. The SLM predicts that in such cases, a "merged" category will develop over time that subsumes the phonetic properties of the perceptually linked L1 and L2 speech sounds. "Phonetic category dissimilation" is thought to operate when a new category has been established for an L2 speech sound. It will cause a newly established L2 category and the nearest L1 speech category to shift away from one another in phonetic space. The SLM posits that category dissimilation occurs because bilinguals strive to maintain phonetic contrast between all of the elements in their combined L1+L2 phonetic space in the same way that monolinguals (or human languages, see Lindblom 1998) strive to maintain phonetic contrast among the elements making up their (L1-only) phonetic space (Flege et al. 2003:468-470).

Second, “difficult to acquire” has been vaguely defined as Eckman, Elreyes, and Iverson (2003) and Major and Kim (1999) pointed out, while it is characterized with order of acquisition in MDH and with rate of acquisition in SDRH. SLM-related research has been performed from different perspectives in terms of “difficulty.” Scores of studies (Flege 1987, Bohn and Felge 1996, Munro 1993) considered ultimate competence for that, and investigated whether certain L2 phones would eventually be mastered or not by checking whether the most experienced group was able to learn. However, all the multiple aspects of acquisition, such as rate of acquisition, order of acquisition, and ultimate competence should be considered in order to judge the “difficulty.”

Third, counter-evidences reveal that similarity is not always a factor that hinders learners from acquiring native-like pronunciation (Munro 1993, Kwon 2007a). The English speaking Arabic subjects examined in Munro (1993) did not appear to have more success in learning to pronounce a new vowel when compared to similar vowels. Additionally, the new vowels produced by the experienced Korean speaking Japanese subjects were perceived as non-native vowels by Korean native speakers in Kwon (2007a), and the result failed to support the predictions of SLM.

SDRH, on the other hand, insists that both rate of acquisition and ultimate competence should be considered, unlike the previous standpoints, SLM and MDH, that attempt to account for difficulty of learning with a single variable. SDRH argues that dissimilar phones are acquired at a faster rate than similar phones, and markedness is a mediating factor that slows the rate (Major and Kim 1999).<sup>3</sup>

- Stage 1:  $x=40\%$ ,  $y=20\%$  (in accuracy)  
 Stage 2:  $x=50\%$ ,  $y=80\%$  (in accuracy)  
           ( $x$ : less marked,  $y$ : more marked)  
 Stage 3:                                    ?

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3 Markedness Differential Hypothesis (MDH), proposed by Eckman (1977), is a hypothesis that maintains less marked phones are acquired earlier than marked ones, and it is verified in Major and Faudree (1996). MDH is said to be developed from the Contrastive Analysis Hypothesis (CAH), a simple hypothesis that there is a difficulty where there is difference between L1 and L2, and tries to predict the area of difficulty, the direction of difficulty, and degree of difficulty. MDH, however, does not consider similarity as a variable, and it fails to interpret the dilemma that “similarity and markedness” compete against each other (Major and Kim 1999). For example, there may occur a contradiction when deciding whether either /x/ or /ɣ/ in Arabic is more difficult for English learners of Arabic to learn based on the two models, SLM and MDH. First, SLM may predict that /x/ will be more difficult to learn than /ɣ/, since a voiceless velar, Arabic /x/, rather than Arabic /ɣ/, a voiced pharyngeal, is more similar to English /k/. On the contrary, MDH expects /ɣ/ should be harder than /x/ in that /ɣ/ is more marked than /x/.

In accordance with SDRH, *y* is acquired at a faster rate than *x* in the beginning stage (from Stage 1 to Stage 2) of learning L2 phones, since *y* is dissimilar to *x* as presented above. The rate of acquisition of the more marked phone, *y*, however, will slow down since markedness works as a mediator. SDRH, hence, predicts about Stage 3 with a point that given that *x* is less marked and *y* is more marked, the rate of acquisition of *y*, presumably, will slow down from a certain point although it is definite that that of *y* is faster than *x*.

SDRH notably stresses the rate of acquisition rather than a vaguely defined “degree of difficulty,” and SDRH assumes that dissimilar phones are acquired faster than similar phones, but it does not make any prediction about the ultimate results, unlike SLM or MDH. Phones of different levels of similarity in different degrees of markedness should be investigated in order to attest SDRH, but no empirical research on SDRH except Major and Kim (1999) has been done so far.

### **3. Hypotheses based on SLM and SDRH**

#### *3.1 Hypotheses*

The study seeks to examine validity of SLM and SDRH by establishing the hypotheses based on the two models and verifying them.

Hypothesis 1: Competence with less similar phones is higher than with more similar phones.

Hypothesis 2: Learners acquire less similar phones faster than more similar phones.

Hypothesis 3: Less similar phones are acquired more quickly than more similar ones. Given a similarity differential, a greater degree of markedness will decrease the rate of acquisition.

Hypothesis 1 and 2 are proposed to observe the effect of similarity on L2 phone acquisition. Dissimilar phones are easier to acquire than similar ones according to SLM, and “easier to acquire” should be analyzed in terms of order of acquisition, rate of acquisition, and ultimate competence. Hypothesis 1 concerns the effect of similarity on acquisition in different learning or experiencing levels. In order to coincide with Hypothesis 1, less similar phones should display better accuracy than more similar phones regardless of learning or experiencing period. Namely, less similar phones are acquired prior to more similar ones, and L2 learners are more likely ultimately to acquire native-like pronunciation in less similar phones. Hypothesis 2 also regards the

effect of similarity on acquisition, and it supposes less similar phones are acquired faster. Thus, it may be acceptable that validation of both Hypothesis 1 and 2 can verify the main arguments of SLM. Hypothesis 3 concerns the effect of similarity and markedness, and in the case that Hypothesis 3 is proven, SDRH could be validated.

### *3.2 Examination of the hypotheses*

The study tests the three hypotheses by examining the phonetic data produced by L2 learners, and the data of Kwon (2007b) will be utilized for the current study.<sup>4</sup>

The speech data of Kwon (2007b) is as follows: Speech production test on the 7 Korean simple vowels produced by Ks, BJs, AJs, and EJs and speech perception test on the 7 Korean simple vowels produced by Ks, BJs, AJs, and EJs are utilized. Subjects are 16 Korean native speakers (Ks), 16 Beginning Japanese learners of Korean (BJs), 16 Advanced Japanese learners of Korean (AJs) participated as subjects, and 16 Experienced Japanese learners of Korean (EJs). Ks were Korean graduate students in the Dept. of Korean Language and Literature, while BJs were Japanese learners of Korean who had studied Korean less than a half year, AJs for 1.5-2 years, and at least 1 year learning plus more than 5 years of experience in Korean.

To begin with, degrees of similarity among Japanese and Korean vowels are analyzed for four levels: Identical (I), High (H), Middle (M), and Low degree (L) based on the analysis of mean values of the F1 and F2 by t-test (Kwon 2007b) as Table 1 displays.<sup>5</sup> Each correspondent pair, the pair of the most closed counterpart of L1 and L2, is analyzed whether a correspondent pair is significantly different from each other in terms of F1 and F2. The study categorizes all the vowels into four categories in accordance with degree of similarity in order to enable comparative arguments on acquisition pattern (rate or order), although the study supposes that the correspondent pairs are laid on the continuum of similarity. When a correspondent pair does not display significant difference in both F1 and F2, the pair is categorized as an identical vowel (I). And, in case that a pair is not significantly different in either F1 or F2, it is classified into vowel with a High degree of similarity (H). The vowel that has a counterpart that is significantly different in both F1 and F2 is sorted as a vowel with a

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<sup>4</sup> Kwon (2007b) was devoted to investigate the effect of similarity in learning L2 phone, and it indicated the possibilities of the effect of markedness, while the current study is more focused on examining the two models, SLM and SDRH by a clarified “degree of difficulty” and probing the roles of markedness with similarity and providing profound explanation.

<sup>5</sup> Vowel height is negatively correlated with F1, and vowel frontness is correlated with F2 (Ladefoged 2001, Johnson 2003).

Low degree of similarity (L). Additionally, the pair that does not differ significantly at the significance level of 0.05, but does significantly differ at the significance level of 0.1 is sorted as a vowel with a Middle degree of similarity (M). The classification is presented in Table 1.

Degree	Korean Vowels	Japanese Vowels
I	/e/	/e/
	/i/	/i/
H	/a/	/a/
	/o/	/o/
	/ɨ/	/ɯ/
M	/u/	/ɯ/
L	/ʌ/	/o/

Table 1. Four levels of similarity based on the analysis of mean values of the F1 and F2 by t-test

**Hypothesis 1: Competence with less similar phones is higher than with more similar phones.**

Table 2 demonstrates whether the learners have achieved Korean-like accuracy. ○ represents that learners are not significantly different from Korean native speakers in terms of F1 and F2, while X represents that the learners are significantly different from Korean. Namely, the groups marked with ○ are regarded to have achieved native-like competence, while the groups marked with X are not.

I: /i/, /e/				H: /a/, /o/, /ɨ/			
	BJs		AJs		EJs		
	I	e	I	e	i	e	
F1	○	○	○	○	○	○	
F2	○	○	○	○	○	○	
M: /u/				L: /ʌ/			
	BJs		AJs		EJs		
F1	X		○		○		
F2	X		X		X		
	BJs		AJs		EJs		
F1	X		X		X		
F2	X		○		○		

Table 2. Competence of the vowels in four levels produced by the three Japanese groups

All three Japanese groups could not achieve native-like competence in different similarity levels regardless of learning or experiencing period for the vowels in different degrees except the vowels of Identical group (I). Accordingly, it is problematic to judge

that either more similar or less similar phones are more likely to acquire native-like pronunciation in ultimate competence.

In addition, in terms of sequence of acquisition, the vowels of I are to be mastered in the very early stage of learning, and the vowels of H also are not significantly different from Korean native speakers in either F1 or F2 from the very beginning stage, probably as a result of the positive transfer from L1, although they still are significantly different from Korean speakers. /u/, M degree, and /Λ/, L degree, however, do not present any difference to Korean speakers in either formant frequencies until the learning or experiencing period has reached 18~24 months. Therefore, the higher the similarity between L1 and L2 is, the earlier the phones are acquired. Namely, the sequence of acquisition has a linear relationship with the degree of similarity.

Thus, Hypothesis 1 is falsified since the speech production of more similar phones shows more similarity with Ks in terms of F1 and F2 than do less similar phones. The result is contradictory with SLM's argument that adult learners will ultimately produce new L2 vowels more accurately than similar L2 vowels because they are more likely to establish additional phonetic categories for new vowels.

## **Hypothesis 2: Learners acquire less similar phones faster than more similar phones.**

The Figure 1 presents the result of the perception test of Korean listeners on the vowel data produced by BJs, AJs, and EJs, and it implies the acceleration of acquisition according to the learning or experiencing period.<sup>6</sup> As Figure 1, the listeners display the accuracy of almost one hundred percents in /e, i, a, o, ɨ/ across all the period levels, and they show lower accuracy in the beginning and significantly greater accuracy in long term in /u/ and /Λ/. It signifies that there is more acceleration in acquiring less similar vowels, /u/ or /Λ/ rather than more similar ones, /e/, /i/, /a/, /o/, or /ɨ/.

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<sup>6</sup> The stimuli are randomly chosen from the data that are collected for production text, and 105 (7 vowels \* 3 groups \* 5 random samples) stimuli are used. The listeners are 10 Korean native speakers who are female graduate students in Korean Language and Literature whose ages ranged from 26 to 35. The ten listeners are asked to select the corresponding vowel on the answer sheets that are composed of 7 multiple choices (/a/, /o/, /Λ/, /ɨ/, /u/, /e/ and /i/) to each stimulus. Thus, 1,050 answers (10 listeners \* 105 questions) are given.

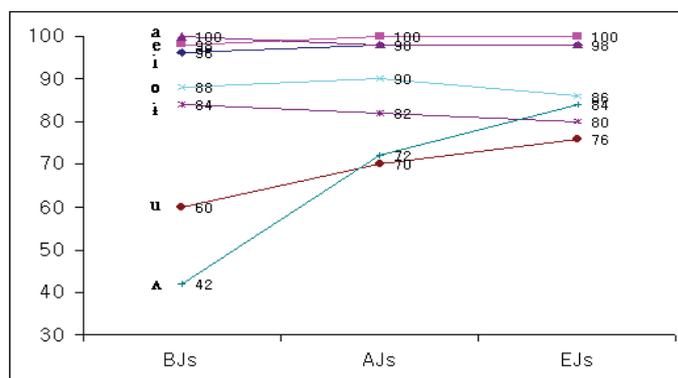


Figure 1. Result of the perception test on data of the three groups by Korean listeners<sup>7</sup>

	BJs	AJs	EJs
a	-0.64		1.2
e	0.6		0.8
i	1.09		0.5
o	2.8		1.38
ɪ	-1.18		0.7
u	18.7		8.45
ʌ	76.8		13.03

(scale: %)

Table 3. Rate of acquisition of seven vowels of Japanese Learners of Korean

The hypothesis 2 is verified since only the M and L display significant development according to the speech production test, and the results of the perception test also show the consistent analysis. It seems that learning, as a variable in acquiring L2 phones, has a greater effect on less similar phones than on more similar phones, and that is consistent with SDRH's argument.

**Hypothesis 3: Less similar phones are acquired more quickly than more similar ones. Given a similarity differential, a greater degree of markedness will decrease the rate of acquisition.**

Complexity Level	Korean Vowels
0	a
1	i u
2	e o ɪ
3	ʌ

Table 4. Complexity of Korean simple vowels based on marking conventions of Chomsky and Halle (1991)

It seems nearly impossible to make a hierarchy of various vowels of different language

<sup>7</sup> Cited from Kwon (2007b:182).

systems as Eckman (1977) attempted, thus this study adopts the complexity of Chomsky and Halle (1991)'s SPE in analyzing markedness of vowels, since it proves difficult to discuss the degree of markedness directly. The complexity of a system is equal to the sum of the markedness features of its members. It may be hard to say that the complexity levels exactly correspond to "the degree of markedness." Markedness constraints of SPE, however, consider the most commonly discovered vowels in natural languages like /a, i, u/ as the most economical systems (Jun 2004:230-231), and, hence, in case the complexity level of a certain phone is high, the phone is regarded to be less frequently observed, namely less marked. Therefore, the relationship of complexity and markedness appears feasible to estimate the degree of markedness of vowels.

In order to verify Hypothesis 3, five possible cases, which demonstrate different relationships between similarity and markedness from comparative perspectives are formulated and how similarity and markedness react in the L2 phone acquisition is scrutinized.

**[Case 1] similarity: A > B, markedness: A=B (A=/i/, B=/u/)**

Prediction: The degree of similarity of /i/ is higher than /u/, and the degree of markedness of /i/ is the same as /u/. Based on Hypothesis 3, the rate of acquisition of /u/ will be higher than /i/, but there will not be a noticeable change in the gap of the rate of the two phones.

Analysis: The rate of acquisition of /u/ was faster than that of /i/, and the gap did not make a significant change even though it gradually became smaller. Hypothesis 3, consequently, was validated with the analysis of Case 1.

**[Case 2] similarity: A=B, markedness: A > B (A=/o/, B=/a/)**

Prediction: The degree of similarity of /o/ is the same as /a/, and the degree of markedness of /o/ is higher than /a/. Based on Hypothesis 3, the rate of acquisition of /o/ will be similar to /a/, but the rate of acquisition of /o/ will be gradually slower than that of /a/.

Analysis: The rate of acquisition of /o/ is faster, and that of /o/ did not fall behind that of /a/. Hypothesis 3, consequently was validated with the analysis of Case 2.

**[Case 3] similarity: A=B, markedness: A=B (A=/o/, B=/ɨ/)**

Prediction: Both of the degrees of similarity and markedness of /o/ is the same as /ɨ/. Based on Hypothesis 3, the rate of acquisition of /o/ will be similar to /ɨ/, and there will not be a noticeable change in the rate of the two phones.

Analysis: The rate of acquisition of /o/ was not significantly different from that of /ɨ/, and it did

not make a significant change. Hypothesis 3, consequently, was validated with the analysis of Case 3.

**[CASE 4] similarity: A > B, markedness: A > B (A=/i/, B=/u/)**

Prediction: Degree of similarity of /i/ is higher than /u/, and the degree of markedness of /i/ is also higher than /u/ (Tables 1 and 4). Thus, based on Hypothesis 3, it is predicted that the rate of acquisition of /u/ will be faster than /i/, and the rate of /i/ will become slower compared to that of /u/, thus the gap of the rate of acquisition between the two phones will become greater.

Analysis: Referring to the results of the categorical judgments of /i/ and /u/ (Table 3), the rate of acquisition of /i/ was faster than that of /u/, but the rate of /u/, rather than that of /i/ began to decrease from a certain point, and the gap in the rate of the two phones became smaller. Hypothesis 3, consequently was not validated with the analysis of Case 4.

**[Case 5] similarity: A > B, markedness: A < B (A=/i/, B=/o/)**

Prediction: The degree of similarity of /i/ is higher than /o/ while the degree of markedness of /i/ is lower than /o/. Based on Hypothesis 3, the rate of acquisition of /o/ will be higher than /i/, and the rate of /o/ will become slower compared to that of /i/, thus the gap of the rate of acquisition between the two phones will become smaller.

Analysis: The rate of acquisition of /i/ is not significantly different from that of /o/, and it did not make a significant change in the rate. Hypothesis 3, consequently, was not validated with the analysis of Case 5.

The three cases, Cases 1~3, in which either degree of similarity or that of markedness was the same, coincided with Hypothesis 3, while the other two cases failed to validate it. However, it would be nearly impossible to observe the mediating effect of markedness for the Case 4 and Case 5, which compare phones that are high in both degree of similarity and that of markedness, since learners acquire native-like competence even in the very beginning stage.

#### **4. Conclusions and Discussions**

This study interrogated the validity of SLM and SDRH, and examined them empirically. The findings of the research are as follows: First, SLM is partially falsified. Similarity is closely related to the rate of acquisition, but it is not lineally related to ultimate competence or order of acquisition. As Flege (1996) demonstrates that adult L2 learners do not proceed inevitably towards successful production of new vowels, and as

additional research is needed to ascertain the basis for the striking differences between individuals observed, more research needs to be performed to prove SLM. Second, SDRH is verified for the most part. As SDRH argues, the most general principle involving dissimilarity and similarity turns out to be rate, and markedness does play a distinctive role as a mediating factor on the effect of similarity, even though the effect is not fully proportional.

The results of the current study seem partially compatible with the hypothesis of SLM and agreeable with SDRH on the whole, since similarity played a great role in terms of the learning speed, and markedness is found to be part of the factor that affects L2 phone acquisition. L2 phone acquisition, however, cannot be clearly generalized to be related with only a couple of factors such as similarity and markedness, and the study leaves some cases unexplained. Very complex factors seem to have an effect on L2 phone acquisition, just as Archibald and Young-Scholten (2003) argue that neither markedness nor equivalence classification nor reference to suprasegmental facts has been able to explain interlanguage segmental phonology fully.

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# A Corpus-Based Analysis of Case Marker Ellipsis in Korean

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## Abstract

In this study we use spoken and written corpora to examine the phenomenon of case marker dropping in Korean. We show that register (or genre) variation contributes to differences in case marker deletion. With an empirical data analysis, we classify regular patterns of case marker deletion and investigate semantic and pragmatic factors triggering case marker deletion and realization. These factors are important in recovering the information behind a missing case marker. In turn, this information is useful not only for deriving correct syntactic and semantic representations, but also for developing efficient computational processes of parsing, discourse analysis, machine translation, etc.

**Keywords:** annotation, case marker, particles, corpus, ellipsis, register

## 1. Introduction

In Korean, the syntactic and semantic relations of a noun phrase are represented by a case marker that follows that NP. Nominative case *이/가* *i/ka* marks subjecthood, and accusative *을/를* *ul/lul* marks objecthood, as in (1). Other case markers represent additional lexical meanings, such as locative, instrument, source, and goal.

- (1) 민수-(가)    교실-에서    피아노-로    음악-(을)    연주한다.  
Minsu-(ka)    kyosil-eyseo    piano-lo    umak-(ul)    yoncwuhanta.  
Minsu-Nom    classroom-in    piano-with    music-Acc    plays  
'Minsu plays music with a piano in the classroom.'

Our corpus-based research reveals that the rate of case dropping is, in fact, not evenly distributed in spoken and written Korean corpora. In an earlier pilot study with a 10,000 *eojeol*<sup>1</sup> spoken corpus, the total occurrence of nominative case markers corresponded to 88% overt markers and a dropping rate of only 12%. Interestingly, there was also a significant difference depending on register. In our spoken corpus, composed of informal personal conversations, the rate of the nominative dropping approximated 30%. Within the spoken corpus of formal debate, however, it was only 15%. Moreover, the written data showed a much lower rate, i.e., less than 10%. In general, it seems that the more informal dialogs are, the more often case markers are elided. Understanding such differences or similarities in register variation can be useful for efficient natural language processing and for language teaching, as well as for accurate linguistic analysis. For example, case marker ellipsis will be a more serious issue for computational modeling that incorporates informal spoken dialogs than computational processes on written texts. Even if a parser without a meaning resolution system for missing case markers can perform with high accuracy on written data, its performance will be downgraded with spoken data. In language teaching, case markers can be emphasized more for Korean writing and formal speaking based on their frequency in the given register.

In this study, we expand our data analysis to include large corpora with more than 50,000 *eojeol* and investigate if our earlier findings can be generalized. We test four different registers with respect to case marker ellipsis: two types of spoken texts and two types of written texts. The first two are divided into informal personal conversation and formal TV debate, and the latter two, into newspaper articles and scripts of public announcement. By comparing the rates of case marker deletion, we argue that formality of discourse does affect the occurrences of case markers. In addition, we examine the relevant morphosyntactic, semantic, and pragmatic factors affecting case marker realization and ellipsis.

## **2. Case Dropping Phenomena in Korean**

### *2.1. Korean Particles*

Korean is an agglutinative language in which a verb combines with various endings and

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<sup>1</sup> *Eojeol* is a word level unit specific to Korean and based on spacing.

a nominal combines with a particle. At the level of morphosyntax, verbal endings and particles play a crucial role in connecting words or phrases in a sentence. Particles can be divided into two different classes that serve different functions: lexical case markers and discourse particles. Lexical case markers either represent the grammatical relation of a nominal or they add specific meaning to a nominal in a sentence. These two functions are referred to as structural case and inherent case, respectively. Discourse or modal particles come in various kinds and have functions that are closely tied to discourse properties. This class includes topic markers or delimiters.

**[1] Lexical Case Markers**

Structural Case: nominative(이/가 *ka/i*), accusative (을/를 *ul/lul*), genitive case (의 *uy*)

Inherent Case: dative(에게 *eykey*, 한테 *hanthey*), goal (으로/로 *ulo/lo*), locative (에 *ey*, 에서 *eyseo*), instrument (으로 *ulo*), etc.

**[2] Discourse/Modal Particles**

Topic (은/는 *un/nun*), Delimiters (도 *to*, 만 *man*, 조차 *cocha*, etc.)

Morphosyntactically particles can combine together. However, structural case markers cannot combine with certain discourse particles including topic marker 은/는 *un/nun* and delimiter 도 *to*. Particles are one of the most widely investigated topics in Korean linguistics in the past thirty years. Ever since Chomsky’s theory of generative grammar was introduced in the ‘80s, one of the common assumptions that syntacticians adopted was the clear distinction between structural and inherent case; structural case markers such as the nominative and the accusative mark grammatical relations without adding specific meaning to a nominal. In contrast, inherent case markers only add specific meaning to a nominal and serve no grammatical function. The evidence supporting this stance comes from case ellipsis. Korean is known to drop the nominative case marker 이/가 *i/ka* and accusative case marker 을/를 *ul/lul* relatively freely. In (1), these markers appear with parentheses to indicate this fact. In contrast, inherent case markers and discourse particles are rarely dropped, and they are marked without parentheses in (2).

(2)	민수-가	교실-에서/*Ø	피아노-로/*Ø	음악-을	연주한다
	Minsu-ka	kyosil-eyseo	piano-lo	umak-ul	yoncwuhanta.
	M-Nom	classroom-in	piano-with	music-Acc	play
	‘Minsu plays music with a piano in the classroom.’				

However, we doubt that the structural case markers can be dropped in any given context. For example, when a focus interpretation is added, the nominative or the accusative marker cannot be dropped.

- (3) a. A: 누가 너-를 좋아하니?  
 nuka ne-lul choahani?  
 who you-Acc like  
 ‘Who likes you?’  
 B. 존-이/\*-∅ 좋아해.  
 John-i choahay.  
 John-Nom like  
 ‘John likes (me).’
- b. A: 누가 너-를 좋아하니?  
 nuka ne-lul choahani?  
 who you-Acc like  
 ‘Who likes you?’  
 B. 존-이/\*-∅ 좋아해.  
 John-i choahay.  
 John-Nom like  
 ‘John likes (me).’

In addition, we note that case markers rarely disappear in formal spoken Korean such as broadcast news or announcements. This suggests that the phenomenon of case ellipsis needs to be more carefully explored.

## 2.2. Some Findings on Case Ellipsis in Previous Research

Kwon (1989) argued that the less lexical case markers are more likely to drop. This predicts that more nominative case markers are dropped than other case markers because nominative case is the least lexical case. He also provides the following hierarchy for case dropping in Korean.

### (4) Case Dropping Hierarchy

*Nominative > accusative > possessive > adverbial (temporal > instrumental > comparative)*

However, Kwon (1989) does not provide statistical data to support his argument. By analyzing the spoken language corpus of fourteen dialog segments from radio shows, Hong et al. (1998) provided such empirical data on case marker realization and ellipsis for Korean. In their analysis, they counted the number of noun phrases with and without elided case markers. They reported that 900 turns were exchanged between a show host and invited guests across the fourteen discourse segments from different radio shows, with a total time span of 60 minutes. In total 1,989 noun phrases were identified and 70.8% (1,408) of them were produced with an explicit particle. Noun phrases with elided particles corresponded to 27.7% of all the noun phrases, and within that group, 266 noun phrases appearing with delimiters were considered tokens of case marker ellipsis in their study. The rest of noun phrases were identified as errors. With respect to the structural case markers, they provided the following breakdown.

	Class I		Class II		Class III		Class IV		Total	Deletion Rate	
	Case Realized		Bare NP		Delimiter Replacement		Error			#	%
	#	%	#	%	#	%	#	%			
Nominative	388	65.9	43	7.3	154	26.1	4	0.7	588	197	33.4
Accusative	359	72.5	68	13.7	62	12.5	6	1.3	495	130	26.2
Genitive	67	39.2	101	59.1	2	1.2	1	0.6	171	103	60.3

Table 1. Realization and Ellipsis of the Structural Case Markers (Hong et al. 1998)

Although Hong et al.'s (1998) approach is valuable given that they used a corpus of real speech and provided a statistical analysis, a critical problem of their study is that the size of the corpus (with fewer than 2000 noun phrases) was too small to determine the actual case marker realization/ellipsis in Korean. Thus, from the perspective of a quantitative approach, their report on the overall distributions of particles including locative, temporal, predicative, etc. has limited implications. While considering the lack of computerized corpus data at that time, Hong et al. (1998) provided interesting statistics for the study of case markers and noun phrases in Korean

Similarly to Kwon (1989), Hong et al. (1998) reported that nominative case has a higher dropping rate than accusative case in Korean as in Table 1. In their analysis,

genitive case had the highest dropping rate of all. However, we claim that realization of the genitive case is controversial in Korean because of the complexity of complex noun phrases. In Korean, a complex noun phrase can be formed by combining more than two nominals. For example, 전국 학생 협의회 창립 기념 파티 *cenkwuk haksae yng hyepeuyhoy kinyem pathi* ‘nationwide student association establishment celebration party’ is a complex noun phrase composed of six nominals. In the structure of a complex noun, the genitive case marker tends to disappear, while theoretically it is possible to insert the genitive markers between each pair of nominals. Although it sounds awkward, 전국-의 학생-의 협의회-의 창립-의 기념 파티 *cenkwuk -uy haksae ng-uy hyeuyhoy-uy kinyem pathi* (nation-Gen student-Gen association-Gen establishment-Gen celebration-Gen party) is a grammatically possible construction. It has been controversial as to how to classify complex nouns and compound nouns and how to represent the exact structure of noun phrases in Korean. Linguistic intuitions about the positions of dropped genitive case markers and where they would occur if overtly realized vary among native speakers of Korean. Therefore, this study excludes ellipsis of the genitive case markers and focuses on realization and ellipsis of the other structural cases in Korean.

In contrast with Kwon (1989) and Hong et al. (1998), Kim and Kwon (2004) reports a higher dropping rate for the accusative case marker. Through our corpus study, we evaluate these contradictory conclusions and discuss relevant linguistic properties with respect to case annotation as well as realization and ellipsis.

### **3. Our Corpus Study**

#### *3.1. Data*

In this study, we use four different registers of spoken and written corpora in Korean and annotate case marking and dropping. The data consist of approximately 50,000 *ojeol* from the Sejong Corpora with morphological tagging. In order to maintain the desired balance of genre and text-type within our corpus data, the relevant data were extracted from a 1 million *ojeol* balanced corpora. Among the four different registers, the spoken corpus data include transcribed natural conversations on various topics and TV debates with morphosyntactic tagging on lexical category and morphological functions. The written corpus data include scripts of the public announcement of political issues and newspaper articles. The details of data are summarized as follows.

(5) Four Different Registers

Approximately 50,000 *Eojeol* from the Tagged Sejong Corpora (Spoken and Written)

Total: 48,985 *Eojeol*

- |  |                                |
|--|--------------------------------|
| [1] Informal Personal Conversation:                                  | 10,546 <i>eojeol</i> (Spoken)  |
| Conversations on Tourism and Disease & Health                        |                                |
| [2] Formal TV debate:  | 13,735 <i>eojeol</i> (Spoken)  |
| TV Broadcast of Nighttime Discussions                                |                                |
| [3] Public Announcement:   | 10,091 <i>eojeol</i> (Written) |
| Public Speeches on East Asia,<br>Relations between Korea and America |                                |
| [4] Newspaper Article:   | 15,613 <i>eojeol</i> (Written) |
| Editorials and articles published in 1996                            |                                |

It is worth noting that certain registers can be similar to one another even while belonging to different text-type categories. For example, the formal TV debate corpus (spoken) is similar to scripts from public announcements (written); this is because in terms of formality, TV debate is more formal than scripts from drama or movies.

We argue that case dropping needs to be more carefully examined by considering the properties of different registers. Although Korean is known as a language where case markers are easily dropped in speech, genre and formality of conversations seem to play a significant role.

For our case annotation, we used corpus data with specified morphosyntactic features that were established with a morpheme analyzer. We marked case realization and dropping in the arranged data with Microsoft Excel. An example from our annotated corpus appears as follows:

Original Text	Morpheme Analysis	Case Realized	Case Dropped	Comments
<s n=00016>				
또	또/MAJ			
앞으로	앞/NNG+으로/JKB	으로/JKB		
우리가	우리/NP+가/JKS	가/JKS		
해결해야	해결/NNG+하/XSV+ ㄹ야/EC			
할	하/VX+ㄹ/ETM			
과제를	과제/NNG+를/JKO	를/JKO		
토론해	토론/NNG+하/XSV+ ㄹ/EC		을	토론하다
보도록	보/VX+도록/EC			
하겠습니다.	하/VX+겠/EP+습니다/EF+./SF			
</s>				
<s n=00017>				
시청자	시청자/NNG			
여러분께서도	여러분/NP+께서/JKS+도/JX	께서/JKS도/JX		
많은	많/VX+은/ETM			
의견	의견/NNG		을	-을 주다
주시기	주/VV+시/EP+기/ETN			
바랍니다.	바라/VV+바니다/EF+./SF			

Table 2. An Example of Our Annotated Corpus

As shown in Table 2, case realization information is marked in the third column and dropping, in the fourth column. Additional information is added in the comment column. The data were hand annotated by the authors and the inter-annotator agreement rate was 92%. In this study, we marked only the nominative and the accusative case.

### 3.2. Structural Case Realization and Dropping in Korean

The statistical result from our annotated corpus is presented as follows:

		Spoken Corpus		Written Corpus		Total
		Conversation	TV Debate	Formal Address	News	
Nominative	Marked	68.3% (521)	87% (1133)	76% (530)	74% (1207)	77% (3391)
	Dropped	31.7% (242)	13% (169)	24% (164)	26% (424)	23% (999)
Accusative	Marked	36.9% (218)	62% (783)	54% (846)	36.9% (218)	47% (2065)
	Dropped	63.1% (373)	38% (475)	45% (746)	37% (724)	53% (2318)

Table 3. Case Realization and Dropping Rate of Structural Case in Korean

As we see in Table 3, the dropping rate of the accusative case (53%) is much higher than that of the nominative case (23%), an effect which holds across each of the four different genres. In addition, case dropping is more frequent in everyday conversations (47%) than in TV debate (26%), formal address (35%), and newspapers (32%).

With respect to our current statistical results, a notable point is that the dropping rate of the accusative case marker (53%) is unexpectedly higher than that of the nominative marker (23%). We believe that this may have resulted from our annotation method. For example, the accusative marker *을/를 ul/lul* tends not to appear with certain combinations of a verbal noun and the light verb *하다 hata* ‘do’ or *시키다 sikhita* ‘make’. In a light verb construction, a verbal noun contributes to the sentential structure by specifying an argument and the relevant subcategorization features like a predicate and the following light verb *하다 hata* or *시키다 sikhita* fills in the position of that predicate<sup>2</sup>. In a *하다 hata* light verb construction, the verbal noun can be accompanied by the accusative case *을/를 ul/lul*. However, it is more natural to drop the accusative case markers in the construction. For this reason there has been controversy regarding how to analyze in Korean grammar the combinations of a verbal noun and a light verb when the accusative case marker does not appear between them. Because a word unit does not allow lexical insertion inside of that unit, these combinations have been

<sup>2</sup> Lee (2003) examines the structure of light verb constructions and provides a syntactic representation of them within the frame work of Head-Driven Phrase Structure Grammar.

considered morphosyntactic combinations that are composed of two lexical items while behaving like single word units. Light verb combinations take the major parts of Korean predicates. Some light verb constructions take nominative case after a verbal noun (i.e. 되다 *toyta*). When counting light verb combinations as examples of case ellipsis, the case dropping rate increases dramatically. For example, among 724 tokens of accusative case dropping in the newspaper corpus, there are 665 tokens of N + 하다 *hata*, 25 tokens of N + 시키다 *sikhita*, and 4 tokens of N + 당하다 *tanghata*. When we exclude these tokens from the case dropping counts, only 30 tokens of the missing accusative case marker remain, which corresponds to a 2.3% dropping rate and 97.7% realization rate.

When light verb combinations are excluded from case ellipsis examples, the revised statistical result of case realization and ellipsis appears as in Table 4. In terms of the nominative case, some combinations of N + 되다 *toyta* have also been excluded from the case dropping cases in this table. Whereas Table 3 shows that the dropping rate of the accusative case marker (53%) is unexpectedly higher than that of the nominative marker (23%), Table 4 shows the expected pattern. The dropping rate of the accusative case marker (10%) is lower than that of the nominative marker (15%).

By considering the morphosyntactic properties of N+light verb combinations, which behave like single predicates, and the awkward interpretations of formations that overtly realize an otherwise missing case marker, we argue that case ellipsis does not need to be assumed for N + light verb combinations. This approach also supports the fact that case markers with light verb combinations developed historically to be added after a verbal noun rather than to be dropped from their original positions<sup>3</sup>. Therefore, we argue that the N + light verb combinations need not be counted as case ellipsis.

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<sup>3</sup> This claim was also mentioned at our presentation at CIL 18 by an anonymous commentator. We agree that there is high probability for case insertion instead of case ellipsis. However, in order to solidify this argument, a more thorough examination of historical corpora is required with respect to N+ light verb combinations in Korean.

		Spoken Corpus		Written Corpus		Total
		Conversation	TV Debate	Formal Address	News	
Nominative	Marked	69% (521)	90% (1133)	88.8% (530)	86.5% (1207)	85% (3391)
	Dropped	31% (235)	10% (125)	11.2% (67)	13.5% (188)	15% (615)
Accusative	Marked	51% (218)	94.5% (783)	95% (879)	97.6% (1256)	90% (3136)
	Dropped	49% (209)	5.5% (45)	5% (46)	2.3% (30)	10% (330)

Table 4. Revised Realization and Dropping Rate of Structural Case in Korean

In summary, our findings show that the rate of case dropping is relatively low and varies according to different registers. Although it has been assumed that structural case marker dropping is very frequent in spoken Korean, the rates are really not very high in the spoken Korean in our corpora. Even in the everyday conversation genre, the nominative dropping rate is 31% and the accusative dropping rate is 49%. Across the remaining registers, the nominative and accusative dropping rates average 12% and 4%, respectively.

The case dropping rate in the TV debate spoken corpus (8%) is quite similar to that in the formal address (8%) and news (8%) written corpora. In contrast, the spoken corpus of everyday conversation shows much more frequent case dropping overall (40%). The fact that the overall ellipsis rate is higher for the nominative (15%) than the accusative (10%) parallels Kwon (1989) and Hong et al. (1998). However, it is worth noting that the accusative case is most frequently dropped in the spoken corpus of everyday conversation. This finding emphasizes the importance of including genre in any analytical account of case dropping.

We further emphasize that annotation criteria play an important role in identifying the exact rates of case realization and dropping. For instance, deciding whether to include light verb combinations or not was crucial to drawing conclusions regarding case ellipsis. This suggests that language specific properties of morphosyntactic combinations as well as idiosyncratic semantic and pragmatic features are to be



## [2] Idiosyncratic Combinations

Some syntactic combinations do not sound natural with the occurrence of a structural marker. The frozen combination “N + 말고” *malko* meaning ‘excluding N’ and “N + 가지고” meaning ‘as for’ behave as sort of fossilized expressions, like idioms. In these cases, it is grammatically unacceptable or awkward to insert the structural case between a nominal and the predicate form. We exclude these from case ellipsis examples. However, there are somewhat controversial cases. In the following idiosyncratic combinations, structural case markers are not completely disallowed, although they do not sound natural. Consider the following examples.

- (7) 동대문            그        쇼핑타운-(#이)            있잖아...  
Dongdaemun    ku        syophingthawun-(#i)        isscanha...  
Dongdaemun    that        shopping town-(Nom)        exist  
‘Speaking of the shopping town in Dongdaymun...’

The copular 있다 *issta* meaning ‘exist, have’ in Korean appears with one or two nominals with the nominative marker 이/가 *i/ka*. However, the combination of N + 있잖아 *isscanha*, which is an inflectional form of 있다 *issta*, sounds more natural without the nominative marker when it means ‘speaking of N’. It is the same for 아니다 *anita* ‘be not’. The combination N + 아니야 *aniya* is used as a confirming question meaning ‘isn’t it N?’ as in (8).

- (8) 대한문-(#이)            아니야?  
Dayhanmwun-(#i)        aniya?  
‘Isn’t it Dayhanwun?’

The sentence in (8) is more natural when the structural case marker does not appear. However, it is not completely awkward when the case marker is realized. We argue that these forms are in the process of lexicalization and should not be counted in as case dropping.

## [3] Idiomatic Chunks

Similar to the idiosyncratic combinations, the nominative and the accusative tend to disappear in idiomatic phrases as in (10)

(9) 뿌리-(가) 깊다	매듭-(을) 짓다	미역국-(을) 마시다
ppwuli-(ka) kiphtta	maytup-(ul) cista	miyekkwuk-(ul) masita
root-(Nom) deep	knot-(Acc) make	seaweed soup-Acc drink
‘inveterate’	‘finish’	‘fail (in exam)’

A notable difference between idiosyncratic combinations and idiomatic chunks in (10) is the recoverability of the case markers. In (10), the structural case markers can appear in the combinations without affecting grammatical judgment. By focusing on the recoverability without affecting grammaticality and meaning, we include these combinations as case ellipsis.

[Gerund Formations]

Similar to idiomatic chunks, the structural case markers tend to disappear in -음 -um or -기 -ki gerund formation. In particular, the accusative case 을/를 -ul/lul is more likely to be dropped as in (10).

(10) 역사(-를) 바로 알림-은 매우 중요한 과제이다.
yeksa-(lul) palo alli-m-un maywu cwungyoha-n kwacey-ita.
history-(Acc) correctly inform-Gen-Top very important-Rel assignment-Cop
‘Accurate knowledge of history is a very important assignment.’

The accusative case marker does not make the sentence unacceptable in (11). We count these gerund formations without a structural case marker as case ellipsis cases. However, we exclude some lexicalized combinations that work as single word units such as 영화 보-기 *yenghwa po-ki* ‘movie watching’, 그림 그리-기 *kulim kuli-ki* ‘picture painting’, etc. In these lexicalized combinations, inserting a case marker triggers ungrammaticality.

In summary, we used recoverability as our main annotation criteria for determining case dropping. Wherever it was allowed to recover the missing case marker without changing the grammaticality or meaning of a sentence, we assumed the existence of missing case markers.

4.2. Some Linguistic Properties of Case Dropping and Realization

While annotating the corpus, we found that there are some interesting linguistic factors involving in case dropping and realization. In this section, we discuss linguistic properties associated with case dropping and realization.

#### 4.2.1. Definiteness/Specificity

It is noteworthy that a structural case marker is likely to be dropped when the preceding noun is definite or specific. While dealing with ellipsis of nominative case, Kim (1991) also pointed out that nominative case dropping is related to definiteness and specificity. In (11), the nominative marker *이* cannot be dropped after the indefinite nominal *어떤 학생* *etten haksayng* ‘a student’. This contrasts with the fact that the first pronoun *나* and the definite expressions including *그 영화* *ku yenghwa* ‘that movie’ in (12) and *그 여배우* *ku yepaywu* ‘that actress’ in (13) appear without a case marker.

- (11) 길-에서 어떤 학생-이/\* $\emptyset$  나-에게 말-을 걸었다.  
 kil-eyse etten haksaeng-i/\* $\emptyset$  na-eykey mal-ul kelessta.  
 street-on some student-Nom/\* $\emptyset$  I-to talk-Acc started  
 ‘On the street, some student talked to me.’
- (12) 나- $\emptyset$  그 영화- $\emptyset$ /\*-가 굉장히 인상적이었어.  
 na- $\emptyset$  ku yenghwa- $\emptyset$ /\*-ka koyngcanghi insangjeokiesseo.  
 I- $\emptyset$  that movie- $\emptyset$  incredibly impressive.  
 ‘For me, the movie was incredibly impressive.’
- (13) A: 니콜 키드먼 있잖아....  
 Nicole Kidman issanha....  
 Nicole Kidman as for  
 ‘As for Nicole Kidman...’  
 B: 아, 나 그 여배우- $\emptyset$ /\**lul* 좋아해.  
 A, na ku yepaywu cohahay.  
 Ah, I that actress like  
 ‘Ah, I like that actress.’

The semantic property of pronouns as definite expressions is related to their frequent case dropping. A common pattern we found in the spoken corpus was  $[NP_i + Pronoun_i]$ , where a pronoun immediately follows its antecedent NP. In general, neither the NP or the pronoun takes a case marker. An example is shown in (15b).

- (14) a. A: 쌍생아-<sub>i</sub>-도 뭐.... 좀 우울해서 영화-가....  
 Ssangsaynga-to com wuwulhayseo yenghwa-ka  
 S-also little depressing movie-Nom  
 ‘The movie *Ssangsaynga* is a bit depressing...’

B: 포스터-Ø 보고 그거<sub>i</sub>-Ø 봤어.  
 poste-Ø poko kuke<sub>i</sub>-Ø pwasse.  
 poster saw it watched

‘(I) saw the poster and watched it (movie).’

- b. 제이-의 천밀밀-하는 거, 그거-Ø 봤-는데 그거-Ø 괜찰더라.  
 ceyi-uy Chemmilmil-hanun ke, kuke-Ø pwass-nuntey kuke-Ø kwaynchanhtela.  
 second Chemmilmil-called thing, it saw-and it good  
 ‘(I) saw the thing (movie) called the second *Chemmilmil* and it was good.’

#### 4.2. 2. Background Knowledge

Another interesting factor involving case ellipsis is a pragmatic feature that includes background knowledge (or familiarity) in the discourse. In the following example, it is more natural to use (15) without the accusative case when spoken in a store. In contrast, the accusative case seems to be required in (16) especially when the speaker comes to know a new fact without any background information. Furthermore, when a new entity 제 친구 *cey chinkwu* ‘my friend’ is introduced in the discourse, the case marker dropping rate seems to be low.

- (15) (in a store) 담배-를<sup>?</sup>/-Ø 주-세요  
 tampay-lul<sup>?</sup>-Ø cwu-seyyo.  
 cigarette-Acc give-imp  
 ‘Please give me a cigarette.’

- (16) (surprised at the news without background information)  
 제 친구-가 물건-을/\*-Ø 훔쳤어요?  
 cey chinkwu-ka mwulken-ul/\*-Ø humchyesseyo?  
 my friend-Nom thing-Acc stole  
 ‘Did my friend steal things?’

In addition, personal pronouns tend to appear without case markers. This is because the speaker and the hearer exist in the background. Although these pronouns are easily dropped in a pro-drop language like Korean, when they appear in a sentence, the nominative or the accusative case is likely to be missing as in (17).

- (17) a. 나 장사나 해 볼까 하구.....  
 na cangsa-na hay polkka haku....  
 I business-like do intend ....  
 ‘I intend to do business or something like that.’
- b. 너 외로워도 잘 버티잖아?  
 ne oyloweto cal pethicanha?  
 you lonely well stand  
 ‘Even if you are lonely, you stand it well, don’t you?’

#### 4.2.3. Valence of Predicates

Valence of a predicate is associated with case dropping in Korean. Kim (1991) claims that the fewer arguments the predicate allows, the easier dropping of the nominative case marker becomes. Also Park (2006) shows that the subject of an adjective, one place intransitive verb, or copula tends to appear without the case markers. Our data is consistent with their arguments with respect to the nominative case marker.

#### 4.2.4. Focus/Emphasis Interpretation with Case Realization

There are constructions in which a case marker appears even though it is not required. This is an addition phenomenon as opposite to a dropping one. In the following examples, a temporal expression is an adjunct and does not require any structural case marker. However, the accusative marker appears with the temporal adjunct phrase while adding a focus or emphasis interpretation on the phrase.

- (18) A: 나-도 한 시간 동안 떠드니까 목이 아파서....  
 na-to han sikan tongan ttetunikka mok-i aphase....  
 I-also one hour period spoke-since throat –Nom hurt  
 ‘Since I spoke for an hour, my throat hurts...’
- B: 왜 그래? 작업-도 한 시간-을 넘게 하면서...  
 way kulay? cakep-to han sikan-ul nemkey hamyense...  
 why do work-also one hour-Acc over do  
 ‘Why? You do work for more than one hour.’

Lee (2004) shows that the structural case markers can be added to adjunct phrases and argues that it depends on the specific meaning functions of the case markers in Korean. The focus interpretations with case addition can be found in the dependent noun phrases including 수 *su*, 바 *ba*, 줄 *cul*, etc.

(19) 계획-이 이루어질 수 있을지-에 대한 우려-를 떨칠 수-가 없다.  
 keyhoyk-i iluecil su issulci-ey tayhan wulye-lul ttelchyl su-ka epsta.  
 plan-Nom accomplish way possible- about worry-Acc remove way not exist  
 ‘(We) can’t get rid of the worry about whether the plan will be accomplished.’

The dependent noun combinations are similar to idiomatic chunks although they have more flexible inflectional variations. The nominative or accusative case is not required after these dependent nouns. However, when there is an emphasis on the whole meaning of the expression, 수 없다 *swu epsta*, a case marker can be added to the dependent noun as in (19).

## 6. Summary and Further Work

In this study, we conducted a corpus analysis for case marker realization and dropping with four different registers. A crucial finding is that the rate of case dropping in Korean is not as high as in the general assumption that case markers freely disappear in spoken Korean. The total case dropping rate for nominative case is about 15% and for accusative case is about 10%. A more important fact is that register plays a significant role in case dropping phenomenon. Within the spoken corpus, the case dropping rate varies depending on genre properties. In everyday conversation the accusative case dropping rate reaches 49%, whereas it is only 6% for TV debate. We claim that the implication of these findings is significant not only for linguistic theory, but also for applied linguistics including Korean pedagogy and language acquisition, language processing, and translation.

In our annotated corpus analysis, we presented our specific guidelines for case ellipsis and some relevant linguistic properties. Since our main focus was given to case realization and dropping of the nominative and the accusative, we did not include other particles such as topic marker and delimiters in this study. A further extensive statistical and theoretical approach to general realization and ellipsis with respect to particles is required for the future study.

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# Statistical sampling method used in the Balanced Corpus of Contemporary Written Japanese

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## Abstract

In 2006, the National Institute for Japanese Language launched a five-year project for the compilation of a large-scale corpus of contemporary written Japanese. This 100 million words corpus is called the *Balanced Corpus of Contemporary Written Japanese* (BCCWJ). The most notable characteristic of the BCCWJ is its rigid sampling. The technique of random sampling is applied to two statistical populations that cover the production and circulation aspects of contemporary written Japanese. This paper describes how we designed these populations.

**Keywords:** BCCWJ, balanced corpus, representativeness, statistical random sampling

## 1. Introduction

Since 2006, the compilation of a 100 million words corpus of written Japanese has been underway at the National Institute for Japanese Language (NIJLA). This corpus is called the *Balanced Corpus of Contemporary Written Japanese* (hereafter, BCCWJ), and it is the first and long-awaited balanced corpus of contemporary written Japanese. The BCCWJ covers a wide range of texts including books, magazines, newspapers, white papers, textbooks, Diet minutes, materials on the Web, and so on.

In this paper, we describe the outline of the BCCWJ with particular focus on the corpus design. In section 2, we sketch the history of corpus linguistics in Japan. In section 3, we illustrate the corpus design issues regarding the BCCWJ, with special emphasis on the definition of statistical populations from which the samples of the BCCWJ are randomly chosen. In section 4, we present the detailed procedure of sample extraction. Finally, in section 5, we argue on the issue of corpus representativeness.

## 2. Corpus linguistics in Japan

### 2.1 Pioneering works

Since the release of *Brown Corpus* in 1964, various electronic corpora have been compiled and released. In the last few decades, in particular, diverse types of corpora have appeared: written corpora, spoken corpora, learner corpora, historical corpora, multi-lingual and parallel corpora, multi-modal corpora, and so on. The development of these corpora has enabled various applications such as analysis of polysemy, computation of word frequencies, quantitative analysis of grammatical expressions, corpus-based compilation of dictionaries, and not to mention, the use of corpora in natural language processing. There is no doubt that corpora will play a vital role in the linguistics of the 21st century.

NIJLA has been working on quantitative studies of contemporary Japanese since its establishment in 1948. For example, in the survey of *Vocabulary and Chinese characters in ninety magazines of today* published in 1962, a total of 440 thousand words were collected using statistical random sampling from the statistical population of 226,358 pages, which is the totality of pages in the 90 magazine titles published in 1956. The purpose of this survey was not only to describe the actual situation of contemporary Japanese at that time but also to obtain the list of “basic vocabulary” and that of Chinese characters that are frequently used in daily life.

A series of quantitative word surveys conducted by NIJLA in the 1960s can be regarded as pioneering works in corpus linguistics in Japan. However, data used in these studies were not made publicly available, and until recently, there was no consensus about the need for large shared corpora.

### 2.2 Recent works

Recently, NIJLA changed its traditional behavior and started to compile corpora that were designed to be publicly available. Until now, two corpora have been released: *Corpus of Spontaneous Japanese* (hereafter, CSJ) was released in 2004, and *Taiyo Corpus* was released in 2005.

CSJ is a large-scale richly annotated speech corpus: it consists of 661 hours, 7.52 million words of spontaneous speech (Maekawa, 2004). Its annotation includes two-way transcription, two-way parts of speech annotation, clause boundary labels, segment and intonation labels, speaker information, impressionistic rating data, and so on. CSJ has been widely utilized in the field of speech engineering for purposes such as

automatic speech recognition, speech summarization, and speech dictation. It has also been used in linguistics and psycholinguistics.

*Taiyo Corpus* is a collection of articles from the magazine *Taiyo*, one of the most popular magazines in prewar Japanese society. It includes 14.5 million characters of texts extracted from 3,400 articles published between 1895 and 1925. It was in this period that the writing style of Japanese changed drastically from a literary to a colloquial style. By analyzing *Taiyo Corpus*, it is possible to obtain detailed information on how that change took place.

Based on the experiences of these corpora, NIJLA has started a new five-year project for the compilation of the BCCWJ (Maekawa, 2007, 2008). Roughly speaking, the compilation procedure of the BCCWJ involves the following steps:

1. Corpus design: definition of the population and stratification
2. Sampling of texts to be included in the corpus
3. Copyright clearance
4. Text encoding and tagging by means of XML
5. POS annotation

In the following section, we illustrate the corpus design of the BCCWJ. In addition, our technique of statistical random sampling method is described; that is, how to define the population, how to stratify them, how to calculate the compositional ratio, and how to extract samples.

### **3. Corpus Design of the BCCWJ**

#### *3.1 Three component sub-corpora*

As shown in Figure 1, the BCCWJ consists of three sub-corpora that are called “Publication” sub-corpus, “Library” sub-corpus, and “Special-purpose” sub-corpus. The sizes of these sub-corpora are designed to be 35, 30, and 35 million words respectively as shown in the figure.

<i>Publication sub-corpus</i> Books, Magazines, and Newspapers published between 2001 and 2005 35 million words	<i>Library sub-corpus</i> Books published between 1986 and 2005, and registered in more than 12 public libraries in Tokyo 30 million words
<i>Special-purpose sub-corpus</i> White papers, Textbooks, Diet minutes, Web text (Internet Bulletin boards and blogs), Best-selling books, Verse, etc., published between 1976 and 2005 35 million words	

Figure 1 Inner structure of the BCCWJ

### 3.1.1 *Publication sub-corpus*

*Publication sub-corpus* (hereafter, PSC) is a component of the BCCWJ that aims to represent the actual state of the publication of contemporary written Japanese. We define the statistical population of PSC as the total number of characters printed in all the pages of books, magazines, and newspapers published between 2001 and 2005. Character is used as the basic unit of the computation of population, because it is not easy to determine the number of words involved in a given text. Japanese does not employ the writing convention of word spacing by means of a blank. Using the technique of stratified sampling, texts that were supposed to correspond to about 35 million words were extracted randomly from the population.

### 3.1.2 *Library sub-corpus*

Although PSC was designed based solely on the publication data that represents the “production” aspect of written Japanese, *Library sub-corpus* (hereafter, LSC) is a component that represents the “circulation” aspect of written Japanese. The statistical population for LSC is the set of books that are classified by the International Standard Book Number (ISBN), and registered in more than 12 public libraries of Tokyo metropolis. The size of population thus defined is almost the same as that of the book part of PSC. However, there is an important difference between LSC and the book part of PSC: the former does not include texts from the so-called “immoral” books.

### 3.1.3 *Special-purpose sub-corpus*

Some types of written text are of particular importance for some specific corpus-based analyses, but are rarely included in PSC or LSC. Examples include the texts of authorized textbooks and the text on the Web. *Special-purpose sub-corpus* is a component of the BCCWJ that has been specially designed to include this type of text. It includes texts from governmental white papers, authorized textbooks, Diet minutes, Internet bulletin boards, blogs, laws, verse, etc. Not all of these texts are necessarily chosen using the technique of random sampling.

### 3.2 *Two types of samples*

The next issue of corpus design is the length of individual samples. We defined two types of samples that differ in length. One of them is called *fixed-length sample* and consists of 1,000 characters; the other is called *variable-length sample*, and it covers the minimal structurally meaningful text unit such as a chapter, section, or paragraph with an upper limit of 10,000 characters. Fixed-length samples are necessary for various statistical inference purposes, while variable-length samples are useful for discourse analysis, linguistic studies with contexts, and stylistics.

Although variable-length samples will be provided in all three sub-corpora, fixed-length samples are provided only in PSC and LSC, which are assumed to be used for statistical inference purposes.

## 4. Sampling method of PSC and LSC

### 4.1 *Computation of the compositional ratio for PSC*

In this subsection, we illustrate how we defined the population of PSC, how we stratified it, and how we calculated the compositional ratio among the stratum.

First, we listed the titles of all the books, magazines, and newspapers published between 2001 and 2005. In the case of books, we used an online database called Japan Biblio Disc (*J-BISC*) as the source of data. *J-BISC* is a bibliographical catalog of the *National Diet Library*, which collects all the books published in Japan. We extracted records of 317,117 volumes including 74,911,520 pages from this database. Similarly, we identified 1,259 titles of magazines in 55,779 volumes including 10,414,955 pages, and 16 titles of newspapers in 49,625 volumes including 1,198,189 pages.

Second, we stratified these books into 11 categories according to the Nippon Decimal Classification (NDC), which is the book classification system by their subject

widely used in Japanese libraries. In the same vein, magazines were stratified into six categories by their genres, and newspapers were stratified into three categories by the extent of their distribution: nationwide, regional, and intermediate (semi nationwide).

The next step was the estimation of the total number of characters in each stratum. For this, we randomly selected 1,135 pages from 227 books, 265 pages from 53 magazines, and 211 pages from eight newspapers, and measured the printable area and the total number of characters printed for each of the sampled pages. As a result, we obtained a matrix showing the average numbers of characters printable in a page with a given area and the NDC. Part of the matrix is shown in Table 1. Non-italicized numbers are the average of the count, while italicized numbers are estimated by means of linear regression.

Table 1 Average number of characters printed in a page (Books, part)

NDC	Size	15 cm	16 cm	17 cm	18 cm	19 cm	20 cm	21 cm	22 cm
General		<i>410.8</i>	<i>442.0</i>	<i>473.3</i>	530.8	557.8	389.8	660.9	502.2
Philosophy		544.0	418.5	<i>473.3</i>	542.2	497.0	529.6	743.9	655.8
History		516.0	434.0	<i>473.3</i>	466.6	471.9	529.8	652.9	747.1
Social Science		413.8	<i>442.0</i>	<i>473.3</i>	456.0	602.5	603.0	618.6	885.9
Natural Science		<i>410.8</i>	<i>442.0</i>	290.8	457.0	469.1	631.6	680.8	801.1
Technology		430.4	396.0	<i>473.3</i>	340.8	409.9	539.0	672.8	815.5
Industry		<i>410.8</i>	<i>442.0</i>	<i>473.3</i>	558.8	513.9	511.6	448.3	1192.7
The Arts		503.6	492.8	<i>473.3</i>	451.2	573.4	654.5	667.1	638.8
Language		600.6	345.0	<i>473.3</i>	522.2	632.0	561.6	910.4	1052.0
Literature		435.2	487.2	<i>473.3</i>	482.8	447.8	501.4	753.3	585.3

In this way, we can estimate the total number of characters involved in each stratum or “genre” as shown in Table 2.

The total size of fixed-length samples was determined to be ten million words based on our prior knowledge about the series of NIJLA word surveys mentioned earlier. This size is considered sufficient for various statistical inference purposes. Since 1.7 characters correspond to a word in Japanese on an average, and a fixed-length sample consists of 1,000 characters, a total of 17,000 samples is required to obtain the material of ten million words. Table 3 shows the final compositional ratio of PSC. In addition to fixed-length samples, variable-length samples were also obtained. The average length of variable-length samples of books, magazines, and newspapers is estimated to be 3,900, 3,000, and 1,000 characters, respectively. The total size of PSC is then 34.7 million words as shown in Table 3.

Table 2 Number of Characters in each stratum of PSC

<i>Medium</i>	<i>Genre</i>	<i>Estimated Number of Characters</i>	<i>Compositional Ratio</i>	<i>Number of Samples</i>
<i>Books</i>	General	1,636,414,548	2.50%	425
	Philosophy	2,597,610,813	3.97%	675
	History	4,301,204,340	6.57%	1,117
	Social Science	12,408,321,943	18.95%	3,222
	Natural Science	5,069,594,034	7.74%	1,316
	Technology	4,615,929,967	7.05%	1,199
	Industry	2,196,387,437	3.35%	570
	The Arts	3,258,432,447	4.98%	847
	Language	888,800,128	1.36%	231
	Literature	9,341,275,486	14.27%	2,426
	Unclassified	2,225,954,208	3.40%	578
	Subtotal	48,539,925,351	74.14%	12,604
<i>Magazines</i>	General	7,421,447,806	11.34%	1,928
	Education	877,875,592	1.34%	228
	Politics	456,459,405	0.70%	119
	Industry	110,640,958	0.17%	29
	Technology	1,468,293,360	2.24%	381
	Medical Care	180,964,513	0.28%	48
	Subtotal	10,515,681,634	16.07%	2,732
<i>Newspapers</i>	National	2,417,622,461	3.69%	627
	Block	1,296,592,154	1.98%	337
	Local	2,701,855,499	4.13%	702
	Subtotal	6,416,070,114	9.80%	1,666
<i>Total</i>		<i>65,471,677,099</i>	<i>100%</i>	<i>17,000</i>

Table 3 Compositional ratio of PSC

<i>Medium</i>	<i>Estimated Number of Characters</i>	<i>Compositional Ratio</i>	<i>Number of Words in Fixed-length Samples</i>	<i>Number of Samples</i>	<i>Number of Words in Variable-length Samples</i>
<i>Books</i>	48,539,925,351	74.14%	7,414,000	12,604	28,915,000
<i>Magazines</i>	10,515,681,634	16.06%	1,606,000	2,730	4,818,000
<i>Newspapers</i>	6,416,070,114	9.80%	980,000	1,666	980,000
<i>Total</i>	65,471,677,099	100%	10,000,000	17,000	34,713,000

#### 4.2 Computation of the compositional ratio for LSC

In this subsection, we describe the corpus design of LSC. As already noted, it was our design principle to make the population size of LSC nearly as large as the size of the book part of PSC. Consequently, it was expected that about 17,000 fixed-length samples would be obtained for LSC, and that there would be two comparable sets of book corpora, differing in their bibliographical attributes.

To achieve this aim, the statistical population of LSC should contain almost the same number of characters as the book part of PSC, i.e., 48,539,925,351 characters (see Table 2). By trial and error, we found that the best approximation was achieved when we chose the books registered in the public libraries of more than 12 wards and cities in Tokyo metropolitan area as the population for LSC. The population thus defined consisted of 335,721 volumes including 85,363,019 pages and 47,877,656,072 (estimated) characters. Table 4 compares the size of the populations of PSC and LSC, and Table 5 shows the estimated number of characters in each stratum of LSC. Lastly, Figures 2 and 3 compare the compositional ratios of the book samples of PSC and LSC with respect to the NDC.

Table 4 Population size of PSC (Books) and LSC

	PSC (Book)	LSC
Volumes	317,117	335,721
Pages	74,911,520	85,363,019
Characters	48,539,925,351	47,877,656,072

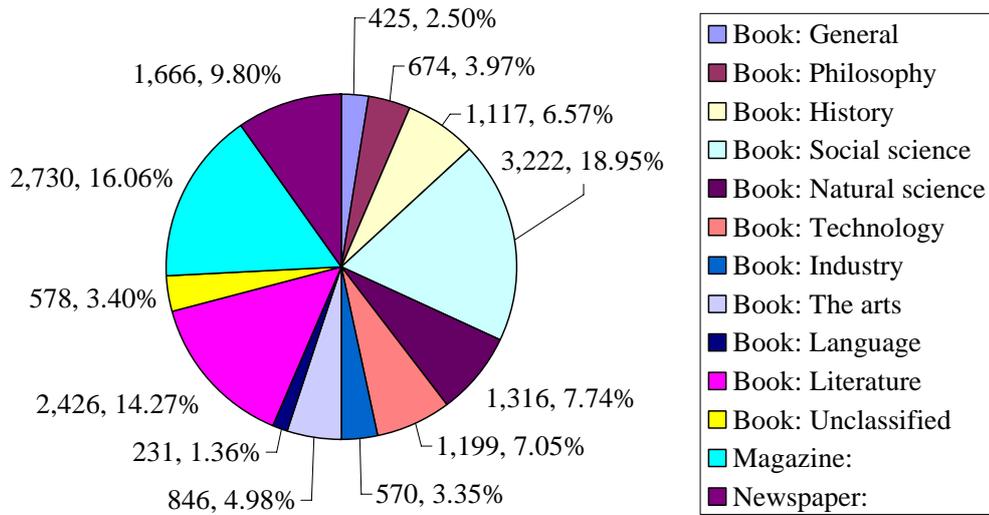


Figure 2 Compositional ratio of PSC

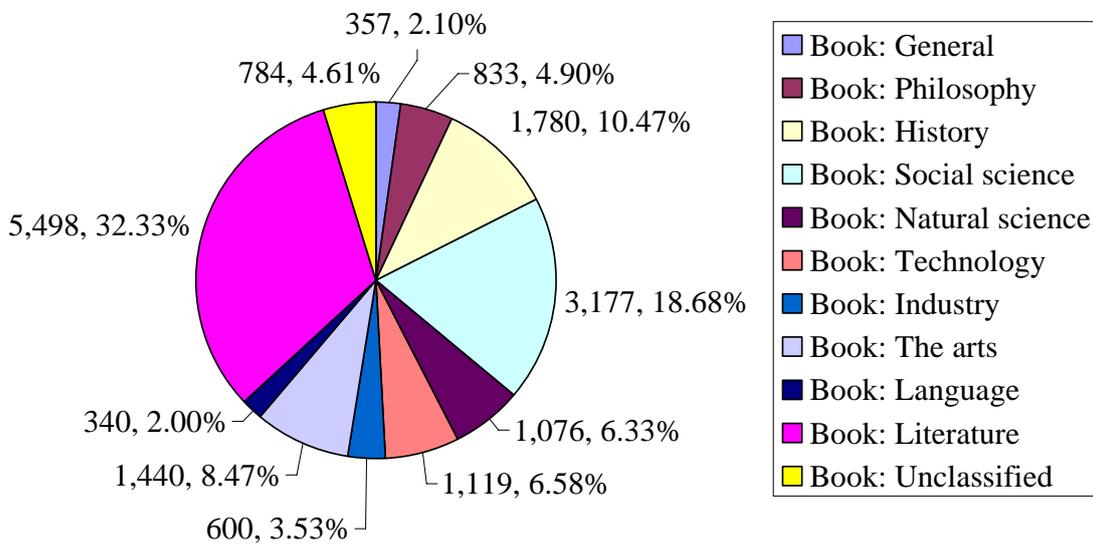


Figure 3 Compositional ratio of LSC

Table 5 Number of characters in each stratum of LSC

<i>Medium</i>	<i>Genre</i>	<i>Estimated Number of Characters</i>	<i>Compositional Ratio</i>	<i>Number of Samples</i>
<i>Book</i>	General	1,003,528,880	2.10%	357
	Philosophy	2,343,849,711	4.90%	833
	History	5,010,749,621	10.47%	1,780
	Social Science	8,946,058,392	18.69%	3,177
	Natural Science	3,028,276,363	6.33%	1,076
	Technology	3,149,144,051	6.58%	1,119
	Industry	1,690,150,481	3.53%	600
	The Arts	4,057,291,256	8.47%	1,440
	Language	956,625,910	2.00%	340
	Literature	15,485,091,056	32.34%	5,498
	Unclassified	2,206,890,351	4.61%	784
<i>Total</i>		47,877,656,072	100%	12,604

### 4.3 Extraction of samples

Once the compositional ratio has been determined, the next stage of corpus compilation is the extraction of samples from the printed materials. In order to guarantee the randomness of our sampling, all the characters of the population must have the same probability of being sampled.

To achieve this aim, we adopted the following sample extraction procedure. First, all pages in the population were randomized by computer and sequentially numbered. Second, if the number of samples to be extracted from the population was equal to N, the first N pages of the ordered set of pages were chosen for further processing. Third, one printed character was chosen randomly for each of the N extracted pages as the “sampling point.” Figure 4 shows how the selection was made. The target page was demarcated into 100 areas by applying a mesh of 10 by 10, and one of the 100 nodes (intersections) in the mesh was chosen randomly. The character that was closest to the chosen node (indicated by a red arrow in the figure) was chosen as the sampling point. Finally, 1,000 characters that followed the sampling point were chosen as the fixed-length sample. At the same time, the minimal structural unit such as a chapter, section, or paragraph was chosen as the variable-length sample.

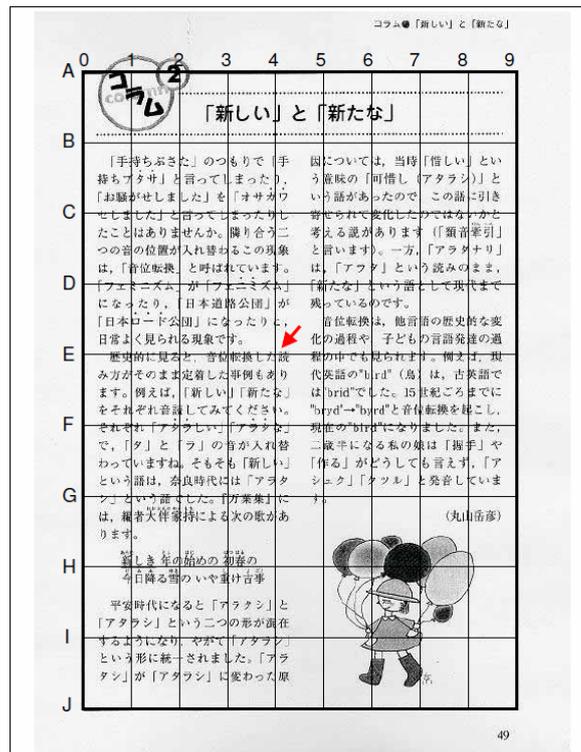


Figure 4 Selection of sampling point in a page

Figure 5 shows the sample extraction from a more complicated book page. The circled character on the left-hand page (note that this figure is a double truck image of a book) indicates the sampling point. The fixed-length sample starts with this character and ends somewhere on the following page (which cannot be seen in the figure). The variable-length sample, on the other hand, begins at the title of the section that is printed on the right-hand page, and is marked by a handwritten digit “1.” In this case, the variable-length sample involves a quotation in classical Japanese, which is deleted from the sample. The handwritten square with a criss-cross indicates the extent of the text to be omitted from the sample (note that the handwritten letter “d” is for “deletion”). There also is a figure in the left-hand page of Figure 5, which indicates that a non-verbal element such as this is to be omitted from the sample.

Most of the sample in the BCCWJ was selected in this way. The samples thus chosen (both fixed- and variable-length) are then fed into a computer using the UTF16 as the encoding scheme. Structural and POS tagging of the samples is done in the following stages of corpus compilation, but limited space requires us to omit the explanation of the tagging process.

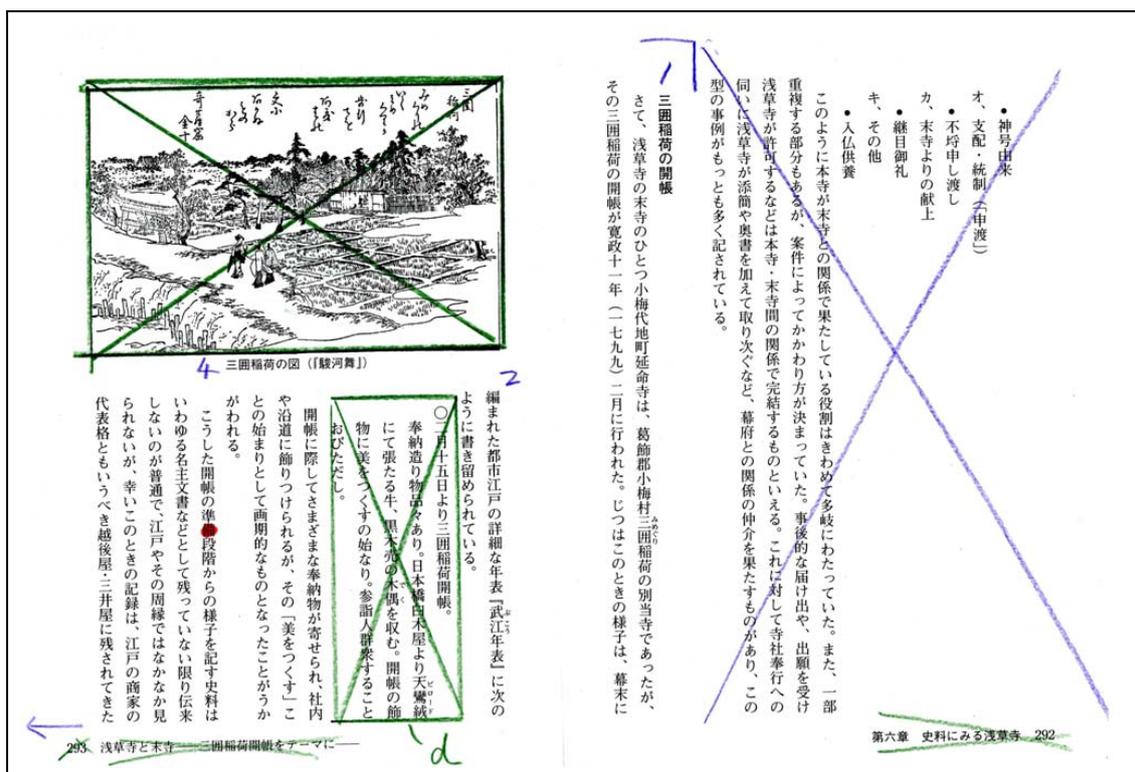


Figure 5 Example of sample

## 5. Concluding remarks

Biber (1993) claimed that if a corpus is to be used for any quantitative or statistical inference purposes, the population of the corpus must be carefully investigated and strictly defined before sampling. However, in the history of corpus linguistics so far, it seems that a rigid consensus about the concept of corpus balance is yet to be achieved by researchers. There is probably no unique solution to this problem, but this does not mean that we can do nothing to achieve better balance of a corpus. We can at least clarify the objective criteria used in the definition of corpus population as we have tried to do in this paper. Given the criteria of corpus population, there is some possibility of evaluating the successfulness of corpus sampling. In this respect, we would like to point out that most of the currently available “balanced” corpora, including famous ones like Brown Corpus and BNC, are far from being satisfactory.

Needless to say, the final evaluation of a corpus can only be made after its public release, because the effectiveness of a corpus will vary depending on the purpose for which it is used, and it is not easy to predict, before its public release, the way in which a corpus will be used.

The public release of the BCCWJ is scheduled for the year 2011. The ultimate evaluation of the corpus should be provided by the users of the corpus who, we expect, include not only linguists but also researchers and practitioners in diverse related fields.

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# **A Case of the Sonority Conversion: The Less Sonorous Tap than the Lateral and Nasals in Present-Day American English**

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## Abstract

The issues this paper addresses are the sonority conversion, which is defined as different ranking of sonority in a certain language, and the case taken from a variety of English. While Rhotic has larger sonority value than Lateral and Nasal in the general ranking, in Present-Day American English the tap, a rhotic, is less sonorous than the lateral and nasals but more sonorous than obstruents. In addition to attested phonological and phonetic nonrhoticity, the sonority-based criteria on the former involve syllabic consonant formation, tautosyllabicity of clusters, segments preceding syllabic consonants and the ban on the sequence of three sonorant consonants and those on the latter the least satisfaction regarding the Syllable Contact Law and the restriction on syllable-final tapping.

Keywords: the sonority conversion, tap, lenition, tongue movement, the Maximum Coda Principle

## **1. Introduction**

Classical phonology established general sonority scale, in the sense that the ranking holds to every language. There exists, however, different ranking of sonority in a certain language, which is referred to as the sonority conversion. Previous research has provided only limited cases on this subject: those between semivowels and liquids. It is the purpose of this paper to uncover a different sort of the sonority conversion: the lower sonority of Present-Day American English (henceforth AmE) taps relative to the lateral and nasals.

AmE taps are a widespread allophone derived from underlying /t/ or /d/:

(1) better, city, water, party, center, gulty, atom, daddy

Consonant lenition or consonant weakening is grounded in the phonetic motivation that effortful consonants shift to effortless ones and gives rise to reduction in constriction degree or duration (Kirchner 2001, 2004).<sup>1</sup> While consonant lenition (e.g. /t/ → [ʔ], /f/ → /v/) is typical to intervocalic positions, some, not all, of the

AmE tapings are equal to the generalization (cf. those in 1).

AmE has both flap and tap (e.g. Ladefoged 2006: 171). Phonetically, the former requires the tongue to be curled up beforehand, while the latter does not. Phonologically, 'r'-coloured vowel in the rhyme is pronounced as the former, while intervocalic consonant, for the most part, in the coda as the latter. This paper is concerned with the tap in AmE. It belongs to rhotic like those in other languages (e.g. Trask 1996: 350), but, in my assertion, the tap has smaller sonority value than the lateral and nasals, contrary to the general hierarchy. This fact therefore functions as a piece of evidence with respect to the sonority conversion.

The present paper is structured as follows. Section 2 introduces previous research and objective criteria on the sonority conversion. Section 3 examines related phonological and phonetic phenomena, according to which the AmE tap differs from the majority of rhotics. Section 4 adduces four pieces of evidence on the less sonorous tap than the lateral and nasals and section 5 two pieces of evidence on the more sonorous tap than obstruents. Each of the six conditions is, by and large, sonority-based. Section 6 gives concluding remark.

## **2. The Sonority Conversion**

Sonority means relative loudness of segments. Important works on sonority include Selkirk (1984), Clements (1990), Rice (1992), Blevins (1995), Zec (1995) and de Lacy (2004). Other things being equal, a segment with higher sonority has more loudness than the other with lower sonority. The opposite ranking of sonority is referred to as consonantal strength (Murray and Vennemann 1983, Vennemann 1988). The general sonority hierarchies for both consonants and vowels (see de Lacy 2004 and Kenstowicz 2004 for that for the latter) are demonstrated independently of each other and High Central Vowel has higher sonority relative to Semivowel by the distance of one:

(2) The general sonority scale for consonants

Semivowel > Rhotic > Lateral > Nasal > Voiced Fricative > Voiceless Fricative > Voiced Stop > Voiceless Stop

(3) The general sonority scale for vowels

Low Vowel > Mid Peripheral Vowel > High Peripheral Vowel > Mid Central Vowel > High Central Vowel

In the rankings in (2) and (3) Semivowel and Low Vowel are the most sonorous,

respectively. In order to clarify this scale, pronounce, for instance, coronal semivowel, coronal nasal, coronal voiceless fricative and coronal voiceless stop in your language. Incidentally, the four segments have crosslinguistically high frequency and the sonority conversion has not been observed between each of the consonants. The ranking of sonority below shows the general one of semivowels and liquids in the level of each segment (/j/ has the largest value):

(4) /j/ > /w/ > /r/ > /l/ (e.g. Kiparsky 1979: 432)

The sonority conversion tends to happen between semivowels and liquids, as claimed in Hankamer and Aissen (1974: 137-139).<sup>2</sup> The one that, for example, /r/ is more sonorous than /w/ suggests a case of the sonority conversion owing to the different ranking from the general one:

(5) Sanskrit  
/r/, /j/ > /w/ > /l/ (Steriade 1982: 329)

(6) Early West Germanic  
/j/ > /r/ > /l/ > /w/ (Suzuki 1989, 1996: 297-307)

I observe that the cases of the sonority conversion like above are assumed to rather commonly occur in other languages than Sanskrit and Early West Germanic under the conditions of, for semivowels and liquids, a wide variety of variations and changes and the difference between onsets and rhymes. The former make the segments, in some cases, more vocalic and, in others, more consonantal. In the latter, on the basis of syllabic generalizations, the segments become more consonantal in the onset and more vocalic in the rhyme. I use the term the sonority conversion when discussing the current issue. This paper defines *the sonority conversion as different ranking of sonority in a certain language, in comparison with the general ranking.*

Then, it must be considered whether the analysis of the sonority conversion is built on experimental phonetics or phonological pattern. The one based on experimental phonetics does not give correct analysis due to the following three reasons; (a) sonority differs among speakers so that others give rise to different result; (b) it also diverges for every speech and can not be valued correctly; (c) it becomes different between the onset and the coda, for consonants, or between stressed and unstressed syllables, for vowels. For some consonants and vowels which occur in both of the environments, sonority differs according to the positions. For instance, in PDE, the sonority of /l/ differs between stressed and unstressed syllables and that of plain [t] between the onset and the coda. The former is ascribed to the much stronger pronunciation in stressed syllables and the latter

stems from the difference between released stops in the onset and both released and unreleased ones in the coda. The one in the stressed vowel and the one in the onset are more sonorous for each segment, respectively.

The sonority conversion is highly relevant to syllables and after the notion of syllables was established, the research on the sonority conversion began. Needless to say, this line of research necessitates the prerequisite that phonologists have intuitions on sounds, but the objective criteria for the sonority conversion must be based on phonological generalizations relevant to sonority. More specifically, the following become the key factors on this issue: the Sonority Sequencing Principle, the Syllable Contact Law, the Nucleus Constraint, sonority-based syllabification, all of which being sonority-based and deriving possible or impossible patterns from the highest or the lowest limit; the case is that a sonority-based phenomenon occurs, if a segment is, say, more sonorous than Voiced Fricative or less sonorous than Rhotic. Phonological derivations (i.e. strengthening and weakening processes, derivations and crosslinguistic patterns) and phonetic difference (e.g. lip-opening for vowels and movement and posture of the tongue for consonants) are added to another pieces of evidence. Needless to say, the Sonority Sequencing Principle, the Syllable Contact Law and the Nucleus Constraint are based on syllables and the sonority. The Sonority Sequencing Principle specifies the rise and fall of sonority for consonants preceding or following syllabic nuclei. The second one defines the preference of higher sonority of final segment in the preceding syllable and of lower sonority of initial in the following syllable. The third gives the generalization that nuclei are occupied by a more sonorous segment than onsets and codas. The claim that the sonority conversion is based on phonological generalizations related to sonority is justified due to the fact that the evidence is considered to be objective, definite and accountable for it. In terms of accountable evidence following the intuition on sounds, pattern-oriented generalizations for the sonority conversion are compared to allophonic distributions for syllabifications.

### **3. Phonology and phonetics of AmE taps**

#### **3.1. Phonological derivations**

As stated, AmE taps are derived from an alveolar stop as a phonetic variant:

(7) /t, d/ → [ɾ]

The derivation in (7) stems from the following facts; since AmE speakers might possibly pronounce the alveolar stops in the same environments as those of the tap, the underlying /t/ or /d/ makes sense (simple derivation, including identical form between input and output, is one of the factors to analyze underlying forms); the tap commonly appears in intervocalic position, where consonant lenition processes, like that in (7), have high frequency both in English and crosslinguistically.

In (7), there is much distance of the sonority in comparison with other types of consonant lenition. Providing the tap has the sonority as the rhotic in the general ranking in (2), both of the sounds differ by the degree of 5 or 6. Many other consonant lenition processes have the difference by the degree of 1 or 2 (e.g. /t/ → [d], /k/ → [x]). This means that, given the general sonority hierarchy, the derivation of the AmE tap is unusual.

Taps in many languages outside English are derived from /r/. The languages contain, for instance, Japanese (Kubozono 1999: 47), Norwegian (Kristoffersen 2000: 24), Modern and Present-Day British English (Wells 1982: 43), the Indo-Aryan language Marathi (Pandharipande 1997: 542) and many others. The four languages above do not refer to all of the ones with the derivation, but represent only some examples.

Owing to the fact that taps belong to rhotic, the taps derived from /r/ are considered to be more natural than those derived from coronal stops. Derivations are likely to have cause and effect. As a matter of fact, a relevancy between the sonority conversion and derivation is observed in other case. In Early West Germanic /w/ was less sonorous than /r/ and /l/, as shown in (6), and obstruents were historically derived from /w/. The /w/ in /wr, wl/ clusters in Early English and the phoneme itself in other Early West Germanic languages underwent the phonological change:

(8) Early English

/wr, wl/ → /br, bl/

/wr/ → /vr/

(Minkova 2003: 367 and others)

(9) West Germanic languages other than English

/w/ → fricative

(Suzuki 1989: 33 and others)

The /w/ in Early West Germanic constitutes the input and the AmE tap the output. Be that as it may, the derivation of the Early West Germanic /w/ is related to the consonants with lower sonority and the /w/ has lesser sonority value. It is the first step, therefore, that since the AmE tap is derived from the consonants with lower

sonority, the tap is expected to be less sonorous than other rhotics.

The lenition from coronal stop(s) to rhotic, like the AmE tap, holds, in total, to 16 languages all over the world (Kirchner 2001: 80). This type of derivation is involved in Late Modern and Present-Day British English (cf. Wells 1982, Broadbent 2008), but there is no clear evidence that this rhotic shows an example of the sonority conversion. It is not the case that all of the languages with the phonological process relate to the sonority conversion. In particular, the British tap may have phonological evidence, but not phonetic one in the literature. Thus, the phonological aspect does not adduce the enough evidence and the phonetic aspect must be examined.

### 3.2. Phonetic movements

The tap and coronal stops in AmE share the articulator of alveolar ridge, but have different manner of articulation. Thus, they are predicted to have some articulatory difference. The tap in AmE is different from those in other languages and may or may not be identified with voiced /t/ (Wells 1982: 248-252). Although flaps and taps do not have identical articulation, de Jong (1998) focuses on the AmE flapping and observes that the motion of the tongue is very similar between flap and [d]. This paper expects the phonetic characteristic to be grounded in the following articulation of the general sounds at issue and the AmE tap; while, for tap and flap, the front of the tongue moves rapidly to the alveolar ridge and returns to the neutral position, for [d], it firmly attaches to the alveolar ridge or the dental; in this articulatory way, the AmE tap is approximately between the rhotic in general and the coronal voiced stop in general; the AmE tap has the tongue contact between the quick and firm attachments on the alveolar ridge. The articulatory way sounds not only like a rhotic, but also like a voiced stop (e.g. the pronunciation of the AmE tap in the words *better* and *city*). The AmE tap therefore sounds like between rhotic and coronal voiced stop in other languages.<sup>3</sup> This makes a sharp contrast with the central approximant of /r/, which is phonetically identical to schwa except for the obstruction of air flow (Gick 2002).

It is therefore predicted that AmE taps are not exactly a rhotic consonant in terms of sonority scale.

In the remainder of this article several pieces of sonority-based evidence on the language-specific ranking of AmE taps will be posited.

#### 4. The smaller sonority value than the lateral and nasals

##### 4.1. The nonsyllabicity of the tap

The nuclei of a syllable are highly relevant to sonority since, assuming a basic syllable theory, they must have larger sonority scale than the onset and the coda. The following constitutes one of the syllable-based generalizations:<sup>4</sup>

(10) HNuc (The Nuclear Harmony Constraint)

A higher sonority nucleus is more harmonic than one of lower sonority. (Prince and Smolensky 2004: 20)

Sonority plays an essential role in the status of nucleus. Basically, all vowels occupy the nuclei of a syllable and have larger sonority value than all consonants. Sonorant consonants have much more possibilities of syllabicity than obstruents due to the higher sonority and the mid sonority of sonorant consonants has a clue to the analysis in this section.

Let us observe the examples showing the relevancy between sonority and syllabic nuclei in AmE:

(11) a. how      b. way  
      [hæw]    [wej]

(12) a. /w/ quality, dwell  
      b. /j/ beauty, huge

(13) a. near      b. cure  
      [nɪr]      [kjʊr]

First, the semivowels in (11) occupy the second elements of the diphthongs (e.g. Roach 2000:125). The AmE notations differ from the corresponding British ones. The semivowels have the largest sonority value among consonants (see the hierarchy in 2). Second, semivowels occur also in the onset either as singleton or as the prevocalic consonant of clusters. Concerning the latter semivowels as in the words in (12), /j/ constitutes a part of the nucleus and /w/ a part of the onset (cf. Davis and Hammond 1995) and /j/ is more sonorous than /w/ in the sonority hierarchy of the individual segments in (4). Thus, the more sonorous one becomes a part of the nuclei. Third, the examples in (13) show that /r/ occupies the second element of the diphthongs. Rhotic has the second largest consonantal sonority following semivowels and consonants with lesser sonority than rhotic are banned in the position. The generalization of more sonorous nuclei, therefore, holds to the sonorant consonants in AmE.

Next, we turn to observe the following pairs of pronunciations. AmE speakers implement the syllabic consonants in (14), but not those in (15) (cf. Wells 2008 for the nonsyllabic taps in AmE):

- (14) a. fishery    b. struggle    c. oftn    d. happen    e. broken  
           [r]            [l]            [n]            [m̩]            [ŋ]
- (15) a. density    b. syllabicity    c. specifity  
           \*[ɹ]            \*[ɹ]            \*[ɹ]

Then, the relevancy between the phonetic implementation of each syllabic consonant and the sonority hierarchy must be examined on the basis of the facts that syllabic consonants occupy the nuclei of a syllable and that segments with higher sonority are more suitable for the nuclei.

On the one hand, all of liquids and nasals are capable of occupying a syllabic status. Among the segments that might become syllabic consonants, rhotics are the most sonorous and the lateral has the second largest sonority. In AmE, the close connection between higher sonority and syllabic nuclei is manifested in very frequent syllabic [r]. As other piece of evidence (Hammond 1999), stressed syllabic consonants consist of, for the most part, [r] or [r̩] (e.g. your, first, stir) and, with fewer frequencies, [l] (e.g. bull, mull). On the other hand, the AmE taps in (15) do not become syllabic, despite the environment of syllabic consonants of underlying schwa plus a liquid in unstressed syllables and of the less sonorous preceding segments. The nonsyllabic status of the AmE taps is shared by the majority of obstruents. While syllabic consonants occupy the nuclei of a syllable, the status of the tap differs from other sonorants.

Some phonological phenomena are grounded in phonetics (e.g. movement and posture inside oral cavity and duration), not in phonological ones (e.g. sonority and the OCP). As well as phonetically based phonological constraints (Boersma 1998, Flemming 2002, Hall 2004, Hayes and Steriade 2004, Kirchner 2001, Pater 1999, among others), some phonological changes have phonetic bases: Anglian Smoothing (Howell and Wicka 2007) and vowel syncope in Mussan (Blevins 2008). According to Oda (2008a), the increase and nonincrease of syllabic consonants in the history of English is accounted for by phonetic, not phonological, motivations. However, this does not mean that all aspects of English syllabic consonants are phonetically motivated. The argument in this section is what consonant occupies syllabic nuclei, different from the increase and nonincrease. The sonority of the former is irrelevant to the increase since the distribution of syllabic consonants remains similar throughout the every period of English.

## 4.2. Coda consonants

Syllable-based generalizations state that nonsyllabic consonants occur in the onset and the coda and that some, in particular allophones, are restricted to either position. As many phonologists (e.g. Kahn 1980, Selkirk 1982, Borowsky 1986, Gussenhoven 1986, Rubach 1996) have suggested, aspirated voiceless stops (i.e. [p<sup>h</sup>, t<sup>h</sup>, k<sup>h</sup>]) and the devoicing of sonorant consonants (e.g. [w̥, l̥]) are confined to the onset and glottal stops (i.e. [ʔ] derived from /t/) and the deletion and epenthesis of alveolar stops to the coda. The AmE tap occurs in coda-final positions (cf. the five papers above), although it is the correct expression that the tap appears in non-foot-initial positions (Jensen 2000, see also Kiparsky 1979).<sup>5</sup> All of the underlined segments in (16) are pronounced as the tap and syllabified in general to the coda:

(16) a. put it on    b. sent a letter    c. city    d. water

The tap is preceded by a vowel or by a vowel plus a sonorant consonant (cf. Kahn 1980, Selkirk 1982, Picard 1984, Borowsky 1986, Gussenhoven 1986, Wells 1990 and Rubach 1996). The majority of the examples in (16) demonstrate the taps preceded by a vowel. When the tap follows a sonorant consonant, the sonorant consonant is a rhotic (17a), the lateral (17b) or the alveolar nasal (17c):

(17) a. party    b. gilty    c. center

The underlined clusters have crosslinguistically very rare existence. Given the general sonority hierarchy in (2), those in the coda lateral plus rhotic and nasal plus rhotic violate the Sonority Sequencing Principle since the rhotic becomes more sonorous than the lateral and the alveolar nasal. Dimoraic rhymes in stressed syllables (the Stressed Syllable Law) hold to the majority of stress languages, but PDE has some, not all, stressed syllables with more than two morae. While the Stressed Syllable Law has the priority for some cases, other condition is superior for others. There is the agreement that AmE taps appear definitely in the coda unless the Stressed Syllable Law is used. It is therefore asked why the coda-final taps in (17) are allowed to occur despite the violation of the Stressed Syllable Law (i.e. three or four, rather than two, morae). Whether or not maximum syllabifications work is the clue to the violation.

Tautosyllabicity and sonority profile correlate with each other due to the Sonority Sequencing Principle. In Polish some marked onset clusters appear as phonotactic constraints and those like /rt/ and /lk/ in the onset violate the Sonority Sequencing Principle owing to the more sonorous first consonant:

(18)a. rtec ‘mercury’    kar.ty ‘cards’    b. lkac ‘sob’    pal.ka ‘stick’

When the onset clusters with the worse sonority profiles occur word-medially, they become heterosyllabic (Rubach and Booij 1990: 122). The profiles militate against the Maximum Onset Principle, which specifies that if phonotactic patterns of consonants are allowed, the consonants are maximally syllabified to the onset.

The second evidence in the same line stems from PDE. The Maximum Onset Principle tends to hold to the ones with good sonority contour like /dr/, but not to the ones with bad contour like /st/ (Treiman and Zukowski 1990) despite the fact that both are regarded as English phonotactic patterns:

(19) a. Madrid      b. estate  
      [mə'drɪd]      [ɪs'teɪt]

Present-Day English has the effect of the Maximum Coda Principle as well as the Maximum Onset Principle. The Maximum Coda Principle is suggested by Hammond (1999: 134) and Wells (1990) and supported by some pieces of allophonic evidence, but may operate only for some, if not all, examples and only for some speakers. Compare the underlined sequence in (20a) and that in (20b):

(20) a. helper      b. strengthen  
      ['hɛlp.ə]      ['strɛŋkθ.n]

I consider that, in that sense, if sonority profile is better, Max-Coda has higher effect and that the underlined segments in (20a) receives more possibility of the maximum syllabification than those in (20b). It is because the former has a good sonority profile but because the latter definitely does not. The examples in (18)-(20) converge to illustrate that the tautosyllabicities, more or less, are ascribed to the good sonority profiles. The examples with a sonorant consonant plus the tap in AmE are repeated below:

(21) a. party      b. guilty      c. center      = (17)

There is the crosslinguistic preference of the Stressed Syllable Law, but the examples with syllable-final tap in (21a-c) militate against it despite the rare coda cluster sonorant consonant plus tap. The reason why the Maximum Coda Principle has the priority over the Stressed Syllable Law stems from the account that the less sonorous tap than the lateral and nasals and other sonorant consonants render the Maximum Coda Principle applicable due to the satisfaction of the Sonority Sequencing Principle.

### 4.3. Less sonorous segments preceding syllabic consonants

The Sonority Sequencing Principle specifies that sonority scale decreases between two syllabic nuclei due to the larger sonority of them. In parallel, when a segment precedes a syllabic consonant, the preceding segment must be less sonorous than the syllabic consonant in view of the principle. In the following examples, each of the syllabic one is more sonorous than the preceding one by the degree of one (cf. 2):

- (22) a. even      b. final  
      ['i:vŋ]      ['fam]

By way of comparison, the following syllabic consonants are much rarer or never: the syllabic nasal preceded by the lateral and the syllabic lateral preceded by the central approximant of /r/ (cf. Wells 2008), both of the syllabic consonants, if implemented, being less sonorous than the preceding ones by the distance of one:

- (23) a. sullen                      b. laurel  
      ['sʌləŋ]    \*['sʌlŋ]      ['lə:rəl]    \*['lə:r]

The words in (23) have underlying schwa plus a nonsyllabic consonant like those in (22), but the syllabic consonant formation is inapplicable. As argued in section 4.1., syllabic nuclei are grounded in higher degree of sonority. In principle, the ban on the syllabic consonant formations in (23) is accounted for by stating that even if satisfied, they are counted as worse patterns on the basis of the sonority demotion (i.e. /l/ > /n/, /r/ > /l/).

The only one kind of exception is a sequence of two syllabic consonants, but there is the difference between nonsyllabic and syllabic consonants. It leads to different syllabic analysis: for the former, syllable margin and for the latter, syllable nucleus. Due to the explicit syllable break, the more sonorous preceding [r] relative to the following [ŋ] is irrelevant to the analysis of the sonority at issue:

- (24) reference  
      ['refrŋs]

Now examine the cases in which the tap precedes a syllabic consonant. Following the tap, AmE speakers pronounce syllabic [l] and syllabic [m], instead of the corresponding form with schwa:<sup>6</sup>

- (25) a. little      b. bottle  
      ['lɪr]      ['bɑr]
- (26) atom  
      ['ærm]

In these cases, if the taps have the sonority scale as Rhotic in the general ranking, the syllabic [l] and the syllabic [m] would not be pronounced in view of the syllable theory mentioned above. There exists no or almost no example where a preceding consonant, in either the onset or the coda, has larger sonority scale than the following syllabic consonant. The sequence tap plus syllabic [l] or [m] does not represent much rarer cases, but AmE speakers tend to pronounce them. Provided the taps are less sonorous than the lateral and nasals, the syllabic consonants in (25) and (26) function as the nuclei.

#### 4.4. The phonotactic constraint on triconsonants

When dividing consonants into obstruents and sonorant consonants on the basis of the sonority in broad terms, three types of diconsonantal clusters become possible: an obstruent plus a sonorant consonant (e.g. /pr/), an obstruent plus an obstruent (e.g. /st/) and a sonorant consonant plus a sonorant consonant (e.g. /mj/). Sequences of two sonorant consonants have a marked status (e.g. McMahon 1990: 221). The markedness is accounted for by the OCP, the ban on adjacent similar elements, and the sonority, with an obstruent plus a sonorant consonant highly valued. Instead of both of them, a cluster is grounded in articulatory phonetics. The marked cluster rhotic plus coronal glide (i.e. /rj/) stems from incompatible articulation and durational difference (Hall 2003, 2004). In AmE there exist three tautosyllabic clusters that consist of two sonorant consonants:

- (27) a. onset /mj/ (e.g. music)  
b. coda /lm/ (e.g. film), /ln/ (e.g. kiln)

The disonorants in (27) are thought of as marked clusters. First, only some everyday words include them. Second, in the diachronic view, the coda /lm/ appeared in Middle English and the other two sequences in Modern English (cf. Nakao 1985: 462-464). By contrast, the clusters such as /pl, kr, sp/ have the diachronic stability in English and have more causations for the relative unmarkedness. Third, they have crosslinguistically limited occurrences.

Assuming the markedness of the diconsonantal sonorants, partly because of the sonority, I predict that PDE has no sequence within a morpheme that consists of three sonorant consonants, although the clusters across the boundary of either a morpheme or a word appear (e.g. filmmaker, soul music). Both onset and coda clusters lack them and it is an impossible phonotactic pattern that a syllabic consonant is preceded and followed by a sonorant consonant within a morpheme.

Then, look at the following phonetic descriptions in (28). At first glance, the underlined segments consist of the sequence of the three sonorant consonants due to the alveolar nasal plus the tap plus, after the syllable break, the syllabic [r]:

- (28) a. center      b. international  
           [nr.ɾ]      [nr.ɾ]

It seems to be true that AmE does not have other case of the sequence of three sonorant consonants within a morpheme. This phonotactic constraint (i.e. the one banning the clusters, say, like /mlj/ and [n̩lm]) is posited in AmE and other varieties of English and, like diconsonantal sonorants, has the motivation of sonority. Both of the sequences shown above are made impossible due to the close distance of the sonority. The large difference of sonority in both cases makes the profiles allowed (e.g. [stj]upid, ta[b̩lz]). When the number of sonorant consonants changes from three into two, legal sequences also appear: a[mj]usement, fi[n̩]. To put it simply, my supposition is the following order of sonority: Vowel > Sonorant Consonant > Tap > Obstruent. In this view, the underlined segments in (28) consist of a sonorant consonant plus the tap plus a syllabic sonorant consonant, but not the sequence of three sonorant consonants. The pronunciations become legal due to the fact that the AmE tap has the lower sonority value than the lateral and nasals and differs from sonorant consonants in terms of the sonority scale.

## 5. The larger sonority value than obstruents

### 5.1. The Syllable Contact Law

One of the reasons for the more sonorous tap than obstruents stems from the Syllable Contact Law. The definition, slightly different from the earlier version, is cited from Murray (2000: 222):

- (29) the Syllable Contact Law

The preference for a string ...  $\sigma_x \sigma_y$  ... increases as the right edge sonority of  $\sigma_x$  increases and the left edge sonority of  $\sigma_y$  decreases.

In order to discuss the issue of whether a syllable contact is better or worse, look at the following examples (Although English syllabifications are well-known for the inconsistency, those in the following do not become controversial):

- (30) a. cowboy                      b. construction  
           ['kæw.bɔɪ]                      [kən'strʌk.tʃn̩]

(30a) represents better contact and (30b) worse one. The semivowel /w/ is much more sonorous than the voiced stop /b/ by the degree of six. The voiceless stop /k/ is less sonorous than the voiceless fricative /ʃ/ by the degree of two. (See the general hierarchy in 2.) Other things being equal, the satisfaction of the Syllable Contact Law renders a segment at issue have better profile than the violation of it.

With regard to the Syllable Contact Law, the AmE tap represents the preceding syllable-final. When we cope with the following syllable-initial, segments across word-boundary originate in irrelevant environment and therefore cases without word-boundary should be dealt with. As demonstrated in (31), the following syllable-initial contains unstressed high front tense vowel, ‘r’-colored schwa, syllabic [r], syllabic [l], syllabic [m] and, possibly, the corresponding form with (‘r’-colored for 31c) schwa of each syllabic consonant:

- (31) a. daddy    b. better    c. center    d. little    e. atom  
           [ˈdæɹ.i]    [ˈber.ə]    [ˈsɛnɹ.r̩]    [ˈlɪr̩l̩]    [ˈærm̩]

Given one of the syllable-based generalizations, onset-initial alveolar stops turn into the rhyme-final tap (Kahn 1980, Selkirk 1982 and others in this line of research). In the case of the former, the preceding syllable-final is occupied by a vowel or by a sonorant consonant and the following syllable-initial by an alveolar stop. In the case of the latter, the tap becomes the preceding one and a vowel with low sonority or a syllabic sonorant consonant the following one. Generally speaking, coda-final tends to be more sonorous than onset-initial. If, like my assumption, the AmE tap is between nasals and voiced fricatives in terms of the sonority, it is less sonorous than the following syllable-initial by the degree between one (the syllabic nasal in 31e) and seven (the high peripheral vowel in 31a). This implies, more or less, the violation of the Syllable Contact Law, but such violations are likely to happen in AmE:

- (32) a. erudite    b. topmost    c. footlight    d. aqua  
           [r̩.j]            [p.m]            [ʔ.l̩]            [k.w]

In the order of (32a, b, c, d) the preceding syllable-final is less sonorous than the following syllable-initial by the degree of one, four, five and seven in the general ranking in (2), respectively. The examples like above lead me to claim that the lesser sonority of the preceding syllable-final than the following syllable-initial is permitted, but that the smaller sonority value of the former is, at most, seven in the general ranking. It is taken into account that in contrast to the highly common case of the less sonorous tap than the following syllable-initial [i] by the degree of seven, as in the words *city*, *pity* and *daddy*, the following violations of the Syllable

Contact Law by the distance of eight do not happen and are, at the least, very rare: voiceless fricative – mid central vowel, nasal – low vowel. If the tap is less sonorous than voiced fricatives, contrary to my assumption, it means a crucial violation of the Syllable Contact Law and the lesser sonority scale does not work. That is why the AmE tap has the sonority between nasals and voiced fricatives.

## 5.2. The ban on tapping

Like other allophones, the AmE tap has some restrictions for the occurrence. One of them specifies preceding segments. (Other restrictions contain stressed or unstressed syllables, the onset or the coda and the following segments). The tap is preceded by either a vowel, as in (33), or a vowel plus a sonorant consonant, as in (34), but not by a vowel plus an obstruent, as in (35). Despite the same phonological environments preceded by a stressed syllable and followed by an unstressed vowel, those in (35) is pronounced as the corresponding voiced stops and not replaced by the tap, as Wells (2008) describes (see also the papers on syllabic analyses in the second paragraph in section 4.2.):

(33) a. little	b. bottle	c. city	
[ˈlɪr.ɫ]	[ˈbɑr.ɫ]	[ˈsɪr.i]	
(34) a. center	b. guilty	c. party	
[ˈsɛnr.ɾ]	[ˈɡɪlr.i]	[ˈpɑrr.i]	
(35) a. actor	b. laughter	c. loved Ann	d. bathed in
[ˈæktə]	[ˈlæftə]	[lʌvd]	[beɪðd]
*[ˈækrə]	*[ˈlæfrə]	*[lʌvr]	*[beɪðr]

Syllabic analyses state that the allophonic tap is restricted within the coda-final (cf. the literature in the first paragraph in section 4.2.). On the basis of the sonority hierarchy suggested in this paper, those in (33) and (34) satisfy the Sonority Sequencing Principle and the Maximum Coda Principle is applied to the ones in (34). (The latter is meant to apply to more than one consonant.) Conversely, if the tap is phonetically implemented, the coda taps in (35) violate it owing to the larger sonority than obstruents. The Maximum Coda Principle is one of the characteristics for PDE syllabifications, but the occurrence of the tapping in (35) makes the principle unworkable. The reason why the violation of the principle is blocked in (35) is that such syllable-edge segments occur within coronal obstruents, which have a different status from the tap.

## 6. Conclusion

The phenomenon that AmE tap has lesser sonority value than the lateral and nasals presents a different case from that in previous research. With respect to accountable evidence, this paper has suggested four pieces on the less sonorous tap than the lateral and nasals and two pieces on the more sonorous tap than obstruents. All of the six pieces relate AmE taps to the phenomena relevant to sonority such as the Nucleus Constraint, sonority-based maximum syllabifications, the Sonority Sequencing Principle and the Syllable Contact Law. They, in fact, correspond to the phonetic facts and the phonological phenomena, both of which converge to support my view.

Footnote

<sup>1</sup> Both consonant lenition and consonant weakening refer to the identical sound patterns from effortful to effortless ones. The AmE tapping corresponds to the generalization due to the fact that the tap has limited air turbulence relative to the alveolar stops. They are not grounded in sonority promotion, a phonological one, since the consonant lenition, say, from a voiced fricative to a nasal does not occur.

<sup>2</sup> According to Oda (2008b), the sonority conversion happens not only within sonorant consonants but also between vowels. In the general ranking in (3), Mid Central Vowel has lesser sonority value than High Peripheral Vowel. However, PDE has the following language-specific ranking on them:

(i) Present-Day English

/ʌ/ (TURNED V, a mid central vowel) > High Peripheral Vowel  
> (other segments of) Mid Central Vowel

On the one hand, it is worth noting that the sonority conversion takes places in the cases other than those in the sense of Hankamer and Aissen. On the other hand, I observe that such less common cases do not have a very wide distribution.

<sup>3</sup> This is based on my judgment in Japanese sounds, which have both the tap and the voiced coronal stop.

<sup>4</sup> The constraint in (10) does not mean a Prince and Smolensky's (2004) finding, but constitutes one of the general syllable theories. In this line of research, see Vennemann (1988), Clements (1990) and some others.

<sup>5</sup> Jensen's (2000) prosodic approach is partly based on foot-initial and non-foot-initial positions. While the former undergoes strengthening processes,



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# Georg von der Gabelentz' *Manual for Recording Foreign Languages* (1892) – Origins, Aims, Methods, Effects

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## Abstract

The main works of Georg von der Gabelentz (1840–1893) have had, and still have, a fruitful reception in Chinese (especially his *Chinese Grammar*, 1893) and general linguistics (especially his *Linguistics: Aims, Methods, Results*, 1891, 2nd ed. 1901). In contrast, his *Manual for Recording Foreign Languages*, which was commissioned by the Colonial Department of the German Foreign Office and was published in 1892, remained virtually unknown.

The aim of this paper is to place this work into its context of origin (German and European colonial policy) and outline its range of contents (phonetics including transcription, vocabulary) plus Gabelentz' ideas concerning the methods of recording data from indigenous languages. Furthermore, the effectiveness of the manual is examined (e.g., Schmidt 1900, 1901).

**Keywords:** colonial linguistics, Georg von der Gabelentz, history of linguistics, lexicology, linguistic fieldwork

## 1. Georg von der Gabelentz: A few remarks on his work and life

In the history of linguistics, Georg von der Gabelentz is not renowned for the booklet we are going to deal with in this article, but rather for two other works, namely, among sinologists for his *Chinese Grammar* (first published in 1881), and even more among general linguists for his textbook *Linguistics: Aims, Methods, Results* (1891). Because of the doctrines he laid down in the latter book, Gabelentz is seen by some as a forerunner of Ferdinand de Saussure in certain respects: he distinguishes, as Saussure did later, between *langue* (“Einzelsprache”), *langage* (“menschliches Sprachvermögen”) and *parole* (“Rede”: “Human language is the articulated expression of thought by sounds” [„Menschliche Sprache ist der gegliederte Ausdruck des Gedankens durch Laute“], 1891: 3). Furthermore, Gabelentz made a distinction between synchronical and diachronical study of language.

He lived from 1840 to 1893, working as a professor of linguistics first in Leipzig, having positive and negative contacts with the proponents of the Neogrammarian school (“Junggrammatiker”) there and elsewhere in Germany. Later he moved to the University of Berlin, where he finished his famous book on linguistics mentioned above and where he published, just one year before his early death, his last work, namely the *Manual* under consideration.

## 2. The *Manual* in context

### 2.1. *Word lists*

The *Manual* is related to a category of linguistic aids Gabelentz calls “Collectanea”. These are corpora of linguistic materials of different kinds collected more or less systematically. Their historical origins are word lists, also called vocabularies. Some of them became very famous, for instance the *Linguarum totius orbis vocabularia comparativa* by Peter Simon Pallas, published in St. Petersburg in 1786–89. Another item is the word list contained in the *Catálogo de las lenguas de las naciones conocidas, y numeración división y clase de éstas según la diversidad de sus idiomas y dialectos* by Lorenzo Hervás, published in six volumes in Madrid from 1800 to 1805. Finally, Gabelentz’ father, Hans Conon von der Gabelentz, should be mentioned who in the first half of the nineteenth century published quite a number of grammars of diverse languages, relying on collectanea compiled by himself and others.

### 1.2 *Germany’s colonial policy: Linguistic implications*

As the title of the book indicates, the *Manual* was a commissioned book he worked out for the Colonial Department of the German Foreign Office. To my knowledge, no research has yet been made in the archives to find out how this commission came about, but it can safely be placed into the context of the German Empire’s efforts to establish itself as a colonial power beside the other European nations that had started their colonial policies decades, if not centuries before: Portugal, Spain, England, France, the Netherlands, even Belgium, Denmark, and Sweden, to name just the more important ones. Germany at that time was a “belated nation” in general, lagging behind the more advanced nations in many respects, including the conquest of overseas claims or “Schutzgebiete”, protectorates, as they were called. There were only a few German pro-

tectorates, namely in Africa: German Southwest Africa (now Namibia), the first colony acquired in 1883, German East Africa (acquired in 1884, now Tanzania, Rwanda and Burundi), Cameroon, and Togo (now parts of Ghana and Togo – both of them acquired in 1884/85); in Asia: the Bay of Kiautschou (China, acquired in 1898); and finally, in the South Seas: German New Guinea (acquired in 1885), consisting of Emperor William's Land and the Bismarck Archipelago, the Solomon Islands, the Marshall Islands (acquired in 1885), the Caroline, Marian and Palau Islands, and German Samoa (all of them acquired in 1899).

It was the Foreign Office's task to take care of the administration of these protectorates, which was done by German military and civil servants. As we can figure out, these persons did not speak the languages of the occupied countries, which could easily run to a multitude of tribal languages including dialects. An interest in these languages most certainly was not an intrinsic one in learning them in order to communicate with the indigenous population. It was rather a scientific interest, as we are told in many contemporaneous sources, an interest in the vast multitude of human languages spoken on this globe, in addition powered in Germany by the search for "worldviews" incorporated in languages, an idea which goes back to Wilhelm von Humboldt. On the scientific side, there were, moreover, explorers interested in broadening geographical, biological and anthropological knowledge. In order to guide and assist scientific observations of these and other kinds on journeys, there was a special handbook edited by Georg von Neumayer which also contained a practical article by Carl Meinhof (1906). Thirdly, there was a more practical interest in language stemming from efforts to do Christian missionary work. German missionaries were eager to convert native people to Christendom not only in the German protectorates, but in many other places around the world, too. Concerning language and languages, here we have a combination of colonial and missionary interests, with the missionary aspect being more practical, namely translating the Bible and catechistic literature like prayer books and hymn books, plus having the ability to speak and preach to people in their own language.

It is these three groups mentioned – colonial civil servants, missionaries and explorers („Kolonialbeamte, Missionare und Forschungsreisende“, p. 1) – that Gabelentz addresses in the introduction („Einleitung“) of the *Manual*, plus all other persons, as he writes, who while in distant countries have time and pleasure to promote their knowledge of language („die ... Zeit und Lust haben, die Sprachkunde zu fördern“, *ibid.*). This might evoke the image of the well-to-do voyager with time and leisure enough to record linguistic data just like others collect plants or hunt for butterflies. Gabelentz compares these travellers to professional linguists who, alas, seldom have the opportu-

nity to collect materials on the spot („Sprachforscher vom Fach kommen selten in die Lage, an Ort und Stelle Materialien sammeln zu können“, *ibid.*). With these travellers in mind, for whom the experience of collecting words, sentences and texts of different sorts can become a passion („... erleben, dass auch das Sammeln von Wörtern, Sätzen und allerlei Texten zur Passion werden kann“, *ibid.*), Gabelentz formulates the aim of the *Manual*: to make collecting easier for them and provide linguistic science with useful, reliable and, because of their uniformity, clear works („Dies Sammeln soll ihnen erleichtert, und der Wissenschaft sollen brauchbare, zuverlässige, dabei durch eine gewisse Uniformität übersichtliche Arbeiten zugefügt werden“, *ibid.*).

To be quite clear about it: the final destination of the lists Gabelentz hopes to be provided with, is the science of language. From his textbook, we can safely infer that mere collecting of data from different languages would not be considered an aim in itself, but rather it should be made practical by writing grammars and dictionaries of these languages. We will come back to this point later on.

## **2. Contents and organisation of the *Manual***

A few words on the physical character of the book. It is in landscape format with a length of 17.5 centimetres and a height of 11.5 centimetres, thus not too bulky. It is bound in moleskin, a kind of cotton, and at one side there is a case for a pencil. The number of pages is 272 (with pages 199–272 ruled) plus 16 pages in Roman numerals at the beginning filled with an alphabetical list of all the words used in the *Manual* referring the user to their place in the word lists themselves. The book is not too thick and can easily find a place in the traveller's outfit.

### *2.1. Languages to be investigated*

The object of Gabelentz' interest is clearly confined to the languages spoken in the protectorates of the German Empire. What could be judged and presumed up to the time when the *Manual* was published –this happened, as pointed out above, in 1892, nine years after the acquisition of the first protectorate, German Southwest Africa – Gabelentz characterizes these languages as not too difficult („nicht besonders schwierige Sprachen“, p. 1). From his textbook and other works, we know that Gabelentz was highly interested in assessing the value of languages, what he calls the determination of their value („Wertbestimmung der Sprachen“, 1891/1901, p. 387). Al-

though, as has been noted, the traveller will be confronted with relatively easy languages, Gabelentz provides him with some practical hints concerning the method of elicitation of data, mainly words, and the recording of phonetic details. One example must suffice. Imagine, you want to elicit your informant's equivalent for the word *hand* and hold out your hand to him. It might happen that his answer does not render hand in general but *your hand* because, as Gabelentz surmises, the savage cannot think of hand in abstract (p. 3). Alternatively, he could answer *palm* or *flat of the hand, out-stretched hand* or *It is white*. I just quoted from Gabelentz' text where he calls indigenous people *savages* („Wilde“ in German, p. 3); one page later he equates the informants with *children* („Kinder“, p. 4). Their languages are “raw” („rohe Sprachen“, p. 4), they often lack words for general concepts like “brother” and can only name the elder brother, or the younger brother, that is the species, but not the genus („... nur Namen der Arten, aber keinen Namen der Gattung“). This should not be overestimated, I think, but it is in conformity with European thinking and talking about indigenous people at the turn of the nineteenth to the twentieth century. Evidence for this can be taken from Gabelentz' admonition to the data collector:

You should stick to the principle that each savage speaks his mother tongue correctly, at least as a rule more correctly than a European does. Where we think something is wrong, the mistake will probably be in our understanding. The people just think differently from us and through their language we want to find out how they think (Sonst aber halte man sich an den Satz, dass jeder Wilde seine Muttersprache richtig spricht, jedenfalls in der Regel richtiger als ein Europäer. Wo uns also etwas fehlerhaft vorkommt, da wird wahrscheinlich der Fehler in unserem Verständnisse liegen. Die Leute denken eben anders als wir, und durch ihre Sprache wollen wir erfahren, wie sie denken; p. 5).

## 2.2 Organisation and content of the data sheets

The contents of the data sheets and their arrangement go back to a former work by Georg von der Gabelentz and Adolf Bernhard Meyer, called “Contributions to the Knowledge of the Melanese, Micronese and Papuan Languages” („Beiträge zur Kenntnis der melanesischen, mikronesischen und papuanischen Sprachen“), published in 1882, that is ten years before the *Manual* was published. The lists consist of words, sometimes of word combinations. They are arranged according to the parts of speech schema of traditional grammar, if appropriate with subgroups again following the traditional

subdivisions. A somewhat less comprehensive scheme than the one used in the *Manual* can be found in the textbook where Gabelentz mentions that he had once tested its suitability („Ein Schema für ein solches Wörterbuch, dessen Bequemlichkeit ich erprobt habe [...]“, 1891, p. 177/178, 1901, p. 166/167).

The order of the word classes is not the traditional one but starts with pronouns with personal pronouns at the beginning. As can be seen from the appendix where the categories Gabelentz uses are given plus some examples, already here Gabelentz prepares the collector to ask for concepts not lexicalised in German nor in English: we do not have words for *we two*, *we three*, let alone *we two: me and you* in contrast to *we two: me and him*, etc. Pronouns are followed by nouns both concrete and abstract, arranged in the way of a thesaurus. That is, words are grouped together according to their semantic connections in, as we might say, word fields and word families. The noun list aptly starts with words having to do with God and Heaven, and it finishes, as many such lists do, with the embarrassing category general or miscellaneous (“Allgemeines”). Some of the groupings are rather astonishing. Have a look at number 271 to 275 in the appendix: The words *spirit*, *shadow*, *name*, *voice* and *word* are put at the end of the category *Other parts of the body, excretions!* The order of adjectives starts with the concept “large” etc. and finishes with “general or miscellaneous” just like the nouns do. Adverbs are subcategorized according to the traditional subgroups of adverbs of time, of place and so on. Conjunctions and prepositions do not show any known pattern. It is with verbs that the method of thesauring clearly comes to its limits. Starting with *Verba dicendi*, verbs of saying, known from Latin and other grammars, the list quickly comes to category F. “Other verbs (in alphabetical order)” from *abreissen* ‘tear off’ to *ziehen* ‘pull’. The typographical design of inserted ruled lines and whole ruled pages are meant to encourage the data collector to think of more and other concepts or to be more realistic, to think of German words and elicit the indigenous term for them, in this case verbs.

Gabelentz’ interest in these lists clearly concentrates on the lexical aspects. Grammar is not totally neglected, although for instance in the connection with possessive pronouns there is no hint to retrieve data on how possession as a concept that exceeds traditional word class boundaries is grammaticalised in the language under consideration. Concerning nouns, the ways of marking plurals or comparable concepts are not taken care for in the lists themselves but in the section on “How to use the word lists” („Anweisung zum Gebrauch des Wörterbuchs“, p. 19/20). There Gabelentz urges the explorer to add the plural forms, if appropriate. The same applies to different verb forms – the explorer is urged to busy himself in collecting them or else to demonstrate by examples (sentences) that verbs are invariant in the language under consideration. As to

adjectives, Gabelentz asks for combinations of them with nouns, e.g., *the white stone, three high trees, the stone is white, the trees are high* („Auch bei den Adjektiven sollte man of Verbindungen mit Substantive anführen: ‚Der weisse Stein, drei hohe Bäume, der Stein ist weiss, die Bäume sind hoch‘ u. s. w.“, p. 20). Concerning auxiliaries (prepositions, postpositions, genitive or object particles, conjunctions etc.), Gabelentz again asks for examples by which their “meaning” can be explained. This is necessary, he says, because these words in German are mostly indeterminate. („Die Bedeutung der Hülfsörter [Prä- und Postpositionen, etwaiger Genitiv- oder Objektspartikeln, Konjunktionen] muss nothwendigerweise durch Beispiele erläutert werden; denn die deutschen Wörter sind mehrentheils viel zu unbestimmt. Füllt hier der Sammler den ihm gelassenen freien Raum fleissig aus, so arbeitet er einem wichtigen Theile der Grammatik vor“, p. 20). By doing this, the explorer helps to prepare an “important part of the grammar”, whose construction, as has been pointed out above, is beside the dictionary a vital aim of the linguist.

Thus we can say that a copy of the *Manual* filled with data from a certain language is not just a kind of nomenclature of a part of its vocabulary, but ideally a grammatically enriched and informed list. Moreover, Gabelentz describes the empty pages at the end of the book as places where sayings, proverbs and other sentences, if possible texts, stories, tales and songs can be written down, thus going far beyond the level of pure words („Die leeren Blätter am Ende des Wörterbuchs sind für gebräuchliche Redensarten und sonstige Sätze, womöglich auch für zusammenhängende Texte, Erzählungen und Lieder aus dem Munde der Eingeborenen bestimmt“, *ibid.*).

### **3. Effectiveness of the *Manual***

As far as we know, Gabelentz’ *Manual* did not become very influential. It is referred to in a larger work by Father Wilhelm Schmidt, a member of the Societas Verbi Divini, better known as *Steyley Missionare*, a catholic order of brothers and priests. Father Schmidt wrote in 1901/1902 on the linguistic situation in the then German part of Papua-New Guinea, partially using Gabelentz’ word list to compare data from several languages and dialects. He mentions that the book is often used by civil servants and missionaries (Schmidt 1901, p. 357). He refers to the records of the languages of Tami, Jabim, Karkar and Kake-dong (Kai) made by filling out the book (p. 373). It cannot be ascertained if these have been used for dictionary or grammar construction. Maybe it is in libraries of monasteries that we could be lucky enough to find the original records or

copies. However, we should not be surprised if these books were weeded out as simple consumer goods not worthy of archiving. There are only a few libraries in Germany and the rest of the world where copies of the *Manual* are still available, e.g., the German and the Austrian National Libraries and the British Library. In the Gabelentz archives in his native city of Altenburg, Thuringia there are two copies, one without any entries and the other one relatively completely filled with entries from the Basque language, probably from Georg von der Gabelentz' own hand.

A quick look at the bibliographies in the newer surveys of the languages of the world or parts of it shows that Gabelentz' book did not reach the attention of these authors. Thus, maybe it is not unfair to state that among Gabelentz' works, the *Manual* stands in an isolated position. It does not achieve the width and depth of Gabelentz' other work and can, I think, as a commissioned work safely be placed among his lesser achievements. Nevertheless, it aptly fits into the theme "Unity and Diversity of Languages" of the 18th International Congress of Linguists and helps us to gain a more complete and multiperspective picture of Gabelentz' work as a whole.

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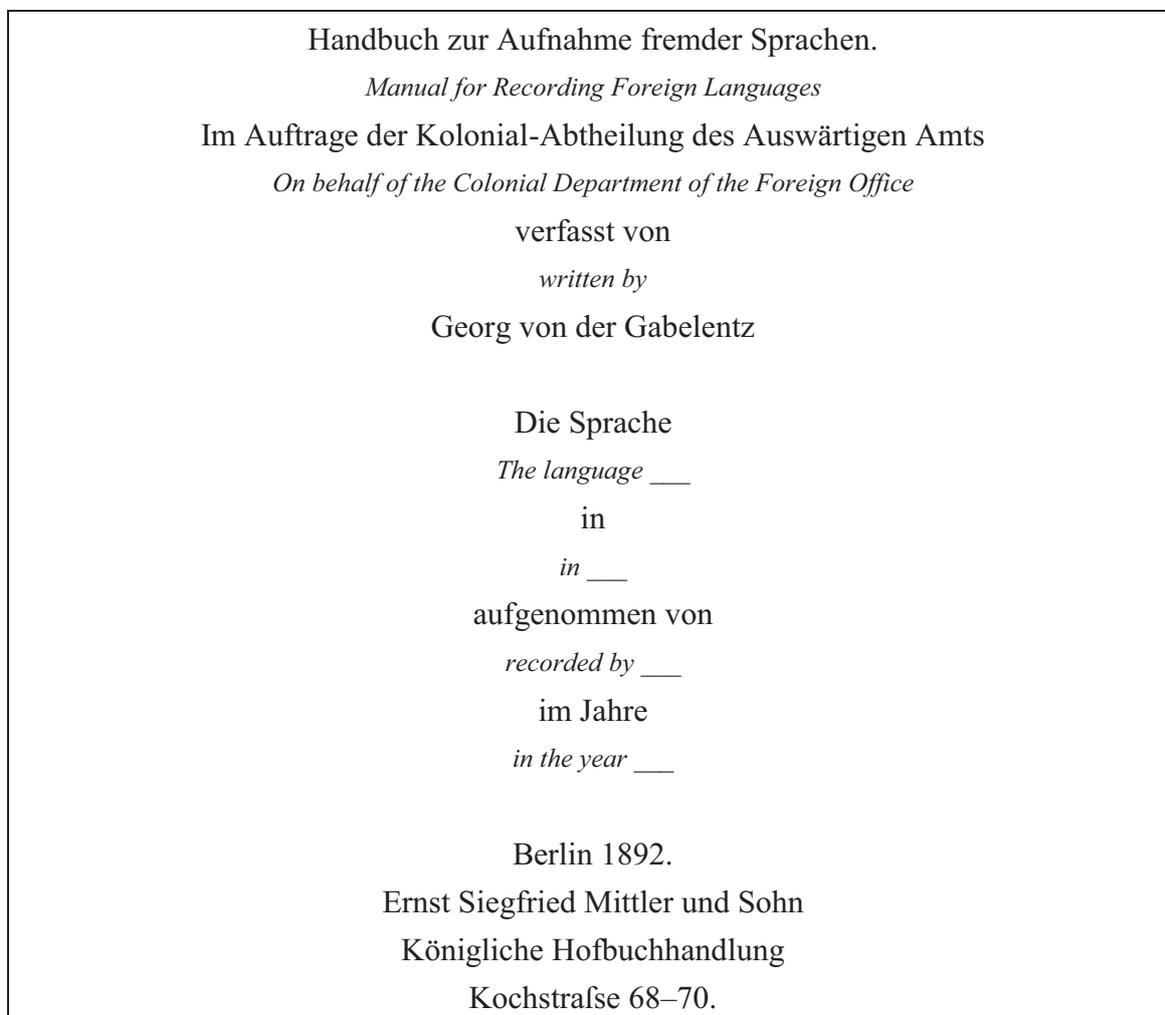
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## Appendix

Cover (length:17.5 cm, height: 11.5 cm):



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Wir zwei, ich und er <i>we two, me and him</i>	
Wir drei, ich und ihr <i>we three, me and you</i>	
...	
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seit wann? <i>since when?</i>	

bis wann? *until when?*

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21. 1  
der erste *the first*  
allein *alone*  
einzeln *single*
22. 2  
der zweite *the second*  
zu zweit *two together*  
beide *both*
23. 3  
der dritte *the third*  
selbdritt *three together*
- ...
35. 1000  
2000  
10000  
100000
36. Einige *some*
37. Alle *all*
- ...
41. Halb *half*
42. Etwas *something, a little*

III. Substantiva. *Nouns* 35

A. Gott, Himmel. *God, sky/heaven*

43. Gott *god/God*  
(Götter, Götzenbilder, Fetische) *gods, idols, fetishes*
44. Himmel *sky/heaven*
45. Welt *world*
- ...
49. Stern *sky*

B. Himmelsgegenden. *Points of the compass*

50. Nord *north*
- ...
53. West *west*  
Nordost *north-east*

37

	Nordwest <i>north-west</i>	
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	Südwest <i>south-west</i>	
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	...	
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	78. Erde <i>earth/soil</i>	
	(Erdarten) <i>types of soil</i>	
	79. Land <i>land/country</i>	
	...	
	92. Insel <i>island</i>	
	93. Strand <i>beach</i>	
F. Stein, Metall. <i>Stone, metal</i>		43
	94. Stein <i>stone</i>	
	95. Felsen <i>rock</i>	
	...	
	98. Eisen <i>iron</i>	
	Gold <i>gold</i>	
	Silber <i>silver</i>	
	Kupfer <i>copper</i>	
	Erz, Metall <i>ore</i>	
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	100. Feuer <i>fire</i>	
	Flamme <i>flame</i>	

...	
103. Asche <i>ash</i>	
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159. Krokodil <i>crocodile</i>	
...	
164. Haifisch <i>shark</i>	
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165b. Schuppe <i>scale</i>	
Flosse <i>fin</i>	
Fischschwanz <i>fish's tail</i>	
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180. Perlenmuschel <i>pearl mussel</i>	
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182. Mensch <i>man, mankind</i>	
183. Mann <i>man</i>	
Gatte <i>husband</i>	
...	
207. Freund <i>friend</i>	
208. Feind <i>enemy</i>	
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Nacken <i>nape of the neck</i>	
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226. Körper <i>body</i>	
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227. Leichnam <i>corpse, body</i>	
228. Brust <i>breast, chest</i>	
weibl. Brüste <i>breasts</i>	
Euter <i>udder</i>	
Zitze <i>teat</i>	

...		
234.	Gesäss <i>bottom</i>	
	Hinterbacken <i>buttocks</i>	
	After (Loch) <i>anus</i>	
236.	Penis <i>penis</i>	
	Harnröhre <i>urethra</i>	
	glans <i>glans</i>	
237.	Hoden <i>testicle</i>	
	Hodensack <i>scrotum</i>	
238.	Weibliche Scham <i>female genital organs</i>	
	Schamlippen <i>labia</i>	
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...		
271.	Geist <i>spirit</i>	
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...		
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503.	So <i>so</i>	
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...		
508.	Mehr <i>more</i> weniger <i>less</i> (Sätze mit Komparativ) <i>(sentences with comparatives)</i>	
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510.	Nicht <i>not</i> will nicht <i>will not</i> kann nicht <i>cannot</i> darf nicht <i>shall not</i>	
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520.	Denn, weil <i>since, because</i>	

...		
527.	Wenn <i>when</i>	
528.	Ob <i>if</i>	
529.	Obschon <i>although</i>	
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538b.	Genitiv <i>genitive</i>	
...		
541.	Bei (dicht bei, nahe bei) <i>near (close)</i>	
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...		
570a.	Lügen <i>lie</i>	
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570c.	Betrügen, täuschen (vgl. 748 [s. 570a bis c.] <i>cheat, deceive (cf. 748 [see 570a to c.]</i>	
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573.	Träumen <i>dream</i>	
...		
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605.	Irren <i>be wrong, be mistaken</i>	
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608.	Können <i>be able to</i>	
609.	Wachsen <i>grow</i>	
610.	Leben <i>live</i>	
...		
620.	Speien <i>spit</i>	
620b.	Seine Nothdurft verrichten <i>relieve oneself</i>	
620c.	Pissen <i>piss</i> [zwei linierte Zeilen <i>two ruled pages</i> ]	
620d.	Menstruieren <i>menstruate</i>	
...		
644.	Berühren, betasten <i>touch, feel</i>	
644b.	Den Beischlaf vollziehen <i>have sexual intercourse</i>	
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646.	Kommen <i>come</i>	
...		
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679.	Schwellen <i>swell</i>	
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681.	Dasein (wo sein) <i>be there (be somewhere)</i>	
682.	Bleiben <i>stay</i>	
...		
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...		
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	bekleiden, anziehen <i>dress, put on</i>	
	einwickeln <i>wrap up</i>	
	...	
711.	Brechen, zerbrechen <i>break</i>	
712.	Brennen (intransitiv) <i>burn (intransitive)</i>	
	(transitiv) <i>burn (transitive)</i>	
	verbrennen <i>burn</i>	
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	...	
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	begraben <i>bury</i>	
725.	Greifen <i>take</i>	
726.	Haben (Wie wird das ausgedrückt? Beispiele:) <i>have (How is it expressed? Examples:)</i>	
	...	
729.	Handeln, Handel treiben <i>trade</i>	
730.	Heben <i>lift</i>	
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732.	Holen <i>fetch</i>	
	...	
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745.	Lösen, erlösen <i>untie, undo, release, rescue, save, redeem</i>	
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	...	
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761.	Säen <i>sow</i>	192
762.	Sammeln <i>collect</i>	
	...	
770.	Stehlen <i>steal</i>	
771.	Strafen <i>punish</i>	
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772.	Tätowieren <i>tattoo</i>	194
773.	Tauschen <i>exchange</i>	
	...	
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	...	
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# Viability of VOT as a Parameter for Speaker Identification: Evidence from Hong Kong<sup>1</sup>

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## Abstract

This research explores VOT as a speaker-specific property within the context of English-Cantonese bilingualism in Hong Kong. Utterances collected from five individuals for /p, t, b, d/ vary over two languages and four emotional states. Results show that VOT means by themselves appear to be generally useless as a speaker-specific property because there is as much inter-speaker variation as there is intra-speaker. However, in this paper, we have been able to show that the profile of VOT shifts of each phoneme across the two languages is speaker-specific. Extrapolating from this, profiles of VOT shifts across other parameters like emotional states and even vowel adjacency would be likewise speaker-specific. Herein lies the viability of VOT for speaker-identification.

**Keywords:** VOT shifts, speaker identification, bilingual, Hong Kong English, Cantonese.

## 1. Introduction

Speakers are rarely conscious of the synchronicity (or lack thereof) of vocal fold vibration and the release of plosives phones. This makes Voice Onset Time (VOT) a likely candidate for forensic speaker identification. Thus motivated, we investigate correlations between four variables which are likely to affect VOT values: speakers, moods, languages and the voicing contrast of plosives within each language.<sup>2</sup> The hypothesis is that VOT values should vary significantly across these variables and that there should be a systematic correlation between the VOT values and the variables, with particular reference to speaker-specificity if VOT is to have forensic applications. The results of this research show that for bilinguals, the VOT shift of the same plosive phoneme across the languages commanded by that speaker is potentially speaker-specific. As such, the viability of VOT for speaker-identification is stronger for polyglots than for monolinguals, an area of forensic phonetic studies hitherto rarely explored (but see Kilpatrick 2003 for a closely related study on VOT of English and Spanish bilinguals).

Section 2 explains the experimental design and data collection. Section 3 presents our results and provides a brief discussion on what the results indicate. Section 4 explains the implications and limitations of the work, before ending with a conclusion.

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<sup>2</sup> The investigation of language variation is motivated by Moosmuller (1997), who argues that phonological backgrounds are prone to individual variation in speaker identification.

## 2. Design of Experiment

In this research, we consider monosyllabic words involving single plosive onsets which VOTs are measured under variation of (i) speakers, (ii) moods, (iii) languages and (iv) the voicing contrast of plosives within each language. The last of these four is well-documented and require no further elaboration. Tokens are set in a carrier frame for naturalness and for ease of identifying the boundaries of the plosives under study. One-way ANOVA<sup>3</sup> is used to test if the other three variables also have significant effects on mean VOT values.

### 2.1 Languages Tested

Since Hong Kong is essentially bilingual in English and Cantonese, these two languages are chosen for study. English and Cantonese both make a two-way distinction in voicing. However, Shimizu (1996:13) reports that the VOT boundary value of English plosives is about 20-40ms, which means that below 20ms, the plosive would be certainly perceived as voiced, and above 40ms as voiceless. Lisker & Abramson (1964) [cited in Cho & Ladefoged 1999] present the distinction in Cantonese as 9-34ms for one category and 79-98ms for the other, so that the boundary value is 35-78ms, significantly higher than that of English. This means that what is voiced for Cantonese would probably sound very much like unvoiced for English, prompting various linguists to claim that Cantonese makes an aspirate-unaspirate distinction while English makes a voice-voiceless distinction.

Thus, a natural question would be on the VOT for a Cantonese-English bilingual. Since both languages make a two-way distinction, would such a bilingual have a VOT divide that matches English or Cantonese, both or neither?<sup>4</sup> The choice of languages here would serve to address this question. In any case, Hung (2000) reports that speakers of English in Hong Kong have a distinct accent. Specific to plosives, the English spoken in Hong Kong (or Hong Kong English, HKE) appears to be more like Cantonese than English. As will be shown in section 3, this is sometimes the case for some speakers and for some phonemes.

In this paper, the English studied would be HKE.

### 2.2 Subjects

Five individuals (two males and three females) are used in this study. Their details are provided in the table (1):

(1) List of subjects used in this study

Informants	Sex	Age	Education Level
CY	M	19	University
MW	M	21	University

<sup>3</sup> ANOVA is a hypothesis-testing procedure used to evaluate the mean differences between two or more treatments (Woods et al 1986; Gravetter & Wallnau 2000). ANOVA is useful in this research as we look at the differences in VOT values with respect to speakers, mood and language (i.e. three treatments).

<sup>4</sup> Hung (2000), for example, claims that the English spoken in Hong Kong has a VOT contrast that is fundamentally similar to Cantonese.

AH	F	22	University
JK	F	23	University
WC	F	21	University

Only tertiary educated subjects are chosen here because of their more balanced command in both Cantonese and English (for issues on impact of bilingualism on VOT, see Kilpatrick 2003:Chapter 2). More accurately though, the English spoken in Hong Kong is not phonetically identical with standard varieties such as General American or Received Pronunciation. Nonetheless, because Cantonese has such a dominant presence in Hong Kong, the bilingual subjects exhibit dominant bilinguality (definition in (2)) with a preference for Cantonese. This is very typical of the Hong Kong people. The subjects chosen are thus reasonably representative of Hong Kong.

(2) Dominant Bilinguality (Hamers & Blanc 2000:368)

A state of bilinguality in which competence in one language is superior to the competence in the other; note that dominance is not equally distributed for all domains and functions of language.

2.3 *Phoneme and Selection of Words*

As mentioned above, the two languages studied (English and Cantonese) make a two-way distinction on the voicing contrasts of plosives. As such, our selection of phonemes include the labials /b/~p/ and the alveolars /d/~t/. We have left out the set of velars for want of resources, although our results later will show that our conclusions can be easily extended to cover the velar plosives.

In this research, we set up a list of monosyllabic words involving the plosives /p, t, b, d/ as single onsets across the two languages. For each phoneme, there are six token words to be read three times so that an average value may be obtained. The six tokens are equally divided amongst three cardinal vowels [high, front], [low], and [high, back, round] so that our averages would not be skewed by effects of vowels that immediately follow the plosives. Below, (3) and (4) are our list of test words. The phonetic forms in (3) correspond to pronunciations in Hong Kong, and may not coincide with dictionary entries.

(3) List of English Words

plosives	Following vowel	closed syllable	open syllable
p	i	pig [p ik]	pea [p i]
	o	pot [p ot]	paw [p o]
	a	part [p art]	par [p ar]
t	i	tick [t ik]	tea [t i]
	o	top [t op]	tall [t o]
	a	tart [t art]	tie [t ai]
b	i	big [pit]	bee [pi]
	o	bob [pob]	ball [po]
	a	bark [park]	bar [par]
d	i	dig [tik]	D [ti]
	o	dot [tot]	door [do ]
	a	dark [tark]	die [tai]

(4) List of Cantonese Words<sup>5</sup>

plosives	Following vowel	closed syllable	open syllable
p	i	[p <sup>h</sup> ik]	[p iu]
	o	[p ok]	[p o]
	a	[p ak]	[p a]
t	i	[t ip]	[t iu]
	o	[t ok]	[t o]
	a	[t at]	[t a]
b	i	[pik]	[piu]
	o	[pok]	[po]
	a	[pak]	[pa]
d	i	[tik]	[tiu]
	o	[tok]	[to]
	a	[tat]	[tai]

Because vowels are known to affect VOT values (Shimizu 1996:27, 55, 111), we have tried to factor out their effects by balancing each phoneme with equal number of entries for each of three cardinal vowels: [high, front], [low] and [high, back].

2.4 *Carrier frame*

The English words and the Cantonese words are put into a carrier frame such that the plosive is preceded by a sonorant. This would allow us to see clearly where the plosive begins. The carrier frames are as given in (5).

- (5) a. Carrier frame for English  
I am going to say \_\_\_ once.
- b. Carrier frame for Cantonese  
ŋɔ: wui kɔŋ \_\_\_ jət ts<sup>h</sup>i.

2.5 *Speaker Moods*

Because part of our study is to examine the viability of VOT for speaker identification, we decided to factor in emotional states to see if there is any covariation with VOT values that might be speaker-specific. To this end, each speaker is required to utter each word (in their carrier frames) across four different emotional states: neutral, happy, sad and angry. Because different individuals might have different “renditions” of the same emotional state, this part of the experiment is somewhat uncertain. However, it should be quite reasonable to assume that variation of moods would either be manifest in the intensity or the pace of utterance, both which would have a direct impact on VOT.

2.6 *Tokens*

This experiment involves a total of 2880 tokens are taken (=6 words\*4 phonemes\*5 speakers\*3 readings\* 4 moods\*2 languages). See above sections for details.

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<sup>5</sup> Glosses and tones omitted, since selected words that are natural to Cantonese do not lend themselves easily to translation.

## 2.7 Data Collection

Subjects were asked to utter the stimuli words in their carrier frames separately in a quiet setting where the utterances are also recorded. The software used is Praat (version 4.4.30, but see Boersma & Weenink 2008 for a more updated version) at a sampling frequency of 22050Hz. Because of the large number of tokens required, recordings are made over a period of no more than two days<sup>6</sup> each with intermittent breaks every 15-20 minutes. Recordings for each language are collected separately to avoid having the subjects having to switch between codes. Within each language, every token word is collected for all emotional states (mood) before moving on to another word. While this means that subjects have to switch emotional states back-and-forth, it helps prevent a building up of intensity of moods. For instance, if a subject is required to constantly keep an angry mood, the mood may feed itself so that the intensity of anger would grow over each repetition.<sup>7</sup>

## 3. Results and Discussion

This section presents the results obtained from measuring the VOT values of recordings collected under the experiment design given in the previous section. One-way ANOVA is used for calculating F-ratios, all at a significance level of  $p < 0.05$ , giving us an error of less than 5%.

In (6) below, we present the results for the VOT contrasts that set apart the two-way voicing distinction for Hong Kong English (HKE).

(6) F-ratio and F-dist. of HKE across four moods

/p, t/	Mean HKE VOT value(s)				F-ratio	F-dist	Significance	
	Neutral	Happy	Sad	Angry				
C.Y.	0.0843	0.0796	0.0927	0.0801	1.7624	2.8387	N	
M.W.	0.0626	0.0591	0.0708	0.0625	1.4767		N	
A.H.	0.0542	0.0435	0.0547	0.0620	3.0165		Y	
J.K.	0.0727	0.0644	0.0723	0.0715	0.9752		N	
W.C.	0.0635	0.0489	0.0682	0.0446	6.4146		Y	
/b, d/								
C.Y.	0.0218	0.0217	0.0259	0.0208	3.7030		Y	
M.W.	0.0142	0.0175	0.0210	0.0240	5.1858		Y	
A.H.	0.0168	0.0127	0.0178	0.0137	1.0237		N	
J.K.	0.0097	0.0107	0.0091	0.0049	0.8190		N	
W.C.	0.0117	0.0055	0.0113	0.0047	6.2485	Y		

Table (6) provides the mean VOT values of each speaker (listed along the first column) across four emotional moods (listed along the top row) when in HKE utterances. The phonemes are divided for the voicing contrast, so that the set of VOT values for the upper half applies to the voiceless phonemes (/p, t/ in this case, having left out /k/ in this research). The lower half of the table is for the VOT values of voiced phonemes (/b, d/

<sup>6</sup> We keep things to within this time frame for fear that a longer stretch of time would bring in other complications such as memory lapses.

<sup>7</sup> A method often used in realistic acting first advocated by Constantin Stanislavski.

in this case). The F-ratio is then calculated (with  $df=3, 44$ , where  $df$  refers to degrees of freedom)<sup>8</sup> to see if VOT variation across moods for each individual speaker is significant.<sup>9</sup> The results are summarized in the final column, where one can see that for C.Y., VOT variation is insignificant across moods for both voiceless plosives, but not voiced plosives. For A.H, variation across moods is significant for voiceless plosives, but not for the voiced ones. There is no obvious pattern when the variation is significant for each speaker within or across the two kinds of plosives.

Ideally, if VOT is useful for speaker-identification, then there should be systematically no significant variation for each speaker across moods for at least one set (either /p, t/ or /b, d/) of the phonemes. This is clearly not the case given the results in (6), which undermines the feasibility of VOT as a speaker-specific parameter.

Moving on to Cantonese, table (7) presents the results for the VOT contrasts that set apart the two-way voicing distinction (again,  $df=3, 44$ ).

(7) F-ratio and F-Dist. of Cantonese across four moods

/p, t/	Mean Cantonese VOT value(s)				F-ratio	F-dist	Significance	
	Neutral	Happy	Sad	Angry				
C.Y.	0.0757	0.0594	0.0651	0.0583	1.5771	2.8387	N	
M.W.	0.0696	0.0528	0.0711	0.0576	6.0910		Y	
A.H.	0.0405	0.0325	0.0412	0.0330	2.1276		N	
J.K.	0.0628	0.0744	0.0608	0.0311	4.8038		Y	
W.C.	0.0474	0.0320	0.0364	0.0341	2.1927		N	
/b, d/								
C.Y.	0.0188	0.0183	0.0205	0.0196	0.0728		N	
M.W.	0.0209	0.0115	0.0146	0.0113	2.6395		N	
A.H.	0.0111	0.0087	0.0155	0.0065	6.3932		Y	
J.K.	0.0149	0.0087	0.0147	0.0051	6.7450		Y	
W.C.	0.0075	0.0055	0.0095	0.0036	2.3656	N		

Table (7) is read the same way as table (6). As can be seen from the results in (7), there is no systematic pattern in when moods make significant variation on the VOT means of each speaker, which corroborates with the results in (6). Again, this undermines the feasibility of VOT as a speaker-specific parameter.

Although (6) and (7) do not appear very supportive, it is nonetheless possible that the applicability of VOT for speaker-identification is confined at the level of the phoneme and could be language specific. The results in (8)<sup>10</sup>, allows us to check if this may be so for the case of HKE.

<sup>8</sup>  $df = x,y$ , where the first value is the degree of freedom between treatments (in this case the moods), while the second value is the degree of freedom within-treatments (in this case the number of utterances that produced the VOT means). On how to calculate  $df$ , see Woods et al (1986) or Gravetter & Wallnau (2000) for an excellent explanation.

<sup>9</sup> In order to see if moods have impact on each individual speaker, the four emotional states are compared using only one informant each time. By this, one could treat each informant as a separate sample. Hence in this case, an independent measures design is chosen over repeated measures design. One could also notice that since F-ratio is calculated each time using only one speaker. We would therefore have five outcomes (five values of F-ratios). The same thing could be said of the results of table (7).

<sup>10</sup> As we want to see if individuality would impact on the VOT means for a given phoneme, speakers (individual conditions) now become the variable or factor that is being examined. Phonemes /p,t,b,d/

(8) F-ratio and F-Dist. of HKE across five speakers

	Speakers	Mean <sup>11</sup> VOT HKE (s)	F-ratio	F-dist	Significance
/p/	C.Y.	0.0801	16.5218	2.4500	Y
	M.W.	0.0562			
	A.H.	0.0495			
	J.K.	0.0691			
	W.C.	0.0590			
/t/	C.Y.	0.0883	17.5216		
	M.W.	0.0713			
	A.H.	0.0578			
	J.K.	0.0714			
	W.C.	0.0535			
/b/	C.Y.	0.0208	12.6636		
	M.W.	0.0177			
	A.H.	0.0098			
	J.K.	0.0116			
	W.C.	0.0073			
/d/	C.Y.	0.0243	51.6274		
	M.W.	0.0206			
	A.H.	0.0208			
	J.K.	0.0057			
	W.C.	0.0093			

In table (8), we compare the VOT means of each individual across the four chosen phonemes of HKE. Here the results appear to be more encouraging in that there are significant differences ( $df = 4, 115$ , where 4 is  $df$  based on number of speakers, and 115 is  $df$  based on number of utterances) for all four phonemes across the speakers as indicated by the “Y” in the last column. However, one has to be cautious of jumping to conclusions here since the comparison is made for all five speakers, not for any given pair of speakers. In other words, the “Y” could be simply the result of having one very deviant speaker while the remaining three have mutually indistinguishable VOT values. To check that for any pair of speakers, there is a significant difference in the VOT values, the Tukey’s Honesty Significant Difference (HSD, again see Gravetter & Wallnau 2000 for explanation) post hoc test is needed. If the mean difference of any pair exceeds the critical value (i.e. Tukey’s HSD, calculated with the formula in (9)), one can conclude that pair is significantly different.

(9) Tukey’s Honesty Significant Difference (HSD)

$$\text{HSD} = q \sqrt{\frac{\text{Variance within treatments}}{\text{number of scores in each treatment}}}$$

, where  $q$  is a table value called a Studentized range statistic.

The Tukey’s HSD is applied to all possible pairings (which is  $C_2^5 = 10$ ) of all five speakers. The results are summarized in table (10).

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become the control factors. Each time only one phoneme is considered, so there are four F-ratios altogether for comparison. Table (11) is understood the same way as here.

<sup>11</sup> The means are calculated for all utterances across four emotional states.

(10) Pairwise HSD across speakers on HKE /p, t, b, d/

Phoneme	Speakers	M.W.	A.H.	J.K.	W.C.
/p/	C.Y.	✓	✓	✗	✓
	M.W.	Grey	✗	✓	✗
	A.H.	Grey	Grey	✓	✗
	J.K.	Grey	Grey	Grey	✓
/t/	C.Y.	✓	✓	✓	✓
	M.W.	Grey	✓	✗	✓
	A.H.	Grey	Grey	✓	✗
	J.K.	Grey	Grey	Grey	✓
/b/	C.Y.	✗	✓	✓	✓
	M.W.	Grey	✓	✗	✓
	A.H.	Grey	Grey	✗	✗
	J.K.	Grey	Grey	Grey	✗
/d/	C.Y.	✗	✗	✓	✓
	M.W.	Grey	✗	✓	✓
	A.H.	Grey	Grey	✓	✓
	J.K.	Grey	Grey	Grey	✗

In (10), each pairing is shown on the table by matching each row to each column. The corresponding cell is marked ✓ if the pair is significantly different, but ✗ if not. Grey cells indicate that the pair has already been considered. From the random spread of ✗, it is clear that not all the differences are significant for any given pair of speakers. VOT as a speaker-specific property is unviable even when confined to the level of the phoneme for a specific language. This claim is further supported by the results in (11) when one moves on to investigate Cantonese ( $df= 4, 115$ ).

(11) F-ratio and F-dist. of Cantonese across five speakers

	Speakers	Mean <sup>12</sup> VOT Cantonese (s)	F-ratio	F-dist	Significance
/p/	C.Y.	0.0591	6.3382	2.4500	Y
	M.W.	0.0579			
	A.H.	0.0386			
	J.K.	0.0680			
	W.C.	0.0424			
/t/	C.Y.	0.0702	42.1360	2.4500	Y
	M.W.	0.0676			
	A.H.	0.0350			
	J.K.	0.0466			
	W.C.	0.0318			
/b/	C.Y.	0.0152	2.1968	2.4500	N
	M.W.	0.0130			
	A.H.	0.0114			
	J.K.	0.0122			
	W.C.	0.0084			
/d/	C.Y.	0.0233	17.1836	2.4500	Y
	M.W.	0.0166			
	A.H.	0.0094			
	J.K.	0.0095			
	W.C.	0.0046			

<sup>12</sup> Like (8) above, the means are based on all utterances across the four emotional states.

Table (11) is read the same way as table (8). From table (10), although VOT variation is significant for voiceless phonemes and /d/ across five speakers, it is not so for /b/, which makes it unnecessary to run the Tukey's HSD.

There remains one last hope for the viability of VOT as a speaker-specific property. Since we are working with bilinguals (recall that Hong Kongers are larger English-Cantonese bilinguals), one possibility is that VOT variation for the same phoneme across the two languages commanded by each speaker is specific to that individual. In other words, for speaker X who commands languages  $L_a$  and  $L_b$ , the same phoneme /p/ could have VOT variations across the two languages, that is different from some other speaker Y. This possibility is available only to bilingual individuals, but not an option for monolinguals. In (12)<sup>13</sup> below, we make the comparisons of VOT means<sup>14</sup> for each phoneme /p, t, b, d/ across HKE and Cantonese.

(12) F-ratio and F-dist. between HKE and Cantonese

	Speakers	Mean VOT (s)		F-ratio	F-dist.	Significance
		HKE	Cantonese			
/p/	C.Y.	0.0801	0.0591	10.9560	4.0400	Y
	M.W.	0.0562	0.0579	0.1740		N
	A.H.	0.0495	0.0386	10.8294		Y
	J.K.	0.0691	0.0680	0.0173		N
	W.C.	0.0590	0.0424	16.3281		Y
/t/	C.Y.	0.0883	0.0702	15.9234		Y
	M.W.	0.0713	0.0676	1.2872		N
	A.H.	0.0578	0.0350	24.8831		Y
	J.K.	0.0714	0.0466	31.9538		Y
	W.C.	0.0535	0.0318	24.6337		Y
/b/	C.Y.	0.0208	0.0152	10.2729		Y
	M.W.	0.0177	0.0130	2.9164		N
	A.H.	0.0098	0.0114	0.8815		N
	J.K.	0.0116	0.0122	0.0455		N
	W.C.	0.0073	0.0084	0.3241		N
/d/	C.Y.	0.0243	0.0233	0.0918	N	
	M.W.	0.0206	0.0166	3.3538	N	
	A.H.	0.0208	0.0094	39.6752	Y	
	J.K.	0.0057	0.0095	4.7846	Y	
	W.C.	0.0093	0.0046	0.0003	N	

In (12), each phoneme is studied separately and the VOT means for each speaker for each language is tabulated. The F-ratio ( $df= 1, 46$ , where 1 is the  $df$  based on number of languages and 46 on utterances) together with the F-distribution show no obvious pattern at first blush. However, a careful study will reveal that the profile of VOT shifts for each plosive phoneme across languages appears to be speaker-specific. Before, we continue, we define VOT shift in (13).

<sup>13</sup> Similar to the calculations of F-ratios across four moods, each speaker is being studied separately.

<sup>14</sup> The means here are taken across all four emotional states.

(13) VOT L-Shift

VOT L-shift is the change in the mean VOT of any given phoneme across two languages.<sup>15</sup>

For current purposes, the actual value of the VOT L-shift is not quite as important as if the shift is significant. That said, consider C.Y. and M.W. for example (see Table 14).

(14) Comparing VOT L-shift of C.Y. and M.W.

		Mean VOT (s)		F-ratio	F-dist.	Significance
		HKE	Cantonese			
C.Y.	/p/	0.0801	0.0591	10.9560	4.0400	Y
	/t/	0.0883	0.0702	15.9234		Y
	/b/	0.0208	0.0152	10.2729		Y
	/d/	0.0243	0.0233	0.0918		N
M.W.	/p/	0.0562	0.0579	0.1740	4.0400	N
	/t/	0.0206	0.0166	3.3538		N
	/b/	0.0177	0.0130	2.9164		N
	/d/	0.0713	0.0676	1.2872		N

In (14), the final column would inform us if the VOT L-shift is significant. There is no significant VOT L-shift for M.W. for all the phonemes /p, b, d, t/. VOT values across all four phonemes remains fairly stable when he switches between Cantonese and HKE, possibly this means M.W. has only one set of plosives for both languages. However, for C.Y. this is not the case. Except for /d/, changing between Cantonese and HKE affects the VOT significantly. This distinguishes C.Y. from M.W. as two different individuals.

With only four phonemes studied here, and two possibilities with regards VOT L-shift (either significant or not), there are 16 ( $=2^4$ ) possible profiles. Thus for a HKE~Cantonese bilingual, with these four phonemes, speakers can be divided into 16 categories depending on the profile of what VOT-L-shifts are significant. This means that there is a 6.25% (1/16) chance that any two HKE~Cantonese bilinguals agree in their VOT L-shift profiles for /p, b, t, d/. In the case of the five speakers studied here, it turns out that all five have different VOT L-shift profiles, tabulated in (15) for ease of comparison.

<sup>15</sup> Thus (13) does not apply to changes in VOT across plosive phonemes in the same language.

(15) Comparing VOT L-shift profiles for all five speakers

		VOT L-shift Significance
C.Y.	/p/	Y
	/t/	Y
	/b/	Y
	/d/	N
M.W.	/p/	N
	/t/	N
	/b/	N
	/d/	N
A.H.	/p/	Y
	/t/	Y
	/b/	N
	/d/	Y
J.K.	/p/	N
	/t/	Y
	/b/	N
	/d/	Y
W.C.	/p/	Y
	/t/	Y
	/b/	N
	/d/	N

Evidently, VOT L-shift profiles are constrained by the number of phonemes and by the number of languages commanded by the bilingual (or rather multi-lingual). This is because the number of VOT L-shift profiles is given by the formula in (16).

(16) Number of VOT L-shift profiles =  $2^P C_2^L$   
 , where P = number of phonemes; and L = number languages > 1

The formula in (16) factors into account the possibility of multilingualism, where if there are 3 languages commanded by an individual, then it follows that there can be three sets of VOT L-shift profiles: one set between L<sub>A</sub> and L<sub>B</sub>; between L<sub>B</sub> and L<sub>C</sub>, and between L<sub>A</sub> and L<sub>C</sub>.

**4. Implication and Limitations**

*4.1 Increasing viability of VOT L-shift Profile*

The results in section 3 imply that the viability of VOT as a parameter for forensic speaker-identification is not entirely useless. At the very least, with respect to bilinguals, it would be useful for narrowing down possibilities when there is a match in VOT L-shift patterns.

In this research we have investigated only four phonemes, and by the formula in (16), the chances of a VOT L-shift. Profile match would be only 6.25%. However, HKE and Cantonese both have six plosive phonemes. Extrapolating from the results of our experiment, the number of VOT L-shift profiles would increase to 64 (=2<sup>6</sup>), so that there

is only a 1.56% chance<sup>16</sup> of a perfect match on VOT L-shift profiles. Increasingly, Hong Kongers are becoming trilingual (adding Putonghua to their repertoire of languages), which would reduce the chance of match to 0.52%. Though not anywhere as rare as two identical snowflakes, two identical DNA samples or two identical thumbprints, a 0.52% chance of perfect match is itself quite useful, it means the test is 99.48% accurate.

Further, since more and more people are learning foreign languages (Japanese, French, German, Korean, Italian and Spanish are among the favorite foreign languages in Hong Kong), the potential for using VOT L-shift profile increases exponentially.<sup>17</sup>

#### 4.2 Collapsing of phonemes to their voicing categories

There are, however, a number of limitations in the present report. The most obvious one is that the velars have been left out. Also, in studying VOT variation across moods, we have not separated out each phoneme, collapsing /p, t/ into one category and /b, d/ into another. The unpromising results in (6) and (7) could well be due to this. As such, it may well be that, contrary to our claim, VOT remains useful for speaker identification across a range of moods, notably by way of something parallel to VOT L-shift. In this case, what is needed would be shift of VOT values across moods (M-shift). If this turns out to be viable, then it would be even more useful than appealing to VOT L-shift profiles since VOT M-shift would apply to monolinguals as well. When applied to bilinguals, the number would be further multiplied by the number of languages in command for intra-language mood-shift.

$$(17) \text{ VOT M-shift profiles} = 2^P C_2^M L$$

, where M = number of emotional states > 1.

By (17), a monolingual would have a 0.26% chance of a perfect match when calculate over four emotional states.<sup>18</sup> It would be useful for polyglots too, and would significantly increase reliability, since the total number of profiles would increase to the formula given in (18) where L-shifts would also be applicable.

$$(18) \text{ Number of VOT shift profiles} =$$

$$\text{VOT L-shift profiles} + \text{VOT M-shift profiles}$$

For bilinguals, for example, there would only be 0.12% of a perfect match for bilinguals (assuming a set of six plosives over 4 emotional states).<sup>19</sup> This gives a 99.88% accuracy.

There is but one difficulty on working with emotional states. These states are highly subjective and difficult to discern. In our study, four states (neutral, happy, sad and angry) are chosen, but it is very hard to decide if these can serve as cardinal

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<sup>16</sup> Chance of a perfect match is derivable by a simply dividing 1 by the total number of possible combinations, then multiplied by 100%.

<sup>17</sup> This of course assumes that different languages have differing VOT values, which is empirically supported by such works as Shimizu (1996) and Kilpatrick (2003).

<sup>18</sup> Calculated from  $2^6 C_2^4 * 1$

<sup>19</sup> Calculated from  $2^6 C_1^2 + 2^6 C_2^4 * 2$ , see (18).

reference states the same way cardinal vowels are used in phonetics or cardinal points are used in a compass.

#### 4.3 *Impact of vowels on VOT*

It is well-known that the quality of vowels that immediately follow the plosive affects the VOT values (Shimizu 1996:27, 55, 111). In this research, the VOT of each plosive is obtained by averaging the values for plosives immediately preceding a high, front vowel; a low vowel; and a high, back vowel. Thus for any plosive P, we have equal tokens of Pi, Pa and Pu profiles, which are then averaged for the mean VOT of that plosive. This effectively masks the individual effect of vowels on plosives (recall section 2.3). Given that VOT L-shift profiles can be speaker-specific, one can envisage the possibility of VOT V-shift where for each speaker, the impact of vowels on the VOT value of each plosive would be different. Again, since vowel quality differs across languages, the formula for VOT V-shift profiles would look very much like (17), given here as (19).

$$(19) \text{ VOT V-shift profiles} = 2^P C_2^V L$$

, where V = number of different vowels > 1.

We have not made calculations in this regard, but if useful, the formula in (19) would have to be revised as (20).

$$(20) \text{ VOT shift profiles} =$$

L-shift profiles+M-shift profiles+V-shift profiles

Evidently, this would make it a lot harder for there to be a perfect match in VOT shift profiles, making the use of VOT a viable and easy tool for forensic speaker identification. The formulae for VOT L-shift, M-shift and V-shift can of course be further fine-tuned. For example, in (16), we have conflated all four emotional states and all vowel differences to obtain the VOT L-shift. This need not be so, which would increase the total number of profiles by a factor of V and M. Likewise, in VOT M-shift, we have conflated the vowel differences and in VOT V-shift we have conflated the emotional state differences.

Alternatively, one can imagine simplifying the formulae for VOT M-shift and V-shift by conflating the language differences so that L=1 for all cases. We are not sure how best to approach this at this point. As in all research that relies on statistics, there are limitations in the sample size, sample range and sample type. In these areas, we invite anyone interested to join us.

## 5. **Conclusion**

This research begins with the assumption that since speakers cannot consciously manipulate VOT, it is potentially useful for forensic speaker identification. To this end, data for four plosives / p, t, b, d/ across two languages (Cantonese and Hong Kong

English) are collected from five bilingual individuals. Results show that intra-speaker variation of VOT values often overlap with inter-speaker variation, making any simplistic use of VOT measurements for speaker identification naïve. However, if one looks into profiles of VOT shifts across languages, then one arrives at a speaker-specific property. This would, of course, apply only to people with command over at least two languages. This implies that similar approaches may be used to study VOT shifts across other parameters such as emotional states or vowel environments. If applicable, then tabulating VOT shift profiles would be useful for monolinguals as well.

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# Some Insights into the Cultural History of Europe as provided by the *Atlas Linguarum Europae* (ALE)

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## Abstract

The *Atlas Linguarum Europae* is, primarily, an interpretative word atlas. Its most original aspect is motivational mapping. This procedure asks for the causes or the motives in designating certain objects. The motivations, however, should be transparent. Only then can formal differences between languages be disregarded and the focus placed solely on semantic parallelism. As religion is the basis of every culture, the frame of reference is the history of religions. The geolexical data show that the cultural history of Europe is not made up of random elements and events but follows a unified, well-structured pattern where three separate layers can be distinguished, one historical layer and two pre-historical ones. These are illustrated with a number of examples.

**Keywords:** History of religions, Christian and Muslim layer, anthropomorphic layer, zoomorphic layer, motivational mapping.

## 1.0. Introductory Remarks

The *Atlas Linguarum Europae* (ALE) has been in existence since 1970. The seventh fascicle has just been published (Viereck 2007 [2008]), thus bringing the number of published maps and commentaries to eighty. The ALE can be called a linguistic atlas of the fourth generation, being preceded by regional and national atlases as well as by atlases of language groups. Atlases of the fifth type, i.e. on entire language families such as Indo-European, or of the final type, namely a world linguistic atlas, do not exist as yet, although interesting work has recently been made available with *The World Atlas of Language Structures* (Haspelmath et al. 2005). The ALE is the first continental linguistic atlas. Its frontiers are neither political nor linguistic but simply geographic. The choice of the continent has nothing to do with Eurocentrism but only follows from the present state of research.

The ALE maps distinguish between six language families: Altaic, Basque, Caucasian, Indo-European, Semitic and Uralic. In these language families, 22 language groups in total, such as Romance and Slavic, can be counted. These, in turn, consist of many individual languages. It thus becomes apparent that the demands on scholars to interpret the heterogeneous data collected in 2,631 localities from Iceland to the Ural mountains are very high indeed. It is always the oldest vernacular words that are looked for in the various languages. These are, then, put on symbol maps and interpreted either synchronically or diachronically, as the cases require.

As regards the ALE, insights into Europe's cultural past follow less from loanwords and from reconstructed roots, although the project also has important contributions to its credit in these two areas. Loanwords usually belong to the historical period and are thus too young. Reconstructed roots involve very early periods but are usually

motivationally opaque and thus not very revealing for a cultural analysis. ALE's main concern then is to ask for the causes or motives in designating certain objects. These motivations should be transparent as only then can formal differences between languages be disregarded, so that the focus rests solely on semantic parallelism. Motivational mapping is an innovative kind of interpreting geolexical data. Only in a large-scale project such as the ALE can this approach be successfully pursued. When the area to be investigated is too small this approach will not be productive.

Also insights into the ethnolinguistic origins of Europe are expected from the ALE. This is a most lively and controversially debated field at present where archaeologists and geneticists join forces with linguists. In the Uralic area the Continuity Theory, first advanced by archaeologists then by linguists, seems now accepted by the majority of the specialists. According to this theory, Uralic peoples and their languages have lived in their present historical territories since the Mesolithic Age. A similar approach was fairly recently adopted for Indo-European arguing that there has never been an Indo-European invasion and that Indo-European languages have followed the same diffusion patterns as the Uralic languages.

## **2.0. Cultural History and Religion**

As religion is the basis of every culture, the frame of reference is the history of religions. As any class of realia such as plants, animals and natural phenomena including planets is magic, they thus have a magico-religious character whose earliest form manifests itself in totemism, in totemic relationships with various classes of realia. In so-called primitive societies this is still observable today. This relationship assumes different manifestations, as will be shown later.

The geolexical data show that the cultural history of Europe is not made up of random elements and events but follows a unified, well-structured pattern where three separate layers can be distinguished. The layer that can be recognised and dated most easily belongs to history, namely to Christianity and Islam. Within this layer Christian motivations appear much more often than Muslim ones, thus mirroring the difference in the areal spread of the two religions in Europe. In the pre-historical period two levels can be distinguished, one, anthropomorphism, characterised by 'supernatural', 'superhuman' pagan figures, and the other by still earlier zoomorphic and kinship representations. The basic structure has remained the same from pre-historical to historical times. While dating the first-mentioned layer is unproblematic, anthropomorphic representations of reality are connected with socially stratified societies, typical of the Metal Age, while zoomorphic and kinship representations are connected with more primitive societies of the Stone Age. Unlike vertical dead archaeological stratigraphies, linguistic stratigraphies as presented on ALE motivational maps are horizontal and all the above layers are still alive. In the following sections these three layers are illustrated with a number of examples.

### *2.1. The Christian and Muslim Layer*

With regard to animals, the butterfly is interesting. The *Oxford English Dictionary* (1989, s.v. 'butterfly') surprisingly notes "The reason of the name is unknown".

However, in the Germanic area the belief was widespread that witches in the appearance of butterflies stole butter, milk and cream. Compounds with *butter-* occur most often, see Dutch *botervlieg*, German *Butterfliege*, both ‘butterfly’, and English *butterfly*. Dutch *boterhex*, *boterwif*, both ‘butterwitch’, clearly point to the belief in witches. Whereas this aspect is, of course, pre-Christian, the butterfly is christianised in Europe, too, mainly in the South as ‘little angel’ or, in Greece, as ‘the pope’s wife’ (priests in the Greek Orthodox Church are allowed to marry before their ordination as deacons), but also in Finland as ‘Brigit’s bird’.

The lady-bird also yields a rich harvest everywhere in Europe. Most commonly a Christian or Islamic religious being or notion is associated with another animal, such as a bird (cf. English *lady-bird*), a hen (Danish *marihøne* ‘Mary hen’, French *poulette au bon Dieu* ‘good God’s young hen’, Basque *jinkoilo* ‘God’s hen’), a cock (Norwegian *marihane* ‘Mary’s cock’), a cow (English *cow-lady* or *lady-cow*, Polish *boża korówka*, Russian *bozhia korovka*, both ‘God’s cow’, French *vache à Dieu* ‘God’s cow’, Italian *vaccheta de la Madonna* ‘young cow of the Holy Virgin’), an ox (Spanish *buey de Dios* ‘God’s ox’), a beetle (German *Marienkäfer* ‘Mary’s beetle’, English *lady-bug*) or, more generally, a little animal (Dutch [*Onze*] *Lieveheersbeestje* ‘Our Lord’s little animal’, Galician *palomina de Dios* ‘God’s little dove’). The religious being or notion can be ‘God’, in addition to the examples above see Spanish *arca de Dios* ‘God’s chest’, ‘angel’ (Breton *elik doue* ‘God’s little angel’), ‘Jesus’ (Swedish *Jesu vallflicka* ‘Jesus’ shepherd’), ‘(Virgin) Mary’ (Swedish *jungfru marias nyckelpiga* ‘Virgin Mary’s key servant’, Italian *anima della Madonna* (soul of the Holy Virgin’) or the names of saints such as, in Italy, *San Martino*, *San Gioani*, *San Nicolà*, in France, *Saint Jean*, *Saint Jacques*, *Sainte Catherine* and, in Spain, *San Antón*. In the Muslim area we find ‘Allah’, ‘mosque’ and ‘Fatimah’, the name of Mohammed’s daughter, for the lady-bird.

For plants the religious motivations are more numerous. The proof that language can so accurately reflect the history of religions is best seen with regard to the world of plants. This is thanks to the founder of modern botany, the Swedish scholar Carl von Linné, whose 300th birthday was celebrated in 2007. He laid down the rules for naming plants and decided to keep all those names of plants that had been named after kings, gods or Christian saints. The daffodil (*Narcissus Pseudo-Narcissus*) is *Saint Peter’s bell* in Wales, and *Saint Peter’s herb* is an expression for the cowslip (*Primula veris*) in parts of England; this plant is called *Sankt Pers nycklar* ‘Saint Peter’s key’ or *jungfru Marie nycklar* ‘Virgin Mary’s key’ in Sweden. Among the plants named after Christian saints may also be noted Latin *herba sancti Johannis* ‘Saint John’s wort’, German *Johanniskraut* ‘John’s wort’, English *Saint John’s wort* (*Hypericum*). The milk thistle (*Silybum marianum*) is *Lady’s thistle*, *Marian thistle*, *Saint Mary thistle* in English and *Mariendistel* ‘Mary thistle’ in German. *Galium verum* is called *Lady’s bedstraw* in English and *jungfru Marie sänghalm* ‘Virgin Mary’s bedstraw’ in Swedish. Swedish (*jungfru*) *Mariékåpa* ‘(Virgin) Mary’s habit’ is English *Lady’s mantle* for the *Alchemilla*.

Natural phenomena also testify to a Christianisation and Islamisation in Europe. The classic example of the ALE is the rainbow. Everywhere in Europe we find compounds with, for example, ‘belt’, ‘bow’, ‘bridge’, ‘ring’ plus a religious motivation such as ‘God’s belt’, ‘Noah’s bow’, ‘Saint Barnaby’s crown’ or ‘Allah’s bow’. An example from Latvian (*dieva juosta* ‘God’s belt’) must suffice here. Once the basic structure of the classificatory system had been worked out, it became clear that the rainbow had

been considered sacred by European peoples and that, with the advent of the new religions, lexical innovations were coined expressing the same relationship that had existed earlier. Even Christmas belongs to the natural phenomena as the pre-Christian winter solstice underlies the Christian feast. Not unsurprisingly, therefore, only a few names for Christmas have a Christian motivation, such as ‘Christ’s mass’, ‘Christ’s birth’, ‘Christ’s day’, attested in Albanian, Basque, Dutch, English, German, Greek, Sardinian, Spanish and Polish *Boże Narodzenie* ‘God’s birth’, i.e. ‘Christ’s birth’.

Apart from the names that refer to God and Christ themselves, ‘Easter’ is also of Christian origin, mostly attested as ‘Little Easter’ in southern Europe. Here the pre-Christian influence becomes noticeable, as in pagan times there were two important feasts in the course of the year. To call Christmas ‘Little Easter’ shows that the more important of the two was that in spring and summer, the real Easter.

In parts of Italy, for instance, *ceppo* ‘log’ also means Christmas. This is, of course, pre-Christian. It denoted the fires to celebrate the winter and summer solstice. Of these mainly the fires lit on St. John’s Day have remained today in many parts of Europe. Since Christianisation was more successful with the winter solstice, such fires are encountered today much more rarely. Expressions such as English *Yule-log* and German *Christusklotz* ‘Christ’s log’ for Christmas point to that old custom and are a sign of the mixing of different religious conceptions.

## 2.2. The Anthropomorphic Layer

The same notions that provide examples for the other layers can be drawn upon for this middle layer, which is both pre-Christian/pre-Islamic and post-zoomorphic.

The butterfly appears in Austria as ‘forest’s elf’ and in Russian as *babočka*, in Belorussian as *babačka* (from the goddess *Baba* ‘Old Woman’). The lady-bird is associated with the Finno-Ugrian god *Ukko* ‘Old Man’, in Frisian with the elf *Puken* ‘puck’, in southern Italy with the elf *Monachello*, in Romanian with *Paparuga* and ‘witch’ and in Greek with the *Moirai*.

In the case of plants, the motivation ‘fairy’ occurs in England for the cowslip (*Primula veris*) as *fairy cups*, the dwarf or purging flax (*Linum catharticum*) as *fairy flax* and the purple foxglove (*Digitalis purpurea*) as *fairy cap* or *fairy thimble*. The latter is also attested in Ireland and Scotland together with *fairy finger*. The bending of the tall stalks of this plant is believed to denote the unseen presence of supernatural beings.

Among the natural phenomena, the rainbow has anthropomorphic representations everywhere in Europe. In the Turkic area they are associated with Kalmuk *Taengri*, in the Uralic area with *Ukko* and *Tiermes*, in the Indo-European area with *Laume* (in the Baltic region), *Iris*, ‘Old Woman’ (in the Romance and Slavic regions) and *Soslan* in Ossetian, often together with ‘bow’, ‘belt’ or ‘ribbon’. For thunder as well as for lightning one encounters the Celtic storm-god *Taranos*, Germanic *Thor*, Lithuanian *Perkūnas*, the Finno-Ugrian *Ukko*, the Lapp *Tiermes* and the Slavic *Perun*; in the Finno-Ugrian area ‘Old Man’ was also repeatedly attested for thunder and lightning.

### 2.3. The Zoomorphic Layer

In the most archaic layer, i.e. the zoomorphic and totemic layer characteristic of egalitarian societies, the realia investigated appear in the form of either an animal or a kinship name. As this is the oldest layer, the evidence is, quite naturally, less overwhelming than for the two younger layers.

Coming to animals, Riegler (1937/2000) had already interpreted wild animals and insects as relics of a totemistic view of the universe in which they would be our closest relatives. This relationship, similar to kinship, is consequently expressed by kinship terms. Propp (1946) noted that the totem animal in its original form is embodied by the ‘mother’ and by matrilinear kins. This is indeed what we most often find in European dialects. The butterfly as a relative appears as *mammadonna* ‘grandmother’ in Rhaeto-Romance, as ‘mother’ in German and Sardinian and as ‘(grand)father’ in the Uralic area. Many kinship names were recorded also for the lady-bird: ‘grandmother’ in, for example, Polish, Russian, Serbian, Croatian, Mordvin, Udmurt, Finnish and Komi-Zyryan, ‘mother’ in, for example, Romanian, Belorussian, Tatar, Bashkirian and Livian, ‘aunt’ in German and Italian, ‘bride and spouse’ in, for example, Turkish, Albanian, Macedonian, Italian, ‘sister-in-law’ in Bulgarian. ‘Grandfather’ occurs in Swedish, Komi-Zyryan and Maltese and ‘uncle’ in Albanian for the same notion lady-bird.

Compared with animals, plants do not seem to play the same role in totemism. Some plants are given kinship names, others are associated with animals. The pansy (*Viola tricolor*) is called *Stiefmütterchen* ‘little step mother’ and *Stiefkind* ‘step child’ in German. In Ukrainian the pansy has both kinship and animal names: ‘brothers’, ‘brother and sister’, ‘orphan’ and ‘cuckoo birds’. *Dziad* ‘grandfather’ occurs in Polish for the blackberry (*Rubus fruticosus*).

As to natural phenomena, thunder is called ‘grandfather’, ‘father’ and ‘dear father’ in the Finno-Ugric area and lightning ‘grandfather’ in Mordvin and Udmurt and ‘dear father’ in the Finno-Ugric area. This relationship is clearly totemic. In this class of realia animals occur rather often. For the rainbow we have ‘dragon’, ‘snake’, ‘ox’, ‘cow’, ‘fox’ and ‘drinking animal’ in many European dialects and languages.<sup>1</sup> Other zoomorphic representations appear with thunder, namely ‘dragon’ and ‘serpent’ and with lightning, ‘whale’ and ‘dolphin’ (in France and Italy). The same phenomenon occurs in Africa, where lightning is often perceived as an animal, usually a quadruped or a bird (cf. Lagercrantz 2000).

Also designations for bread, names of diseases and children’s rhymes follow the same pattern (cf. K. Viereck & W. Viereck 1999 on names of diseases, W. Viereck 2000 on names of bread and W. Viereck 2003 on children’s rhymes). Unfortunately, the ALE has only one notion in the area of diseases whose responses are, moreover, irrelevant for this model.

### 3.0. Conclusion

In the process of the cultural development of Europe, we thus find recurrent structural patterns: the same reality was first given kinship and zoomorphic names to be followed by anthropomorphic names and finally by Christian and Islamic names – and this across

all language and dialectal borders. If peoples did not migrate, then, no doubt, concepts did.

The three periods mentioned, of course, do not end and begin abruptly. Archaeological finds show that there were fluid transitions also between the Stone Age, on the one hand, and the Metal Age, on the other, and that anthropomorphic representations were known also in the Neolithic period (cf. Müller-Karpe 1998). Also Riegler noted: “Remarkable are the many transition phases that led from the theriomorphic to the anthropomorphic apperception” (1937/2000: 826f.; translated from German). That the transitions between the pagan and the Christian layer can be better documented can be explained with the greater temporal proximity to us. Up to the early 4th century the Christian church had been an underground church – Constantine I (272 - 337) was the first Christian Roman emperor who, in 313, issued the Edit of Milan legalizing Christian worship - and it took many centuries until the Christian faith had penetrated the whole of Europe. In the North of Europe heathendom and Christianity had co-existed down to the 11th century (cf. Capelle 2005, who calls his book characteristically “heathen Christians”). Just as earlier pagan places of worship had turned into Christian places of prayer, so Christian churches later turned into mosques. The best-known example of such a transformation is no doubt the Hagia Sophia in Istanbul. There are also examples of mosques converted into Christian churches, as the Shrine of our Lady of Europe in Gibraltar shows that the Spaniards converted into a chapel in 1462. Also Jewish synagogues were consecrated as Christian churches. A good example where the change was even kept in the name is the Sinagoga Santa Maria la Blanca in Toledo that became a Christian church already in 1405 long before the Jews had been expelled from Spain in 1492.

With new religious beliefs a wave of new designations followed, yet the old conceptions often remained the same. To take just one example out of many:

When Christianity came to Britain [in the late 6th and during the 7th century], the bright yellow flowers of the plants in the *Hypericum* family that had been associated with the golden brightness of Baldur the sun-god came to be called St. John's wort, as Baldur's Day became St. John's Day. The plant continued to be thought a cure for wounds and on St. John's Eve good Christians wore a sprig of it to ward off evil spirits and especially to protect themselves against the stray thunderbolts of the gods (Ashley 1974: 116).

St. John's Day is the Christian equivalent of the summer solstice, one of the most important events in pre-historic times. In the early Christian period pagan thought was alive and well. However, examples of this can easily be found today: The initials of Caspar/Kaspar + Melchior + Balthasar + the year are still written on the entrance doors of people's houses in Catholic areas in Germany, Italy and Poland on Epiphany, January 6, to protect the people from evil of any kind and small pictures of Christopher are hung up by car drivers as a protection in many countries, such as Germany and Ukraine. Apparently Enlightenment had no effect on people's piety.

The ALE is naturally based on European dialects. The adopted motivational approach has uncovered some important pieces in the mosaic of the cultural development of Europe. Their implications, no doubt, transcend the frontiers of the European continent. In the light of the complementary nature of world cultures, it would

be highly desirable if the picture presented here were systematically complemented by insights gained in other cultures.<sup>2</sup>

## Notes

<sup>1</sup> The rainbow as a drinking animal is attested also beyond Europe in Japan and in China. In Chinese culture it is a double-headed dragon drinking water on both sides of the river.

<sup>2</sup> I am thinking of work similar to that carried out by Frobenius who, in 1929, was concerned with the gender of the sun and the moon and presented three cosmogonic groups with insightful maps world-wide in which the sun and the moon were linked with ,man and wife', with ,brother and sister' and with ,twin brothers'. The last-mentioned was to him the oldest view of life. Unfortunately, some of Frobenius' interpretations were tied to the prevailing thoughts of the time and can thus not be accepted.- I gratefully acknowledge the following additions made by members of the audience in Seoul: 'God hammering' for thunder in Japanese and *mu-dang* 'lady + evil spirit' (!) for the lady-bird in Korean.

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# **A Study on Parsing Strategies of the Consonant-Clusters in Taiwan Mandarin Loanwords**

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## **Abstract**

In this study, a corpus of Taiwan Mandarin loanwords translated from English is set. There are about five hundred loanwords. The percentages for the different strategies to parse the consonant clusters and the percentages of occurring in the syllabic positions would be calculated and listed. The final results would tell the coda/onset asymmetry and epenthesis/deletion asymmetry. That is, the onset seems to be more important than coda and the epenthesis is a better strategy for preserving every perceived element. And some segment such as the fricative [s] is always preserved. It tells the effect of perception. The perception seems to be the key point during the parsing.

**Keywords:** consonant-cluster, loanword, parsing strategy, deletion/epenthesis

## **1. Introduction**

This paper aims at the parsing strategies of the consonant-clusters in Taiwan Mandarin Chinese loanwords from English. In loanword phonology, if the native language does not allow some kinds of consonant clusters in the syllables, and then the permissible parsing strategies might be: the first is adjustment or change of phonological features; the second, deletion of some consonant; the third, epenthesis of some segment, such as vowel to create a new syllable. All these parsing strategies are due to not to violate the phonotactic constraints in the native language. The complex onsets and complex codas are not allowed in n Taiwan Mandarin syllables. In Mandarin loanword phonology, it is proposed that those strategies are often used to translate the borrowing words, but especially the epenthesis strategy is a better one than deletion. That is, most of the segments in the native words are parsed out in loanwords, especially in the onset positions. Besides, some segment such as /s/ would always be parsed out no matter what position it's in. It is also proposed that the preference for the onset

segments and some segments such as /s/ is due to the perceptual factors. The more beneficial for perception the segment in input is, the more probable to be parsed out the segment in output is. We tried to analyze these phenomena in the Optimality Theory (Prince & Smolensky 1993, McCarthy & Prince 1993, 1994) framework. The relevant constraints are grounded according to the Perception-Map model (Côté 2000, Jacobs & Gussenhoven 2000, Kenstowicz 2001, 2003, Lombardi 1999, 2000, 2002, Steriade 1997, 1999a, 1999b, 2000a, 2000b, 2001).

Here is a brief introduction about Taiwan Mandarin Chinese phonotactics. As for the syllable types, there are just four slots at most in Mandarin Chinese syllables. One consonantal onset (C), a prenuclear glide (G), one vowel (V) and one coda (Co). Only the nucleus vowel must occur, others are not requested. Only one segment is allowed to be the onset, and one for the prenuclear glide and one for the coda. Therefore the allowing syllable forms in Taiwan Mandarin are: CGVCo, CGV, CV, CVCo, GV, GVCo, VCo and V. There are 21 consonants such as labials /p, m/, coronals /t, l/, dorsals /k, x/ allowing to be as the onset. The three glides /y/, /w/, /ɥ/ could be as the prenuclear glides. The coda segments are restricted the 4 ones /y/, /w, n, ŋ/. The Mandarin loanwords translated from English are according to the phonotactic constraints above.

The subparts in this paper are: the first part is introduction, the second is the literature review about the loanword phonology; the third is the descriptions of Mandarin loanwords from English; the fourth is the analysis of the strategies; and the final is the conclusion.

## **2. Literature review**

Loanword phonology has attracted much attention in the literatures, such as Silverman (1992), Yip (1993), Kenstowicz (2000, 2001, 2003) and many others. For it reveals some interesting patterns observed not in normal data. In a rule-based derivational framework such as Hyman (1970), Wingstedt & Schulman (1984), loanword phonology has to be considered as consisting of some intermediate levels; and some rules especially suggested for processing loanwords. This framework would have confronted the difficulties: some rules are necessary at some intermediate level processing loanwords but might disappear at later levels. Bauer (1985) and Yip (1993) argue that loanwords would conform to the already existing structures, and also maintain the structure of the incoming loans as much as possible. The change is only for increasing well-formedness (Yip 1993). The conflicts of adjustment and maintenance in

loanwords could be solved in a constraint-based analysis.

In loanword phonology, prosodic structure adjustment and phoneme substitutions are the most common patterns. Chao (1976:185) observed the tendency that the sounds within the inventory of the native language are used to approximate the sounds of foreign words in Chinese loanwords. Some studies such as Chao (1976), Wu (1988) list many loanwords in Mandarin. Most of their data are analyzed from the morphological perspective. Here the phonologically-translated loanwords would be the main focus.

Cheung (1986) describes the phonological patterns of Cantonese loanwords transliterating from English. Deletion or epenthesis of a segment into the consonant clusters makes the disyllabic form. The adjustment does not violate the phonotactic system in Cantonese. The disyllabic form is the preferred type. At the suprasegmental level, the primary stress syllable in English is mapped with the high-level tone in Cantonese. Silverman (1992) extends the results of Cheung (1986) and suggest the bi-level model for loanword phonology. The loanwords would be multi-scanned at the Perceptual level and the Operative level. Later Yip (1993) analyzes the prosodic structures of Cantonese loanwords in OT. The adjustment is made to produce an optimal output respect to the universal constraints, e.g. the constraint *MINIMAL-WORD* for the tendency towards disyllabic form<sup>1</sup>. Guo (1998) analyzes the Mandarin loanwords focusing on the prosodic structure and phoneme substitution. He finds the onset-coda inconsistency in Mandarin loanwords. The coda cluster in English source words is not always faithfully parsed. The unsalient segments such as liquids would undergo deletion. More studies on other languages, such as Broselow (2000), the adjustment in loanword phonology is accounted for through the output constraints ranked above the faithfulness constraints. And loanwords are accounted for by the same grammar for the native words.

As mentioned above Cheung (1986) and Silverman (1992) do not ignore the mapping relation between the stress and the high tone in Cantonese loanword phonology. Chao (1976:181) also observed that the Cantonese use high tones for indicating stress in the names transliterating from English. In Japanese, the loanwords transferring from English the stress position are with the high accent (Chen 1998). Tsao (2000) observes that Taiwanese speakers transfer the Japanese pitch accent (the stress position) as the high tone. Actually the tone is carried over the stress in Mandarin words. However in loanwords the relationship of tone and stress is found in Mandarin as well as in other

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<sup>1</sup> Chao (1976: 182) mentioned that Chinese transliteration of foreign names avoids monosyllables, which are felt somehow to be too short for place names. And a monosyllabic surname is usually broken into two syllables possibly because a monosyllabic form does not sound like a free word.

languages (Rivera-Castillo 1998). In terms of OT the relationship between the two suprasegmental features might have a better explanation.

In this paper the processing strategies of consonant clusters would be the focus. The OT analysis for loanword phonology is expected to have the economic explanation the loanword patterns are accounted for by the ranking of constraints. The analysis would provide more insights about the inner system.

### 3. Data descriptions

#### 3.1 Mandarin loanword data

First of all, I set a database of Taiwan Mandarin loanwords, collected from the dictionary, the names of new products and the commercial brands .....etc. There are three kinds of Mandarin loanwords. The first kind of loanwords is semantically-translated, such as “electric-mail” [tien tsɿ you tɕien]. The second kind is phonologically-translated, such as “blog” [pu luo kɤ]. The third kind is phonologically-semantically translated, such as “beer” [p<sup>h</sup>i] ([tɕiou]), in which the second syllable means wine. I checked about 1150 phonologically-translated loanwords from English. Then I chosed 435 English words with consonant clusters among them. There are 106 consonant clusters in the initial position; 300 consonant clusters in the medial position; 92 consonant clusters in the final position. I observed the parsing strategies of the consonant clusters in three word positions: initial, medial, final. In Table. 1, the English words are with initial complex onsets and the onset consonants are parsed out in loanwords. In Table.2, the English words are with medial consonant clusters. A vowel is epenthesized between consonants to make a new syllable in (1-2-a). A consonant (the stop sound) is deleted in (1-2-b). The lateral is changed to a retroflex vowel in (1-2-d) but is deleted in (1-2-e). Moreover the medial nasal is parsed as the nasal coda of the first syllble, such as (1-1-b),(1-2-a)(1-2-b).

	English	Mandarin Loanword
1-1-a	Blog	[pu luo kɤ]
1-1-b	brandy	[pai lan ti]
1-1-c	Bruce	[pu lu st]

1-1-d	Chris	[k <sup>h</sup> ʃ li sɪ]
1-1-e	trust	[t <sup>h</sup> uo la sɪ]
1-1-f	Truman	[tu lu mən]

[Table. 1]

	English	Mandarin Loanword
1-2-a	England	[iŋ kʏ lan]
1-2-b	Scotland	[su kʏ lan]
1-2-c	Ashley	[ai ʃi li]
1-2-d	alpha	[a ə fa]
1-2-e	Albert	[ia po t <sup>h</sup> ʃ]

[Table. 2]

In Table. 3, the English words are with final consonant clusters. The coda segments are parsed in (1-3-a)(1-3-b), for one of them is a nasal, which is as the nasal coda. The other is as the onset of the following syllable. In (1-3-c), one (the stop sound) of the final cluster is deleted. In (1-3-d)(1-3-e) both consonants are parsed out; one as the nasal coda, the other is /s/ sound and parsed as the onset of the new syllable (1-2-a)(1-2-b).

	English	Mandarin Loanword
1-3-a	<b>pump</b>	[pɑŋ p <sup>h</sup> u]
1-3-b	tank	[t <sup>h</sup> an k <sup>h</sup> ʃ]
1-3-c	<b>England</b>	[iŋ kʏ lan]
1-3-d	<b>Hopkins</b>	[xuo p <sup>h</sup> u tʃin sɪ]
1-3-e	<b>Williams</b>	[wei lien sɪ]

[Table. 3]

### 3.2 the results

	epenthesis	deletion	adjustment
initial	77.35%	4.72%	81.13%
medial	39.66%	3%	39.33%
final	27.17%	67.39%	15.21%

[Table. 4]

By comparing epenthesis in the three word positions, epenthesis of vowel in word-initial position is the highest, 77.35% and much higher than the others. It is due to all the consonants are parsed out in loanwords. By comparing deletion in the three word positions, deletion in word-final position is highest and also higher than the others. It is often to delete one coda segment in the word-final positions, especially the loanword is above bi-syllabic. By comparing adjustment in the three word positions, adjustment of phonological features in word-final position is lowest, for some segments are deleted. adjustment of phonological features in word-initial position is highest, for some English consonant such as /r/ is not allowed in Mandarin.

Most of the time only one of the word-medial consonant to be the coda and the other to be onset in the following syllable. Logically speaking, consonant clusters could be resyllabified as onset/coda in case of inserting vowels. However I did not find the consonant clusters in initial and final positions to be resyllabified as onset/coda in syllables. In fact the segments in word-initial position are as the onset and the consonants in word-final positions are as the onset or deleted.

By comparing the strategies in word-initial position, epenthesis is much higher than deletion. By comparing the strategies in word-medial position, epenthesis is higher than deletion, too. By comparing the strategies in word-final position, deletion is higher than epenthesis.

Generally speaking, there is an epenthesis/deletion asymmetry. Epenthesis is the better strategy than deletion in parsing the consonant cluster in Mandarin loanwords from English. Another asymmetry is in the initial/final positions. Most of the segments in the initial position might be always parsed out; the ones in the final position might not be necessarily pared. Besides, the third asymmetry is for the medial consonants, only medial consonants could be as the onset or the coda in the syllabic level of the borrowing words. The information of the syllabic roles could be parsed out in the loanwords.

From the data, I tried to give some discussions about several kinds of consonants. In

Mandarin loanwords the nasals are parsed no matter what positions. For the phonotactics, only labial nasal codas are adjusted to coronal or velar nasals such as (1-3-a). Most of the stops are parsed in initial and medial positions but the stops might be deleted in word-final position, such as (1-3-a). For the phonotactics, the voiced stops are not allowed in Mandarin and adjusted to the voiceless ones. Fricatives are always parsed and seldom deleted no matter what positions. The /f/ sound is parsed in initial, medial, final positions, including ph /f/ sound. The /s/ sound is also parsed, such as (1-c-c)(1-2-b)(1-3-e). The liquid /l/ sound in initial position is parsed out mostly but the medial /l/ might be deleted. Mostly the /l/ sound is adjusted to the retroflex vowel /ʎ/, such as (1-2-d). Another liquid /r/ sound is parsed as the affricate or deleted. As for the consonantal categories the asymmetry for consonants (stop/fricative) in peripheral positions is that initial stops are parsed out but final stops are not; however, initial/final fricatives are parsed. It could be explained that when parsing borrowing words, the friction would be easily perceived in initial or final positions; conversely, the initial plosives are clear but the final unreleased stops are not perceived.

Comparing /r/ and /l/ parsing, for /r/ sound is not allowed in Mandarin Chinese, this segment has to be deleted or adjusted to other segments, such as /z/, /l/ etc. The /l/ sound is allowed to be an onset of a syllable. If the /l/ in the initial cluster then it is always parsed as an onset. Only the medial /l/ would be changed to /ʎ/.

In a sum here the asymmetries proposed are listed in (1-4):

(1-4-a) Asymmetry I: Epenthesis is the better strategy than deletion in parsing the consonant cluster in Mandarin loanwords.

(1-4-b) Asymmetry II: Most of the segments in the initial position are always parsed out ; the ones in the final position are not necessarily parsed.

(1-4-c) Asymmetry III: only the medial consonants could be as the onset/coda in the syllabic level of the borrowing words.

(1-4-d) Asymmetry IV: in peripheral positions, initial stops are parsed but final stops not; however, initial/final fricatives are parsed. The key factor is the perception of the friction

## **4. The Optimality Theory Analysis**

### *4.1 Analysis of Insertion in Loanwords*

In this section, the Mandarin Chinese loanwords would be analyzed with the ideas

of the Optimality Theory. As mentioned above Optimality Theory proposes the set of outputs of a given input are evaluated by the ranking of universal, violable constraints in parallel (Prince & Smolensky 1993, McCarthy & Prince 1994, 1995). If violations are inevitable, the highly ranked constraint must be satisfied. If two representations violate the same constraint, the better one is with lesser violations. The conformity or modification in loanword phonology is attributed to the constraint rankings. There are two forces engaged to form the loanword surface structures. There are two conflicting forces within the grammar: M<sub>ARKEDNESS</sub> constraints and F<sub>AITHFULNESS</sub> constraints. The faithfulness constraints require the correspondence between input and output. If faithfulness constraints are ranked above markedness constraints, the Mandarin loanwords to be identical to the English source words. According to the Correspondence Theory (McCarthy & Prince 1995), the relevant faithfulness constraints are M<sub>AXIMALITY</sub> (henceforth M<sub>AX</sub>) and D<sub>EPENDENCY</sub> (henceforth D<sub>EP</sub>) and I<sub>DENT</sub> (F).

(1-5-a) M<sub>AX</sub>: no deletion

Every segment in input has a correspondence in output.

(1-5-b) D<sub>EP</sub>: no insertion

Every segment in output has a correspondence in input.

(1-5-c) I<sub>DENT</sub> (F) : the distinctive features of corresponding segments are identical.<sup>2</sup>

The constraint D<sub>EP</sub> in (1-5b) bans insertion of any segment, while M<sub>AX</sub> in (1-5a) militates against deletion of any segment. The constraint (1-5c) I<sub>DENT</sub>(F) asks the feature values of two correspondences in input and output to be identical. For example, changing the voicing value between two correspondences has a violation of this constraint. If the three constraints are ranked above other output constraints, loanwords are identical to the source words. Actually loanwords are asked to change for nativisation. The more important reason why loanwords are forced to change is to form universally well-formed linguistic structures, e.g. the CV unmarked syllable type, or the unmarked foot structure---a disyllabic prosodic word. That is, there are conflicting forces mentioned above. The markedness output constraints ranked above faithfulness constraints make the conformity of loanwords.

The markedness output constraints concerning with the syllable structure are introduced below. Since the CV syllable type is the most common structure and is the possible in every language. There is an undominated constraint N<sub>UCLEUS</sub> (henceforth N<sub>UC</sub>), requiring every syllable must have a nucleus (Prince & Smolensky 1993). This undominated c

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<sup>2</sup> This constraint would be discussed in the following sections.

constraint asks a syllable to have the nucleus. In Taiwan Mandarin syllables vocalic segments as the sonority peak within syllable is necessary. Owing to this constraint the inserted segment in loanwords is the vowel but not others. This is an undominated constraint, which I do not list in every tableau below but it is obeyed.

(1-5d) NUCLEUS: every syllable must have a nucleus.

(1-5-e) CC CON: except Cj or Cw, no consonant cluster is allowed within a syllable.

It is due to the output constraint \*COMPLEX, which bans the CC consonant clusters within a syllable. The repair strategies to avoid the violation of this constraint might be deletion or insertion. What kind of the CC sequences tolerated among languages is different. The consonant cluster tolerated within a Mandarin syllable must be two consonants maximally; the CC sequence of is only allowed to be in the initial position; the second consonant must be the glides /j/ or /w/. The constraint concerning with Mandarin syllable structure in (1-5e), the CONSONANT CLUSTER CONDITION (henceforth CC CON), is defined below. This constraint ranks above the faithfulness constraints. The tableau 8 shows the conformity of loanwords.

**Tableau 5**

Ranking: CC CON >>MAX >> DEP

Input: /p<sup>h</sup>Λmp/      Output: [paŋ. p<sup>h</sup>u.]

/p <sup>h</sup> Λm <sub>1</sub> p <sub>2</sub> /	CC CON	MAX	DEP
5a. p <sup>h</sup> Λm <sub>1</sub> p <sub>2</sub> .	*!		
5b. p <sup>h</sup> Λm <sub>1</sub> .		*!	
5c. p <sup>h</sup> Λp <sub>2</sub> .		*!	
☞ 5d. paŋ <sub>1</sub> . p <sup>h</sup> <sub>2</sub> u.			*(u)

The constraint CC CON outranks the faithfulness constraints. The sequence /mp/ in (5a) is not in the initial position and not one of the allowable CC sequence, so (5a) has the fatal violation (\* indicated as the violation and ! indicated as the fatal violation). Although one of the two segments is deleted in (5b, 5c) to avoid the violation of the higher constraint, yet they violate the high-ranked MAX. The optimal candidate (5d) (indicated by the pointing finger) is selected because it violates only the lowered constraint DEP.

**Tableau 6**

Input: /braun/ Output: [pu. lɑŋ]

/b <sub>1</sub> r <sub>2</sub> aun/	CC CON	MAX	DEP
6a. p <sub>1</sub> aun.		*!/r/	
6b. r <sub>2</sub> aun.		*!/b/	
6c. p <sub>1</sub> r <sub>2</sub> aun.	*!		
☞ 6d. p <sub>1</sub> u.l <sub>2</sub> ɑŋ			*/u/

The ranking in Tableau 6 is the same as in Tableau 5. The input is a monosyllabic word with the initial consonant cluster. Any deletion /b/ or /r/ would violate MAX<sup>3</sup>. Therefore the candidates (6a) (6b) are ruled out. The candidate (6c) is fatal by having a consonant cluster /pr/ within a syllable (the bold dot indicated as the syllabic boundary). Inserting a vowel /u/ into the initial cluster to form a disyllabic word in (6d) would violate DEP. However the candidate (6d) is selected as the optimal candidate because it has the minimal violation among the candidates.

The restrictions on the onset and the coda vary from language to language. Prince & Smolensky (1993) propose Onset/Coda Licensing Asymmetry, defined that there are languages in which some possible onsets are not possible codas, but no languages in which some possible codas are not possible onsets. In Japanese, only the nasal is the allowable coda. In Mandarin the obstruents and the liquid /l/ are allowed to be the possible onsets but not codas. Only one of the four segments /n,ŋ,j,w/ are possible choices appearing in the final syllabic coda position. The output constraint, CODACONDITION (henceforth CODACON) requires only one of the four segments, /n,ŋ,j,w/.

#### 4.2 Analysis of Deletion in Loanwords

As mentioned above the repair strategies of loanwords might be deletion or insertion of segments. It seems to be due to the ranking of the faithfulness constraints, MAX and DEP. Actually there is an output constraint *MINIMALWORD*, which requires a prosodic word to be disyllabic minimally. This constraint forces loanwords to be disyllabic minimally by deletion or insertion. The Prosodic Hierarchy proposed by Selkirk (1980), Foot-Binarity taken together derive the notion “Minimal Word” (Prince 1980, Broselow 1982, McCarthy & Prince 1986, 1990, 1991). According to the

<sup>3</sup> In Mandarin the voiced obstruents are not allowed. Therefore the voiced obstruents would change to voiceless segments otherwise they would be deleted. The phonotactic rules are not relevant and not discussed more in this paper.

Prosodic Hierarchy, any instance of the category Prosodic Word must contain at least one foot. By Foot-Binarity, every foot must be syllabic. By transitivity, a PrWd must contain at least syllables. Observed word minimality restrictions therefore follow from the grammatical requirement that a certain morphological unit, often Stem or Lexical Word, must correspond to a Prosodic Word (McCarthy & Prince 1993). Because of the MINIMAL WORD restriction (Yip 1993), the loanwords might be augmented or truncated to satisfy the constraint.

(1-5-f) MINIMALWORD: a lexical word must be disyllabic.

(1-5-g) FOOT-BINARITY: a foot must be binary under syllabic or moraic analysis<sup>4</sup>.

(1-5-h) PARSE-σ: every syllable belongs to a foot (McCarthy & Prince 1994).

The three constraints require the templatic restrictions on the prosodic structure of loanwords e.g a disyllabic binary foot. The constraints triggering deletion or epenthesis in loanwords implies that this constraint ranks above the faithfulness constraints (Guo 1998) and also outranks the two output constraints, CC CON, CODACON.

**Tableau 7**

Input: /braun/ Output: [pu laŋ]

/braun/	MINWORD	CC CON	CODACON	MAX	DEP
7a. pawn.	*!			*(r)	
7b. rawn.	*!			*(b)	
7c. prawn.	*!	*(pr)			
☞ 7d. pu.laŋ					*/u/

The input is a monosyllabic word with the initial consonant cluster. Any deletion /b/ or /r/ would violate MAX. A monosyllabic word would violate MINWORD. Therefore the candidates (7a) (7b) are ruled out. The candidate (7c) is fatal by having a consonant cluster /pr/ within a syllable and it is a monosyllabic word. Inserting a vowel /u/ into the initial cluster would form a disyllabic word, such as in (7d). Thus the candidate (7d) is the optimal candidate.

<sup>4</sup> The ranking of this constraint will be discussed later.

**Tableau 8.**

Input: /pʌmp/      Output: [pəŋ p<sup>h</sup>u]

/pʌmp/	MINWORD	CC CON	CODACON	MAX	DEP
8a. pəŋ.	*!			*(p)	
8b. pəŋ.p <sup>h</sup> u			*!(m)		*(u)
8c. pəmp.	*!	*(mp)	*(mp)		
☞ 8d. pəŋ.p <sup>h</sup> u					*(u)
8e. pə.mu.p <sup>h</sup> u					**!(u)

Since both the candidates (8a), (8c) are monosyllabic words thus they are ruled out. Both the candidate (8b), (8d) with an epenthetic vowel are the disyllabic word and they do not violate MAX. The candidate (8d) is the winner for (8b) has a prohibiting labial nasal coda. Both (8d) and (8e) do not violate the constraint MINWORD. The candidate (8e) with two vowels inserted has one more violation than (8d). Therefore the candidate (8d) is selected as the optimal candidate by the minimal violation. The ranking of MINWORD and DEP gives the explanation of the restricted size of the loanwords.

**Tableau 9**

Input: /bændɪdʒ/      Output: [pəŋ tai]

/bændɪdʒ/	PARSE-σ	FT-BIN	MINWORD	CC CON	CODACON	MAX	DEP
9a. (bæn. dɪdʒ)					*!(dʒ)		
9b. (bæn .dɪ.dʒɪ)		*!					*(ɪ)
9c. (bændʒ.)		*!	*	*(ndʒ)		*** (dɪdʒ)	
☞ 9d. (pəŋ. tai)						*(dʒ)	
9e. (bæn.dɪ) dʒɪ	*!(dʒɪ)						*(ɪ)
9f. (bæ.dɪn.)						*(n)	*!(n)

The input is a disyllabic CVN.CVC word. All the candidates with the nasal coda of the first syllable would not violate CODACON so the nasal coda is not needed to delete. However the candidate (9a) with an ungrammatical affricate coda /dʒ/ violates CODACON fatally. (9c) is ruled out for deleting segments /d, ɪ, dʒ/ violates MAX and the result of being a monosyllabic word would have a fatal violation of MINWORD. The candidate (9b) is a trisyllabic word and does not violate MINWORD. However the foot structure (the parenthetic marks indicated as the foot domain) is not binary. There is an unparsed syllable /dʒɪ/ in (9e), so (9e) is ruled out. There are two steps of repairing the candidate (9f): deletion of the nasal coda of the first syllable and change the final

affricate to a coronal nasal. Thus the candidate (9f) has one more violation than (9d). The candidate (9d) with a binary foot structure is the optimal candidate in spite of the minimal violation of MAX. The preference of the disyllabic structure makes the choice of deleting final coda rather than epenthesis. The three constraints PARSE- $\sigma$ , FT-BIN, MINIMALWORD give the explanation of the preference.

## 5. Conclusion

This paper aims at the parsing strategies of the consonant-clusters in Taiwan Mandarin loanwords. In this study, a corpus of Taiwan Mandarin loanwords translated from English is set. There are about five hundred loanwords. The percentages for the different strategies to parse the consonant clusters and the percentages of occurring in the syllabic positions would be calculated and listed. The final results show the four asymmetries. Asymmetry I: Epenthesis is the better strategy than deletion in parsing the consonant cluster in Mandarin loanwords. Asymmetry II: Most of the segments in the initial position are always parsed out ; the ones in the final position are not necessarily parsed. Asymmetry III: only the medial consonants could be as the onset/coda in the syllabic level of the borrowing words. Asymmetry IV: in peripheral positions, initial stops are parsed but final stops not; however, initial/final fricatives are parsed. The key factor is the perception of the friction. The perception seems to be the key point during the parsing.

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# The Uses and Conventionalization of *com*

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## Abstract

We deal with various uses and meanings of *com*, which means ‘a little’ in Korean. This study interprets *com* with some exceptional examples from the standpoint of sense and the standpoint of force in an attempt to enlarge the general scope of *com*. Moreover, we will find how this lexicon is conventionally used. Sadock (1978) observed that conversational implicature can become conventionalized. Also, Davis (1998) defines ‘conversational implicature convention’ as a conventional way of conversationally implicating things, and distinguishes it from ‘conventional implicature’. Various figures of speech seem to start from non-conventional expressions and become conventional expressions in the course of time. This paper offers an ad hoc conclusion to these issues of semantics and pragmatics.

**Keywords:** conversational implicature convention, conventional implicature, hedge, figures of speech, lexicalization.

## 1. Introduction

This paper consists of the various uses and meanings of *com*, which means ‘a little’ or ‘a bit’ in Korean, in the context of Korean language. This study will examine *com* with some exceptional examples from the standpoint of sense and the standpoint of force in order to enlarge the general scope of *com*. In addition, we will find how this lexicon is used conventionally, rather than literally.

In discourse, *com* functions as a general modifier that lessens the quantity of the predicate to as a conveyer, thereby conveying various peculiar meanings in Korean context. *Com* reveals the speaker’s attitude towards a proposition. Moreover, *com* makes indirect speech acts. In this respect, one of the purposes of *com* is to lighten a burden among conversation participants, in hopes of minimizing conflicts. Of course, some of the cases in this study show that *com* does not occasionally match with those

common characteristics. The special use of *com* will be mostly discussed in Chapter Three. It should also be noted that this paper presupposes the euphemistic aspect of *com* as it leads to polite speech. While *com* is generally understood as an abbreviated form of *cokum*, it can also be considered as an adverb of manner to the effect that *com* decides the ways of speech. In other words, it greatly affects aspects and manners of utterance.

In Chapter Two, we will examine the previous studies with relation to the general meanings of *com*. In Chapter Three, we will deal with the unique uses of *com*. We will discuss the examples and presume why and how *com* is used in those manners. The content of the Chapter Three largely consists of discussion concerning the following three characteristics of *com*:

- (1) *com* used in euphemism or litotes

*com*            hanta

a little        do

+> “do quite well.”

- (2) *com* used in ellipses

kuken        *com*

that        a little

+> “I hesitate to say it, but I disagree.”

- (3) *com* used in movement and repetition

*com*            kuman            *com*

a little        stop            a little

“Please, stop, please.”

Finally, in the fourth and final chapter, this study puts those expressions discussed in Chapter Three into the scope of convention, that is, we will find the possibility of expanded lexicalization of *com* in Korean. (cf. All the examples in this paper follows the Yale Romanization.)

## 2. *Com*

### 2.1. *Previous Studies on Meanings of com*

*Com* is generally considered as an abbreviated form of *cokum*. As a noun, *cokum* means ‘small quantity’ or ‘short period’. As an adverb, it also means ‘a little in amount’

or 'in a short time'. However, when *cokum* is abbreviated to *com*, this noun usage disappears, and the new meaning of 'the expression used in order to soften the speech when one makes a request' is added. Moreover, *com* occasionally means 'fairly and considerably' or 'how much' when used in interrogative sentences or ironic expressions. The focus of this paper is an investigation of these additional meanings of *com*, as well as an interpretation of the meanings of *com* to which *com* is peculiarly confined.

Kim (1984: 39) regards *com* as a modifier of quantifiers. *Com* is distributed in front of quantifiers and defines the range of the quantifiers or the boundary of the quantifiers. In other words, it is considered as a sort of auxiliary degree adverb. According to meaning characteristics, *com* could be divided into two parts; an intensifier and an emphaser. Moreover, according to morphological characteristics of quantifiers, *com* could also be divided into two parts; *com* with verbal quantifiers and *com* with noun quantifiers. In this study, it is mainly shown as an intensifier which confines the range of quantifiers and as a coexisting modifier with verbal quantifiers.

Seo (2005: 57) tries to make a subdivided part of speech with relation with *com*. He argues that *cokum* and *com* are "a partly non-universal quantity adverb" among "restriction adverbs." So to speak, *com* should be regarded as an adverb which coexists with declinable words in a restricted range. It is an item of confined quantifiers and represents small amount. In addition, it is regarded as a degree adverb modifying adjectives. In this use, it modifies adjectives and controls the degree of modification.

Lee (1988) explains meaning characteristics and syntactic characteristics of *com*. In this paper Lee separates *com* from *cokum* and *yakkan* in an attempt to account for the modality of *com*. In explaining *com*, he points out that *com* is used in time expressions and degree expressions. Furthermore, the study contains some modal properties of *com*; consequently, he asserts that, as an adverb of manner, *com* makes requests in imperatives and reveals irony in interrogatives. According to Lee (1988) in contrast to *cokum* and *yakkan*, *com* particularly has a property of modality.

Among many studies, Son (1998) shows quite notably detailed work on *com*. Having consistent pragmatic point of view, Son (1998) deals with various situational meanings of it. The main point of his paper is that the meanings of *com* could be differentiated according to situation. Conclusively he argues that *com* has largely three aspects; politeness, emphasis, and negation.

## 2.2. *Com* in Polite Speech

Leech (1983: 132) comprehensively deals with substantial arguments on politeness according to Politeness Principle with Tact Maxim, Generosity Maxim, Approbation Maxim, Modesty Maxim, Agreement Maxim, and Sympathy Maxim. According to Leech (1983: 36-40), conversation is basically a goal-directed problem-solving strategy. Then, the participants in conversation would achieve the goal by using the Politeness Principle in the strategy. Politeness Principle has to be indispensable in interpreting *com* in a sense that *com* basically gets the meaning of politeness from its original meaning of understatement.

However, the problem is that interpretation of the understatement from the meanings of *com* is not always applied to Politeness Principle. Kim (1997) also points out that we need to reconsider *com* to the effect that PP cannot complete the interpretation of *com* as a politeness marker in Korean. In other words, some interpretations of *com* do not satisfy the Cost-benefit Scale (Leech, 1983: 107) and Indirectness of politeness. In this respect, we need to associate PP with other basic principles such as Cooperative Principle in order to better understand *com* as Leech (1983: 80) points out.

On the other hand, Korean hedge *com* is based on its literal meaning of understatement since *com* originally means 'a little' in Korean. In this light, we need to consider Brown and Levinson's comments on understatement as a polite way of speech. Brown and Levinson (1987: 139) point out that the use of hedges especially in polite speech such as *please* is appeared in a different manner in different cultures. They provide a case with reference to Tamil equivalent of sentence-initial *please* insertion - *koncam* insertion. As both adjectives and adverbs, *koncam* means literally 'a little,' but it usually occurs in circumstances where it cannot have its literal meaning. In this light, we can have a good opportunity to compare *koncam* in Tamil and *com* in Korean as well as *please* in English:

- (4) inta paattiratt-le neriya *koncam* teeva paTutu  
 this vesell-in much a little need is felt  
 “This plate needs much more, please.”

(Brown and Levinson, 1987: 140)

In this case, *koncam* functions as an adverb on the highest performative verb, where its literal meaning seems to carry over naturally as a hedge on illocutionary force: 'I request you a little.' In this respect, *koncam* in Tamil has a very similar function to *com* in Korean; namely, they both function as a hedge especially to make a polite way of requests. Brown and Levinson (1987: 177) directly point out that the word for 'a little' in

many other languages such as Tzeltal and Malagasy also functions like *please* in English.

In Korean, minimizing the imposition using *com* would be almost always the polite way of speaking, while in English imposing an acceptance to the hearer can possibly be polite, as we have seen the case of *please*. The words for 'a little' are basically used for polite speech to the effect that these words tend to have the function of minimizing the imposition of requests; at the same time, the speaker and the hearer are able to avoid FTA(Face Threatening Act).

They additionally assert that this kind of violation of the maxims of Quantity is conducive to lessening the pressure among conversational participants in that understatements are able to generate implicatures by saying less than is required.

### 2.3. *Com as a Hedge*

Hedge is a concept which retains or reduces the proposition. Generally, the main characteristics of hedges are vagueness, politeness, and modality. Among others, the hedge is well known as a 'politeness marker' of the speaker, which functions as a passive way of utterance. At the same time, however, using hedges could be a speech strategy which is conducive to persuasion and strengthens the relationship with the hearer. Lakoff (1972: 471) points out that the hedges are words whose job is to make things more or less fuzzy. For example, sort of, rather, largely, very etc. could be hedges. It could also be considered as softening of statement in order to reduce the riskiness of what one says.

Kim (1997) focuses on pragmatic functions of *com*. It particularly deals with *com* in ellipsis phrases in accounting for meaning relationship with some verbs. The distinguishing point of her study is that she understands *com* as a 'hedge' in Korean contexts. In other words, when *com* appears without the relationship with verbs, it fences off the speech flow from the presupposition of negation and brings about indirect request; thus, she insists that *com* should be considered as a hedge in some cases.

All in all, the argument about *com* as a hedge in Kim (1997) is convincing since *com* seems to function as a hedge. First of all, 'vagueness' of hedges is also shown in uses of *com* as we have seen in the introduction of this paper:

- (5) kuken *com*  
that a little  
+> "I hesitate to say it, but I disagree."

Regardless of the literal meanings of each word in the sentence, this expression clearly reveals characteristics of vagueness in *com*. Lakoff (1972) points out that the hedges blur the speaker's judgment on the proposition. The second characteristics of *com* could be 'politeness' since it is widely known as politeness marker in many studies (Kim, 1997; Son, 1998; Joo, 2000). The explanation of this property of hedges is in Brown and Levinson (1987) saying that hedges would be very effective in saving the hearer's face. For example, when the speaker has an opposite opinion to the hearer, "I think it's a bit incorrect." would be more polite than "I disagree." Lastly, *com* also has another characteristics of hedges; 'modality'. Lee (1988) focuses on the modality of *com* in a sense that it particularly has a property of modality in contrast to other lexical items which have similar literal meanings to *com*.

Hedges are used to reveal the speaker's subjective attitude towards the relation between utterance and reality. It is through representing the speaker's judgment on the proposition that the 'attitude' of the speaker comes in the utterance. House and Kasper (1981) divides 'modality markers' into three classes; 'hedges'(kind of, sort of, etc.), 'understater'(a little bit, not very much, etc.), and 'downtoner'(possibly, perhaps, etc.). In my opinion, *com* could be in all three classes of modality markers to the extent that the literal meaning of *com* is 'a bit' or 'a little'.

Attaching importance to speech situation, Joo (2000) focuses on situational aspects using *com*. Even though Joo (2000) has some distinguished points especially on pragmatic view, it might be said to be too broad to catch the specific characteristics of *com* in that different people may call it different things. In particular, there seems to be problems in selecting some examples. Joo (2000: 78) points out that we could find the stubborn or repeated action before the speech in the example "kuman *com* haseyyo." meaning "Stop, please." and it varies according to speech situation. It might be possible that we may expect the speaker's annoyance or repeated action from this example, but it could also be possible that we may presume that there is some irritated or repeated actions before the speech when we hear "kuman haseyyo." even without *com*; thus, her argument is somewhat problematic to the extent that the speaker's attitude can also be shown through stress or intonation regardless of *com*.

However, Joo (2000: 82) also points out that *com* has some characteristics of hedges to the extent that the uses of *com* are divided into two parts; one is the use of *com* which is the same as *cokum*, and the other is the use of *com* is pragmatic contexts. From this classification, we can have an idea that the latter would be the case related to the hedges.

### 3. Some Unique Uses of *com*

#### 3.1. *com hanta*

In this case, *com* is used in euphemism or litotes. In common speech, one uses this expression in order to understate one's abilities or strong points. Interestingly, however, we cannot assert that this is truly the case of litotes in the sense that it can actually be used in compliment both of the speaker and of the listener. Moreover, this litotes seems to be possibly used by young people to elders. Let us consider this example:

- (6) a. ne        *com*        hanta  
      you     a little     do  
      +> "You do quite well."  
      b. komawe  
          thanks  
          "Thanks."

If you are a Korean speaker, this conversation is so natural that we cannot even recognize the literal meanings in it. At this point, we have to think about it carefully. If someone tries to understate your abilities, it would be natural for you to be irritated or depressed. However, we do not feel angry when we face this kind of utterance.

According to Politeness Principle suggested by Leech (1983: 132), to maximize benefit to other (Tacit Maxim) and to maximize praise of other (Approbation Maxim) would result in polite speech. Unfortunately, these basic rules of politeness cannot be applied to the example (6). Why is it so?

From the fact that this expression is naturally used even when describing elders, we have to suspect that it is far from the literal meaning. Someone might say that it should not be regarded as a part of litotes anymore. Therefore, this paper strongly argues that this expression with *com* is out of the literal meaning of it; so to speak, it is now in the scope of convention.

#### 3.2. *kuken com*

Now, we will deal with another particular use of *com*. This is the case when *com* is used in ellipses. Let us first see below example:

- (7) a. wuli     dulama     polkka?  
      we        drama        see

“Shall we watch the drama?”

b. *kuken com* (...)

that a little

+> “I hesitate to say it, but I don’t want to watch it.”

In (7b)’s reply, just after *com*, there must be an ellipsis which implicates that the speaker does not want to watch the drama. In a polite manner, (7b) tries to convey the meaning of refusal. Even though it is commonly used in everyday conversation, the meaning of the expression is far from the literal meaning of *com*. Ellipsis using *com* could possibly convey several meanings such as “I don’t like it,” “I am not sure of it,” or “I can’t do it.” Nevertheless, the conveyed meanings with *com* are quite enough to be understood in most conversations. Moreover, as Agreement Maxim of Politeness Principle points out that “Minimize disagreement between self and other,” the speaker may want to control the risk of disagreement. That is to say, in the case when it is difficult for a conversation participant to openly oppose to the other’s opinion, we are inclined to use this kind of expression with the meaning of the soft refusal or euphemistic opposition. By using an indirect utterance of refusal, the speaker of (7b) shows politeness. Therefore, it is the case where the conversation using *com* is consistent with the preexistent theory.

On the other hand, as discussed in Chapter Two, this usage of *com* is also considered as a hedge by some scholars in the sense that we can find the “vagueness” of it in this case. Whether it is considered as a hedge or ellipsis, it is obviously unique in that the literal meaning of *com* does not let us easily presume this confined use of it.

### 3.3. *com kuman com*

This is the case when *com* is used in movement and repetition. It usually appears in front of verb since it is basically an adverb. However, we can easily find some data from conversation where *com* is used after the verbs or where it is used more than once. This paper considers the former as a movement and the latter as a repetition. Let us first take an example:

(8) *com kuman com*  
a little stop a little  
“Please, stop, please.”

In the case of (7), *com* is repeatedly used as well as moved after the verb. Interestingly, the repetition of it seems to strengthen the requests. Moreover, we could feel some irritation or anger from the speaker. From the fact that we could feel the eagerness of the speaker, it should be considered as an exceptional use of *com*. Joo (2000: 78) also points out that we could find the stubborn or repeated action before the speech from the example "kuman *com* haseyyo." Likewise, we can think of some other examples which are commonly used in everyday conversation in Korea. Of course, the effect of the speech is very similar to (7). Let us look at the below example:

- (9) ceypal      *com*      wulci      *com*      maseyyo.  
*please*      a little      cry      a little      stop  
 "Please don't cry, please."

Now, let us focus on the movement:

- (10) a. mwun      *com*      yelecwuseyyo.  
          door      a little      open  
          "please open the door."  
       b. mwun      yelecwuseyyo      *com*.  
          door      open      a little  
          "?please open the door."

In (9b), hearers do not naturally accept it as a polite speech in that 'yelecwuseyyo' is stressed due to the movement of *com*; as a result, this utterance sounds rather impolite. Also, it is possible for hearers to think that the speaker might be irritated by some negative situations. For example, it is completely possible that the speaker has requested the hearer to open the door, but it was rejected. Then, the speaker once again requests the hearer to do with a certain stress; namely, it is a movement of *com*. Consequently, the utterance does not sound polite though the basic function of it consists of polite speech as mentioned in Chapter Two.

#### 4. Conventionalization of *com*

##### 4.1. Conventionalization about Language

Morgan (1978) clearly presents cultural diversity in convention about language with reference to the examples of "Have you eaten?" in Korean vs. "How are you?" in

English. According to him, there are two kinds of language-related conventions: 'conventions of language', that jointly give rise to the literal meanings of sentences, and 'conventions about language' which govern the use of sentences for certain purposes.

By the term 'conventional,' it is the relation between linguistic form and literal meaning, which is 'arbitrary,' a matter of knowledge of language or culture. For example, we do not reason out from the word 'apple' that it is used to refer to a kind of fruit; thus, it is arbitrary and we should understand the knowledge of English. Then, Morgan (1978) distinguishes between conventions 'of' language and conventions 'about' language. In particular, the latter, conventions about language is the conventions of the culture that uses their own language. In short, conventions 'of' language is the characteristics of language itself as mentioned above in the example of 'apple,' whereas conventions 'about' language is about the cultural differences to use different ways of language.

Sadock (1978) also observed that conversational implicature can become conventionalized. With a similar point of view, Davis (1998) defines 'conversational implicature convention' as a conventional way of conversationally implicating things, and distinguishes it from 'conventional implicature'. Various figures of speech seem to start from non-conventional expressions and become conventional expressions in the course of time.

Morgan (1978), finally, suggests we need "short-circuited implicature" in accounting for our direct understanding of conveyed meanings. The representative example of "Do I look like a rich man?" helps understand his explanation. Suppose that you have a friend, and when asked for a loan, he replies, "Do I look like a rich man?" intending the implicature of a refusal. Suppose again, that he comes to use that sentence for refusing loans as a habit; it conveys a refusal indirectly and is a part of your background knowledge. Then, it could be entirely possible that this habit of refusal spreads so that it is common throughout the community to refuse loan; thus, it becomes a common knowledge for most of the members of the community. Finally, an indirect refusal from the utterance "Do I look like a rich man?" becomes a short-circuited implicature armed with common knowledge; consequently, the utterance immediately indicates that the request is refused.

In other words, short-circuited implicature is the implicature that is used so often and naturally in a given culture that we do not even need to use our inference to interpret the sentence or utterance. That is to say, it becomes a convention. Likewise, in the case of *com* in Korean language and culture, there are certain possibilities for it to be in the scope of conventionalization. We will discuss them in the next section.

#### 4.2. One Possible Process of Conventionalization of *com*

As mentioned in above section, Sadock (1978) and Morgan (1978) both observed that conversational implicature can become conventionalized. Also, Davis (1998) defines ‘conversational implicature convention’ as a conventional way of conversationally implicating things. According to Davis (1998: 148), a lot of figures of speech start from non-conventional expressions and then become conventional expressions in the course of time in a certain society.

In this section, we will examine how an expression using *com* loses its literal meaning and gets conventionalized in the course of time in our everyday conversation. It would be convincing that some procedures in a society make it change. Recall that *com* can be used in litotes:

- (11) *com*            *hanta*  
a little            do  
+> “do quite well”

Now, let us think of the possible process of meaning change in this expression. It was possibly made in order to express some understatements of the speaker if we think about the literal meaning of the expression. First of all, pragmatic intrusion might happen in this expression by implicatural contribution to "what is said" (Levinson, 2000: 172). Then, the pragmatic meaning of it could often precede the semantic or literal meaning of it in the course of time. Secondly, it could be through I-Implicature suggested by Levinson (2000: 122) that conversation participants in a society come to use this expression “stereotypically” with the pragmatic meaning. As time goes by, it becomes so fixed that almost all the members of the society could understand and use it in this manner. Finally, as Morgan (1978) suggested, this expression is ultimately a part of "short-circuited implicature" with our direct understanding of conveyed meanings. In other words, this expression becomes a short-circuited implicature armed with “common knowledge” of our society. When, hearing this expression, we do not have to use our inference to interpret the meaning to the effect that short-circuited implicature is the implicature that is used so often and naturally in a culture; consequently, it becomes a convention.

It evidently reminds us of Morgan’s (1978) representative example of "Do I look like a rich man?" intending the implicature of a refusal. Yes, it is very similar to the example of “*Com hanta.*” intending the implicature of compliment rather than litotes; in other words, the meaning has been changed dramatically in the course of time.

Namely, the implicature generated by some uses of *com* are short-circuited and culturally conventionalized as a sort of rule of conversation. It is a matter of convention that one uses these particular forms. As mentioned before, the convention 'of' language is the arbitrariness of language in general, whereas the convention 'about' language is the convention of each culture's linguistic facts. The latter is, thus, closely associated with cultural difference in linguistic use. The special uses of *com* could possibly be applied in the concept of the convention 'about' language. Finally, if a given expression has already in the short-circuited implicature, then, I think it should be in the lexicon which is in a different layer from the literal meanings of it. For instance, the expression “*Com hanta*” could be in a lexicon so that it should let the language users know its peculiar meaning.

Conclusively, it would be convincing that the use of *com* could be explained by a convention about language because it is defined by culturally conventionalized forms of conveying the meanings. We have thought of a hypothetical procedure of *com* being a conventionalized expression; namely, “a literal meaning”=> “pragmatic intrusion”=> “I-Implicature”=> “short-circuited implicature”. Of course, this process does not seem to be fixed or ultimate at all. As a result, anyway, it becomes conventional to use the expression in this 'way.' For example, in American culture, using the expression “You do a little.” does not seem to be polite nor be functioned as a compliment. That should be the reason for the diversity of expressions according to culture.

## 5. Conclusion

We have examined *com* with some exceptional uses as well as general meanings in this paper. In Chapter Two, we have examined the previous studies with relation to the general meanings of *com*. In Chapter Three, we have looked at some unique uses of *com* and discussed the three representative examples in an attempt to presume why and how *com* is used in those manners. Finally, in Chapter Four, we have tried to interpret *com* in the scope of conventionalization according to some scholars' opinions and theories.

As we have discussed, *com* is generally considered as an abbreviated form of *cokum*. As a noun, *cokum* means ‘small quantity’ or ‘short period’. As an adverb, it also means ‘a little in amount’ or ‘in a short time’. An interesting thing is that we could not simply understand *com* as the abbreviation for *cokum* as we have discussed in this paper. First of all, unlike *cokum*, *com* cannot be used as a noun. Furthermore, there is much

room for presumption that *com* could be considered as a part of idiolects, due to the fact that individual differences exist in the frequency deviation. In explaining general meanings of it, we have also pointed out that it is used both in polite speech and in hedging expressions.

Politeness Principle which was suggested by Leech (1983) seems to be important in interpreting *com* in a sense that *com* basically gets the meaning of politeness from its original meaning of understatement 'a little'. However, as we have seen above chapters, the problem is that interpretation of the understatement from the meaning of *com* is not always applied to Politeness Principle. In other words, some interpretations of *com* do not satisfy the Cost-benefit Scale (Leech, 1983: 107) and Indirectness of politeness. I think this is why interpretation of *com* is interesting and why we need to think about the phenomena more carefully.

From the data shown in Chapter Three, we have found that some expressions using *com* is not consistent with the existent theories such as Politeness Principle. In this respect, how do we interpret the expressions in our everyday language without a critical misunderstanding? Do we need brand new theories to account for them?

As the arguments of Morgan (1978) and Davis (1998), there are conventions and some fixed meanings in our language. However, we still do not know where the scope of convention starts and ends. On the other hand, we still have other questions such as "What if the short-circuited implicature does not work well among people?" Then, can we call it the short-circuited implicature? On the other hand, if a certain expression has already in the short-circuited implicature, then, I think it is a good idea for it to be in the lexicon which should be in a different layer of the literal meanings of it. That is, actually, this paper's suggestion.

Conventionalized expressions are different from implicature. However, the argument in Davis (1998) is, at least partially, convincing to the extent that some parts of implicature obviously rely on the convention. According to Davis (1998: 164), figures of speech including hyperbole and euphemism are from the nonce implicature to the part of language convention. Hence, he tries to regard implicature as "implicature convention". For example, the fact that we produce the implicature "some +> not all" (not "some +> maybe all") may result from our conventional use of it in the course of time. Accordingly, it would be possible for *com* to start from the literal meaning and reach the field of convention; consequently, it becomes so natural that we do not have to interpret the hidden meaning of it. Even though I cannot support all of his ideas relating to implicature, his argument would be convincing in some points.

In conclusion, we have examined some unique uses of *com* as well as general meanings of it. This paper tries to find the reason for its exceptional uses in “convention about language”. While *com* is generally understood as an abbreviated form of *cokum*, it can also be considered as an adverb of manner to the effect that *com* decides the ways of speech. In other words, it greatly affects aspects and manners of utterance. Furthermore, we have discussed some particular phenomena when it is used in litotes, ellipsis, movement, and repetition. Finally, in this study, we have considered one possible process where an expression which uses *com* could be conventionalized in the course of time. It would be great for this study to be able to give some thought-provoking ideas to future studies relating to *com*. In all these respects, it is necessary for us to broaden the possibility of pragmatic approach in order to better understand *com*.

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# An A-Movement Approach to Subjectivization and Objectivization

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## Abstract

The purpose of this paper is to show that Subjectivization and Objectivization in Korean are A-Movement. First, we show that the first Nominative NP in Multiple Nominative Construction (MNC) is in A-position. There are many pieces of evidence that the first Nominative NP in MNC is in A-position: (1) There is a corresponding topicalized construction for MNC. The existence of a corresponding topicalized construction for MNC shows that the first Nominative NP in MNC is not in A'-position but in A-position. (2) Subject Honorification shows that the first Nominative NP in MNC is a subject, and hence that it is in A-position. (3) Reflexivization shows that the first Nominative NP in MNC is a subject, and hence that it is in A-position. Second, we show that the first Accusative NP in Double Accusative Construction is in A-position. Third, we show that the objectified NP created after Objectivization is the direct recipient of the agent's action.

**Keywords:** Subjectivization, Objectivization, A-Movement, Multiple Nominative Construction, Double Accusative Construction, Topicalization.

## 1. Introduction

The purpose of this paper is to show that Subjectivization and Objectivization in Korean are not A'-Movement but A-Movement, that is, a newly-created subject and a newly-created object are in A-position.

There are many pieces of evidence that the first Nominative NP in Multiple Nominative Construction (MNC) is in A-position. First, there is a corresponding topicalized construction for MNC. The existence of a corresponding topicalized construction for MNC shows that the first Nominative NP in MNC is not in A'-position but in A-position. Second, Subject Honorification shows that the first Nominative NP in MNC is a subject, and hence that it is in A-position. Third, Reflexivization shows that the first Nominative NP in MNC is a subject, and hence that it is in A-position.

Lee (1988) argues that the first *ul/lul*-marked NP in Double Accusative Construction (DAC) is a topicalized one. But his claim is not tenable for two reasons. First, there exists an independent topicalized construction, apart from DAC. Second, there exists a passive construction which is derived from DAC. The existence of a passive construction which is derived from DAC, first, shows that the first *ul/lul*-marked NP in DAC is in A-position, not in A'-position and that the topicalization analysis of objectivization has a serious problem from the viewpoint of movement. According to the topicalization analysis of objectivization, the first *ul/lul*-marked NP in DAC is in TOPIC position, which is A'-position. But the subject position of a passive construction is A-position. Hence, the topicalization analysis of objectivization assumes that an NP in A'-position moves to A-position. In a normal movement, an NP in A-position moves to A-position or to A'-position. Because movement from A'-position to A-position is, in principle, not allowed, the topicalization analysis of objectivization cannot be maintained. Then, we present an analysis which is an alternative to the

topicalization analysis, in which the first *ul/lul*-marked NP in DAC is in A-position.

And finally, we show that the objectified NP created after Objectivization is the direct recipient of the agent's action.

## 2. Subjectivization is A-Movement

Let us consider Subjectivization first. There are many pieces of evidence that the first Nominative NP in Multiple Nominative Construction (MNC) is in A-position.

First, there is a corresponding topicalized construction for MNC:

- (1) a. Chelswu-ka apeci-ka sacang-i-ta.  
NOM father-NOM president-be-DEC  
'It is Chelswu whose father is a president.'  
b. Chelswu-nun apeci-ka sacang-i-ta.  
TOP father-NOM president-be-DEC  
'As for Chelswu, his father is a president.'
- (2) a. Munmyengkwuk-i namca-ka swumyeng-i ccalp-ta.  
Civilized country-NOM man-NOM life span-NOM short-DEC  
'It is civilized countries where men—their life span is short.'  
b. Munmyengkwuk-un namca-ka swumyeng-i ccalp-ta.  
Civilized country-TOP man-NOM life span-NOM short-DEC  
'As for civilized countries, men—their life span is short.'
- (3) a. Ku kongcang-i kwulttwuk-i yenki-ka sikhemeh-ta.  
the factory-NOM chimney-NOM smoke-NOM dark black-DEC  
'It is the factory whose chimney—its smoke is dark black.'  
b. Ku kongcang-un kwulttwuk-i yenki-ka sikhemeh-ta.  
the factory-TOP chimney-NOM smoke-NOM dark black-DEC  
'As for the factory, its chimney—its smoke is dark black.'
- (4) a. New York-i kochung kenmul-i manh-ta.  
NOM high rise blds.-NOM many-DEC  
'It is New York where there are many high-rise buildings.'  
b. New York-un kochung kenmul-i manh-ta.  
TOP high rise blds.-NOM many-DEC  
'As for New York, there are many high-rise buildings.'

The existence of a corresponding topicalized construction for MNC shows that the first Nominative NP in MNC is not in A'-position but in A-position.

At this juncture, someone may argue that the first Nominative NP in MNC is not in A-position but in A'-position, because (a)-sentences in (1)~(3) are derived from the following Genitive Construction (GC):

- (1) c. Chelswu-uy apeci-ka sacang-i-ta.  
GEN father-NOM president-be-DEC  
'It is Chelswu's father who is a president.'
- (2) c. Munmyengkwuk-uy namca-uy swumyeng-i ccalp-ta.  
Civilized country-GEN man- GEN life span-NOM short-DEC  
'It is civilized countries' men's life span that is short.'
- (3) c. Ku kongcang-uy kwulttwuk-uy yenki-ka sikhemeh-ta.  
the factory-GEN chimney-GEN smoke-NOM dark black-DEC  
'It is the factory's chimney's smoke that is dark black.'

But this claim is not tenable, because there exist MNC which are not derived from GC and which still have their corresponding topicalized constructions:

- (5) a. Enehak -i chwycik -i elyep -ta.  
 linguistics-NOM employment-NOM difficult-DEC  
 ‘It is linguistics in which employment is difficult.’  
 b. Enehak -un chwycik -i elyep -ta.  
 linguistics-TOP employment-NOM difficult-DEC  
 ‘As for linguistics, employment is difficult.’  
 c. \*Enehak -uy chwycik -i elyep -ta.  
 linguistics-GEN employment-NOM difficult-DEC  
 ‘It is linguistics’ employment that is difficult.’
- (6) a. Cwungkwuk-umsik-i paythal -i na-ki(-ka)\_ swyp-ta.  
 Chinese cuisine-NOM stomach disorder-NOM occur(-NOM) easy-DEC  
 ‘It is Chinese cuisine by which stomach disorders occur easily.’  
 b. Cwungkwuk-umsik-un paythal -i na-ki(-ka)\_ swyp-ta.  
 Chinese cuisine-TOP stomach disorder-NOM occur(-NOM) easy-DEC  
 ‘As for Chinese cuisine, stomach disorders occur easily.’  
 c. \*Cwungkwuk-umsik-uy paythal -i na-ki(-ka)\_ swyp-ta.  
 Chinese cuisine-GEN stomach disorder-NOM occur(-NOM) easy-DEC  
 ‘It is Chinese cuisine’s stomach disorders that occur easily.’

The ungrammaticality of (5 c) and (6 c) shows that (5 a) and (6 a) cannot be derived from (5 c) and (6 c), but must be base-generated. And the fact that (5 a) and (6 a) have their corresponding topicalized constructions, (5 b) and (6 b), shows that the first Nominative NP in MNC is not in A’-position but in A-position.

Second, Subject Honorification shows that the first Nominative NP in MNC is a subject, and hence that it is in A-position. Consider the following examples:

- (7) a. Kim-sensayng-nim-kkeyse kohyang-i  
 teacher HON-NOM(HON) hometown-NOM  
 ipwuk-i-si-ta.  
 northern part-be-HON-DEC  
 ‘It is Teacher Kim whose hometown is the northern part of Korea.’  
 b. \*Kim-sensayng-nim-uy kohyang-i ipwuk-i-si-ta.  
 Teacher-HON-GEN hometown-NOM northern part-be-HON-DEC

In (7 a), the first Nominative NP triggers Subject Honorification and the honorific marker *-si* is attached to the verbal stem. As an inanimate NP, the second Nominative NP, *kohyang*, cannot trigger Subject Honorification; hence the ungrammaticality of (7 b). In (7 b), ‘Teacher Kim(HON)’ is used as a Genitive NP, and thus cannot trigger Subject Honorification.

Third, Reflexivization shows that the first Nominative NP in MNC is a subject, and hence that it is in A-position. Consider the following examples:

- (8) a. Chelswu<sub>i</sub>-ka caki<sub>i</sub>-uy cip -eyse ay.in-i casalha-ess-ta.  
 NOM self-GEN house-at love-NOM commit suicide-PAST-DEC  
 ‘It is Chelswu<sub>i</sub> whose love committed suicide at self<sub>i</sub>’s house.’  
 b. Chelswu<sub>i</sub>-uy ay.in<sub>j</sub>-i caki<sub>\*i,j</sub>-uy cip -eyse casalha-ess-ta.  
 GEN love-NOM self-GEN house-at commit suicide-PAST-DEC  
 ‘Chelswu<sub>i</sub>’s love<sub>j</sub> committed suicide at self<sub>\*i,j</sub>’s house.’

In (8 a), the first Nominative NP triggers Reflexivization. This shows that the first Nominative NP in MNC is a subject because *caki*, a reflexive pronoun, takes a subject as its antecedent. This, in turn, shows that the first Nominative NP in MNC is in A-position. But, in (8 b), *Chelswu* cannot be *caki*’s antecedent, since it is not a subject, but a Genitive NP.

### 3. Objectivization is A-Movement

This time, let us consider Objectivization. Consider the following examples:

- (9) a. Chelswu-ka Yenghuy-lul son-ul cap-ess-ta.  
 NOM ACC hand-ACC catch-PAST-DEC  
 ‘Chelswu caught Yenghuy by the hand.’  
 b. Chelswu-ka Yenghuy-uy son-ul cap-ess-ta.  
 NOM GEN hand-ACC catch-PAST-DEC  
 ‘Chelswu caught Yenghuy’s hand.’
- (10) a. Chelswu-ka cip -ul cey chay-lul ci-ess-ta.  
 NOM house-ACC three unit-ACC build-PAST-DEC  
 ‘It was houses that Chelswu built three units.’  
 b. Chelswu-ka cey chay-uy cip -ul ci-ess-ta.  
 NOM three unit-GEN house-ACC build-PAST-DEC  
 ‘Chelswu built three units of houses.’
- (11) a. Chelswu-ka Yenghuy-lul chayk-ul cwu-ess-ta.  
 NOM ACC book-ACC give-PAST-DEC  
 ‘It was Yenghuy that Chelswu gave a book.’  
 b. Chelswu-ka Yenghuy-eykey chayk-ul cwu-ess-ta.  
 NOM to book-ACC give-PAST-DEC  
 ‘Chelswu gave a book to Yenghuy.’

Syntactically, in (9 a) both *Yenghuy* and *son* are direct objects of the verb, while in (9 b) *son* is the only direct object of the verb.

Lee (1988) argues that the first *ul/lul*-marked NPs in (9 a), (10 a), and (11 a), are topicalized ones. But his claim is not tenable for two reasons. First, there exist independent topicalized constructions, apart from (9 a), (10 a), and (11 a). Consider the following examples:

- (12) a. Chelswu-ka Yenghuy-nun olun son-ul cap-ko Swunhuy-nun oyn  
 NOM TOP right hand-ACC catch-and TOP left  
 son-ul cap-ess-ta.  
 hand-ACC catch-PAST-DEC  
 ‘As for Yenghuy, Chelswu caught her by the right hand and as for Swunhuy,  
 he caught her by the left hand.’  
 b. Chelswu-ka Yenghuy-lul olun son-ul cap-ko Swunhuy-lul oyn  
 NOM ACC right hand-ACC catch-and TOP left  
 son-ul cap-ess-ta.  
 hand-ACC catch-PAST-DEC  
 ‘Chelswu caught Yenghuy by the right hand and Swunhuy by the left hand.’
- (13) a. Chelswu-ka tantok cwuthayk-un cey chay-lul ci-ess-ko  
 NOM single house-TOP three unit-ACC build-PAST-and  
 yenlip cwuthayk-un twu chay-lul ci-ess-ta.  
 tenement house-TOP two unit-ACC build-PAST-DEC  
 ‘As for single houses, Chelswu built three units and as for tenement houses, he  
 built two units.’

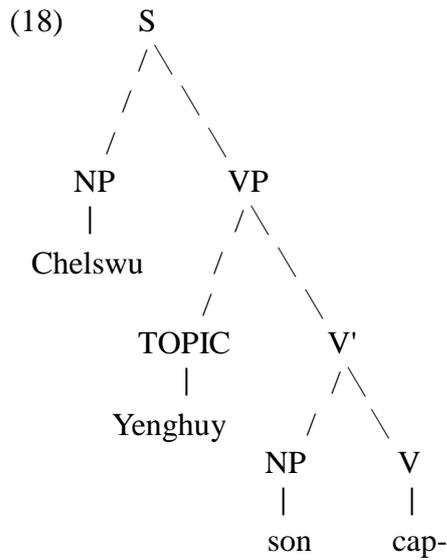
- b. Chelswu-ka tantok cwuthayk-ul cey chay-lul ci-ess-ko  
 NOM single house- ACC three unit-ACC build-PAST-and  
 yenlip cwuthayk-ul twu chay-lul ci-ess-ta.  
 tenement house-ACC two unit-ACC build-PAST-DEC  
 ‘Chelswu built three units of single houses and two units of tenement houses.’
- (14) a. Chelswu-ka Yenghuy-nun chayk-ul cwu-ko Swunhuy-nun  
 NOM TOP book-ACC give-and TOP  
 kongchayk-ul cwu-ess-ta.  
 notebook-ACC give-PAST-DEC  
 ‘As for Yenghuy, Chelswu gave a book and as for Swunhuy, he gave a notebook.’
- b. Chelswu-ka Yenghuy-lul chayk-ul cwu-ko Swunhuy-lul  
 NOM ACC book-ACC give-and ACC  
 kongchayk-ul cwu-ess-ta.  
 notebook-ACC give-PAST-DEC  
 ‘Chelswu gave Yenghuy a book and Swunhuy a notebook.’

The existence of (12 a), (13 a), and (14 a), shows that the first *ul/lul*-marked NPs in (9 a), (10 a), and (11 a), are not topicalized ones, but are in A-position.

Second, there exist passive constructions which are derived from (9 a), (10 a), and (11 a), respectively. Consider the following examples:

- (15) a. Yenghuy-ka Chelswu-eykey son-ul cap-hi-ess-ta.  
 NOM by hand-ACC catch-PASS-PAST-DEC  
 ‘Yenghuy was caught her hand by Chelswu.’
- b. Yenghuy-ka Chelswu-eykey son-i cap-hi-ess-ta.  
 NOM by hand-NOM catch-PASS-PAST-DEC  
 ‘Yenghuy was caught by the hand by Chelswu.’
- (16) a. cip-i cey chay-ka ci-e-ci-ess-ta.  
 house-NOM three unit-NOM build-PASS-PAST-DEC  
 ‘Three units of houses were built.’
- b. \*cip-i cey chay-lul ci-e-ci-ess-ta.  
 house-NOM three unit-ACC build-PASS-PAST-DEC  
 ‘Three units of houses were built.’
- (17) a. Yenghuy- ka Chelswu-ey uyhaye chayk-i cwu-e-ci-ess-ta.  
 NOM by book-NOM give-PASS-PAST-DEC  
 ‘Yenghuy was given a book by Chelswu.’
- b. \*Yenghuy- ka Chelswu-ey uyhaye chayk-ul cwu-e-ci-ess-ta.  
 NOM by book-ACC give-PASS-PAST-DEC  
 ‘Yenghuy was given a book by Chelswu.’

The existence of passive constructions which are derived from (9 a), (10 a), and (11 a), first, shows that the first *ul/lul*-marked NPs in (9 a), (10 a), and (11 a) are in A-position, not in A'-position. The existence of passive constructions which are derived from (9 a), (10 a), and (11 a), also shows that the topicalization analysis of objectivization has a serious problem from the viewpoint of movement. According to Lee's (1988) claim, (9 a) is assumed to have the following tree diagram:

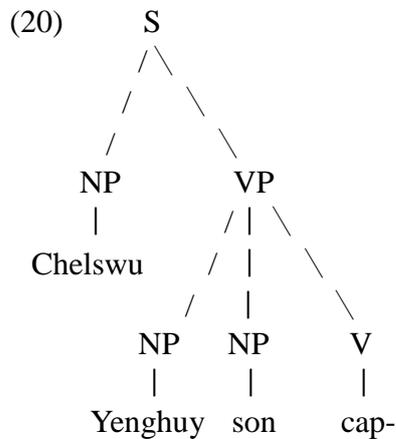


According to the topicalization analysis of objectivization, the first *ul/lul*-marked NPs in (9 a), (10 a), and (11 a), are in TOPIC position, which is A'-position, as shown in (18). But the subject position of passive constructions is A-position. Hence, the topicalization analysis of objectivization assumes that an NP in A'-position, *Yenghuy* in (18), moves to A-position, *Yenghuy* in (15 a) and (15 b). In a normal movement, an NP in A-position moves to A-position or to A'-position:

(19) [argument NP] → [argument NP] or [adjunct NP]

Because movement from A'-position to A-position is, in principle, not allowed, the topicalization analysis of objectivization cannot be maintained.

Now, let us present an analysis which is an alternative to the topicalization analysis. What is important at this juncture is that the first *ul/lul*-marked NPs in (9 a), (10 a), and (11 a) are in A-position and that they are direct objects of the relevant verbs. Reflecting this point, we present the following tree diagram for (9 a):



In (20), both *Yenghuy* and *son* are assigned [+Accusative] by a dynamic verb, *cap-*, under the following Direct Case Assignment (DCA):

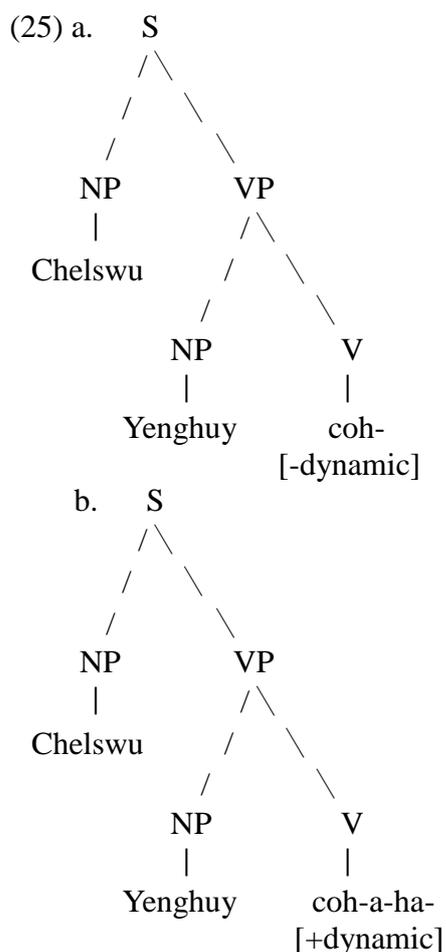
- (21) a. An NP-argument which is a sister of a dynamic verb is assigned [+Accusative].  
 b. All the other NPs are assigned [+Nominative].

The DCA, (21), well explains the contrast between (a)-sentences and (c)-sentences in the following examples:

- (22) a. Chelswu-ka Yenghuy-ka coh -ta.  
           NOM      NOM be fond of-DEC  
           ‘Chelswu is fond of Yenghuy.’  
 b. \*Chelswu-ka Yenghuy-lul coh -ta.  
           NOM      ACC be fond of-DEC  
 c. Chelswu-ka Yenghuy-lul coh-a-ha-n-ta.  
           NOM      ACC fond of-do-PRES-DEC  
           ‘Chelswu likes Yenghuy.’  
 d. \*Chelswu-ka Yenghuy-ka coh-a-ha-n-ta.  
           NOM      NOM fond of-do-PRES-DEC
- (23) a. Chelswu-ka puin-i musep -ta.  
           NOM wife-NOM be afraid of-DEC  
           ‘Chelswu is afraid of his wife.’  
 b. \*Chelswu-ka puin-ul musep -ta.  
           NOM wife-ACC be afraid of-DEC  
 c. Chelswu-ka puin-ul musew-uey-ha-n-ta.  
           NOM wife-ACC afraid of-do-PRES-DEC  
           ‘Chelswu is afraid of his wife.’  
 d. \*Chelswu-ka puin-i musew-uey-ha-n-ta.  
           NOM wife-NOM afraid of-do-PRES-DEC
- (24) a. Halapeci -ka kohyang -i kuliw -si -ta.  
           grandfather-NOM hometown-NOM pine for-HON-DEC  
           ‘My grandfather is pining for his hometown.’  
 b. \*Halapeci -ka kohyang -ul kuliw -si -ta.  
           grandfather-NOM hometown-ACC pine for-HON-DEC  
 c. Halapeci -ka kohyang -ul kuliw-uey-ha-si-n-ta.  
           grandfather-NOM hometown-ACC pine for-do-HON-PRES-DEC  
           ‘My grandfather pines for his hometown.’  
 d. \*Halapeci -ka kohyang -i kuliw-uey-ha-si-n-ta.  
           grandfather-NOM hometown-NOM pine for-do-HON-PRES-DEC

(a)-sentences in the above examples have a transitive adjective, *coh-*, *musep-*, or *kulip-*, as their predicate, respectively, while (c)-sentences in the above examples have a *ha*-verb, *coh-a-ha-*, *musew-uey-ha-*, or *kuliw-uey-ha-*, as their predicate, respectively. The contrast between the grammaticality of (a)-sentences and the ungrammaticality of (b)-sentences in the above examples shows that the object of a transitive adjective is assigned [+Nominative], not [+Accusative]. And the contrast between the grammaticality of (c)-sentences and the ungrammaticality of (d)-sentences in the above examples shows that the object of a *ha*-verb is assigned [+Accusative], not [+Nominative].

(22 a) and (22 c) have the following tree diagram, respectively:



*coh-*, ‘be fond of’, is a non-dynamic verb and hence its sister NP-argument cannot be assigned [+Accusative], but is assigned [+Nominative], under the DCA, whereas *coh-a-ha-*, ‘like’, is a dynamic verb and hence its sister NP-argument is not assigned [+Nominative], but is assigned [+Accusative], under the DCA. Hence, the DCA well explains not only the contrast between (a)-sentences and (c)-sentences in (22)~(24) but also the contrast between the grammaticality of (a)-sentences and the ungrammaticality of (b)-sentences in (22)~(24) and the contrast between the grammaticality of (c)-sentences and the ungrammaticality of (d)-sentences in (22)~(24).

#### 4 The Semantics of Objectivization

The semantic difference between (9 a) and (9 b) is that in (9 a) *Yenghuy* is the direct recipient of the agent’s action, while in (9 b) *son* is the direct recipient of the agent’s action. This kind of semantic difference between (9 a) and (9 b) is shown by their passive counterparts. The passive counterparts of (9 a) and (9 b) are as follows, respectively:

- (26) a. Yenghuy-ka Chelswu-eykey son-ul/i cap-hi-ess-ta.  
 NOM by hand-ACC/NOM catch-PASS-PAST-DEC  
 ‘Yenghuy was caught her hand by Chelswu.’/‘Yenghuy was caught by the hand by Chelswu.’
- b. Yenghuy-uy son-i Chelswu-eykey cap-hi-ess-ta.  
 GEN hand-NOM by catch-PASS-PAST-DEC  
 ‘Yenghuy’s hand was caught by Chelswu.’

The ungrammaticality of the following examples also shows that *Yenghuy* in (9 a) and (11 a), not *son* in (9 a) or *chayk* in (11 a), is the direct recipient of the agent’s action:

- (27) a. \*son-i Chelswu-eykey Yenghuy-lul cap-hi-ess-ta.  
 hand-NOM by ACC catch-PASS-PAST-DEC
- b. \*chayk-i Chelswu-ey uyhaye Yenghuy-lul cwu-e-ci-ess-ta.  
 NOM by ACC give-PASS-PAST-DEC

The following cleft constructions once again show that *Yenghuy* in (9 a) and (11 a) and *cip* in (10 a) are the direct recipients of the agent’s action:

- (28) a. Chelswu-ka son-ul cap-un salam-un palo Yenghuy-i-ta.  
 NOM hand-ACC catch-REL person-as for just be-DEC  
 ‘The person whom Chelswu caught the hand is just/exactly Yenghuy.’
- b. Chelswu-ka cey chay-lul ci-un kes-un palo cip-i-ta.  
 NOM three unit-ACC build-REL thing-as for just house-be-DEC  
 ‘The thing which Chelswu built three units is just/exactly a house.’
- c. Chelswu-ka chayk-ul cwu-n salam-un palo Yenghuy-i-ta.  
 NOM book-ACC give-REL person-as for just be-DEC  
 ‘It was Yenghuy whom Chelswu gave a book.’

*Yenghuy* in (28 a) and (28 c) and *cip* in (28 b) are the direct recipients of the agent’s action.

## 5. Conclusion

We have shown that Subjectivization and Objectivization are not A’-Movement but A-Movement, and that the objectived NP created after Objectivization is the direct recipient of the agent’s action.

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# A Diachronic Corpus Study on ‘Be + to-infinitive’\*

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## Abstract

The purpose of this study is to show, by using the diachronic corpus, that ‘be to’ of ‘be + to-infinitive’ is a semi-auxiliary or a quasi-modal like ‘be going to’ and ‘be able to’.

**Keywords:** be + to-infinitive, diachronic corpus, semi-auxiliary, quasi-modal.

## 1. Introduction

The aim of this study is to show that ‘be to’ of ‘be + to-infinitive’ is a semi-auxiliary or a quasi-modal like ‘be going to’ and ‘be able to’. ‘be to’ appears in the same position as ‘be going to’ and ‘be able to’:

- (1) a. thys unhappy soule ... *was goying to* be broughte into helle for the synne and onleful lustys of the body (1482 *Monk of Evesham* (Arv.) 43.)
- b. feithful men, whiche schulen *be* also *able to* teche other men (c1380 Wyclif)
- c. Ther ben of suche ... That *ben* noight *able* of hemselve *To* get love. (c1390 Gower, *Confessio Amantis*)
- d. You will *be to* visit me in prison with a basket of provisions. (1816 Austen, *Mansfield Park* I . xi v. 135)
- e. None of them had been completely finished, the painting and papering *being* yet *to* be done. (1885 Sir J. Bacon in *Law Times Rep.* (N.S.) LII. 569/2 [OED])

‘be to’ can be analyzed as a semi-auxiliary or a quasi modal because it appears in the same position as ‘be going to’ and ‘be able to’.

## 2. Auxiliary of Modality

(modality < modal < mode < mood < OE *mód* = OFris *môd*, OHG *muot*, ON *móðr*: a frame of mind or state of feelings; one’s humor, temper, or disposition at a particular time)

### 2.1. Distinctive qualities of modal auxiliaries

Modal auxiliaries are more restricted than primary auxiliaries (periphrastic auxiliary ‘do’; aspectual auxiliary ‘have’; passive auxiliary ‘be’) in morphological or syntactic aspects. Modal auxiliaries have the following characteristics:

- (2) a. A bare infinitive comes after them: ( i ) I *can* go. ( ii ) \*I *hope* go.
- b. They do not have nonfinite forms: ( i ) \**to can* ( ii ) \**canning* ( iii ) \**canned*

- c. They do not have present singular forms: ( i ) \*She *can*s come.  
( ii ) She *hopes* to come.
- d. They have abnormal time reference, not past time: You *could* leave this evening.  
(Quirk *et al.* (1985: 137))
- e. They do not co-occur: \*He *may will* come. (Palmer (1979: 9))

It is controversial whether modal auxiliaries with this meaning existed in Old English and, if so, how many modal auxiliaries existed in Old English. There were verbs which had the meaning of auxiliaries in Modern English: ‘be’ *beon, wesan, weorþan*; ‘have’ *habban*; ‘will, would’ *willan*; ‘must’ *motan*; ‘shall, should’ *sculan*; ‘may, might’ *magan*; ‘can’ *cunnan*, etc. In the Old English period they had independent meanings. But with changes of time, they are now used as auxiliaries which must be combined with main verbs. Therefore it is difficult to distinguish modal auxiliaries from modal idioms, semi-auxiliaries, or catenatives. Quirk *et al.* (1985: 137) classifies modal auxiliaries, modal idioms, semi-auxiliaries, and catenatives in accordance with the scale of modal function:

- (3) a. central modals: can, could, may, might, shall, should, will, would, must
- b. marginal modals: dare, need, ought to, used to
- c. modal idioms: had better, would rather, would sooner, **be to**, have got to, etc.
- d. semi-auxiliaries: have to, **be able to**, **be going to**, **be about to**, be bound to, be obliged to, be supposed to, be willing to, etc.
- e. catenatives: appear to, happen to, seem to, get +-ed, keep + -ing, etc.
- f. main verb + nonfinite clause: hope + to-infinitive, begin + -ing, etc.

Lightfoot(1974, 1979, 1988, 1991) argues that original modal main verbs were restructured as auxiliaries in the Early Modern English period. Examples of roundabout phraseology (Lightfoot(1979), Denison(1993)) are as follows:

- (4) a. he told him he *had* not *to* beleeve, that the couetousness of Virginio ... had moved Ferdinand (1579 Geoffrey Fenton, *Guicciard* (1618))
- b. we *have* ... *to* strive with a number of heavy prejudices (1594 Richard Hooker, *Of the Law of Ecclesiastical Polity* I i I )
- c. thys unhappy soule ... *was goying to* be broughte into helle for the synne and onleful lustys of the body (1482 Monk of Evesham (Arv.) 43.)
- d. to *be abill to* wed hure (1440 *The Gesta Romanorum*, ed. S. J. H. Herrtage(1879), p. 269)
- e. faithful men, which schulen *be* also *able to* teche other men. (a1425(c1395) *WBible*(2) II. Tim. 2.2)
- f. for if they do look to the bottom and see the King's case, they think they *are* then bound to give the King money; (1667 Pepys, *Diary* VIII 572.4 (8 Dec))
- g. and now the King would have the Parliament give him money, when they are in an ill humour and will not *be willing to* give any, nor are very able; (1667 Pepys, *Diary* VIII 591.24 (27 Dec))

But Allan(1987) and Plank(1984) claim that ‘be to’ and ‘have to’ began to be used in the Old English period. Also they claim that *gan/gangan* ‘go’ in OE is similar to ‘be going to’ in

Modern English. Allan claims that *beon* (*h*)*able* was used with the modal sense when it was borrowed from French. Some examples of *be to*, *have to*, *gan/gangan* and *be able to* are as follows:

- (5) a. þone calic þe ic **to** drincenne **hæbbe** ‘the chalice which I have to/will drink’ (OE *Gospel St. Matthew*)  
 b. **Hæfst** ðu æceras **to** erigenne? ‘Do you have fields to plough/have to plough fields?’ (*Æ Gram*)  
 c. hwæ ðer he **hæbbe** hine **to** full fremmenne ‘whether he had to perfect himself’ (OE *Gospel St. Luke*)  
 d. Grammaire ferste hath forto teach To speke upon congruite (c1390 Gower, *Confessio Amantis*)  
 e. Ic **geongo to** cunne ða ilca ‘I go to know/find out that’ (*Lindisfarne Gospel*)  
 f. gif þu **gest** herof **to** disputinge ‘if you hereof proceed/turn/are going to dispute’ (1250 *Owl & Nigh.*)  
 g. feithful men, which schuln **be** also **able to** teche other men (c1380 Wyclif)  
 h. the haeve **was** not **able to** dwelle in wynter (*ibid.*)  
 i. Ther ben of suche ... That **ben** nocht **able** as of hemselve **To** get love (c1390 Gower, *Confessio Amantis*)  
 j. It is a feble leche þat ca not helpe þat is able to be holpen (c1400 Lanfranc)

The above examples weaken Lightfoot’s(1974, 1979) claim that modal main verbs are changed as the modal auxiliaries through a restructuring process in the 16<sup>th</sup> century. And the examples in (5) suggest that syntactic changes progressed gradually.

## 2.2. Be + to-infinitive

‘Be + to-infinitive’ can be construed in many ways. Some examples from Palmer(1974) are given in (6):

- (6) a. He’s **to** come tomorrow.  
 b. You **are to** be congratulated.  
 c. They **are to** be married next week.  
 d. They **were to** have come today.

Denison(1998) call ‘be’ of these structures ‘modal BE’. Warner(1990) argues that ‘BE’ in these structures is meaningless and that it can be omitted. Some examples are discovered in the early part of the 19<sup>th</sup> century. They are given in (7).

- (7) a. You will **be to** visit me in prison with a basket of provisions. (1816 Austen, *Mansfield Park* I . xi v . 135)  
 b. N.B. No snuff **being to** be had in the village she made us some. (1818 Keats, *Letters* 78p. 189)  
 c. None of them had been completely finished, the painting and papering **being yet to** be done. (1885 Sir J. Bacon in *Law Times Rep.* (N.S.) LII. 569/2 [OED])  
 d. But new problems may **be to** come.

### 3. Diachronic Corpus of ‘Be to’

#### 3.1. Be, v.

- 1) the original Aryan substantive verb with stem *es-*, Skr. *as-*, *ś-*, Gr. *ἔσ-*, L. *es-*, *ś-*, OTeut. *\*es-*, *ś-*;
- 2) the verb with stem *wes-*, Skr. *vas-* to remain, OTeut. *wes-*, Gothic *wis-an* to remain, stay, continue to be, OS., OE., OHG. *wesan*, OFris. *wes-a*, ON. *ver-a*;
- 3) the stem *bew-* Skr. *bhū-*, *bhaw-*, Gr. *φν-*, L. *fu-*, OTeut. *\*bew-*, *beo-*, OE. *béo-n* to become, come to be.

##### a. 1 sing. *am*

c885 King Ælfred *Boeth.* x iii. 40 Ic *eom* ofwundrod.

c950 *Lindisf. Gosp. Matt.* x x viii. 20 Ic iuh mið *am*.

c1000 *Ags. Gosp. Matt.* xi. 28 Ic *eom* bilwite.

c1175 *Lamb. Hom.* 25 Ic *em* hal.

c1200 *Trin. Coll. Hom.* 256 Ic *am* Ði mon.

c1385 Chaucer *L.G.W. Prol.* 314 Sir it *am* I.

1647 Cowley *Mistr.* I x x vi, No: *I'm* undone.

1863 G. Eliot *Romola* i, *I'm* a stranger in Florence.

##### b. 2 sing. *art*

c950 *Lindisf. Gosp. Matt.* vi. 9 Fæ der ure ðu *arð* vel bist in heofnum.

a1000 *Afs. G. ibid.*, Fæ der ure þu þe *eart* an heofenum.

c1160 *Hatton G. ibid.*, Fader ure þu þe *ert* on heofne.

c1280 *Religious Songs.* v. 178 Nu thu *ard* al skere.

1382 *Wyclif* 2 Sam. xii. 7 Thou *ert* thilk man [1388 Thou *art* thilke man].

1602 Dekker *Satirom.* 234 *Art* not famous enough yet, but thou must eate men alive?

##### c. 3 sing. *is*

c885 K. Ælfred *Oros.* i . i . §13 Hit *is* eall weste.

c1000 *Ags. Gosp. Matt.* x x viii. 6 Nys he her.

c1160 *Hatton G. ibid.*, *Nis* her her.

c1280 *Sarmun* 38 in *E.E.P.* (1862) 5 Manis lif *nis* bot a schade, nov he *is* and nov he *nis*.

c1386 Chaucer *Knts.* T. 1267 Ther *is* [v.r. *nys*] no newe gyse, that *is* nas old.

1483 Caxton *G. de la Tour* B vii. *Is* it right or wrong.

c1530 Redforde *Play Wyt & Sc.* (1848) 3 Ah! syr, what tyme *yst*?

1635 Quarles *Embl.* ii. x iv. When not himself, he 's mad; when most himself, he 's worse.

1733 Pope *Ess. Man* i . 286 One truth *is* clear, Whatever Is *is* RIGHT.

1848 Kingsley *Saints' Trag.* ii. vii. 100 What 's thy name?

### 3.2. *to*: A(abs), V(abs), N(rare), Ad., Prep., Conj.

(This increased rapidly during the late OE. and early ME. period, with the result that in ModE. became an infinitive with 'to'.)

c 890 tr. *Bæda's Hist.* ii. i. (1890) 96 Monize cwomon *to bicgenne* þa ðing.

c 950 *Lindisf. Gosp.* Mark iv. 3 Eode ðe sawende .. *to sawenne* sǣwlan I sow.

1297 R. Glouc. (Rolls) 3523 þat he to him wende *To helpe* him in Suche nede.

1388 Wyclif mATT. iv. l. Thanne Jhesus was led of a spirit in to desert, *to be temptid* of the feend.

c1450 Cov. Myst. x. (1841) 96 Here is *to be maryde* a mayde zynge.

1577 B. Googe *Heresbach's Husb.* i (1586) 3. I get me into my Closet *to serue* God.

1627 Milton *Vac. Exerc.* 24 Thoughts that ... loudly knock *to have* their passage out.

1724 Defoe *Mem. Cavalier* (1840) 70 I gave a soldier five dollars *to carry* them news.

1887 'L. Carroll' *Game of Logic* iv. 96 The time *to learn* is when you're young.

### 3.3. *be to*: 1245 Results (= (be to + verb) + (be to + Noun, etc.))

c1200 Ormin 2899 Swa þatt te millce nohht ne *be To* soffte, ne to nesshe.

1297 R. Louc. (Rolls) 1114 Vor zif hiiadde O þing iwonne of castel oþer of toune, Wel þe worse it wolde *be to* bringe hom þer doune.

a1377 Langl. *P. Pl. B.* x v. 592 [The Jews] hopen þat he *be to* come þat shal hem releve.

1483 Caxton *G. de la Tour* E v. Suche men and wymmen *be to* compare to the wyf of Loth.

c1570 Lady Hungerford *to W. Darrell* in H. Hall *Eliz. Soc.* (1887) 253 Seeke oute what possabell may *be to* deface and disprove those varlettes that soo vily hathe Yoused us.

1692 Locke *Educo* §167 If a Gentlemen *be to* study any Language, it ought to be that of his own Country.

1798 Malthus *Popul* (1817) ll. 194 It must *be to* be depended upon.

1800 Pitt in G. *Rose Diaries* (1860) l. 278 Our first business ... must *be to* prepare our budget.

### 3.4. *be able to* (1198 Results)

1562-3 *Foxe A. & M* (1596) 993/2 I neither am, neither shall *be able to* requite this your lordships most special kindnesse ... .

a1593 H. Smith *Wks* (1866-7) l. 393 Paul saith, 'God comfortheth us, that we may *be able to* comfort others ... .

1630 M. Godwyn *Annals English.* iii 283 Should *be able ... to* oppose the French by the accrue of Scotland.

1776 Adam Smith *Wealth of Nation.* l. i. x 117 He [a grocer] must *be able to* read, write, and account.

1883 R. L. Stevenson *Treasure Island.* x vi 133 We flattered ourselves we should *be able to* give a good account of a half-dozen [sc. mutineers] at least.

### 3.5. *be going to* (22 Results)

1820 *Hoyle's Games Impr.* 362 Any throw which the caster may *be going to* cast.

### 3.6. *be about to* (19 Results)

c1425 *Engl. Conq. Irel.* 28 That thou ne hast y-dene troght some grete lette, hastily *be about to* do.

1634 *Malory's Arthur* (1816) l. 125 'You will never *be about to* do such deeds.' 'Nay, Son,' said she, and thereto I make you assurance.

1861 J. Pycroft *Agony Point* (1862) 419. There were not a few little ways and snuggeries that they felt sorry to *be about to* leave.

### 3.7. *am to* (201 Results = ((*am + to + verb*) + (*am + to + Noun*, etc))

1577 Hanmer *Anc. Eccl. Hist.* iii. x x x ii. 55 ..., I *am to* be grinded with the teeth of beastes, ...

1590 Shakespeare *Midsummer Night's Dream.* V. i 186 Curst be thy stones for thus deceiving mee ... Deceiving me is .. ; she is to enter, and I *am to* spy her through the wall.

1611 Shakespeare *Wint. T.* iii. ii. 24 Since what I *am to* say, must be but that which contradicts my Accusation.

1710 Pope *Lef. Wycherley* 15 Apr. If I *am to* go on at this rate, ..

1870 'Fanny Fern' *Ginger-Snaps* 182 What troubles me most is, whether I *am to* pay six cents for \*car-fare.

### 3.8. *am able to* (19 Results)

1596 Shakespeare *Tam. Shr.* v . i . 79 I thank my good Father, I *am able to* maintaine it.

1647 W. Browne *Polexander.* i. 134 I finde my selfe behindehand with him more than I *am able to* pay him.

1720 Wodrow *Corr.* (1843) ll. 498 Notwithstanding my great age and decays, I *am able to* preach .. in the largest meeting-house in Boston.

1828 R. Nesbit in *Mem.* iii. (1858) 83. I *am able to* pursue my proper work with my usual lightness of spirit.

### 3.9. *am going to* (138 Results)

c1550 Wever *Lusty Juventus* (facs. Awdely) A ij b. I pray you wyshe me thether, For I *am going to* seeke them.

1894 *Idler* June 545 The certain winner of the Derby-if he is able to answer the question I *am going to* put to him.

### 3.10. *am about to* (20 Results)

1613 Shakespeare *Hen VIII.* ii. iv. 71 Sir, I *am about to* weepe; but thinking that we are a Queene, [etc.].

1728 Elizabeth Heywood tr. *Mme. de Gomez's Belle a.* (1732) ll. 24 The Demand I **am about to** make ... is to follow my Example, and immediately be all unmask'd.

### 3.11. *are to* (3205 Results)

c1400 *Apol. Loll.* 67 Þerfor Þe causis **are to** be peysid, and Þan power of bynding and soiling is to be visited.

c1450 tr. *De Imitatione* iii. x liii. 114 Þou shalt come ayen instructe in Þinges present & Þat **are to** come.

1535 Cover Dave *Joel* ii. 4 They **are to** loke vpon like bayrded horses.

1602 Sir W. Segar *Honor, Mil. & Civ.* iv. iv. x x i 236 The officers Administrant **are to** precede; next to them the Vacants.

1797 *Bengal Regulations* x 33 The stamps **are to** have the words 'Abcaree licenses' inscribed in the Persian and Hindee languages and characts.

1897 *Westminster Gaz.* 3 Sept. 1 / 2 The old writers or copyists **are to** be done away with, ... .

### 3.12. *are able to* (255 Results)

1596 Nashe *Saffron Walden Wkc.* (Grosart) Ill. 40 many men that **are able to** pay their debts doo not ... pay them presently at one push.

1675 Traherne *Chr. Ethics.* x vi. 246. We **are able to** desire, and aspire after ... the very throne of God.

1775 Johnson *Tax. no Tyr.* 13 That the Americans **are able to** bear taxation is indubitable.

1837 Sir W. Hamilton *Metaph.* x x viii. (1870) ll. 374 It is blasphemy to say that God only is as we **are able to** think Him to be.

### 3.13. *are going to* (225 Results)

1686 W. Harris tr. *Lemery's Course Chem.* ii. x x ii. (ed. 3) 624 ... when they **are going to** fight.

1691 Juttrell *Brief Rel.* (1857)ll. 294 Several persons **are going to** build privateers ... after the \*gally fashion with oares.

1854 Mrs. Gaskell *Let.* ?15 May (1966) 285 We **are going to** have a little kitten ... with long hair ... It is called an Anglola or a Persian Cat.

### 3.14. *are about to* (60 Results)

1596 Nashe *Saffron Walden S2b.* I know what you **are about to** saye, but \*Ile shred you off three leaues at one blowe.

1602 W. Vaughan *Direct. Health* (1626) 165 First of all in the morning when you **are about to** rise, stretch your selfe strongly.

1711 J. Greenwood *English Grammar* 297 When we **are about to** pronounce T, if the breath goes out very grossly or thick, ... .

1812 *Examiner* 12 Oct. 652/2 The Blues **are about to** embark for Spain.

### 3.15. *is to* (13879 Results)

- 1374 Chaucer *Boethius* (1868) 82 Whiche water habundeþ most of rede purple þat *is to* seyen of a maner shelfisshe.
- 1483 Caxton *G. de la Tour* B ii b. [He] wente with his embassatours that *is to* saye his messageres.
- 1557 Genevan, *ibid.* The Sprite of adoption, whereby we crye Abba, that *is to* say, Father.
- 1662 Evelyn Chakog (1769) 59 ... , because all the work *is to* be abated and cut hollow.
- 1768 Pennant *Brit. Zool.* II 310 It [the siskin] *is to* be met with in the bird shops in London, ... .
- 1860 Trench *Sermons in Westminster Abbey* x x vi 297 ... To abhor evil *is to* have it in a moral detestation; ... .

### 3.16. *is able to* (352 Results)

- 1398 Trevisa *Barth. de P. R.* xi v . 49 A felde oþer lyeþ leye ... or *is able to* pasture ... or bereþ floures and is able to been.
- 1430-40 Lydg. *Bochas* V. x x x . (1554) 141 Indifferently his domes demeaning Such one *is able to* becleped a kyng.
- 1526 Tindale *Acts* x x . 32 I commende you to God and to the worde of his grace which *is able to* bylde further. [1611. to build you vp].
- 1662 Fuller *Worthies* (1811) II 579. (D) ... ‘He *is able to* put him up in a Bagge.’
- 1711 Addison *Spect.* No. 120 ¶5 Others hatch their Eggs and tend the Birth, ‘till it *is able to* shift for it self.
- 1862 Ruskin *Unto this Last.* 130 If, in the exchange, one man *is able to* give what cost him little labour for what has cost the other much, ... .

### 3.17. *is going to* (283 Results)

- 1666 Pepys *Diary* II July. A galliott ... that *is going to* carry the Savoy Envoye [?menat for envoye] over.
- 1793 Lord Spencer in *Lord Auckland's Correspondences* (1862) III. 82 Hutchinson *is going to* break, and to Show the world that honesty is the best policy.
- 1870 G. M. Hopkins *Further Letters* I Mar. (1956) 110 He *is going to* make use of the ‘Alexandrian Step’ when he can walk, ... .

### 3.18. *is about to* (169 Results)

- 1589 Nashe *Almond for Parrat* IIb. A wicked mind ... eyther meditates the iniuries which he *is about to* inferre, or feares some reproch to be inferred by others.
- 1798 J. Gilchrist in *Asiat. Res.* V. 86. The grand horologist himself *is about to* inform them, that now is the time.
- 1880 Muirhead *Gaius.* i §99 This species of adoption is called ... he *is about to* adopt, ... .

## 4. Conclusion

We show that ‘be to’ of ‘be + to-infinitive’ is a semi-auxiliary or a quasi-modal like ‘be going to’ and ‘be able to’.

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# The semantic properties of the Proportional Quantifier Floating in Korean

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## Abstract

The properties of a sentence with floating quantifier/numeral classifier crucially depend on the semantic properties of the quantifier/numeral involved: whether it is proportional or not and whether it is strong or not. In this sense, we claim that there are two different groups of proportional quantifiers-- *taypupun*, *motwu*, etc. on one hand and *pan isang*, *celpan*, *kwabanswu*, etc. on the other. The former is the same as numeral classifiers in certain respects. But the latter is not the same as numeral classifiers in behavior in the sense that these strong proportional quantifiers show dependency across intervening objects. The weaker ones in this group are naturally similar to numeral classifiers, which are inherently weak.

**Keywords:** quantifier floating, information structure, proportional quantifiers, non-conservative reading

## 1. Introduction

Quantifier floating appears in various languages. The quantifier *all* can occur at both pre-nominal position and post-nominal position as in (1).

- (1) a. All students drank beer.  
b. The students all drank beer.

Similarly, quantifiers in Korean can be separated from host-NP and appear various positions in the sentence.

- (2) a. *haksayng(tul)*    *sey myeng-i*    *yek-ey*    *tochakha-yessta.*  
Student(s)    3 CL – NOM    station-AT    arrive - PAST  
“Three students arrived at the station.”  
b. *haksayng(tul)-i*    *sey myeng*    *yek-ey*    *tochakha-yessta.*

c. *haksayng(tul)-i yek-ey sey myeng tochakha-yessta.*

In addition, proportional quantifiers can be separated from their host-NP as well.

(3) a. *haksayng(tul) taypwupwun/celpan/panisang-i yek-ey tochakha-yessta.*

Student(s) most/half/more than half-NOM tation-AT arrived

‘Three students ate apples.’

b. *haksayng(tul)-i taypwupwun/celpan/panisang yek-ey tochakha-yessta*

c. *haksayng(tul)-i yek-ey taypwupwun/celpan/panisang tochakha-yessta*

(3a) is non-floated sentence and (3b) and (3c) are floated sentences. Floating proportional quantifiers in Korean, however, differ from floating numeral classifiers in various respects. The previous studies have pointed out that there are structural differences between them. However, the syntactic behaviors of a sentence with floating quantifier depend on the type of the quantifier.

In this sense, this paper will concentrate on the semantic properties of the floating proportional quantifiers *taypwupwun* ‘most’, *motwu* ‘all’, *panisang* ‘more than half’ etc. Especially, it will focus on the relation between numeral classifiers and proportional quantifiers.

This paper presents two classes of proportional quantifiers in Korean to examine these properties. – (i) *taypwupwun*, *motwu* etc. and (ii) *panisang*, *celpan* (half) etc. The former is different from the numeral classifiers and the latter is similar to them.

## 2. Floating Quantifiers in Korean

There are several forms of classifiers in Korean as in (4).

(4) a. [*sey myeng-uy haksayng(tul)-i ecey yek-ey tochakha-yessta*

3 CL-POS Student(s) – NOM yesterday station- AT arrived

‘Three students arrived at the station yesterday.’

b. [*haksayng(tul) sey myeng]-i ecey yek-ey tochakha-yessta*

c. *haksayng(tul)-i ecey sey myeng tochakha-yessta*

It is generally assumed that (4a) and (4b) are non-floated forms (fundamental form). But here we assume that the fundamental form of numeral classifier is a post-

nominal type as in (4b). The pre-nominal form shows a denotational meaning. It presents the property of a host-NP. The post-nominal form, however, has a quantificational meaning. It shows the quantity of a host-NP. Likewise, (4b) is a non-floated sentence and (4c) is a floated sentence.

### 3. Differences between Numeral Classifiers and Proportional Quantifiers

#### 3.1 Subject-Object asymmetry

First difference between numeral floating classifiers and proportional floating quantifier is related to so-called ‘Subject-Object asymmetry’ problem. Previous studies observed that the object cannot intervene between the subject and a subject-oriented numeral classifier. Thus the following sequence is allowed as in (5a); Obj.<sub>i</sub>-Subj.-FNC<sub>i</sub>. In contrast, the sequence ‘Subj.<sub>i</sub> -Obj.- FNC<sub>i</sub> is blocked, as in (5b).

- (5) a. *sakwa-lul haksayngtul-i sey kay mek-ess-ta.*  
 apple-ACC Student-NOM 3 CL ate  
 ‘Students ate three apples.’
- b. \**haksayngtul-i sakwa-lul sey myeng mek-ess-ta*  
 Student(s)- NOM apple-ACC 3 CL ate  
 ‘Three students ate apples.’

In the previous literature, it was asserted that syntactic structure gives rise to the difference. The previous studies have pointed out that there are structural differences between them. It, however, seems to me that the syntactic behaviors of a sentence with floating quantifier depend on the semantic nature of the quantifier. So, in this paper, we want to demonstrate with some pieces of evidence that the difference between them results from semantic properties of the quantifiers and information structural factors involved.

In the sentence (6a), it is impossible that the sentence is interpreted as ‘Three police officers caught a thief’. However, the sentence with proportional quantifier *taypupun* ‘most’ can have not only ‘Subject-oriented meaning’ but also ‘Object-oriented meaning’. In other words, sentence (6b) means that ‘Most police officers caught a thief.’ And it means ‘Police officers caught most thieves.’ as well.

- (6) a. *kyengchal(tul)-i totwuk-ul sey myeng jap-ass-ta.*  
 the police-Nom thief-Acc 3 CL caught  
 \*Subject-oriented reading √Object-oriented reading
- b. *kyengchal(tul)-i totwuk-ul taypwupwun jap-ass-ta.*  
 the police-Nom thief-Acc most caught  
 √Subject-oriented reading √Object-oriented reading

On top of that, acceptance degree differ depend on the type of proportional quantifiers as in (7).

- (7) a. *kyengchal(tul)-i totwuk-ul celpan jap-ass-ta.*  
 the police-Nom thief-Acc half caught  
 \*Subject-oriented reading √Object-oriented reading
- b. *kyengchal(tul)-i totwuk-ul pan isang jap-ass-ta.*  
 the police-Nom thief-Acc more than half caught  
 ??Subject-oriented reading √Object-oriented reading
- c. *kyengchal(tul)-i totwuk-ul taypwupwun jap-ass-ta.*  
 the police-Nom thief-Acc most caught  
 √Subject-oriented reading √Object-oriented reading

(7a) only means that ‘police officers caught half of the thieves.’ That is, it doesn’t have subject-oriented reading. (7b) means that ‘police officers caught more than half of the thieves.’ And ‘subject-oriented reading’ is not relevant. In contrast, (7c) have both meanings perfectly. Likewise, *celpan*, *panisang*, and *taypwupwun* are all proportional quantifiers but there are differences between them. It means that the differences are caused by semantic properties of quantifiers.

### 3.2. Restriction of predicates problems

Nakanishi’s (2003) states that numeral classifiers cannot be floated from the subject NP of the Individual-level predicates, but it can be floated from the subject NP of the Stage-level predicates.

This property also appears in Korean. Non-floated quantifier can appear with Individual-level predicate *ttokttokha-ta* ‘smart’ as in (8a), but floated quantifier cannot appear with Individual-level predicates as in the sentence (8b).

- (8) a. *haksayng(tul) sey myeong-i tooktokha-ta.*  
 student(s) 3 Cl -Nom smart  
 'Students are three persons smart.'  
 b. \**haksayng(tul)-i sey myeng ttoktokha-ta.*

Nakanishi explained that individual-level predicate cannot have event arguments because it reveals continuous attribute of certain entity.

However, when it comes to proportional quantifiers, the judgment of sentences varies from quantifier to quantifier. *taypwupwun* 'most' is far more relevant than others as in (9c).

- (9) a. ??*haksayng(tul)-i pan isang ttoktokha-ta.*  
 student(s)-Nom more than half smart  
 b. ??*haksayng(tul)-i celpan ttoktokha-ta.*  
 student(s)-Nom half smart  
 c. *hacksayng(tul)-i taypwupwun ttoktokha-ta.*  
 student(s)-Nom most smart

### 3.3 Restriction of predicates

According to Chungmin Lee(2000), semantic differences between quantifiers are related to "unaccusative effect". Numeral quantifiers can be appear with unaccusative predicate *tochakhata*, but they cannot be shown with transitive verb such as *milta* 'push' or *masita* 'drink' etc.

- (10) a. *haksaying-i sey myeng tochak-hay-ss-ta.*  
 student -NOM 3 CL arrived  
 'Three students (FNC) arrived.' --- UNACCUSATIVE  
 b. ??*haksaying-i sey myeng wus-ess-ta.*  
 student -NOM 3 CL laughed  
 'Three students (FNC) laughed.' --- UNERGATIVE  
 c. *haksaying-i sey myeng maykcwu-lul masi-ess-ta.*  
 student-Nom 3 Cl beer-Acc drank  
 'Three students (FNC) drank beer.' --- UNERGATIVE

According to Chungmin Lee(2000), floating numeral quantifiers undergo a kind of adverbialization. That is, since quantifier became a kind of adverb through floating, it is more natural that it appears with unaccusative predicate close to verb.

Note that, in this case, relevance of sentence is depends on the quantifier.

- (11) a. ?? *haksaying-i celpan wus-ess-ta*  
 student -NOM half laughed  
 'Half of the students(FPQ) laughed.' --- UNERGATIVE
- b. *haksaying-i taypwupwun wus-ess-ta*  
 student -NOM most laughed  
 'Most students(FPQ) laughed.' --- UNERGATIVE

The quantifier like *pan isang* 'more than half' can not appear with unergative predicate *wusta* 'laugh', but *taypwupwun* 'most' can appear with all kinds of predicates.

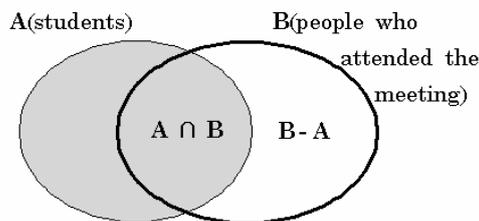
### 3.4. Non-conservative representation

Quantifiers fundamentally have 'conservativity'. However, some proportional classifiers lose its conservativity under the following conditions:<sup>1</sup>

<sup>1</sup> **Conservativity and non-conservativity reading:**

- (1) *haksayng(tul)-i taypwupwun hoyuy-ey chamsekha-yess-ta* [conservative reading]  
 student(s)-Nom most meeting-at attended  
 (i) Most students attended the meeting.  
 (ii) \*Most attendants were students.(=People who attended the meeting were mostly students)'
- (2) [[*haksayng(tul)-i*]<sub>F</sub> *taypwupwun hoyuy-ey chamsekha-yess-ta*]<sub>IP</sub> [non-conservative reading]  
 (i) \*'Most students attended the meeting.'  
 (ii) 'Most attendants were students.(=People who attended the meeting were mostly students)'

Sentence (1) is true iff  $1/2|A| < |A \cap B|$ . So we do not need to check the relative complement. That is, the truth value of the sentence is determined in set A. However, (2)'s 'most' quantify over attendants. Therefore we should check both set A and B.



(12) Conditions on the loss of conservativity of the proportional quantifier:

- 1) The quantifier must be floated.
- 2) There must be a focal accent on the subject.

The sentence with proportional quantifier can't have conservative reading under the conditions of (12), as in (13)

- (13) a. [ *taypwupwun* ]<sub>IP</sub> # [ [*haksayng(tul)-i*]<sub>F</sub> *hoiyuy-ey cahmsekha-yess-e.* ]<sub>IP</sub>  
b. [ [*haksayng(tul)-i*]<sub>F</sub> *taypwupwun hoiyuy-ey chamsekha-yess-e.* ]<sub>IP</sub>  
c. [ [*haksayng(tul)-i*]<sub>F</sub> *hoiyuy-ey taypwupwun chamsekha-yess-e.* ]<sub>IP</sub>  
d. [ *hoiyuy-ey* ]<sub>IP</sub> # [ [*haksayng(tul)-i*]<sub>F</sub> *taypwupwun chamsekha-yess-e.* ]<sub>IP</sub>

As in (13), there is focal accent on the subject and there is no term from the focal word to the end of the sentence. And then it's representation is 'people who attended the meeting were mostly students'. Likewise, in these sentences, the set of people who attended the meeting is quantified by *taypwupwun*.

However, it is not the case that all quantifiers can get non-conservative reading.

- (14) a. [*haksayng(tul)-i*]<sub>F</sub> *sey myeng hoiyuy-ey chamsekha-yess-e.*  
b. [*haksayng(tul)-i*]<sub>F</sub> *celpan hoiyuy-ey chamsekha-yess-ta.*  
\* 'Half of the attendants were students.'  
c. [*haksayng(tul)-i*]<sub>F</sub> *pan isang hoiyuy-ey chamsekha-yess-ta.*  
'More than half of the students attended the meeting.'  
?? 'More than half of the attendants were students.'  
d. [*haksayng(tul)-i*]<sub>F</sub> *taypwupwun hoiyuy-ey chamsekha-yess-ta.*  
\* 'Most students attended the meeting.'  
'Most attendants were students.'  
(=People who attended the meeting were mostly students)

As we can find in (14), non-conservative reading depends on their semantic property. The quantifier *taypwupwun* can have 'non-conservative meaning' as the sentences in (14d). However, some other proportional quantifiers cannot have non-conservative interpretation as in (14b). Similarly, the numeral classifiers cannot have non-conservative reading.

## 4. Quantifier Floating and Information Structure

### 4.1 contrastiveness

Now that we've covered several differences between quantifiers, let's move on to the reason. To solve this problem, we should know the core meaning of quantifier *taypwupwun* 'most', because it is totally different from numeral quantifiers and it is freely floated in any conditions.

Anna Papafragou & Naomi Schwarz(2005)'s observation enable us to know the lexical meaning of *taypwupwun* 'most'.

They state that when people hear the word 'more than half', it is important for them whether it is over 50% or not. However, in the case of 'most', they focus on the ratio, and they also concerned about the number of remains in the whole.

(15) Anna Papafragou & Naomi Schwarz (2005)

- more than half: It is important for the speakers whether it is over 50% or not.
- most: It focuses on the ratio, and it also concerned about the number of remains.

Martin Hackl & Ben Acland (2006) also states that there is a difference between two quantifiers as in (12).

(16) Martin Hackl & Ben Acland (2006)<sup>2</sup>

- more than half(A) (B) = 1 iff  $|A \cap B| > 1/2|A|$
- most(A) (B) = 1 iff  $|A \cap B| > |A-B|$

In Korean, *pan isang* 'more than half' and *taypwupwun* 'most' have different meaning as in (17).

(17) a. *pan isang-uy khatu-lul mence kacinun salam-i wusungca-ta.*

more than half-of card-ACC early have person-NOM winner

'The person who gets more than half of the card first is winner.'

b. *#taypwupwun-uy khatu-lul mence kacinun salami wusungcaipnita.*

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<sup>2</sup> M&B(2006) pointed out that there is semantic difference between more than half and most. It, however, could not easily caught by formal semantics because two logical meanings are the same.

(17a)'s interpretation is 'the person who gets more than half of the card first is winner' and (17a) is relevant but (17b) is not, it doesn't make sense. In case of *pan isang* we can judge truth value before the game finished. However, in case of *taypwupwun*, we cannot judge truth value until the game finished: because we have to compare the number of cards each players have.

With reference to these observations, we can expect *taypwupwun* originally have 'contrastiveness'. And other proportional quantifiers also have contrastive-ness but not strong. Fractions or percent expressions have discrete quantity and the expressions like 'more than half' or *panisang* have a reference point, so they don't need to compare related entities with other alternatives. And numeral classifiers do not have contrastive-ness originally. (Sometimes they can be interpreted as contrastively according to contexts).

#### 4.2 Contrastiveness and event quantification

Event quantification is derived like this.

(18) [*yecatul-i*]<sub>F</sub> *taypwupwun sewulyek-ey tochakhayssta*.

- Focal element NP [*yecatul-i*]<sub>F</sub> constitutes the set of alternatives: {women, men}
- The domain of quantifier *taypwupwun*: extends from a set of women to a set of people who arrived.

In contrast, since other quantifiers do not have contrastiveness the domain of quantifiers cannot be extended to a set of people who arrived.

(19) \**[yecatul-i]*<sub>F</sub> *sampwunuy il sewulyek-ey tochakhayssta*.

- Focal element [*yecatul-i*]<sub>F</sub> constitutes the set of alternatives: {women, men}
- The domain of quantifier *sampwunuy il* is not extended.

(20) \**[yecatul-i]*<sub>F</sub> *sey myeong sewulyek-ey tochakhayssta*.

- Focal element [*yecatul-i*]<sub>F</sub> constitutes the set of alternatives: {women, men}
- The domain of numeral classifier *sey myeong* is not extended.

## 5. Solution for ‘Subject-object asymmetry’

As mentioned before, semantic properties of quantifiers give rise to restriction of floating.

(5) a. *sakwa-lul haksayng(tul)-i sey kay mek-ess-ta*  
apple-ACC Student-NOM 3 CL ate  
‘Students ate three apples.’

b. \**haksayng(tul)-i sakwa-lul sey myeng mek-ess-ta* .  
Student(s)- NOM apple-ACC 3 CL ate  
‘Three students ate apples.’

In contrast to (5b), a Contrastive Topic (CT) marked numeral classifiers and NOM-marked numeral classifiers can freely float, as exemplified in (15).

(21) a. *haksayngtul-i sakwalul sey myeng-un mek-ess-ta*.  
Student- NOM apple-ACC 3 CL-CT Marker ate  
b. *haksayngtul-i sakwa-lul sey myeng-i mek-ess-ta*.  
Student- NOM apple-ACC 3 CL-Case Marker ate

Sentence (21a) is relevant as a result of attaching CT-marker *-(n)un* to classifier *sey myeng*. As many previous studies asserted, *-(n)un* is ‘Contrastive Topic marker’ in Korean. Then, (21a) means ‘at least three students ate apples (but not more than that)’. (21b) certainly has contrastiveness and scalarity.

On the other hand, (21b) means ‘the number of students who ate apples is three and not other numbers’. (21b), like (21a), brings about contrastive meaning, Contrastive Focus (CF) this time. Given these interpretations, we can assume that acceptance of (21a) and (21b) is due to its ‘Contrastiveness’. The floating quantifiers acquire contrastiveness by CT-marker or CF structural case-marker (NOM here). As a result, they get into Nuclear Scope of information structure from the restrictor position.

Consider now the floating quantifier without NOM-marker. It can avoid the Subject-Object asymmetry when it has the specific intonation pattern (H\*) as in (21b). Kang B. (2000) explains that the classifier without any marker can be floated when the context puts greater importance on the quantity.

(22) {How many students ate apples?}

A: haksayng(tul)-i sakwa-lul [sey myeng H\*]CF mek-ess-e.  
Student- NOM apple-ACC 3 CL ate

(23) a. haksayng(tul)-i sakwa-lul sey myeng-**man** mek-ess-ta

Student- NOM apple-ACC 3 CL-CT Marker ate [-**man** ‘only’ = focalizer]

b. haksayngtul-i sakwa-lul sey myeng-**ina** mek-ess-ta

[-**ina** ‘as many as’ = surprise]

Let us now turn to (5a) above. How come (5a) is relevant? The classifier *sey kay* in (5a) can easily be focused because it is originated from the object. In other words, object has potential focus in the sentence.

(24) a. sakwa sey kay-lul haksayng(tul)-i mek-ess-ta.

Apple 3 CL-ACC students-NOM ate

“Students ate three apples.”

b. ?sakwa-lul sey kay haksayng(tul)-i mek-ess-ta.

As we saw in example (24), the object oriented classifier *sey kay* can not be floated. Because object oriented classifier can not be focused on the position as in (24b).

Let us now return to proportional quantifiers. Why do they can be floated on the same condition? It is due to the semantic property of proportion. Proportional meaning has certain ratio comparing with others in a set. However, relevance differs from quantifier to quantifier, depending on the degree of strength in quantification as in (25).

(25) a. ??haksayng(tul)-i sakwa-lul **sampwunuy il** mek-ess-ta [‘1/3’]

b. ?haksayng(tul)-i sakwa-lul **panisang** mek-ess-ta. [‘above half’]

c. \*haksayng(tul)-i sakwa-lul **sasip-phulo** mek-ess-ta [‘40%’]

d. \*haksayng(tul)-i sakwa-lul **celpan** mek-ess-ta [half]

## 6. Conclusion: Classification of Quantifiers

We have examined the differences between numeral classifiers and proportional quantifiers. We argued that the differences are not because they have different syntactic structures but because they have different semantic and information structural properties.

Numeral classifiers do not have contrastiveness. This property results in subject-object asymmetry and conservative representation. In contrast to numeral classifiers, proportional quantifiers, if strong, have contrastiveness fundamentally. Thus they do not have the asymmetry problem and they lose their conservative reading with contrastively focused numeral element, quantifying over event-related null nominal domain.

Finally, there are several grades between numeral classifiers and proportional quantifiers in strength. Some weaker proportional quantifiers behave similarly to numeral classifiers.

Floating Quantifiers	Numeral classifiers	Proportional Quantifier 1		Proportional quantifier 2
		Discrete quantity	Present of a datum point	Non-discrete quantity
Quantity	Accurate numbers			
Degree of Contrastiveness	<-----1-----2-----3-----4----->			
Subject-Object asymmetry	$\sqrt{\text{Obj.}_i\text{-Subj.}-\text{NC}_i}$ * $\text{Subj.}_i\text{-Obj.}-\text{NC}_i$	$\sqrt{\text{Obj.}_i\text{-Subj.}-\text{FNC}_i}$ * $\text{Subj.}_i\text{-Obj.}-\text{FNC}_i$	$\sqrt{\text{Obj.}_i\text{-Subj.}-\text{FNC}_i}$ ? $\text{Subj.}_i\text{-Obj.}-\text{FNC}_i$	$\sqrt{\text{Obj.}_i\text{-Subj.}-\text{NC}_i}$ $\sqrt{\text{Subj.}_i\text{-Obj.}-\text{NC}_i}$
Non-conservativity	*	*	*	√
Restriction of Predicate	?*/*	??	?	√
Language expressions	<i>han myeong</i> (1), <i>twu kay</i> (2), <i>sey mari</i> (3) ...	Percents (40%,50% ...) Fractions (1/3,2/5...) <i>Celpan</i> ‘half’ ...	<i>panisang</i> ‘more than half’, <i>30 phulo isang</i> ‘more than 30%’, <i>celpan isang</i> ‘over half’, <i>Kwapansw</i> ‘majority’ ...	<i>taypwupwun</i> ‘most’, <i>motwu</i> ‘all’ ...

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